The

NONVERBAL

DICTIONARY

of

GESTURES, SIGNS

&

BODY LANGUAGE CUES

***From* Adam's-Apple-Jump *to* Zygomatic Smile**

By David B. Givens

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Items in this Dictionary have been researched by anthropologists, archaeologists, biologists, linguists, psychiatrists, psychologists, semioticians, and others who have studied human communication from a scientific point of view. Every effort has been made to cite their work in the text. Definitions, meanings, and interpretations left uncredited are those of the author. Gestures and consumer products with

current trademark registrations are identified with the ® symbol.

Entries in *The Dictionary*.

There have been many who, not knowing how to mingle the useful and the pleasing in the right proportions, have had all their toil and pains for nothing . . . --Cervantes (*Don Quixote*)

Dedication

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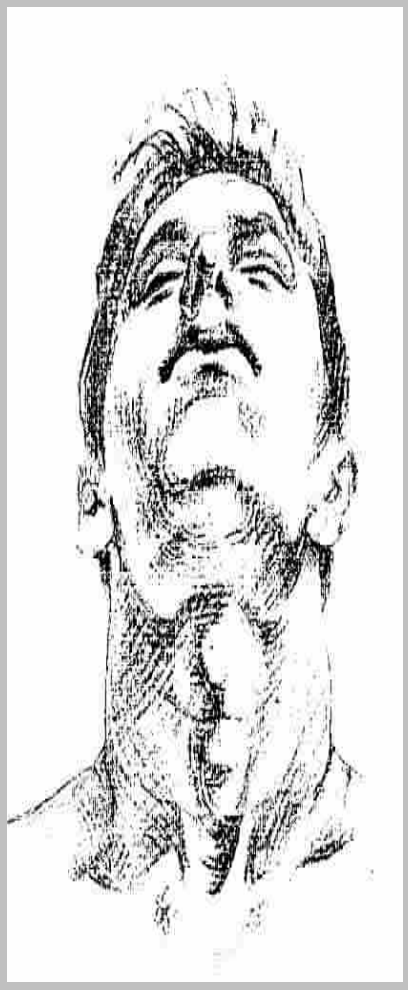
ADAM'S-APPLE-JUMP



Body movement. **1.** A conspicuous up-and-down motion of the Adam's apple. **2.** A movement of the throat visible while gulping or swallowing, as in nervousness.

Usage: The Adam's-apple-jump is an unconscious sign of emotional anxiety, embarrassment, or stress. At a business meeting, e.g., a listener's Adam's apple may inadvertently jump should he or she dislike or strongly disagree with a speaker's suggestion, perspective, or point of view.

U.S. politics. The Adam's apple gained it's 15 minutes of fame when former Vice President James Danforth Quayle's thyroid cartilage "jumped" in the 1988 vice-presidential debates, as he listened to his opponent, Lloyd Bentsen's pointed claim: "Senator, you're no Jack Kennedy!"

RESEARCH REPORTS: **1.** *Swallowing* "associates well with flight and **submission**" (Grant 1969:528). **2.** Stimulating the emotionally sensitive **amygdala** can cause involuntary body movements "associated with olfaction and eating, such as licking, chewing, and swallowing" (Guyton 1996:758-59).

Anatomy. Anxiety, social discomfort (e.g., embarrassment), and fear are often visible in unwitting, vertical movements of a projection at the front of the throat called the *laryngeal prominence*, where the

largest (or *thyroid*) cartilage of the Adam's apple shows, prominently in men, but less noticeably in women.

Neuro-notes. Acting through the *vagus* nerve (cranial X), emotional tension from the brain's **limbic system** causes unconscious muscular contractions of the *sternothyroid*, *thyrohyoid*, and associated *inferior pharyngeal constrictor* muscles of the Adam's apple. Movement is evident as the muscles contract to swallow, to **throat-clear**, or to vocalize an objection which may be left unsaid. The Adam's apple is emotionally responsive (i.e., reflects visceral or "gut" feelings) because its muscles are mediated by the vagus, which is one of five **special visceral nerves**.

Synonym--Gulping. See also **NECK DIMPLE**, **NECKWEAR**, **PALM-UP**, **SHOULDER-SHRUG**.

BODY MOVEMENT

I have always tried to render inner feelings through the mobility of the muscles . . . --Auguste Rodin

As an actor, Jimmy was tremendously sensitive, what they used to call an instrument. You could see through his feelings. His body was very graphic; it was almost writhing in pain sometimes. He was very twisted, almost like a cripple or a spastic of some kind. --Elia Kazan, commenting on actor James Dean (Dalton 1984:53)

Concept. Any of several changes in the physical location, place, or position of the material parts of the human form (e.g., of the **eyelids**, **hands**, or **shoulders**).

Usage: The **nonverbal brain** expresses itself through diverse motions of our body parts (see, e.g., **BODY LANGUAGE**, **GESTURE**). That body movement is central to our expressiveness is reflected in the ancient Indo-European root, **meue-** ("mobile"), for the English **word**, ***emotion***.

Anatomy. Our body consists of a jointed skeleton moved by *muscles*. Muscles also move our internal organs, the areas of skin around our **face** and neck, and our bodily hairs. (When we are frightened, e.g., stiff, tiny muscles stand our hairs on end.) The nonverbal brain gives voice to all its feelings, moods, and concepts through the contraction of muscles: *without muscles to move its parts, our body would be nearly silent*.

Anthropology. Stricken with a progressive spinal-cord illness, the late anthropologist, Robert F. Murphy described his personal journey into paralysis in his last book, *The Body Silent*. As he lost muscle control, Murphy noticed "curious shifts and nuances" in his social world (e.g., students ". . . often would touch my arm or shoulder lightly when taking leave of me, something they never did in my walking days, and I found this pleasant" [Murphy 1987:126]).

Confidence. "The physical confidence that he [Erik Weihenmayer, 33, the first blind climber to scale Mount Everest] projects has to do with having an athlete's awareness of how his body moves through space. Plenty of sighted people walk through life with less poise and grace than Erik, unsure of their steps, second-guessing every move" (Greenfeld 2001:57).

Media. In movies of the 1950s, such as *Monkey Business* (1952) and *Jailhouse Rock* (1957), motions of the pelvic girdles of Marilyn Monroe and Elvis Presley, respectively, had a powerful influence on American popular culture.

Salesmanship. "Your walk, entering and exiting, should be brisk and businesslike, yes. But once you are in position, slow your arms and legs down" (Delmar 1984:48).

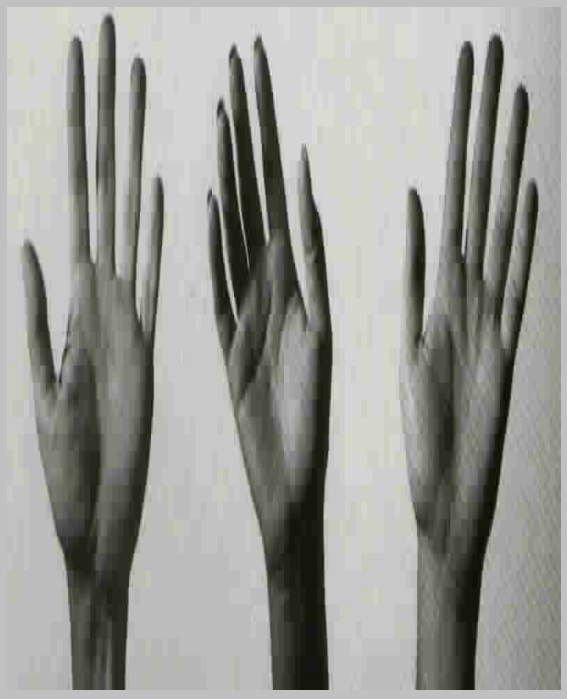
RESEARCH REPORT: "A nonverbal act is defined as a movement within any single body area (head, face, shoulders, hands, or feet) or across multiple body areas, which has visual integrity and is visually distinct from another act" (Ekman and Friesen 1968:193-94).

E-Commentary: "I am searching for the piece of influential advice that will help one of my employees to communicate in a positive way nonverbally. Her boredom and impatience are so evident. She *shifts in her seat*, rolls her eyes, and sighs during meetings. It is disturbing to her co-workers and bad for morale. I have explained to her it is not appropriate. She replies she can't hide the way she feels. On the other hand, she wants to keep her job. So what can I do to get through to her before she loses her job?" --T., USA (4/17/00 8:40:04 PM Pacific Daylight Time)

Neuro-notes. Many nonverbal signals arise from ancient patterns of muscle contraction laid down hundreds of millions of years ago in **paleocircuits** of the spinal cord, brain stem, and forebrain.

See also **FACIAL EXPRESSION**, **INTENTION CUE**, **POSTURE**.

HANDS



His hands are like antennae, gathering information as they flick outward, surveying the rock for cracks, grooves, bowls, nubbins, knobs, edges and ledges, converting all of it into a road map etched into his mind. --Karl Greenfeld (2001:60) on Erik Weihenmayer, 33, the first blind climber to scale Mount Everest (see below, *Anatomy*)

His hands rose, fluttered like wounded birds a few inches above the surface of his desk, slowly came back to a landing. --George C. Chesbro, *Shadow of a Broken Man* (1977:40)

Smart parts. **1.** The terminal end organs below the forearms, used to *grasp* and ***gesture***. **2.** The most expressive parts of the human body.

Usage: Their combined verbal and nonverbal IQs make hands our most expressive body parts. Hands have more to say even than **faces**, for not only do fingers show **emotion**, depict ideas, and **point** to butterflies on the wing--they can also read Braille, speak in **sign languages**, and write poetry. Our hands are such incredibly gifted communicators that they always bear watching.

Observation. So connected are hands to our nervous system that we rarely keep them still. Indeed, the First Law of Nonverbal Dynamics would be, "A hand tends to stay in motion even while at rest." When a hand is not moving or handling an object, it is busy scratching, holding, or massaging its partner. This peculiar tendency of the digits to fuss and fidget intensified as our fingers became major tools used to explore and shape the material world. The more gifted they became, the more we waved them about as sensory *feelers*.

Anatomy. Hands are the *tactile antennae* we throw out to assay our material world and palpate its moods. Most of the 20 kinds of nerve fiber in each hand fire off simultaneously, sending orders to muscles and

glands--or receiving tactile, motion, and position information from sense organs embedded in tendons, muscles, and skin (Amato 1992). With a total of 100 bones, muscles, joints, and types of nerve, our hand is uniquely crafted to shape thousands of **signs**. Watching a hand move is rather like peering into the **brain** itself.

Cave art. Stenciled images of human hands are "common" and "sometimes dominate" areas of Ice-Age caves (dating to between 35,000 and 20,000 years ago; Scarre 1993:59). In France's Gargas cave, hands are depicted with missing fingers or finger segments. "It is unclear whether the joints had actually been lost through frostbite or some other condition, or whether the fingers were bent in some kind of signaling system" (Scarre 1993:59; see below, *Neuro-notes II*).

Evolution. The 27 bones, 33 muscles and 20 joints of our hand originated ca. 400 m.y.a. from the *lobe fins* of early fishes known as *rhipidistians*. Primeval "swim fins" helped our aquatic ancestors paddle through Devonian seas in search of food and mates. In **amphibians**, forelimbs evolved as weight-bearing *platforms* for walking on land. In **primates**, hands were singled out for upgrade as tactile antennae or "feelers." Today (unlike flippers, claws, and hooves), fingers link to intellectual modules and emotion centers of the brain. Not only can we thread a needle, e.g., we can also *pantomime* the act of threading with our fingertips (see **MIME CUE**)--or reward a child's successful threading with a gentle pat. There is no better organ than a hand for gauging unspoken thoughts, attitudes, and moods.

Embryology. Hands are visible as fleshy paddles on *limb buds* of the human fetus until the 6th week of life, when digital rays form separate fingers through a process of programmed cell death. Soon after, hands and arms make *coordinated paddling movements* in mother's amniotic fluid. Placed in water shortly after birth, babies can swim, as **paleocircuits** of the **aquatic brain & spinal cord** prompt newborns to kick with their feet and paddle with their hands.

Infancy. Babies are born with the primate ability to *grasp* objects tightly in a climbing-related **power grip**. Later, they instinctively *reach* for items placed in front of them. Between 1-1/2 and 3 months, *reflexive grasping* is replaced by an ability to hold-on by choice. *Voluntary reaching* appears during the 4th and 5th months of age, and coordinated *sequences* of reaching, grasping, and handling objects are seen by 3-to-6 months, as fingertips and palms explore the textures, shapes, warmth, wetness, and dryness of **Nonverbal World** (Chase and Rubin 1979).

Early signs. By 5 months, as a prelude to more expressive *mime cues*, babies posture with arms and hands as if anticipating the size and hardness (or softness) of objects in their *reach space* (Chase and Rubin 1979). Between 6 and 9 months, infants learn to grasp food items between the thumbs and outer sides of their index fingers, in an apelike precursor of the **precision grip**. At this time, babies also *pull*, *pound*, *rub*, *shake*, *push*, *twist*, and *creatively manipulate* objects to determine their "look and feel" (Chase and Rubin 1979).

Later signs. Eventually, a baby's hands experiment not only with objects themselves but with *component*

parts, as if curious to learn more about relationships and about how things fit together (Chase and Rubin 1979). At one year, infants grasp objects between the *tactile pads* of thumb and index fingers, in a mature, distinctively human precision grip. **Pointing** with an extended index finger also begins at 12 months, as babies use the cue *to refer* to novel sights and sounds--and speak their first **words**.

Neuro-notes I. Our brain devotes an unusually large part of its surface area to hands and fingers (see **HOMUNCULUS**). In the mind's eye, as a result **a.** of the generous space they occupy on the sensory and motor strips of our neocortex, and **b.** of the older paleocircuits linking them to *emotional* and *grooming* centers of the **mammalian brain**, almost anything a hand does holds potential as a sign. Today, our hands are fiber-linked to an array of sensory, motor, and association areas of the forebrain, midbrain, and cerebellum, which lay the groundwork for ***nonverbal learning***, *manual sign language*, computer *keyboard fluency*, and the *ability to make tools* of stone, silicon, and steel.

Neuro-notes II. We respond to hands and their gestures with an extreme alertness because specialized nerve cells in the *lower temporal lobe* respond exclusively to hand positions and shapes (see, e.g., Kandel et al. 1991:458-59).

See also **FEET**, **PALM-DOWN**, **PALM-UP**, **SELF-TOUCH**.

GESTURE

Certainly, there was some deep meaning in it, most worthy of interpretation, and which, as it were, streamed forth from the mystic symbol, subtly communicating itself to my sensibilities, but evading the analysis of my mind. --Nathaniel Hawthorne, *The Scarlet Letter* (1850)

Nonverbal sign. **1.** A body movement, posture, or material artifact which encodes or influences a concept, motivation, or mood (thus, a gesture is neither matter nor energy, but **information**). **2.** In its most generic sense, a gesture is a **sign**, **signal**, or **cue** used to communicate in tandem with, or apart from, **words**. **3.** Gestures include **facial expressions** (e.g., **EYEBROW-RAISE**, **SMILE**), clothing cues (e.g., **BUSINESS SUIT**, **NECKWEAR**), **body movements** (e.g., **PALM-DOWN**, **SHOULDER-SHRUG**), and **postures** (e.g., **ANGULAR DISTANCE**). Many **consumer products** (e.g., **BIG MAC**®, **VEHICULAR GRILLE**, **VEHICULAR STRIPE**) contain **messaging features** designed to communicate as signs, and may be decoded as gestures as well. **4.** Those wordless forms of communication omitted from a *written transcript*. (E.g., while the printed transcripts of the *Nixon Tapes* reported the words spoken by the former president and his White House staff, they captured few of the gestures exchanged in the Oval Office during the Nixon years.)

Anthropology. ". . . we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by all" (Sapir 1927:556; see below, *Hand gestures*).

Baby gestures. **1.** "This article (Acredolo and Goodwyn 1985) presents the story of our first 'Baby Signer,' Linda's daughter Kate who began to spontaneously create symbolic gestures when she was about 12 months old. These were 'sensible' gestures (like sniffing for 'flower' and arms-up for 'big'). We then made it easy for her by modeling other simple gestures for things in which she was interested and

followed her progress in terms of both gestural and verbal development" (from Linda Acredolo and Susan Goodwyn's Baby Signs® Research web page). **2.** Subsequently, Acredolo, Goodwin, and others applied their findings about Baby Signs (a.k.a. *symbolic gesturing*), to teach and encourage the use of symbolic gestures in infancy so as to improve verbal language acquisition (see, e.g., Goodwyn, Acredolo, and Brown (2000).

Cetology. "A sequence of three gestures LEFT, FRISBEE, TAIL-TOUCH instructs the dolphin to swim with the frisbee that is to its left with its tail flukes" (Montgomery 1990:B2).

Culture. Accompanying hundreds of human-wide, universal gestures, such as the shoulder-shrug and smile (which, themselves, may be shaped by culture) are hundreds of additional gestures which must be learned to be understood (see **NONVERBAL COMMUNICATION**, *Kind of cues*). Many of the latter, culturally coded gestures--such as the *hand ring* (Italy), *hand ring-jerk* (Great Britain), *hand ring-kiss* (France), and *hand ring pull-side* (Holland)--have been identified by Desmond Morris (1994).

Hand gestures. We respond to hand gestures with an extreme alertness because dedicated nerve cells in our **primate brain's** *lower temporal lobe* respond exclusively to hand outlines, positions, and shapes (Kandel et al. 1991:458-59).

Paleontology of gesture. ". . . there is a primate (or perhaps mammalian or even vertebrate) level [of nonverbal communication] that contains the gestural primitives common to all people and in some instances all primates or all mammals. Examples are gestures implying bigness as signs of threat or intimidation [see **LOOM**], and gestures implying smallness as signs of submission [see **CROUCH**]. Loudness and softness in vocal communication have the same import. In this context, Givens (1986) has called for a 'paleontology of gesture'" (Armstrong et al.1995:6-7).

Primatology, chimpanzees. ". . . bonobos often add so-called finger-flexing, in which the four fingers of the open hand are bent and stretched in rapid alternation, making the [outstretched-hand gestured] invitation [i.e., the request for food, support, or bodily contact] look more urgent" (Waal and 1997:29).

Salesmanship. "Rehearse the speed at which you gesture, either in a mirror or on videotape. Quick, jerky movement belies a calm interior or voice" (Delmar 1984:48).

Sea lion gestures. "Four gestures, which indicate WHITE, SMALL, FOOTBALL and TAIL tell the sea lions to find the small white football and touch it with its tail" (Montgomery 1990:B2).

Sociology. "Following Wundt, [George Herbert] Mead [in his 1934 book, *Mind, Self, and Society*, Chicago, U Chicago Press] took the gesture as the transitional link to language from action, and also as the phenomenon establishing the continuities of human and infrahuman social life" (Martindale 1960:355).

Word origin. From Latin *gestus*, from (past participle) *gerere*, "to behave."

RESEARCH REPORTS: **1.** "Gesture includes much more than the manipulation of the hands and other

visible and movable parts of the organism. Intonations of the voice may register attitudes and feelings quite as significantly as the clenched fist, the wave of the hand, the shrugging of the shoulders, or the lifting of the eyebrows" (Sapir 1931:105). **2.** The term *ethology* was used in the late 18th and early 19th centuries for "the interpretation of character by the study of [human] gesture"; in the 20th century ethology came to mean the "comparative anatomy of [animal] gestures," to reveal the "true characters of the animals" (Thorpe 1974:147).

E-Commentary: "I am a support teacher for visually impaired children and I am currently working with a blind 8 year old girl. I am looking for information on teaching suitable gestures to replace socially unacceptable behaviours. One such behaviour is the flapping of arms when excited. This student is very bright and social. Any suggestions on other gestures or body language that may be helpful would be appreciated." --J.W., Australia (8/6/01 11:47:10 PM Pacific Daylight Time)

Neuro-notes. Many hand gestures are produced in speech areas of the right hemisphere, which were abandoned, in early childhood, as language shifted to the left hemisphere (Carter 1998:155).

SELF-TOUCH

Tactile sign. **1.** The act of establishing *physical contact* with one's own clothing or body parts (esp. **hands** to **face**; see **HOMUNCULUS**). **2.** The act of stimulating one's own *tactile receptors* for pressure, vibration, heat, cold, smoothness, or pain.

Usage: Like a lie-detector (or *polygraph*) test, self-touch cues reflect the arousal level of our *sympathetic nervous system's* **fight-or-flight** response. We unconsciously touch our bodies when **emotions** run high to comfort, relieve, or release *stress*. **Lips** are favorite places for **fingertips** to land and deliver reassuring body contact. Self-stimulating behaviors, e.g, **a.** *holding* an arm or wrist, **b.** *massaging* a hand, and **c.** *scratching*, *rubbing*, or *pinching* the skin, increase with anxiety and may signal **deception**, disagreement, **fear**, or **uncertainty**.

Culture. Diverse cultural gestures involve self-touching, as well. In Spain, e.g., holding a single long hair between the thumb and forefinger, and lifting it vertically above the head is a sign of "frustration." "This female gesture is a symbolic way of 'tearing your hair out' when feeling intensely frustrated" (Morris 1994:102).

Ethology. "They are called displacement activities because it was at one time thought that they are triggered by 'nervous energy' overflowing (displaced) from the strongly aroused motivational systems"

(Brannigan and Humphries 1969:408).

Evolution. Self-touch cues originated ca. 180 m.y.a. in **paleocircuits** of the **mammalian brain**. As gestures, they reveal the body's wisdom in coping, e.g., with **stranger anxiety**, and with the daily stress of life in **Nonverbal World**.

Media. Hollywood stars once seemed robotic (i.e., stiff, wooden, and "unreal") until *method actors* such as Marlin Brando and James Dean brought natural self-touch cues to the screen. Brando, e.g., *clasped his neck* as he groped for words in *"The Wild One"* (1954). Dean's **hand-behind-head** gesture in *"Giant"* (1956) "humanized" the actor (i.e., the squirm cue revealed his vulnerability). Earlier, in *The Big Sleep* (1946), Humphrey Bogart blazed a trail by fingering his right earlobe with his right hand several times while pondering deep thoughts. (***N.B.***: As host of *The Tonight Show* [1962-92], Johnny Carson's boyish *tie-fumble* made him seem vulnerable, approachable, and friendly.)

Observations. Because self-touch cues reveal emotions (esp. insecurity and uncertainty), they are best avoided while establishing credibility with strangers. **1.** In the conference room, a supervisor *massages* his lower lip with his left hand as he raises his right hand to speak. **2.** A child *clasps* her wrist as she asks mother for a piece of candy. **3.** A Brazilian Indian smiles nervously and *pinches* his abdomen as an anthropologist takes his photo. **4.** A CEO bows her head and *covers her mouth* with her hand as she hears low sales figures for the month.

Primatology. "The more intense the anxiety or conflict situation, the more vigorous the scratching becomes. It typically occurred when the chimpanzees are worried or frightened by my presence or that of a high-ranking chimpanzee" (Lawick-Goodall 1968:329 [also recorded in gorillas, baboons, Patas monkeys, and man "under similar circumstances"]).

Salesmanship. *One signal of a prospect's skepticism*: "Touching the mouth, or masking the mouth with fingers or hand" (Delmar 1984:46).

U.S. politics. **1.** "[President Richard M.] Nixon's 'Hand-In-Front-of-Body' [hand] clasp [i.e., holding onto his own wrist below his belt while standing] could have been an anxiety signal" (Blum 1988:4-3). **2.** "Holding her own hand [palm-to-palm, thumb-over-thumb, with her elbows flexed at 90 degrees, her upper arms adducted against the sides of her body, and her forearms pulled into her abdomen while standing], Geraldine Ferraro seems to be seeking reassurance" (Blum 1988:4-7).

RESEARCH REPORTS: **1.** *Earlobe-pulling*, *arm-scratching*, and *rubbing a worry stone*, have been classed as *adaptors*: "residuals of coping behaviors that were learned very early in life" (Ekman and Friesen 1969:62). **2.** *Rubbing the face* is a reaction to spatial invasion (Sommer 1969). **3.** *Automanipulation* is a sign of "fearfulness" in children (McGrew 1972). **4.** *Self manipulations* increase with stress and disapproval (Rosenfeld 1973). **5.** *Hand self-manipulations* increase as Japanese subjects gaze into an interviewer's eyes, "reflecting the upsetting effects" of eye-to-eye contact (Bond and Komai 1976:1276). **6.** "When excessive distraction through sensory overload occurs, as in the isolated schizophrenic patients, continuous and repetitive rubbing of one hand upon the other helps filter the

overload by narrowing attention" (Grand 1977:206). **7.** Motherless rhesus monkeys *suck thumbs or toes*, *clasp themselves*, engage in *head-banging*, and show "symptoms similar to disturbed mental patients" (Pugh 1977:200). **8.** *Self-orality*, *self-clasping*, and *self-grasping* are common signs in motherless rhesus monkeys reared in isolation (Suomi 1977). **9.** "Body-focused hand movements are arguably one of the most common types of nonverbal behavior produced by humans" (Kenner 1993:274). **10.** "Tactile stimulation may also serve a calming or reassuring function when it is self-directed" (Goodall 1986:125). **11.** In public speaking, the most common touch may be *finger-to-hand* (Kenner 1993). **12.** "Unconscious face-touching gestures indicate disbelief in what is being said by the companion" (Morris 1994:31). Because the listener feels a mental conflict in voicing his disagreement, he performs "a minor act of self-comfort" (Morris 1994:31). **13.** *Self-clasping* gestures (along with upper-body rocking for comfort [see **BALANCE CUE**]) are signs given by Romanian children raised in orphanages of the 1980s-90s (Blakeslee 1995).

E-Commentary I: "Baboons have a gesture called a 'muzzle wipe' in which they wipe their hand across the bridge of the nose. This is done in non-relaxed contexts. I'd describe it as their being 'puzzled' or 'ambivalent' or 'startled' or 'nervous' or 'uncertain,' etc." --Janette Wallis, Ph.D., Department of Psychiatry & Behavioral Sciences, University of Oklahoma Health Sciences Center (6/7/00 9:18:31 PM Pacific Daylight Time)

E-Commentary II: "I am a Registered Nurse, male, and have recently noticed a frequently repeated body motion in women that I and other male nurses work with. It occurs when a taller male gets close (within three feet) of a woman. She may or may not be the one who starts the conversation, but it is usually about a work related item, and is non-threatening in its content. Many women lean backward a little, pull the vest fronts of their uniform jackets with both hands in a forward and centering motion and then lean into the motion a little. It looks more like a defensive than an offensive gesture, but we are not sure. Can you shed some light on this?" (5/27/01 11:32:15 AM Pacific Daylight Time)

E-Commentary III: "I have noticed a behavior that has my attention. At a bar I noticed a young women with her spouse who was giving very little attention to her spouse. She continued to look away but would constantly twist her hair. At school during class, I watched a young 14 year old girl with approximately the same uninterested behavior doing the same thing to her hair. I would be interested your response to this behavior the hair twisting problem." (3/12/02 6:31:41 PM Pacific Standard Time) [Thanks very much for your e-mail. Yes, the hair-twisting you describe often occurs in absent-minded disengagement from partners or in self-absorbed thought. It is a form of self-touching. Both men and women use the hair-twist to space out from those around them. I hope this helps. --David Givens]

Neuro-notes. Apparently trivial self-touch gestures help us calm our nerves. Physical contact with a body part stimulates tactile nerve endings and refocuses our *orienting attention* inward, i.e., away from stressful events "out there." Self-touch works on the physiological principle of acupressure massage or *shiatsu*. Massaging the right hand, e.g., takes attention from the left, and vice-versa. Catching the thumb in a drawer, e.g., we may vigorously rub its nerve endings to compete with the brain's awareness of pain. Because the forebrain's *thalamus* cannot process all incoming signals at once, self-touch reduces anxiety much as it blocks pain.

See also **AFFERENT CUE**, **YAWN**.

FACE

Body part. **1.** At the front of the head, our face includes 23 surface landmarks: **a.** skin, **b.** ears, **c.** earlobes, **d.** forehead, **e.** **eyebrows**, **f.** **eyes**, **g.** eyelids, **h.** eyelashes, **i.** nose, **j.** nostrils, **k.** nostril bulbs, **l.** cheekbones, **m.** cheeks, **n.** philtrum, **o.** **lips**, **p.** jowls, **q.** **hair**, **r.** wrinkles, **s.** moles, **t.** eccrine glands, **u.** sebacious glands, **v.** **apocrine** glands, and **w.** jaws. **2.** Nonverbally, the most *emotionally expressive* (i.e., the *moodiest*) part of the body (see **FACIAL EXPRESSION**).

Usage: Our face **a.** defines our identity (see **FACIAL I.D.**); **b.** expresses our attitudes, opinions, and moods; and **c.** shows how we relate to others. A face is every human's visual trademark, and is, therefore, the most photographed part of the human body.

Anthropology. For 99.99% of our existence as *Homo* we watched other faces, and rarely saw our own except as glimpsed in ponds or pools. The phantom of facial personality is a dangerous and mystical experience in many cultures. (Capturing a face in pictures or mirrors, e.g., is akin to capturing the soul.) That in so many societies a face reflects the soul bespeaks the nonverbal power of its landmarks. (***N.B.***: Perhaps this is why the ancient Egyptian word for *hand mirror* [*ankh*] bears a resemblance to the word

for *life* [*'nh*].)

Facial dominance. "What do dominant faces look like? Everyone knows because anyone can sort portraits on this basis, but facial dominance seems to be a gestalt concept, difficult to describe in simple terms. Faces identified as dominant are more likely to be handsome--with striking exceptions, to be muscular, to have prominent as opposed to weak chins, and to have heavy brow ridges with deep set eyes. Submissive faces are often round or narrow, with ears 'sticking out,' while dominant faces are oval or rectangular with close-set ears (Mazur, et al. 1984)" (Mazur and Mueller 1996). (***N.B.***: The authors found that facial dominance correlated with a higher achieved rank in the U.S. military.)

Media. "My face is my livelihood." --Kramer (*Seinfeld*, March 26, 1999)

Mobility. Our face is exquisitely expressive. Its features are incredibly mobile, more so than any other primate's. Because our face "speaks for itself" with muscular eloquence and candor, **speech** has comparatively few words (such as, e.g., "**smile**," "**pout**," or "**frown**") for its diverse **gestures** (see, e.g., **TENSE-MOUTH** and **TONGUE-SHOW**, which lack dictionary entries). Emotionally, the face is mightier than the **word**.

RESEARCH REPORTS: **1.** Each of the 28 bones of the human face and skull "has been inherited in unbroken succession from the air-breathing fishes of pre-Devonian times" (Gregory 1927:20-21). **2.** Facial expressions evolved from movements originally designed **a.** for *protection* of vulnerable areas, **b.** for vigorous *breathing*, and **c.** for *grooming* (Andrew 1963). **3.** Facial expressions for *primary affects* (i.e., happiness, anger, fear, surprise, sadness, disgust/contempt, and interest) may be common to humankind (Ekman and Friesen 1971). **4.** "In mammals the primitive neck muscles gave rise to two muscle layers: a superficial longitudinal layer, the *platysma*, and a deeper transverse layer, the *sphincter colli profundis*, which have come to extend well into the facial region" (Chevalier-Skolnikoff 1973:59).

E-Commentary: "Thanks for your e-mail with your kind permission, and for your wishes, because we need luck in our work on prosopognosis [*prosopognosia*: 'face blindness,' a cortical dysfunction making it difficult or impossible to recognize a face]. I will keep you updated on our progress. I am pleased to know that 'prosopognosis' is an area of great concern for you, as well. Kindly note my thesis, that: 'Many people, between us, acting or reacting with violence, are some kind prosopagnostics, they have some degree of face blindness. Therefore they can't receive, they don't have the ability to feel at all, the very emotions, expressed through the face of the victim.'" --Panos Axiomakaros, Olympian University, Athens, Greece (3/27/00 12:36:07 PM Pacific Standard Time)

See also **BLANK FACE**, **FACIAL BEAUTY**, **FACIAL RECOGNITION**.

Detail of 1928 photo by Edward Steichen of Greta Garbo. Disliking her curly hairdo, Garbo hides it from view.

EYEBROW-RAISE

. . . *the vast corrugated brow overhanging the proud eyes* . . . . --Joseph Conrad (*Lord Jim*)

Facial expression. **1.** To lift the arch of short hairs above the eye, as in **uncertainty**, disbelief, surprise, or exasperation. **2.** To elevate the eyebrow by contracting the occipitofrontalis muscle.

Usage I: Raising the eyebrows adds intensity to a facial expression. Brow-raising can strengthen a dominant stare, exaggerate a submissive **pout**, or boost the energy of a **smile**. The involved muscle (occipitofrontalis) elevates the eyebrows to form prominent, horizontal furrows in the forehead, making almost any gesture look and feel stronger.

Usage II: In tandem with head-tilt-back, raising one or both eyebrows suggests a supercilious air of disdain, haughtiness, or pride. (***N.B.***: "Supercilious" comes from the Latin word for "eyebrow," *supercilium*.) We may unconsciously lift our eyebrows as we give orders, argue important speaking points, or make demands.

Anatomy. Our **face** evolved as a signboard to display **emotions** welling from the **mammalian brain**. Facial messages are controlled by the facial nerve (*cranial VII*). Its nucleus has both an upper and a lower component; the former lifts and depresses our eyebrows. When we feel **happy**, e.g., our **limbic brain** stimulates cranial VII, which innervates the forehead muscles to raise our brows.

Media. **1.** "[Phil] Donahue has a characteristic way of raising his eyebrows which draws attention to his eyes which are directed to the [TV] viewers" (Raffler-Engel 1984:12). **2.** To convey authority and show strong emotion, televangelists raise their eyebrows and project their foreheads' horizontal lines onto the video screen for added dramatic effect.

RESEARCH REPORTS: **1.** Eyebrow-raise is a threat sign in baboons, mandrills, and cebus monkeys (Andrew 1965; van Hooff 1967). **2.** The *eyebrow-flash* of recognition is a worldwide friendly greeting (Eibl-Eibesfeldt 1989; Morris 1994). **3.** One eyebrow raised (as in the *eyebrow cock*) is a widespread sign of scepticism (Morris 1994).

Neuro-notes. Brow-raising is mediated by the top part of cranial VII's motor nucleus, which contains cells to innervate the contraction of muscles in the upper part of our face. The top part receives bilateral input from both sides of the cerebral neocortex, rather than unilaterally (as in the bottom part of the nucleus, which controls the muscles of the lower half of our face).

See also **EYEBROW-LOWER**.

FACIAL EXPRESSION

I will often fly great distances to meet someone face to face . . . . --Mark H. McCormack (*What They Don't Teach You at Harvard Business School*, 1984:9)

Sign. The act of communicating a mood, attitude, opinion, feeling, or other **message** by contracting the muscles of the **face**.

Usage: The combined expressive force of our mobile chin, lip, cheek, eye, and brow muscles is without peer in the animal kingdom. Better than any body parts, our faces reveal **emotions**, opinions, and moods. While we learn to manipulate some expressions (see, e.g., **SMILE**), many unconscious facial expressions (see, e.g., **LIP-POUT**, **TENSE-MOUTH**, and **TONGUE-SHOW**) reflect our true feelings and hidden attitudes. Many facial expressions are universal, though most may be shaped by cultural usages and rules (see below, *Culture*).

Summary of facial expressions. **1.** *Nose*: *nostril flare* (arousal). **2.** *Lips*: *grin* (happiness, affiliation, contentment); *grimace* (fear); *lip-compression* (anger, emotion, frustration); *canine snarl* (disgust); *lip-pout* (sadness, submission, uncertainty); *lip-purse* (disagree); *sneer* (contempt; see below, *Sneer*). **3.** *Brows*: *frown* (anger, sadness, concentration); *brow-raise* (intensity). **4.** *Tongue*: *tongue-show* (dislike, disagree). **5.** *Eyelids*: ***flashbulb eyes*** (surprise); *widened* (excitement, surprise); *narrowed* (threat, disagreement); ***fast-blink*** (arousal); *normal-blink* (relaxed). **6.** *Eyes*: *big pupils* (arousal, **fight-or-flight**); *small pupils* (**rest-and-digest**); *direct-gaze* (affiliate, threaten); *gaze cut-off* (dislike, disagree); ***gaze-down*** (submission, deception); ***CLEMS*** (thought processing). (***NOTE*:** See individual entries elsewhere in ***The Nonverbal Dictionary***.)

Child development. ". . . all children, regardless of cultural background, show the same maturation process when it comes to the basic emotional expressions [e.g., of anger, fear, and joy]" (Burgoon et al. 1989:350; see below, ***RESEARCH REPORTS***).

Culture. "Japanese are taught to mask negative facial expressions with smiles and laughter and to display less facial affect overall, leading some Westerners to consider the Japanese inscrutable (Friesen, 1972; Morsbach, 1973; Ramsey, 1983)" (Burgoon et al. 1989:193).

Embryology. The nerves and muscles that open and close our mouth derive from the *1st* pharyngeal arch, while those that constrict our throat derive from the *3rd* and *4th* arches. In the disgusted or "yuck-face," cranial *VII* contracts *orbital muscles* to narrow our eyes, as well as *corrugator* and associated muscle groups to lower our brows. (Each of these muscles and nerves derives from the *2nd* pharyngeal arch.) We may express positive, friendly, and confident moods by *dilating* our eye, nose, throat, and mouth openings--or we may show negative and anxious feelings (as well as inferiority) by *constricting* them. Thus, the underlying principle of movement established in the jawless fishes long ago remains much the same today: *Unpleasant emotions and stimuli lead cranial nerves to constrict our eye, nose, mouth, and throat openings, while more pleasant sensations widen our facial orifices to incoming cues.*

Evolution I. During the Jurassic period mammalian faces gradually became more mobile (and far more expressive) than the rigid faces of reptiles. Muscles which earlier controlled the **pharyngeal arches** (i.e., the primitive "gill" openings) came to move mammalian lips, muzzles, scalps, and external ear flaps. Nerve links from the emotional **limbic system** to the facial muscles--routed through the brain stem's *facial* and *trigeminal* nerves (cranial VII and V)--enable us to express *joy*, *fear*, *sadness*, *surprise*, *interest*, *anger*, and *disgust* today.

Evolution II. That a nose-stinging whiff of ammonium carbonate can cause our face to close up in *disgust* shows how facial expression, smell, and taste are linked. The connection traces back to the ancient muscles and nerves of the pharyngeal arches of our remote Silurian ancestors. Pharyngeal arches were part of the feeding and breathing apparatus of the jawless fishes; sea water was pumped in and out of the early pharynx through a series of gill slits at the animal's head end. Each arch contained a *visceral nerve* and a *somatic muscle* to close the gill opening in case dangerous chemicals were sensed. Very early in **Nonverbal World**, pharyngeal arches were programmed to *constrict* in response to noxious tastes and smells.

Gag reflex. The ancient pattern is reflected in our faces today. In infants, e.g., a bitter taste shows in *lowered brows*, *narrowed eyes*, and a *protruded tongue*--the yuck-face expression pictured on poison-warning labels. A bad flavor causes baby to seal off her throat and oral cavity as *cranial nerves IX* and *X* activate the *pharyngeal gag reflex*. Cranial *V* depresses the lower jaw to expel the unpleasant mouthful (then closes it to keep food out), as cranial *XII* protrudes the tongue.

Gender differences. "Not surprisingly, women have a general superiority over men when it comes to decoding facial expressions . . ." (Burgoon et al. 1989:360).

Mimicking. Research indicates that mimicking another's face elicits empathy (Berstein et al., 2000).

Primatology. **1.** In our closest primate relatives, the Old World monkeys and apes, the following facial expressions have been identified: alert face, bared-teeth gecker face, frowning bared-teeth scream face, lip-smacking face, pout face, protruded-lips face, relaxed face, relaxed open-mouth face, silent bared-teeth face, staring bared-teeth scream face, staring open-mouth face, teeth-chattering face, and tense-mouth face (Van Hooff 1967). **2.** "Andrew (1963, 1965) held that facial expressions were originally natural physical response to stimuli. As these responses became endowed with the function of communication, they survived the various stages of evolution and were passed along to man" (Izard 1971:38; cf. **NONVERBAL INDEPENDENCE**).

Sneer. In the sneer, *buccinator* muscles (innervated by lower buccal branches of the facial nerve) contract to draw the lip corners sideward to produce a sneering "dimple" in the cheeks (the sneer may also be accompanied by a scornful, upward eye-roll). From videotape studies of nearly 700 married couples in sessions discussing their emotional relationships with each other, University of Washington psychologist, John Gottman has found the sneer expression (even fleeting episodes of the cue) to be a "potent signal" for predicting the likelihood of future marital disintegration (Bates and Cleese 2001). In this regard, the sneer may be decoded as an unconscious sign of contempt.

RESEARCH REPORTS: So closely is emotion tied to facial expression that it is hard to imagine one without the other. **1.** The first major scientific study of facial communication was published by Charles Darwin in 1872. Darwin concluded that many expressions and their meanings (e.g., for *astonishment*, *shame*, *fear*, *horror*, *pride*, *hatred*, *wrath*, *love*, *joy*, *guilt*, *anxiety*, *shyness*, and *modesty*) are universal: "I have endeavoured to show in considerable detail that all the chief expressions exhibited by man are the same throughout the world" (Darwin 1872:355). **2.** Sylvan S. Tomkins found eight "basic" facial emotions: *surprise*, *interest*, *joy*, *rage*, *fear*, *disgust*, *shame* and *anguish* (Tomkins 1962; Carroll Izard proposed a similar set of eight [Izard 1977]). **3.** Studies indicate that the facial expressions of **happiness**, **sadness**, **anger**, **fear**, surprise, **disgust**, and interest are universal across cultures (Ekman and Friesen 1971). **4.** ". . . the emotion process includes a motor component subserved by innate neural programs which give rise to universal facial patterns. These patterns are subject to repression, suppression, and other consequences of socialization during childhood and adolescence" (Izard 1971:78).

E-Commentary I: *The face entranced*. "I have observed that when a woman absent-mindedly knots a lock of her hair on a finger or twists her ring on her finger, she often displays a *trance like* facial expression--i.e., her glance seems to look far away, her face has no expression, the right and left sides of her face are more symmetrical, she slows or loses her **eye-blink**, her pupils dilate, she half-opens her mouth as her **chin falls down** (her jaw appears relaxed), and her body appears fairly passive or motionless. I have seen the same nonverbal pattern in men, as well." --Dr. Marco Pacori, Institute of Analogic Psychology, Milano, Italy (3/29/00 9:17:37 AM Pacific Standard Time)

E-Commentary II: "I am looking for help in analyzing the natural expression on my face. I'm a 52 year old male and I believe others sense my facial expression as one of being angry when I'm not the least bit angry. I believe that it severely limits healthy relationships as well as my income. (I talk to people all day in sales.) Although my mate and I are very

happy, I'm looking for a change, but don't know where to start. --R. C. (9/10/01 8:01:23 PM Pacific Daylight Time)

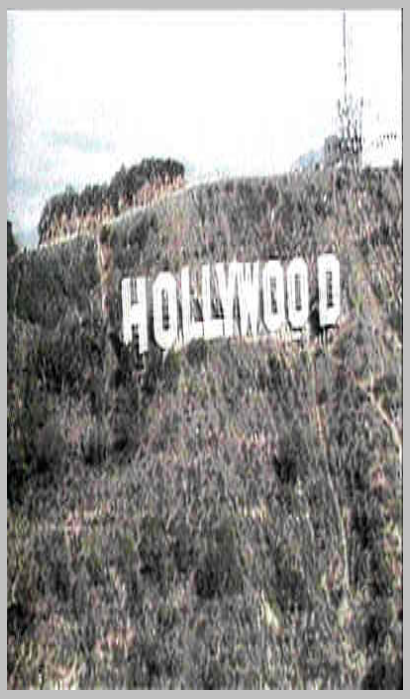
Neuro-notes I. **1.** The facial nerve nucleus of the brain stem contains motor neurons that innervate the facial muscles of expression (Willis 1998F). **2.** "The facial muscles and the facial nerve and its various branches constitute the most highly differentiated and versatile set of neuromuscular mechanisms in man" (Izard 1971:52).

Neuro-notes II. "The homologue of Broca's area in nonhuman primates is the part of the lower precentral cortex that is the primary motor area for facial musculature. . . . electrical stimulation of this area in squirrel monkeys . . . yields isolated movements of the monkey's lips and tongue and some laryngeal activity but no complete vocalizations" (Lieberman 1991:106; see **SPEECH**).

Neuro-notes III. **1.** "The facial nucleus [of the albino rat] contains numerous medium-caliber, intensely immunoreactive dynorphin fibers, especially in the intermediate subdivision of the nucleus . . ." (Fallon and Ciofi 1990:31). **2.** "The functions of these projections are unknown, but it is likely that dynorphin and enkephalin would modulate motor neurons enervating the facial musculature, especially those in the intermediate division controlling the zygomatic, platysma and mentalis muscles" (Fallon and Ciofi 1990:31-2).

See also **BLANK FACE**.

SIGN



A trail of Skittle candy wrappers led police to three children whom they charged with breaking into a vending machine and robbing a coin operated laundry. --Anonymous 2001N

Communication. **1.** From Latin *signum* ("identifying mark"), something that "suggests the presence or existence of a fact, condition, or quality" (Soukanov 1992:1678). **2.** In philosophy, as defined by Charles S. Peirce, "a sign stands for something else" (Flew 1979:327; e.g., the **hand** is a sign of humanity). **3.** The general term for anything that communicates, transmits, or carries **information**.

Usage I: *Sign* is the most generic label for a nonverbal unit of expression, such as a **gesture**. While in a technical sense their meanings differ, sign, **signal**, and **cue** often may be used interchangeably.

Usage II: "It is useful to distinguish at the outset between a sign *vehicle:* the material carrier or physical substratum of a sign, the tangible 'sign stuff' (i.e., its actual stone, clay, metal, glass, paper, or concrete substance), and a sign *form:* the pattern or arrangement of lines, scratches, punctures, meanders, shapes, etc., which can appear on varied vehicles. The sign form of ancient Scandinavian runes, for instance, comprises the runic characters themselves. Runic sign vehicles, on the other hand, can consist variously of stone, wood, and paper materials" (Givens 1982:161).

Symbol. Some signs are symbolic. A symbol (e.g., the American flag) is, "Something that represents something else by association, resemblance, or convention, especially a material object used to represent something invisible" (Soukhanov 1992:1817). Symbolic signs may have an arbitrary (i.e., a non-iconic or unobvious) connection to that which they represent, and thus must be learned. According to Charles Peirce, "Man is a symbol" (quoted in Young 1978:9).

RESEARCH NOTES: **1.** A *sign* is "something that directs behavior with respect to something that is not at the moment a stimulus" (Morris 1946:354). **2.** A *sign* carries *information*, which, as Norbert Wiener has pointed out, "is information, not matter or energy" (1948:155).

See also **MESSAGE**.

INFORMATION

Concept. **1.** Knowledge, facts, or data derived from communication. **2.** Answers to questions (i.e., the resolution of uncertainty).

Usage: The meaning of a **sign**, **signal**, or **cue** is the information it transmits to receivers. Nonverbal signs convey information about **a.** our *social status* (see, e.g., **DOMINANCE** and **SUBMISSION**), **b.** our *feelings* (see, e.g., **ANGER** and **FEAR**), and **c.** our *thoughts* (see, e.g., **DECEPTION** and **UNCERTAINTY**). Nonverbal information ranges from "low level" signs of physiological arousal (e.g. **facial flushing**) to "high level" signs for conceptual thought (e.g., **mime cues**).

RESEARCH REPORTS: **1.** "Information is a name for the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it" (Wiener 1950:26-7). **2.** A faculty for the communication of information pervades all life (Young 1978).

Neuro-notes. Nonverbal information flows in two directions simultaneously, as our nervous system *sends* **efferent** (i.e., outgoing) and *receives* **afferent** (i.e., incoming) **cues**.

SIGNAL

Communication. **1.** From Latin *signalis* ("sign"), an "indicator, such as a gesture or colored light, that serves as a means of communication" (Soukhanov 1992:1678). **2.** In biology, "any behavior that conveys information from one individual to another, regardless of whether it serves other functions as well" (Wilson 1975:595). **3.** Any type of **sign** used to inform as to what may happen next (e.g., a **hand-behind-head** gesture signals that a listener may argue with a speaker's point of view).

Chinese lanterns. The **color**, glow, placement, and shape of a Chinese paper lantern signals good luck, birth, death, long life, marriage, sickness, and other symbolic messages in neighborhood alleys of Beijing, Hong Kong, and Shanghai. A plump, bright red lantern (*deng*) betokens good luck; it's roundness recalls the rounded shape of *yuan* (money). The vitality and energy of redness also signals a birth or marriage. A blue lantern, in contrast, signals sickness by suggesting energy in decline. Two white lanterns signal death and mourning in a household. Chinese lanterns have been used as signals since 250 B.C.

RESEARCH REPORT: As nonverbal signs help us understand intentions, feelings, and moods, they may become more conspicuous through a process of *ritualization* (Huxley 1923; e.g., in greeting rituals, the **smile** is a universal signal of friendly intent).

See also **CUE**.

HAND-BEHIND-HEAD

What a disaster! --As used in Jewish communities, "The hand clasps the neck behind the ear" (Morris 1994:168).

Gesture. **1.** Touching, scratching, or holding the back of the neck or head with the opened palm. **2.** In variant forms, **a.** reaching a hand upward to scratch an ear, grasp an earlobe, or stimulate an ear canal; and **b.** touching, scratching, or rubbing the cheek or side of the neck.

Usage: In a conversation, hand-behind-head may be read as a potential sign of uncertainty, conflict, disagreement, frustration, anger, or disliking (i.e., *social aversion*). It usually reflects *negative* thoughts, feelings, and moods. In counseling, interviewing, and cross-examining, the gesture telegraphs a **probing point**, i.e., an unresolved issue to be verbalized and explored.

Culture. Note that hand-behind-head is an *asymmetrical* gesture made with one hand only (see below, *Neuro-notes*). In the U.S., leaning back and placing *both hands* behind the neck in the bilateral *head clamp* posture is a nonverbal sign of dominance. "This display reveals that someone feels no need to show eagerness or attention" (Morris 1994:142; see **IMMEDIACY**).

Emoticon. For Japanese e-mail users, in the phrase (^o^;>), "The triangular shape on the right apparently represents a protruding elbow and stems from the fact that an embarrassed or apologetic person will

sometimes scratch the back of his or her head" (Pollack N.D.).

Observations. **1**. Asked if he would like to have lunch with the group, a hesitant co-worker *touches the back of his head* with his hand. Sensing uncertainty, a colleague responds, "Maybe tomorrow?" **2**. Seeing his boss *reach for her earlobe* as he raises a sensitive point, an account executive proceeds with caution to resolve the issue. **3**. When Jones suggests a new idea at the weekly staff meeting, Smith glances away and *clasps his neck*. Sensing resistance (which could fester and sabotage the proposal), Jones asks Smith to voice his opinion to the group in words.

U.S. politics. On the December 29th, 2000 *Tonight Show*, while explaining problems to Jay Leno about his network's flawed projection of the winner of the U.S. Presidential contest in Florida (i.e., in declaring Al Gore, and then George W. Bush, the victor), NBC *Nightly News* anchor Tom Brokaw lifted his right hand upward and then reached it backward to scratch the crown of his coiffed hairdo, in an unconscious, hand-behind-head-like sign of depleted perplexity.

RESEARCH REPORTS: **1.** "At the beginning of the sequence, mother and son are flirting happily, until she picks up another baby. Her son, I Karsa, shows jealousy [i.e., displays the hand-behind-head gesture] when she suckles this other baby, and as the sequence continues, his behavior alternates between impotent misery and rage" (Bateson and Mead 1942:160). **2.** In conflict situations *scratching behind the ear* is a *displacement* sign (Tinbergen 1951). **3.** In psychiatric settings, patients used hand-behind-head cues when disagreeing with physicians (Grant 1969). **4.** In children and adults, *palm-to-back-of-neck* occurs in psychologically frustrating situations (Brannigan and Humphries 1969). **5.** Athletes use hand-behind-head gestures when frustrated or angry (Nierenberg and Calero 1971). **6.** When a child must choose between joining or leaving his mother, he may "touch the back of his head with the flat of his hand, then set off to rejoin the mother" (Anderson 1972:211). **7.** "Mr. X when involved in group discussion on another patient's homosexuality placed his hand on the back of his neck (hand to neck) when saying the word 'homosexual'" (Brannigan and Humphries 1972:55). **8.** In a frustrating, puzzling, or conflict situation, deaf-and-blind-born children *scratch their heads* (Eibl-Eibesfeldt 1973). **9.** In two-to-five year old children, hand-behind-head and gaze avoidance are responses to parental scolding (Givens 1977B). **10.** In the *neck clamp*, a sign of unexpressed anger, "The hand swings up abruptly to clamp itself hard on to the nape of the neck. This unconscious action is a telltale sign of suddenly aroused, but otherwise unexpressed anger" (Morris 1994:167).

E-Commentary: "During interviews, I have observed people touching the back of the neck immediately after being told that they are suspect, and then followed up each time the investigators were accurate in describing something only the suspect knew about. I have also noted the speed at which the arm races to the back of the neck and head as being significant, and the amount of force applied once the hand reached the head or back of neck. Strong massaging action has also been observed especially when difficult circumstances are being contemplated. One of the other things I look for is not just that the hand dashes to the back of the head, but also how long the hand loiters in the area, and in reaction to what specifically was being discussed. At the same time, I look for the angle of the head and neck as the hand strokes the back of the head or neck. The greater the angle away from the verticle, the more troublesome the issue for the person. I saw a man literally bend forward to the point where he lifted himself off of the chair as he brought his hand to the back of the neck and then bent forward as he was being confronted. I hope this helps; let me know if I can give you additional insight." --J.N.,

FBI (2/25/00 5:22:43 PM Pacific Standard Time)

Neuro-notes. Hand-behind-head is a gestural fossil left over from spinal-cord circuits designed to keep the body upright in relation to gravity through *neck reflexes* (specifically, the **ATNR**). Rotating or bending the head to the right, e.g., produces bending (i.e., *flexion*) of the left arm, which may curl behind the back of the head (Ghez 1991) in a *fencing posture*. Negative opinions, feelings, and moods stimulate *defensive withdrawal* (i.e., an *avoider's response* mediated by **paleocircuits** of the brain-stem and spinal cord) as we unconsciously *turn away* from persons arousing the emotion. Areas of the **limbic system**, including the **amygdala** and **cingulate gyrus** (Damasio 1994), in tandem with the **basal ganglia** (MacLean 1990), may trigger the response. Turning the head away stimulates muscle-spindle receptors of the neck, and receptors in joints of the upper cervical vertebrae, releasing the unconscious arm movements of the *ATNR*.

See also **FLEXION WITHDRAWAL**.

PROBING POINT

Nonverbal insight. An opportunity to examine an *unverbalized* (i.e., a hidden, undisclosed, or withheld) belief, mood, or opinion, as revealed by a **nonverbal** cue.

Usage: A probing point--signified by a **lip-purse**, a **shoulder-shrug**, or a **throat-clear**, e.g.--may appear when a word or phrase in the stream of dialogue "touches a nerve." A probing point presents a strategic opportunity to search beneath a subject's spoken comment or oral response to the remarks of another. Questions may be specifically designed to target those unvoiced agendas or attitudes, or hidden uncertainties marked by body-language cues. Thus, probing points can be effectively used to explore **emotions** which are otherwise concealed in the chain of verbal behavior and speech.

Media. "'It [e.g., stumbling over words, higher vocal pitch, repeated swallowing] is no guarantee that a lie is being told, but it signifies a hot moment, when something is going on you should follow up with interrogation,' Dr. [Paul] Ekman said" (Goleman, *New York Times*, C9, Sept. 17, 1991).

Unwitting cues I. Produced unconsciously, **a.** *autonomic* (see, e.g., **FIGHT-OR-FLIGHT**), **b.** *reflexive* (see, e.g., **ATNR**), and **c.** *visceral* (i.e., "gut reactive," see **SPECIAL VISCERAL NERVE**) signs such as the **Adam's-apple-jump**, **gaze-down**, **hand-behind-head**, and **tense-mouth** reliably reflect emotions which may be unexpressed in words.

Unwitting cues II. Unwitting cues may be used as "pegs" upon which to frame verbal questions designed to reveal attitudes, opinions, and moods. Examples of such questions include: **1.** "Are you certain you really like this model more than that one?" **2.** "You seem hesitant--is this your final answer?" And **3.** "Do you have mixed feelings about this?"

RESEARCH ABSTRACT: "This study examined the effect of probing for additional information on the accuracy of deception detection. One hundred forty-eight experimental interactions were analyzed to see whether deceivers and truthtellers behave differently when probed and whether probing improved deception detection. Probing produced a number of changes in nonverbal behavior, several of which differed between deceivers and truthtellers. Probing may have communicated suspicion or uncertainty; therefore, deceptive sources were motivated to control their nonverbal demeanor to mask deception-related cues and appear truthful. Probing did not improve detection. Instead, probing receivers considered all sources more truthful. It is suggested that suspiciousness and prior knowledge may affect probing's efficacy" (Buller et al. 1989:189).

See also **DECEPTION CUE**, **MESSAGING FEATURE**.

NONVERBAL COMMUNICATION

*Jerry, the **throat-clear** is a nonverbal indication of doubt.* --George, *Seinfeld*

To acquire knowledge, one must study; but to acquire wisdom, one must observe. --Marilyn vos Savant

Concept. **1.** The process of sending and receiving *wordless* **messages** by means of **facial expressions**, **gaze**, **gestures**, **postures**, and **tones of voice**. **2.** Also included are **grooming** habits, body positioning in **space**, and **consumer product** design (e.g., **clothing cues**, **food products**, artificial **colors** and **tastes**, engineered **aromas**, **media** images and computer-graphic displays). Nonverbal cues include *all* expressive **signs**, **signals** and **cues** (audio, visual, tactile, chemical, etc. [see **AFFERENT CUE**])--which are used to send and receive messages apart from manual sign language and **speech**.

Usage: Each of us gives and responds to literally thousands of nonverbal messages daily in our personal and professional lives--and while commuting back and forth between the two. From morning's **kiss** to **business suits** and **tense-mouth** displays at the **conference table**, we react to wordless messages emotionally, often without knowing why. The boss's **head-nod**, the clerk's **bow tie**, the next-door neighbor's **hairstyle**--we notice the minutia of nonverbal behavior because their details reveal **a.** how we relate to one another, and **b.** who we think we are.

Evolution. Anthropologist Gregory Bateson has noted that our nonverbal communication is still evolving: "If . . . verbal language were in any sense an evolutionary replacement of communication by means of kinesics and paralanguage, we would expect the old, predominantly iconic systems to have undergone conspicuous decay. Clearly they have not. Rather, the kinesics of men have become richer and more complex, and paralanguage has blossomed side by side with the evolution of verbal language"

(Bateson 1968:614).

FAQ: A frequently asked question is, "What percent of our communication is nonverbal?" According to Kramer, "**94%** of our communication is nonverbal, Jerry" (*Seinfeld*, January 29, 1998). Kramer's estimate (like the statistics of anthropologist Ray Birdwhistell [**65%**; Knapp 1972] and of psychologist Albert Mehrabian [**93%**; 1971]) are hard to verify. But the proportion of our ***emotional*** communication that is expressed apart from words surely exceeds **99%**. (See below, *Media*.)

Kinds of cues. Body-language signals may be **a.** learned, **b.** innate, or **c.** mixed. Eye-wink, thumbs-up, and military-salute gestures, for instance, are clearly learned. **Eye-blink**, throat-clear, and **facial-flushing** cues, on the other hand, are clearly inborn or innate. **Laugh**, **cry**, **shoulder-shrug**, and most other body-language signals are "mixed," because they originate as innate actions, but cultural rules later shape their timing, energy, and use. Body-language researchers do not always agree on the nature-nurture issue, however. Like Darwin, human biologists suppose that many body-motion signs are inborn. Like Birdwhistell, many cultural anthropologists propose that most or even all gestures are learned, while others combine the biological and cultural approaches. Research by psychologist Paul Ekman and his colleagues has shown that the facial expressions of **disgust**, surprise, and other primary emotions are universal across cultures.

Literature. "Life is made up of **sobs**, sniffles, and **smiles**, with sniffles predominating." --O. Henry (*Gift of the Magi*)

Media. "To study language by listening only to utterances, say [University of Chicago professor of psychology and linguistics, David] McNeill and those who subscribe to his theories, is to miss as much as ***75 percent*** of the meaning" (Mahany 1997:E-3).

Nature vs. nurture. Many biologists consider nonverbal signals *innate* (i.e., unlearned; e.g., Darwin 1872). Cultural anthropologists think many nonverbal signals are *learned* by participation in a social group (e.g., La Barre 1947). Some anthropologists picture nonverbal signs as being organized into *grammatical structures*, like the words and phrases of speech (see Birdwhistell 1970, and Scheflen 1972, e.g., whose purely linguistic approaches have proven largely unproductive). Other anthropologists have combined nature and nurture approaches (e.g., Hall 1968). According to an erroneous view espoused by anthropologist Ashley Montagu, "What is 'innate' in man is an unmatched capacity for learning, and except for the instinct-like reactions to sudden withdrawal of support and to a sudden loud noise, he has no instincts" (Montagu 1973:442; cf. such well-known reflexive body movements as *rhythmic searching*, *grasping*, *climbing*, and *swimming* [Eibl-Eibesfeldt 1970]).

Power of nonverbal signs. "A convincing illustration of the power of nonverbal communication is the unparalleled political popularity experienced by Ronald Reagan, who very early in his presidency was dubbed the 'Great Communicator'" (Burgoon et al. 1989:4).

RESEARCH NOTE. The first scientific study of nonverbal communication was published in 1872 by Charles Darwin in his book, *The Expression of the Emotions in Man and Animals*. Since the mid-1800s

thousands of research projects in archaeology, biology, cultural and physical anthropology, linguistics, primatology, psychology, psychiatry, and zoology have been completed, establishing a generally recognized corpus of nonverbal cues. Recent discoveries in neuroscience funded during the 1990-2000 "Decade of the Brain" have provided a clearer picture of what the unspoken signs in this corpus mean. Because we now know how the brain processes nonverbal cues, body language has come of age in the 21st Century as a science to help us understand what it means to be human.

RESEARCH REPORTS: **1.** Psychiatrists have found that disturbances in nonverbal communication are "more severe and often longer lasting" than disturbances in verbal language (Ruesch 1966:209). **2.** "We have defined over 80 [nonverbal] elements arising from the face and head and a further 55 produced by the body and limbs" (Brannigan and Humphries 1969:406). **3.** In a study of language-disabled children, ". . . nonverbal performatives (e.g., **pointing**, showing, etc.) were not radically different from those of the normal subjects" (Snyder 1978:170). **4.** Women are superior to men in decoding nonverbal cues (Rosenthal and DePaulo 1979).

Neuro-notes. Nonverbal messages are so potent and compelling because they are processed in ancient brain centers located beneath the newer areas used for speech (see **VERBAL CENTER**). From **paleocircuits** in the spinal cord, brain stem, **basal ganglia**, and **limbic system**, nonverbal cues are produced and received below the level of conscious awareness (see **NONVERBAL BRAIN**). They give our days the "look" and "feel" we remember long after words have died away.

Antonym: **WORD**. See also **BODY LANGUAGE**.

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THROAT-CLEAR

Jerry, the throat-clear is a nonverbal indication of doubt. --George (*Seinfeld*, 1998)

Paralanguage. A nonverbal vibration of the vocal cords caused by a sudden, involuntary release of air pressure from the lungs.

Usage: **1.** In a staff meeting or discussion at a **conference table**, a listener's unwitting throat-clear may suggest disagreement, anxiety, or doubt. **2.** While speaking, the throat-clear may reveal **uncertainty**; acute or abnormal throat-clearing is a possible sign of **deception**. **3.** An aggressive version of the throat-clear may be used to interrupt, overrule, or challenge a speaker. **4.** Consciously, the throat-clear may be used to announce one's physical presence in a room.

Salesmanship. *When you feel a "frog" in your throat*: "Create pressure in your throat by holding your breath and trying to exhale at the same time. . . . . Then swallow once or twice" (Delmar 1984:40).

U.S. politics. At the November 26, 2000, Florida certification of that state's U.S. presidential election results, an official from the Florida Secretary of State's office, after citing Yogi Berra, stated, "It's not uh-over until it's over." The "uh-" hesitation seemed to indicate an unverbalized doubt.

RESEARCH REPORTS: **1.** One signal of skepticism is a forced cough or clearing the throat (Delmar 1984:46). **2.** "The [chimpanzee's] cough-threat (or soft bark), a grunt-like sound uttered through slightly open mouth, is only directed down the hierarchy, by higher-ranked to lower-ranked individuals. A call that indicates slight annoyance, it functions as a mild warning to prevent a subordinate from moving closer or from doing something of which the caller clearly disapproves (such as reaching for a piece of his food)" (Goodall 1986:130).

Neuro-notes. Like chemical or food irritants, emotional stimuli associated with disagreement or uncertainty can stimulate throat receptors linked to laryngeal branches of the *vagus nerve* (cranial X). As a gut-reactive or **special visceral nerve**, the vagus automatically closes the throat in situations of threat or harm. Information travels to the vagus nerve's sensory nucleus in the brain stem, and from there to respiratory centers in the *nucleus ambiguous* of the *medulla*. From the medulla, somatic motor fibers of the *intercostal nerves* (T1-T12) are instructed to contract intercostal and abdominal wall muscles (see **BODY WALL**), resulting in a build up of air pressure against the throat's closed *glottis*. As the glottis suddenly opens by action of the vagus, the *vocal cords* vibrate.

See also **ADAM'S-APPLE-JUMP**, **ORIENTING REFLEX**.

TONE OF VOICE

[Hear Two Voice Tones]

The curate shouted, the landlady screamed, her daughter wailed, Maritornes wept, Dorotea was dumfounded, Luscinda terrified, and Dona Clara ready to faint. --Miguel de Cervantes (*Don Quixote*, 1605:407)

The young pastor's voice was tremulously sweet, rich, deep, and broken. The feeling that it so evidently manifested, rather than the direct purport of the words, caused it to vibrate in all hearts, and brought the listeners into one accord of sympathy. --Nathaniel Hawthorne (*The Scarlet Letter*)

Stella! --Marlon Brando (*Streetcar Named Desire*, 1951)

Voice quality. **1.** The manner in which a verbal statement is presented, e.g., its rhythm, breathiness, hoarseness, or loudness. **2.** Those qualities of **speaking** and vocalizing not usually included in the study of languages and linguistics.

Usage: Tone of voice reflects psychological arousal, **emotion**, and mood. It may also carry social information, as in a sarcastic, superior, or submissive manner of speaking.

Aprosodia. Like *aphasia* (the dominant, left-brain hemisphere's inability to articulate or comprehend speech), aprosodia is an inability to articulate or comprehend emotional voice tones. Aprosodia is due to damage to the right-brain's temporal-lobe language areas. Patients with aprosodia miss the affective (or "feeling") content of speech. Persons with damage to the right frontal lobe speak in flat or monotone voices devoid of normal inflection.

Dominance. **1.** "The more threatened or aggressive an animal becomes, the lower and harsher its voice turns--thus, the bigger it seems" (Hopson 1980:83). **2.** According to Kent State University researchers Stanford W. Gregory, Jr. and Stephen Webster, people unconsciously adapt to each other's voice tones (a phenomenon studied by students of "communication accommodation theory"). "The researchers suggest that when two people converse, the person whose low-frequency [i.e., dominant] vocal characteristics change the least is perceived by both as having the higher social status" (Schwartz 1996:A4).

Evolution. According to Eugene Morton of the National Zoological Park in Washington, D.C., almost all mammalian sounds are blends of three basic vocalizations: growls, barks, and whines (Hopson 1980). Our own vocalizations, e.g., at a **confernce table** (both while speaking and apart from speech), reflect these basic three sound modes, as in using a low-pitched, low and loud, or high-pitched voice to argue a discussion point.

FAQs: A significant number of voice qualities are universal across all human cultures (though they are also subject to cultural modification and shaping). **1.** Around the world, e.g., adults use higher pitched voices to speak to infants and young children. The softer pitch is innately "friendly," and suggests a nonaggressive, nonhostile pose. **2.** With each other, men and women use higher pitched voices in

greetings and in **courtship**, to show harmlessness and to invite physical closeness. **3.** In almost every language, speakers use a rising intonation to ask a question. The higher register appeases the request for information, and is often accompanied by diffident **palm-up** gestures and by submissive **shoulder-shrugs** (for neurological links between tone of voice and these cues, see **SPECIAL VISCERAL NERVE**). **4.** The human brain is programmed to respond with specific emotions to specific vocal sounds (see, e.g., **CRY**, *Infancy*; **MUSIC**, *Neuro-notes I*; **STARTLE REFLEX**, *Neuro-notes*).

Literature. **1.** "They [the young Englishmen at Gatsby's party] were at least agonizingly aware of the easy money in the vicinity and convinced that it was theirs for a few words in the right key" (F. Scott Fitzgerald, *The Great Gatsby*). **2.** "Gazing at Pearl, Hester Prynne often dropped her work upon her knees, and cried out with an agony which she would fain have hidden, but which made utterance for itself, betwixt speech and a groan." (Nathaniel Hawthorne, *The Scarlet Letter* [1850])

Media. "There's a hidden battle for dominance waged in almost every conversation--and the way we modulate the lower frequencies of our voices shows who's on top" (*Washington Post* [Schwartz 1996:A4]).

Primatology. "Probably the commonest kind of sound [in wild baboons] is the grunt" (Hall and DeVore 1972:158).

Ritual. Human beings use emotional, nonvocal sounds in their ceremonies, rites, and rituals. In Japan, e.g., the rhythmic clacking of cherry wood clappers (known as *hyoshigi*) is used to begin traditional sumo contests. "The rhythm is oddly disturbing," biologist Lyall Watson writes. "It is precisely that which, as laboratory studies show, stimulates the right hemisphere of the brain, the one that generates emotions instead of logic" [220B].

Salesmanship. "Deeper voices carry more authority for men and women. Everything you say somehow seems truer or more important" (Delmar 1984:39).

U.S. politics. "Would Martin Luther King's 'dream' have captured the imagination of white and black Americans alike had he pronounced his vision in a squeaking soprano? Doubtful" (Blum 1988:3-8).

RESEARCH REPORTS: **1.** Research on "tone of voice" emerged in 1951 with the study of paralanguage, in the pioneering research of George Trager and Henry Lee Smith (Trager 1958). **2.** In 1953, researchers noted that language was accompanied by two other communication systems, *kinesics* (i.e., body-motion signs) and the *extra-linguistic noises* of paralanguage (Hall and Trager 1953). **3.** In 1958, paralanguage was defined to include *voice qualities* ("modifications of language and other noises") and *vocalizations* ("noises not having the structure of language") (Trager 1958:4). **4.** In 1960, the most intensive study of vocal pauses, hems, haws, sighs, gasps, coughs, throat-clearings, speech rate, register, volume, and tone quality--performed on a film of an initial psychiatric interview--was completed; despite voluminous data, it offered few conclusions about tone of voice or paralanguage (Pittenger, Hockett, and Danehy 1960). **5.** "When speaking to babies [and in **courtship**] we give a friendly smile and raise the pitch of our voices" (Eibl-Eibesfeldt 1971:8). **6.** "In Japan, the paralinguistic features which indicate

respect and politeness are breathiness, openness, lowered volume, and raised level of pitch" (Key 1975:151).

E-Commentary: "My boss talked to our managing partner about your organization. He is interested in finding training materials that deal with tone of voice in the workplace. There were two examples that the partner gave to explain what he meant. One is to deliver a tough message (like you're fired) and have the person not take it in a negative way. The second example is where a person greets a co-worker and makes them angry with their tone of voice. Neither of these examples is great for clarifying what he wants, but they do give some idea." --J.C., CCGVP.com (3/22/00 11:45:53 AM Pacific Standard Time)

Neuro-notes I. Like the **Adam's-apple-jump**, tone of voice cues (e.g., vocal tension, throat tightness, and the **throat-clear**) are responsive to emotional stimuli from the **limbic system**, carried by **special visceral nerves** designed for feeding. "Gut feelings" of anxiety or nervousness thus may be revealed as throat, larynx, and pharynx muscles unconsciously tighten as if to seal off the alimentary canal from harm.

Neuro-notes II. After surgical removal of her **amygdala**, "Nonverbal expressions of fear and anger, such as growls and screams, also eluded her comprehension, although she usually recognized sounds that signify happiness, sadness, disgust, and surprise" (Bower 1997:38).

See also **EMOTION CUE**, **KINESICS**.

TWO VOICE TONES:

Welcome to Earth!

What the hell is goin' on!?

(back to **TONE OF VOICE**)

Center for Nonverbal Studies

SHOULDERS

Body parts. **1.** Paired, jointed organs which connect the arms to the torso. **2.** Prominently rounded--as well as angular--parts of the external anatomy, which give the torso a squared-off silhouette. **3.** Very visible body parts often singled out for display with clothing cues (see, e.g., **ARM SHOW**, **BUSINESS SUIT**).

Usage: The flexibility and visibility of human shoulders--and the fact that they are moved by emotionally sensitive (i.e., branchiomeric or "gut reactive") muscles--renders them highly expressive as **signs** (see **SHOULDER-SHRUG**). Their size and angular silhouette when *squared*, e.g., bespeak **dominance** (see **BROADSIDE DISPLAY**).

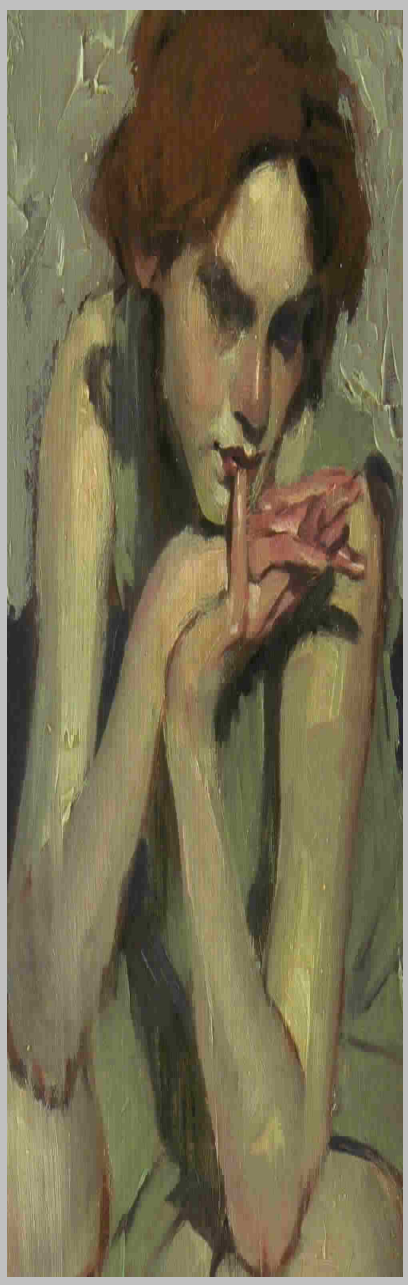
Anatomy I. The bones of our shoulder girdle consist of a pair of flattened *shoulder blades* (or *scapulas*), each connected to a bracing *collar bone* (or *clavicle*). The sides of the bony girdle sit upon our rib cage, not unlike football shoulder pads. Unattached to any bones but the clavicles, the scapulas glide *up and down*, move *back and forth*, and *rotate* about our back and spine. Only the clavicles' attachments to the breastbone stabilize their motion.

Anatomy II. Six muscles move and connect the shoulder girdle's four bones to our main skeleton. Anterior are *subclavius*, *pectoralis minor*, and *serratus anterior*; posterior are *levator scapulae*, *rhomboid*, and *trapezius* (Rasch 1978).

Neuro-notes. Upper trapezius is **emotionally sensitive** because it is innervated by **special visceral nerves**.

See also **PHARYNGEAL ARCH**, **SHOULDER-SHRUG DISPLAY**.

ARM-SHOW



Display. **1.** To bare the arm, from the roundness of the **shoulder** to the boney wrist. **2.** To display the femininity of slender (i.e., *gracile*) arms, or the masculinity of thicker (i.e., *robust*) arms **a.** for sexual appeal, and **b.** for competition (among males) in **courtship**.

Usage: Because they reflect differences between the female and male body (i.e., are *sexually dimorphic*), we show our arms as a form of *sex appeal*. Thicker, more muscular male arms may be displayed to *challenge* rival men.

Media. **1.** In the 1930s, Jean Harlow wore an *evening gown* in *Platinum Blonde*, and Dorothy Lamour wore a *sarong* in *The Jungle Princess*, baring their thin arms and popularizing sleeveless apparel for women in the process. **2.** In 1951, a shirtless Marlon Brando displayed his thicker arms in *A Streetcar*

Named Desire, paving the way for masculine arm-shows of the post-WWII years. **3.** In 1957, Marilyn Monroe's white-crêpe, halter-neck dress, worn in *The Seven Year Itch*, launched the sleeveless *halter top*, a garment designed to reveal the feminine arm from its curvilinear *deltoid* muscle to its slim wrist. **4.** Four-thousand years before Hollywood, arm-showing was already a popular fashion statement, as revealed by a sculpted model of a *sleeveless bead-dress* from ancient Egypt's Middle Kingdom, dated to 2000 B.C. (Barber 1994).

Antonym--**ARM WEAR**. See also ***WWW.Victoriassecret.com***.

COURTSHIP

Once I'm done with kindergarten, I'm going to find me a wife. --Tom (age 5)

Vivian put the moves on Victor. He resisted her at first, then warmed to her advances. By the time Kate resurfaced the next year on a fishing boat, Victor and Viv were in love. *--Days of Our Lives* (*Soap Opera Digest* synopsis, May 2, 2000, p. 48)

Nonverbal negotiation. To send and receive **messages** in an attempt to seek someone's favor or **love**.

Usage: In all cultures, human beings attain the closeness of sexual intimacy through courtship, a slow negotiation, based on exchanges of **nonverbal cues** and **words**. All vertebrates from reptiles to primates reproduce through mating--via *internal fertilization* of the female's body. Through its five *phases* (see **LOVE SIGNAL**), courtship is the means by which two people close the physical gap and emotional distance between them to become a loving pair.

Prehistory. The word *court* traces to the ancient, Indo-European root, **gher-**, "to grasp, enclose."

See also **RAPPORT**.

MESSAGE

Communication. A transmittal of **information** by **signs**, **signals**, **cues**, or **words** from one living thing to another.

Usage: Regarding nonverbal messages, **a.** all cues are signals, and **b.** all signals are signs--but **c.** not all signs are signals, and **d.** not all signs and signals are cues. Regarding verbal messages, words may be spoken, whistled, written, or manually signed.

See also **MESSAGING FEATURE**.

CONFERENCE TABLE

If you are really looking for control, spread your notebooks, pens, manuals, and anything else you brought along over as broad an area as possible--without bursting anyone else's [territorial] bubble. This will give you further claim to the territory. --Susan Bixler (*The Professional Image*, p. 236)

Consumer product. **1.** A flat, smooth piece of furniture designed as a stage to dramatize face-to-face meetings. **2.** A corporate "level playing field" upon which speakers may address colleagues on matters of business. **3.** A horizontal flatland, or *territory*, in which to send defensive and offensive **messages** with the **eyes**, **face**, **hands**, and **shoulders**.

Usage: Nonverbally, conference tables showcase the upper body's **signs**, **signals**, and **cues**. The table's shape, size, and seating plan **a.** influence group dynamics, and **b.** may also affect the emotional tone and outcome of discussions. (***N.B.***: Because *torso height* varies less than standing height, people seated around conference tables appear to be roughly the same size; thus, conference tables neutralize physical advantages of *stature* [see **LOOM**].) Meanwhile, the lower body's features are securely masked below the tabletop, and do not compete for notice with heads, hands, or eyes. A conference table may symbolize corporate status and power in business, politics, and military affairs.

Observation. The conference table is a nonverbal battlefield. **1.** To promote key points, speakers should *lean forward* over the table and use **palm-down** gestures. (***N.B.***: Leaning backward, away from the table and **palm-up** gestures may suggest **submissiveness**, i.e., lack of conviction.) **2.** *Cuffs*, *bracelets*, and *wristwatches* add visibility to hand gestures. **3.** Nonverbal impacts of **angular distance**, **arm wear**, **business suits**, **cut-off**, **hairstyles**, and **neckwear** are exaggerated by close-quarters interaction at the conference table.

RESEARCH REPORTS: **1.** **Dominant** individuals choose central seats and do most of the talking (Hare and Bales 1973). **2.** Leadership and "central" seating positions (i.e., "opposite the most others") "go hand in hand" (Burgoon et al. 1989:389). **3.** Competence across a boardroom table shows in a well-moderated voice tone, rapid speech, few verbal disfluencies or hesitations, fluid gestures, and eye contact. Listeners respond negatively to dominance cues, on the other hand, such as a loud voice, **eyebrow-lowering**, staring, postures stiff with muscle tension, and **pointing** (Driskell and Salas 1993).

See also **STEINZOR EFFECT**.

CONSUMER PRODUCT

Thus there exists a dictionary situation for everyone: designers design, manufacturers manufacture, and diverse consumers consume diversity. --Henry Petroski (*The Evolution of Useful Things*, 1992)

We look to nature for products because natural selection has had an incredible amount of time to optimize substances for varied purposes. --Scott Rapoport (2000:E-2)

Rubbermaid products evolve according to Darwinian laws. --Jay Mathews (1995B:H4)

Like computing, genetic science is evolving into a consumer technology. --John Rennie (2000:6 [Author's Note: Our own bodies have become consumer products.])

Artifact. **1.** A material object deliberately fabricated for mass consumption and use. **2.** An edible, wearable, drinkable (i.e., *usable*) commodity exhibiting a standardized design. **3.** An artifact bearing a *brand name* (see, e.g., **BIG MAC**®) promoted in the **media**.

Usage: Like **gestures**, consumer products are informative, provocative, and highly *communicative*. *Shoes*, *hats*, and *wrist watches*, e.g., have a great deal to "say" about gender, identity, and status. The make, model, and color of a *new car* reflect a buyer's personal tastes, moods, and individuality.

Clutter. **1.** "She [Marilyn Vondra, an opera singer] telephoned her clutter-support person a week later [after attending a 'Letting Go of Clutter' workshop] to say that, for the first time in some years, she had glimpsed the top of the coffee table. 'It's glass,' she said" (Dullea 1992:C1). **2.** ". . . as experts will tell you, attachments to objects are emotional, never logical" (Dullea 1992:C6).

Design. Consumer goods "speak" via **messaging features**--expressive emblems, insignia, and signs

placed to stand out against more functional elements of a product's design. The mouth-shape of a **vehicular grille**, e.g., which suggests an alert, **angry**, or **tense face**, has little bearing on automobile reliability, safety, or speed. The tiny flag-shaped *tag* on the derrière of Levi's® **blue jeans**, too, adds **information** rather than durability to the product. (***N.B.***: Messaging features resemble the aromatic *secondary products* of **herbs & spices**, which evolved to communicate apart from the practical needs of plant metabolism, growth, and reproduction.)

Evolution. The earliest known products (dated to ca. 2.5 m.y.a.) are intentionally flaked *Oldowan pebble tools* from Ethiopia, produced by our oldest-known human ancestor, *Homo habilis*. By ca. 1.6 m.y.a., a more eloquent, fist-sized *hand-axe*, bearing a standardized, symmetrical, leaf-shaped design, was chipped in East Africa by *Homo erectus*. Since the Stone Age, the number of products invented and used by our species, *Homo sapiens*--from *Silly Putty*® to *interstate highways*--has increased at a rate three times greater than biological evolution (Basalla 1988). As the brain and body were shaped by *natural selection*, consumer goods adapted to the mind through a parallel process of *product selection*, which has rendered them ever more fluent, expressive, and fascinating to our senses.

Materialism. "The Gallup Organization revealed today the first scientific national poll of the world's most populous country, revealing a billion Chinese ambitious to become rich and buy millions of televisions, washing machines, refrigerators and videocassette recorders" (Mathews 1995:A13).

Media. Product selection in the modern age is shaped, intensified, and sped by electronic media through an ancient, imitative principle know as **isopraxism**. On January 31, 1993, e.g., broadcast images of contented human beings gulping carbonated *soft drinks* reached an estimated 120 million viewers of Super Bowl XXVII, many of whom later purchased products seen on TV.

Packaging I. "A study by the DuPont Corporation showed that 78 percent of supermarket purchases were made as a result of package design and eye appeal" (Vargas 1986:143; note that packages are consumer products, as well).

Packaging II. A singularly effective package is the Betty Crocker® cake mix box, introduced in 1954. "A close-up photo of the prepared cake, ideally colored, provides the background for an oval red spoon containing the logo. Ovals are more pleasing to the subconscious mind than shapes with sharp angles [by 1956, sales of Betty Crocker cake mixes had quadrupled]" (Vargas 1986:144).

Shopping. "In places like Poland and Hungary, the huge stores that have replaced drab, poorly stocked shops of the communist days are the busiest places in town on Sundays. Thousands of cars fill parking lots and couples with children, many dressed in their Sunday best, push carts filled with groceries, clothing, even appliances" (Stylinski 1998:A8).

Speech I. There is an evolutionary link between material artifacts and spoken language: "Evidence that 'archaic' *Homo sapiens* did indeed have cognitive control of hierarchically structured composite [speech] units comes from their tool technology. For the first time, hafted tools appear. These are composite tools, made from individual pieces put together and functioning as a whole" (Foley 1997:72; see **MEDIA**,

Images and words; and **SPEECH**, *Evolution I & II*).

Speech II. Just as our species combines words into sentences, human beings also combine materials into products. The first known use of glue (a heat-treated asphalt) to join stone tools to wooden handles, e.g., dates back ca. 30,000 years to a Syrian archaeological site between the Palmyra and Euphrates rivers (Weiss 1996).

Writing. An evolutionary link between artifacts and writing exists as well: "Writing was invented [around 3300 B.C. in Sumer, in ancient Mesopotamia] to keep track of the storage or disbursement of commodities, and for several centuries it was used only for accounting purposes" (Anonymous 1992).

RESEARCH REPORT: The number of everyday artifacts encountered in our lives has been estimated at between 20,000 and 30,000 manufactured objects (Petroski 1992).

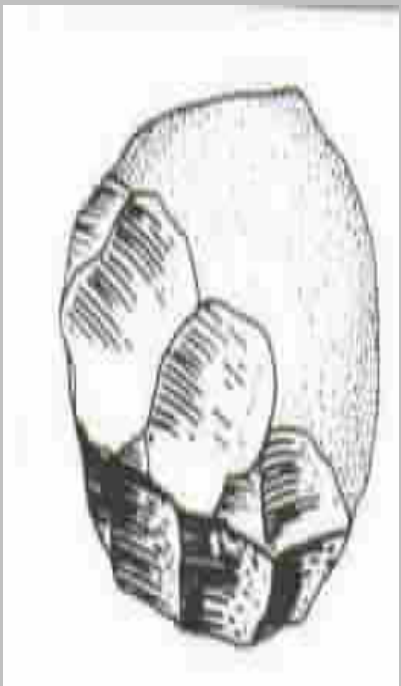
E-Commentary: "In watching the impeachment hearings last week, I was struck by the role of gifts in the Clinton-Lewinsky relationship. There seems to have been a compulsion to give gifts--she gave him 40, he gave her 24--even though they carried some risk. Indeed, the disposition of those very gifts forms the basis of the obstruction of justice impeachment charge. It all made me think: What is the deal with gifts? Why do they loom so large in **courtship**?" K.O'B., *The Newark Star-Ledger* (99-01-21 10:19:41 EST)

Neuro-notes I. We eagerly covet, collect, and consume material goods, which beckon to us as "gestures" from billboards, catalogues, and discount store shelves. **Juice substitutes**, **women's shoes**, and **new car smell**, e.g., engage diverse areas of our brain to which they "speak." PET studies show that we process *object knowledge* (i.e., the verbal labels for products) through many separate brain areas linked by interconnected circuits called *distributed systems*.

Neuro-notes II. Color words used to describe, e.g., a *super bouncy ball* come from our brain's *ventral temporal lobe*, located in front of the "color area" on the inferior temporal cortex. Motion words for the ball's lively bounce, on the other hand, come from the *middle temporal gyrus* in front of the brain's "motion area," on the posterior parietal cortex (Martin et al. 1995:102). MRI research suggests that a large part of our neocortex is occupied by such processing "substations" for vision (Sereno et al. 1995:889). Thus, while super bouncy balls cannot actually speak, their messaging features nonetheless engage multiple knowledge areas of our brain. Colorful balls have more to "say" than natural objects such as twigs and fallen leaves, because only the most expressive consumer products survive.

See also **OBJECT FANCY**, ***WWW.Target.com***.

ARTIFACT



Why these paper clips have gained such widespread popularity is a functional mystery but a fine example of the role aesthetics and style can play in the evolution of artifacts. --Henry Petroski (*The Evolution of Useful Things*, 1992)

CHARLESTON, W.Va. -- A resourceful convict braided dental floss into a makeshift rope and used it [to] scale an 18-foot jailhouse wall and escape. --Nancy Nussbaum (1994)

It [the Spalding Allen collection of Nez Perce shirts, hats, and other objects collected in the 1840s] definitely has historical and cultural value to our children, their children and their grandchildren. These artifacts should be located here in Nez Perce country [i.e., in Idaho rather than in Ohio]. --Allen Slickpoo Sr., Nez Perce tribal historian (Kenworthy 1995:A3).

Durable ***sign***. A material object (e.g., a **consumer product**) deliberately fabricated by humankind.

Usage: Like **gestures**, artifacts have a great deal to "say." The simplest **message** transmitted by an artifact is, "Something *manmade* is here" (Givens 1982:172). "Manmade" (i.e., intelligently fabricated by humans) is evident in **a.** the deliberately *patterned shape*, **b.** the grammatical *syntax* (i.e., the structured arrangement of parts), and **c.** the *negative entropy* encoded in artifacts as material signs, **signals**, and **cues**.

Word origin. The word *artifact* comes from the Latin *arte* ("by skill") *factum* ("made"; via the ancient Indo-European root *dhe-*, "to set," "to put," derivatives of which include *deed*, *did*, and *do*; skill "by hand" is implied).

Anthropology. "At dozens of archaeological sites in Africa, razor-sharp stone flakes and round hammer-stones mark the handiwork of anonymous craftspeople who forged tools as early as 2.6 million years

ago" (Gibbons 1997:32).

Duncan® Yo-Yo. The yo-yo "speaks" nonverbally to our visual, spatial, tactile, and kinesthetic senses in a colorfully kinetic dialogue (see **SUPERBALL**). The yo-yo (Tagalog for "come back") evolved from a Philippine hunting tool made from a softball-size stone tied to a length of plant vine or a leather thong which enabled throwers to retrieve the weapon with a simple flick of the wrist (Hoffman 1996). The modern yo-yo thus has a great deal of physics, prehistory, and hunting lore encoded in its maple, beech, or plastic form (see below, *Neuro-notes III*).

Lego®. European and U.S. children express themselves nonverbally through the whimsical artifacts they build with Lego bricks (made of the plastic, acrylonitrile butadiene styrene). In Latin, *Lego* means "I put together" (Hoffman 1996). The number of artifacts that may be fabricated from Lego's 1,700 differently shaped bricks is inestimable (as is the number of sentences that may be fabricated from the vocabulary of words).

Prehistory I: *Oldest sign artifacts*. "The oldest human sign artifacts, consisting of engraved animal bones such as the Bordes ox-rib, date to perhaps 300,000 B.P. [before present] from the pre-Neanderthal period in France (Marshack, 1971; 1975). The symbolism is as yet unexplained; however, the V-shaped engravings appear to be constructed--distinctively patterned--rather than natural, so a quite general message, 'made by man,' reaches the contemporary receiver" (Givens 1982:161).

Prehistory II: *Sculpted figures*. **1.** "Starting about 40,000 years ago with *Homo sapiens sapiens*, the archeological record evidences what can be termed a semiotic 'explosion,' a proliferation in human sign-making activities" (Givens 1978:161). **2.** " . . . realistically carved animal and human forms appear in Germany's Vogelherd Cave (dating to 30,000 B.P.); as does the French figurine, the Venus of Laussel (dated to 22,000 B.P.). Such signs convey not only 'made by man' and 'man was here,' but rather more complicated messages: 'horse,' 'lion,' 'leopard,' 'bear,' 'bison,' 'mammoth,' 'human adult female,' and perhaps even such qualities as 'standing,' 'awake,' '**bowed head**,' 'stretched neck,' and so on" (Givens 1982:161-62).

Tinkertoy®. A second multi-part construction toy (see above, *Lego*) is the Tinkertoy, created in the U.S. in the 1920s. This "meta-artifact" (i.e., an artifact from which other artifacts may be made) was invented by stone mason Charles Pajeau, who ". . . noticed how much fun his own children had sticking pencils into empty spools of thread, then haphazardly assembling them into all sorts of abstract forms" (Hoffman 1996:91; see **HANDS**, *Later signs*). Lockheed has used Tinkertoy's nonverbal components to test airplane artifacts, including fuselage and wing designs.

RESEARCH REPORTS: **1.** By the age of five, the typical American child has owned 250 artifacts (i.e., *toys*; Rosemond 1992). **2.** The Tasmanian islanders (who lived off the southeastern coast of Australia) are known to anthropologists as the people who made and used the *least number of artifacts* of any cultural group in history. In all, the Tasmanian islanders used a total of ca. 25 stone and wooden tools, fiber baskets, shell necklaces, ropes, and bark canoes (Diamond1993). **3.** And yet, the contrast between U.S. consumers, e.g., and Tasmanians is not marked, because the total time spent *handling*, *repairing*,

exchanging, and *communicating with and about* artifacts may be roughly the same everywhere (see **OBJECT FANCY**). (***N.B.***: A case in point is Tibet, where material goods are scarce--and yet where monks nonetheless spend hours each day spinning cylindrical *prayer wheels*.)

Hand-held. Archaeologists define artifacts as *portable objects* (e.g., beads, arrowheads, and car keys) which are small enough to carry. In a lifetime, we handle millions of artifacts which "speak" to us through their colors, textures, aromas, and sounds (see **MESSAGING FEATURE**). (***N.B.***: The Smithsonian Institution is home to ca. 140 million "objects" [Bliss 1994:3], all of which--including insects, meterorites, and tropical plants--may be classed as artifacts because they have undergone S.I.'s preservation, stabilization, and/or mounting process.)

Monumental. Pyramids, interstate highways, and the Great Wall of China are immoveable artifacts, too heavy for *Homo* to carry. Most monumental artifacts were made after humans had stopped hunting, gathering, and wandering (ca. 10,000 years ago), and had settled down as farmers. (***N.B.***: Today, the typical 2,000-square-foot U.S. home weighs an average 340,000 lbs., and "speaks" to us through messaging features designed, e.g., into its arches, shutters, and eaves.)

Colossal. The biggest artifact of all--an ever-spreading and encompassing material veneer we shall call the *Artifact*--is the sum total of homes, walls, Mid-East tells, campuses, shopping centers, skyscrapers, freeways, interstate highways, strip malls, and sidewalks currently covering, intertwining, and occupying our planet's surface. For hypothetical visitors from outer space, the Artifact (in tandem with humankind's electromagnetic **media** signals) is the largest physical sign of humanity's presence on Earth. (***N.B.***: Americans spend 97% of their lives inside the Artifact, secure in its exoskeleton of concrete, steel, plaster, and wood. At least 99% of the 3% of our time spent outdoors takes place on constructed walkways, highways, and byways--which "speak" to us of our humanity and separation from nature [see **NONVERBAL WORLD**].)

Spatial. The remotest human artifacts are the Pioneer 10 and Voyager 1 spacecrafts, which are traveling indefinitely away from Planet Earth, and which, should they be discovered by intelligent extraterrestrials, would "bespeak" our humanity.

Gravitational. As a physical expression of weight, a platinum-iridium alloy cylindrical artifact was fabricated to represent, nonverbally and apart from words, the International Prototype Kilogram. "It was made in 1878, and scientists agreed in 1889 for all time to define 'one kilogram' as equal to the mass of that cylinder" (Anonymous 1983:16).

Emotional. When asked to identify our most treasured possession, we often name an artifact given to us by an older family member (Sutton and Waite 1992).

Most viewed. "Considered cursed because three of its owners met tragic ends, the gem [the Hope Diamond] attracts more oglers than any other museum object in the world, including the 'Mona Lisa,' said museum [National Museum of Natural History] spokesman Randall Kremer" (Groer and Gerhart 1996:B3).

Unusual usages. Humans use artifacts in oddly innovative ways. **1.** On July 16, 2001, Sandra Guba, 36, allegedly hit Joy DuBord, 45, on the side of the head with a piece of bread. Guba, a rival of DuBord for the affections of massage therapist Chris Allshouse (a man), 29, was cited in Dana Point, California, for assault and battery with a peanut butter sandwich (Anonymous 2001I). **2.** On August 31, 2001, Thomas Rokosky, 26, allegedly attempted to rob a store in Harrison Township, Pennsylvania, by threatening the store clerk with a can of ravioli wrapped in his shirt (Anonymous 2001L).

Neuro-notes I. **1.** "Areas and pathways subserving object and spatial vision are segregated in the visual system. Experiments show that the primate prefrontal cortex is similarly segregated into object and spatial domains. . . . . These findings indicate that the prefrontal cortex contains separate processing mechanisms for remembering 'what' and 'where' an object is" (Wilson et al. [*Science*] 1993:1955). **2.** "When an object is seen or its name read, knowledge of [its] attributes is activated automatically and without conscious awareness" (Martin et al. [*Science*] 1995:102; see **WORD**, *Neuro-notes III*). **3.** "The visual system separates processing of an object's form and color ('what') from its spatial location ('where'). In order to direct action to objects, the identity and location of those objects . . ." may be integrated with help from neurons in the **primate brain's** prefrontal cortex (Rao, Rainier, and Miller [*Science*] 1997:821).

Neuro-notes II. According to PET imaging studies, artifact picture identification activates the left brain hemisphere (specifically, the dorsolateral frontal and temporal cortex [Perani et al. 1999].) (**Animal** picture identification, on the other hand, activates both the right and left occipital regions [Perani et al. 1999]).

Neuro-notes III. "When we create an artifact such as a tool, we leave a physical trace of our thoughts" (Hauser 2000:22).

See also **NONVERBAL LEARNING**.

CUE

Communication. **1.** A nonverbal **sign** used to prompt an event, behavior, or experience. **2.** In psychology, a *stimulus*, consciously or unconsciously perceived, which elicits a type of behavior (e.g., a soft **touch** may prompt a hug or a **kiss**).

Usage: Because nonverbal cues suggest what may happen, they often elicit a response (e.g., a listener's **shoulder-shrug** reveals uncertainty, prompting the speaker to elaborate and further explain a point).

Word origin. *Cue* is an ancient word derived from the Indo-European root *kwo-*, for "who," "what," "when," "why," "where," and "how."

See also **MESSAGE**, **SIGNAL**.

TOUCH CUE

Most decide by "the touch," that is, the feel . . . . --Andrew Ure

Touch is infrequent and usually consists of a slight tap on a woman's shoulder. Or he may run his arm around the waist of a woman visitor. Men are never touched by [TV talk-show host, Phil] Donahue. --Walburga von Raffler-Engel (1984:16).

*Tactile **signal***. **1.** *Incoming*: A **sign** received through physical contact with a body part (e.g., a **hand** or **lip**), causing it to *feel* (see **HOMUNCULUS**). **2.** *Outgoing*: A sign of physical contact (e.g., of *pressure*, *temperature*, or *vibration*) delivered to a body part (see, e.g., **KISS**).

Usage I: Touch cues are powerfully real to human beings. If "seeing is believing," touching is *knowing*--i.e., knowing "for sure." Touch cues are used worldwide to show **emotion** in settings of childcare, comforting, and **courtship**, and to establish personal **rapport**.

Usage II: **Self-touching** is often seen in anxious or tense settings, as a form of self-consolation by means of *self-stimulation* (see below, *Usage IV*).

Usage III: "Soft" or *protopathic* touch--which is found in hairless (or glabrous) areas of our skin--is partly responsible for itching, tickling, and sexual sensations (Diamond et al.1985:4-6). Protopathic touch is ancient, but gives little information about the size, shape, texture, or location of a tactile stimulus.

Usage IV: "Itch" sensations may trigger the spinal cord's rhythmic, oscillating scratch reflex. Scratching

stimulates pain receptors (or nociceptors) which drown out (i.e., block) the itchy feeling. Primates often scratch themselves in anxious social settings and when intimidated by dominant rivals.

Usage V: "**Tickle**" is a tingling sensation, considered both pleasant and unpleasant, which often results in **laughter**, smiling, and involuntary twitching movements of the head, limbs, and torso.

Anatomy. The outer covering of skin is our body's largest "part." Skin makes up about 15% of the body's weight (ca. 23 lbs.), and occupies some 21 square feet of surface area (Wallace et al.1983:254). Pain and protopathic touch cues are received via free nerve endings in the skin and hair follicles. More specialized nerve endings have evolved for finer touch and temperature discrimination. *Mechanoreceptors* (including *Pacinian corpuscles*, *Merkel's disks*, and *Meissner's corpuscles*) sense pressure, stretching, and indenting of the skin. *Thermoreceptors* (*Krause end bulbs* for cold and *organs of Ruffini* for heat) are sensitive to changes in temperature.

Culture. **1.** According Edward Hall (1966), "contact cultures" (e.g., France, Latin America, and Saudi Arabia) use a greater frequency of aroma and touch cues than do "noncontact cultures" (e.g., Germany and North America), which use more visual cues. **2.** The *buttock pat*, used in American football as a sign of encouragement, has spread to European sports (Morris 1994:14). **3.** In Germany, Austria, Eastern Europe, and the Middle East, the *buttock slap*--in which the right buttock pushes out as if or to be slapped with one's own right hand--is given as a sign of insult (Morris 1994:14).

Evolution. The most primitive, specialized tactile-sense organ in vertebrates is the *neuromast*, a fluid-filled pit in the skin of today's fishes, which picks up vibrations, heat, electrical, and (perhaps) chemical signals in the surrounding water. Each neuromast contains a *hair cell*, which, when moved by water currents generated by a nearby fish, e.g., stimulates a sensory nerve. Through the neuromast, the current becomes a nonverbal sign of another fish's presence.

Handshake. Grasping another's hand with a **power grip** is a widespread means of expressing congratulations, contractual agreement, farewell, and greeting. The handshake is European in origin (Morris 1994), although many cultures touch hands and other body parts with the hand(s) to greet family members and fellow tribesmen. These socio-emotional touch cues developed from tactile signs originally used in **mammalian** grooming and childcare. **1.** "We do know that the full Hand Shake occurred as early as the 16th century because in Shakespeare's *As You Like It* there is the phrase: 'they shook hands and swore brothers'" (Morris 1994:125). **2.** In the *politician's* handshake, two hands reach out to clasp and surround another's hand, like a glove, to intensify the emotions aroused by physical closeness and "friendship." According to Morris (1994:126), the glove handshake is widespread in "diplomatic, political and business circles." **3.** A study reported in the July 2000 *Journal of Personality and Social Psychology* found that women ". . . who introduce themselves with an assertive gesture by way of a firm handshake were perceived as being intellectual and open to new experiences" (Lipsitz 2000:32).

Maternal care. Adult female rats who receive frequent touch cues (e.g., licking, nuzzling, and grooming) as pups show heightened sensitivity to the hormone estrogen, and touch their own offspring more than do rats who were touched infrequently as pups. "This physiological effect of grooming suggests that a

change in the female pup's brain governs the animal's own mothering styles," according to research by neuroscientists at McGill University in Montreal (published in the October 23, 2001 *Proceedings of the National Academy of Sciences*; Bower 2001:280).

Primates. "A troop of [at least 100] furious monkeys in India's northeastern state of Assam brought traffic to a standstill after a baby monkey was hit by a car on a busy street. . . . . The angry monkeys kept traffic at bay for more than a half hour as they tried to care for the infant. A local shopkeeper said: 'It was very emotional . . . some of them massaged its [broken] legs'" (Newman 2000:C14).

Space. When Apollo 11's pilot, Michael Collins, flew above the Moon, he felt he could "almost reach out and touch it" (Collins1988:5).

Sports. Many baseball players go through touch rituals before they come to bat. "Nomar Garciaparra, the shortstop for the Boston Red Sox, has a routine with his batting gloves [i.e., he compulsively adjusts and re-adjusts them] that would rival the machinations during the changing of the guard at Buckingham Palace" (Wilkens 1998:E-3).

RESEARCH REPORTS: In a review of studies of people touching one another, Vrugt and Kerkstra (1984) concluded that **a.** touching of opposite-sex acquaintances, "even at an early age," is avoided (p. 14); **b.** young adults, "as when bowling," touch each other more in mixed than in same-sex interactions (p. 14); **c.** "old" women touch more than "old" men, seemingly due to declining sexual interests (pp. 14-15); **d.** while greeting and departing, men "behave less intimately toward each other" than women behave toward each other (p. 15 [Author's note: But hugging has become more prevalent among U.S. men since the 1980s.]); and **e.** women "**shrink less** from being touched by **strangers** than men" (p. 15).

E-Commentary: "As you know, I work in the Pentagon. By the grace of God, I am okay. I can only say that I wish there were something more I could do. The FBI has taken over the area and we were not allowed to go in for the bodies. In a window on the impact side of the Pentagon flew an American Flag--my colors. It was tattered and torn, yet had somehow survived the blast. The Site Commander, Lieutenant General Van Elstyn (U.S. Army), ordered that the colors be retired. A Marine, Master Gunnery Sergeant, John A. Northcutt, Jr., called for four Marines. Myself and three others reported quickly, and were ordered to fold the flag and retire the colors properly. We did so, and as I folded the ripped and dirty flag, the enormity of the situation hit me. In my hands I held the enduring symbol of all that remains right in America. The fabric was torn, tattered, and filthy; but it was still firm. We faced, marched toward the General, halted three steps in front of him, and the Master Gunny presented the flag. Lt. Gen. Van Elstyn saluted the colors and thanked us. As we faced and returned to our stations to help in any way possible--I nearly lost my composure. The texture of that flag will never leave my mind--the grit from the debris and the soaked fabric from the hoses. I will carry that with me the rest of my days. I was crying inside, and I didn't want to stop touching it." --Sergeant Bret Balerlein, USMC (Date: Tue, 18 Sep 2001 21:45:56 -0700)

Neuro-notes I. "In primitive brains, subcortical and extrathalamic sensory structures were crucial to sensory processing. Comparable structures continue to be important in the advanced brains of modern mammals, even though the role of the cerebral cortex and thalamus in sensory processing has expanded

enormously. For example, the reticular formation in the brainstem is one of the major sensory-motor integration systems in nonmammalian vertebrates. In mammals, it continues to play a role in sensory processing and it contributes to the arousal mechanism, selective attention, and motor control" (Willis 1998C:109).

Neuro-notes II. We find pleasure in a carpet's softness, as it stimulates the poorly localized tactile sensations for soft or protopathic touch, carried by the anterior spinothalamic nerves (whose **paleocircuits** are phylogenetically older than those for the more precise sensations of pain and temperature, carried by the lateral spinothalamic nerves).

See also **AROMA CUE**, **COLOR CUE**, **EMOTION CUE**, **TASTE CUE**.

Detail of photo (James Dean holds Julie Harris's hand; copyright by Warner Bros., Inc.)

LIPS

He was a person of very striking aspect, with a white, lofty, and impending brow, large, brown, melancholy eyes, and a mouth which, unless when he forcibly compressed it, was apt to be tremulous, expressing both nervous sensibility and a vast power of self-restraint. --Nathaniel Hawthorne (*The Scarlet Letter*)

Mood signals. **1.** The muscular, fleshy, hairless folds surrounding the mouth opening, which may be moved **a.** to express **emotions**, **b.** to pronounce **words**, and **c.** to **kiss**. **2.** The most emotionally expressive parts of the human body.

Usage: Lips give off telling **cues** about inner feelings and moods. So connected are lips **a.** to our *visceral nervous system* and **b.** to *companion muscles* of our lower face, that we rarely keep them still. Like **hands**, lips are incredibly gifted communicators which always bear watching.

Anatomy I. Lip size (full or thin), curvature (sinuous or straight), and eversion (everted or inverted) vary in men and women, and in geographic populations as well. The principal lip muscle, *orbicularis oris*, is a sphincter consisting **a.** of *pars marginalis* (beneath the margin of the lips themselves), and **b.** *pars peripheralis* (around the lips' periphery from the nostril bulbs to the chin). (***N.B.***: P. marginalis is uniquely developed in humans for **speech**.) Contraction of orbicularis oris tenses the lips and reduces their eversion.

Anatomy II. Lips may be moved directly by orbicularis oris and by *direct labial tractor* muscles in the upper and lower lips. Contraction of *levator labii superioris alaeque nasi*, *levator labii superioris*, and/or *zygomaticus minor*, e.g., elevate and/or evert the upper lip; while *depressor labii inferioris* and/or *platysma par labialis* depress and/or evert the lower lip. The complexity of muscle interactions thus reflects the complexity of emotion blends.

Anatomy III. Lips may also be moved indirectly by nine (or more) other facial muscles (e.g., by *zygomaticus major* in **laughing**) through attachments to a fibromuscular mass known as the *modiolus*. That so many facial muscles interlink via the modiolus makes our lips extremely expressive of attitudes, opinions, and moods.

Embryology. On day 22, **pharyngeal arches** form, and by 20 weeks, orbicularis oris (and other muscles of expression) form from the 2nd pharyngeal arch.

Infancy. From 3-to-6 months, babies bring objects to their lips to be explored, and make sounds with objects placed against their lips.

Lipreading. Functional magnetic resonance imaging (fMRI) studies show that the linguistic visual cues afforded by lip movements activate areas of auditory cortex in normal hearing individuals (Calvert et al. 1997).

Observation. Unconscious tension in lips reflects how we truly feel about, e.g., a boss's work assignment, a friend's off-hand comment, or a colleague's "helpful" idea. A slight drooping at the mouth corners (through unconscious contraction of *depressor anguli oris*) may be the first visible sign of (unvoiced) sadness or disappointment.

Primatology. Beginning with muscular contractions for suckling breast milk, the **primate brain** added the ability to grasp food items with *everted lips*. Chimps, e.g., use *prehensile lips* to pluck termites from twigs. (***N.B.***: Humans use their own prehensile lips to pluck french fries from a bag.)

Neuro-notes I. The *facial nerve's* (i.e., cranial VII's) *lower nucleus* controls the pouted-, curled-, and tightened-lip expressions we unintentionally use to reveal our moods. Instructions for these signals come from **limbic** modules, such as the **amygdala** and **cingulate gyrus**, by way of the brain stem. Because there is little or no conscious control from higher brain centers, lip movements provide trustworthy cues.

Neuro-notes II. Our brain devotes an unusually large part of its surface area to lips (see **HOMUNCULUS**). In the mind's eye, as a result **a.** of the generous space they occupy on the sensory and motor strips of our neocortex, and **b.** of the older **paleocircuits** linking them to *emotional*, *feeding*, and *grooming* centers of the **mammalian brain**, almost anything a lip does holds potential as a **sign**.

Neuro-notes III. Our **human brain** added precision to lip movements through nerve fibers linked to the

primary motor neocortex. Today, fiber links from this area descend through the corticobulbar tract to motor neurons of the facial nerve, whose branches take charge of specific muscle fibers of the lips. That we can whistle a tune (and that whistle languages are "spoken" in some areas of the world) testifies to our lips' extremely high IQ as neurological smart parts.

See also **DISGUST**, **LIP-COMPRESSION**, **LIP-POUT**, **LIP-PURSE**, **SELF-TOUCH**, **TENSE-MOUTH**.

EMOTION

The point for us is that even the simplest act of comparison involves emotional factors. --J. Z. Young (*Programs of the Brain* [1978:194])

The fairest thing we can experience is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. --Albert Einstein

Neuro term. **1.** A *pleasant* or *unpleasant* mental state organized in the **limbic system** of the **mammalian brain**. **2.** Specifically, feelings of *agreement*, ***anger***, *certainty*, *control*, *disagreement*, ***disgust***, *disliking*, *embarrassment*, ***fear***, ***happiness***, *hate*, *interest*, *liking*, ***love***, ***sadness***, *shame*, *surprise*, and ***uncertainty***--as expressed nonverbally, apart from **words**.

Meaning: Emotions are mammalian elaborations of vertebrate *arousal* patterns, in which neurochemicals (e.g., dopamine, noradrenaline, and serotonin) step-up or step-down the brain's activity level, as visible in **body movements**, **gestures**, and **postures**. In mammals, primates, and human beings, feelings are displayed as **emotion cues**.

Anatomy. Before the mammalian brain, life in **Nonverbal World** was automatic, preconscious, and predictable. Reptilian motor centers reacted to vision, sound, touch, chemical, gravity, and motion sensory cues with preset body movements and programmed postures. With the arrival of night-active mammals, ca. 180 m.y.a., smell replaced sight as the dominant sense, and a newer, more flexible way of responding--based on emotion and emotional memory--arose from the *olfactory sense*. In the Jurassic period, the mammalian brain invested heavily in *aroma circuits* to succeed at night as reptiles slept. These odor pathways gradually formed the neural blueprint for what was later to become our limbic brain.

Media. **1.** "'Throughout most of the 20th century, emotion was not trusted in the laboratory,' writes noted University of Iowa neurologist Antonio R. Damasio, in his new book, 'The Feeling of What Happens'" (*San Diego Union-Tribune*, Oct. 27, 1999, E-1, E-4). **2.** "Emotions are the ultimate in cerebral software" (*San Diego Union-Tribune*, Oct. 27, 1999, E-1). **3.** "'The point of art is not to copy but to amplify,' he said, 'to create an emotional response in the viewer'" (*San Diego Union-Tribune* interview with UC-San Diego neuroscientist, Vilayanur Ramachandran [May 7, 1999, A1, A-19]).

Physiology. "Heart rate is a convenient and sensitive indicator of emotional tension" (Cherkovich and Tatoyan 1973:265).

RESEARCH REPORTS: Though our fingers, **hands**, and arms show feelings as well, the study of emotion has focused mainly on **facial expressions**. **1.** In *The Face of Emotion*, Izard (1971:185) proposed nine major emotions: *interest*, *enjoyment*, *surprise*, *distress*, *disgust*, *anger*, *shame*, *fear*, and *contempt*. **2.** From research on the **face**, six *basic* emotions--*surprise*, *happiness*, *fear*, *anger*, *disgust*, and *sadness*--have been proposed (Ekman 1984). **3.** *Primary* (i.e., innate) emotions, such as *fear*, "depend on

limbic system circuitry," with the **amygdala** and anterior **cingulate gyrus** being "key players" (Damasio 1994:133). **4.** *Secondary emotions* (i.e., feelings attached to objects [e.g., to dental drills], events, and situations through *learning*) require additional input from the prefrontal and somatosensory cortices (Damasio 1994:134; viz. "The stimulus may still be processed directly via the amygdala but is now also analyzed in the thought process . . ." [Damasio 1994:137].). **5.** "Thoughts and emotions are interwoven: every thought, however bland, almost always carries with it some emotional undertone, however subtle" (Restak 1995:21).

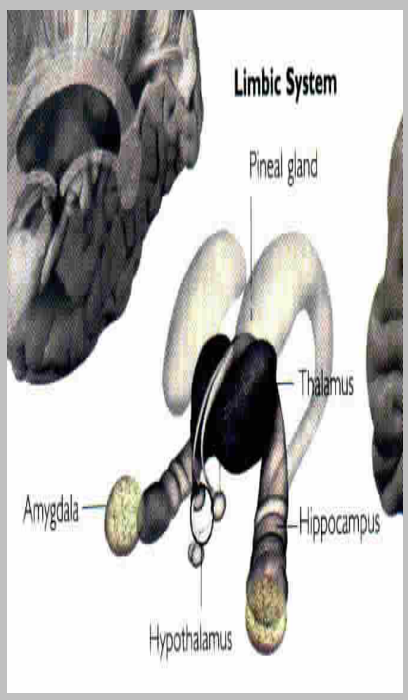
Neuro-notes I. **1.** Smell carries directly to limbic areas of the mammalian brain via nerves running from the olfactory bulbs to the *septum*, amygdala, and *hippocampus*. In the **aquatic brain**, olfaction was critical for detecting food, foes, and mates from a distance in murky waters. **2.** Like an emotional feeling, aroma has a volatile or "thin-skinned" quality because sensory cells lie on the exposed *exterior* of the olfactory epithelium (i.e., on the bodily surface itself). **3.** Like a whiff of smelling salts, a sudden feeling may jolt the mind. The force of a mood is reminiscent of a smell's intensity (e.g., soft and gentle, pungent, or overpowering), and similarly permeates and fades as well. The design of emotion cues, in tandem with the forebrain's olfactory prehistory, suggests that *the sense of smell is the neurological model for our emotions*.

Neuro-notes II. Like aromas, emotions are either positive or negative (i.e., pleasant or unpleasant)--and rarely neutral. Like odors, feelings come and go, defy logic, and clearly show upon our face in mood signs. It is likely that many emotions evolved from aroma **paleocircuits** **a.** in subcortical *nuclei* (e.g., the paleocortex of the amygdala), and **b.** in *layers* of nerve cells within the forebrain's outer covering of *neocortex*. (***N.B.***: The latter's stratified architecture resembles that of the olfactory bulb, which is organized in layers as well.)

Neuro-notes III. Ironically, the feeling that something is real, true, and right comes not from the reasonable neocortex, according to neuroanatomist Paul MacLean, but from evolutionary older, emotion centers of the limbic cortex (MacLean 1990:17).

See also **AROMA CUE**, **ENTERIC BRAIN**.

LIMBIC SYSTEM



Neuro term. **1.** Those interlinked modules and pathways of the brain in charge of **emotions**, feelings, and moods. **2.** The "entire neuronal circuitry that controls emotional behavior and motivational drives" (Guyton 1996:752). **3.** The *emotional core* of the human nervous system (Cytowic 1993).

Usage: A great deal of our **nonverbal communication** reflects happenings in the limbic system (see, e.g., **FACE**, **MAMMALIAN BRAIN**). Nonverbal **signs**, **signals**, and **cues** disclose limbic emotions and attitudes more openly and with greater honesty than **words**.

Observation. When shopping for **consumer products**, we often heed limbic rather than rational thought.

Evolution. In human beings, the limbic system grew in tandem with the cerebral cortex (Armstrong 1986). Thus, ours is the most emotional--as well as the most intellectual--species on Earth.

RESEARCH REPORTS: **1.** The limbic system "plays a key role in the evolutionary survival and eventual success of hominids" (Eccles 1989:97). **2.** Regarding nonverbal behavior, the limbic system's **a.** *amygdalar division* promotes *feeding*, *food-search*, *angry*, and *defensive behaviors* related to obtaining food; **b.** *septal division* promotes *sexual pleasure*, *genital swelling*, *grooming*, *courtship*, and *maternal behavior*; and **c.** thalamocingulate division promotes *play*, *vocalization* (e.g., the separation cry), and *maternal behavior* (MacLean 1993). **3.** "While the cortex contains our model of reality and analyzes what exists outside ourselves, it is the limbic brain that determines the salience of that information" (Cytowic 1993:156). **4.** The cerebral cortex "has more inputs from the limbic system than the limbic system has coming from the cortex" (Cytowic 1993:161). **5.** Many emotional systems, in addition to the limbic system, may exist in the brain (LeDoux 1996:103).

Neuro-notes. **1.** Phylogenetically, the limbic lobe is the oldest part of the cerebral cortex (Willis 1998D:247). **2.** The limbic system includes the **amygdala**, anterior thalamic nucleus, **cingulate gyrus**, fornix, hippocampus, **hypothalamus**, mammillary bodies, medial forebrain bundle, prefrontal lobes, septal nuclei, and other areas and pathways of the brain. The hypothalamus, a key player, mediates nonverbal behaviors through the brain-stem *reticular nuclei*. When excited, the reticular nuclei arouse cerebral as well as spinal circuits. (***N.B.***: An important two-way link between the limbic system and brain stem is the *medial forebrain bundle*.)

Detail of illustration from *Mapping the Mind* (copyright Weidenfeld & Nicolson 1998)

ZYGOMATIC SMILE

I would estimate that at least half of the people that you see in movies or on television have had some sort of cosmetic dental work done. --Dr. Mark Lowenberg, New York dentist of the stars (Comita 2000:80)

Facial expression. **1.** A *true smile* of **happiness**, gladness, or joy. **2.** An expression in which the corners

of the mouth *curve upward*, and the outer corners of the eyes crinkle into *crow's-feet*.

Usage: Though we may show a polite grin or camera smile at will, the zygomatic or heartfelt smile is hard to produce on demand. While the former cue may be consciously manipulated (and is subject to **deception**), the latter is controlled by emotion. Thus, the zygomatic smile is a more accurate reflection of mood.

Anatomy. Lip corners curl upward through contraction of *zygomaticus* muscles; crow's-feet show when the zygomaticus muscles are strongly contracted, and/or when *orbicularis oculi* muscles contract. In the polite (i.e., intentional, weak, or "false") smile, lip corners stretch sideward through contraction of *risorius* muscles, with little upward curl and no visible crow's-feet.

Evolution. The smile-face may be traced to the primate's grimace or fear grin. The submissive grin, used to show "I am afraid," came to suggest that "I am harmless--and therefore friendly--as well" (Morris 1994). The link between smiling and humor, love, and joy has yet to be explained.

Feedback smile. Smiling itself produces a weak feeling of happiness. The *facial feedback hypothesis* proposes that ". . . involuntary facial movements provide sufficient peripheral information to drive emotional experience" (Bernstein et al. 2000). According to Davis and Palladino (2000), ". . . feedback from facial expression [e.g., smiling or frowning] affects emotional expression and behavior." In one study, e.g., participants were instructed to hold a pencil in their mouths, either between their lips or between their teeth. The latter, who were able to smile, rated cartoons funnier than did the former, who could not smile (Davis and Palladino 2000).

Media. **1.** "So, there's the 1984 study that found that ABC News anchor Peter Jennings was more likely to smile on camera when talking about Ronald Reagan than Walter Mondale, and that in the same year the people who watched ABC News voted for Reagan in greater proportions than the people who watched other network-news shows" (Lacayo 2000:90). **2.** "Who has the most coveted smile in Hollywood? 'Twenty years ago, everyone wanted a smile like Farrah Fawcett's,' says Dr. Irving Smigel, a New York dentist who created the Supersmile **product** line . . . and has worked on Calvin Klein and Johnny Depp. 'Now most of my patients mention Julia Roberts. Her mouth is very feminine'" (Comita 2000:80).

Supermarket mandatory smile. In the late 1990s, Safeway, the second largest supermarket chain in the U.S., instructed its store employees to smile and greet customers with direct eye contact. In 1998, *USA Today* ("Safeway's Mandatory Smiles Pose Danger, Workers Say") reported that 12 female employees had filed grievances over the chain's smile-and-eye-contact policy, after numerous male customers reportedly had propositioned them for dates. Commenting on the grievances, a Safeway official stated, "We don't see it [the males' sexual overtures] as a direct result of our initiative."

Salesmanship. "You don't have to smile constantly to show you are enjoying yourself. Smile at the peaks" (Delmar 1984:41).

Smiley face. The yellow "smiley face," a popular graphic symbol designed by commercial artist Harvey Ball in the early 1960s, has become a universal sign of happiness. Its color is associated with the

brightness of the sun (see **COLOR CUE**). According to his son, Charlie Ball, Harvey ". . . understood the power of it (the smiley face) and was enormously proud of it [even though others, rather than Ball, profited financially from the design]. He left this world with no apologies and no regrets, happy to have this as his legacy" (Woo 2001:A6). Designed to enhance the Worcester, Mass.-based State Mutual Life Assurance company's "friendship campaign," to bolster employee morale, the smiley face took Ball about 10 minutes to complete (Woo 2001). "Fearing that a grumpy employee would turn the smile upside down into a frown, he [Ball] added the eyes" (Woo 2001:A6; see **ISOTYPE**).

RESEARCH REPORTS: **1.** Regarding the fake smile, "Dr [Guillaume-Benjamin] Duchenne [de Boulogne] attributes the falseness of the expression altogether to the orbicular muscles of the lower eyelids not being sufficiently contracted" (Darwin 1872:202). **2.** The smiling *play-face* is seen "when a child is about to be chased by another and stands slightly crouched, side-on to the chaser and looking at it with this 'mischievous' expression, an open-mouthed smile with the teeth covered, which morphologically resembles the 'play-face' of *Macaca* and *Pan*" (Blurton Jones 1967:358). **3.** "But one sometimes feels that human smiles are also partly 'fear' motivated" (Blurton Jones 1967:364). **4.** "The comparative data show that there is a similarity in form between the smiling response and the silent bared-teeth face" (Van Hooff 1967:60). **5.** Brannigan and Humphries (1969) identified the "simple smile," the "broad smile," and the "upper smile" (the latter two are zygomatic smiles). **6.** "Exogenous" smiling, not present at birth, begins at about three weeks as an unpredictable, fleeting response to audio, visual, or tactile stimuli; "social" smiling (e.g., to faces) becomes predictable by 8-to-12 weeks (Spitz, Emde and Metcalf 1973). **7.** By the age of four, boys ". . . are reserving the 'sociable' upper smile [in which the lips are parted to reveal the top teeth] for other boys almost exclusively. The girls, while not using the upper smile as exclusively as do the boys, appear, by age 4, to use this smile rarely with boys" (Cheyne 1976:823). **8.** "The data indicated that the infants looked at the joy expression significantly more than at either the anger or neutral expressions" (LaBarbera et al. 1976:535). **9.** "My research suggests that with enjoyment the *zygomaticus major* muscle is the principal muscle in the lower face, and may be the only active muscle in the lower face" (Ekman 1998:201). **10.** ". . . five-month-old infants show the eye-muscle smile when the mother approaches, but a smile without the eye muscle when approached by a stranger" (Ekman 1998:203).

E-Commentary: "I am a journalist who was referred to you by the American Anthropological Association, for a story I am working on for the *Boston Globe* Sunday magazine about the anthropological origins of the smile, its evolution over time, and ways that we use it today. In addition to that general theme, I am exploring the degree to which regional differences and cultural influences may affect the frequency with which we smile. For example, Bostonians are stereotypically known as non-smilers, while Southern Californians are often pictured to be as sunny as their weather." --M.F. (6/13/00 11:58:09 AM Pacific Daylight Time)

Neuro-notes. The zygomatic smile is controlled ". . . from the **anterior cingulate** region, from other limbic cortices (in the medial temporal lobe), and from the **basal ganglia**" (Damasio 1994:140-41). "We cannot mimic easily what the anterior cingulate can achieve effortlessly (Damasio 1994:141-42).

See also **AUTISM** (***E-Commentary I & II***), **FACIAL EXPRESSION**, **LAUGH**, **LIPS**.

Read the *Boston Globe Magazine* feature, "**Grin and Bare it**."

HAPPINESS

Emotion. A pleasant visceral feeling of contentment, well-being, or joy.

Usage: Happiness may show in **a.** the **laugh**, and in **b.** the **smile**. (***N.B.***: Intense joy may also show in **crying**.) Unlike most other facial signs of emotion, the smile is subject to learning and conscious control. In the U.S., Japan, and many other societies, children are taught to smile on purpose, e.g., in a courteous greeting, whether or not they actually feel happy.

RESEARCH REPORTS: **1.** Signs of intense joy include "*purposeless movements*" (e.g., *dancing about* and *clapping hands*), *loud laughter*, and *weeping* (Darwin 1872:175, 195). **2.** Happiness shows most clearly in the lower face and eye area (Ekman, Friesen, and Tomkins 1971). **3.** Facial expressions of joy emerge in human infants between five and seven months of age (Burgoon et al. 1989:349).

Evolution. Happiness is a mammalian elaboration **a.** of feelings of *well-being* and *contentment* related to *parasympathetic digestion* (see **ENTERIC BRAIN**, **REST-AND-DIGEST**), and **b.** of arousal due to stimulation of **pleasure** areas of the brain.

Anatomy. **Motion energy maps** suggest that, facially, happiness is expressed primarily with the mouth.

A happy face appears when *zygomaticus major* muscles draw the angle of our lips backward and upward into a grin. *Levator anguli oris* may also exhibit our teeth. In the true (i.e., involuntary) smile, lip movements show in tandem with contractions of *orbicularis oculi* muscles, which crinkle the skin around the outside corners of our eyes, forming "crow's feet" or *smiling eyes*.

Philosophy. In *The Conquest of Happiness*, Bertrand Russell distinguishes between "animal happiness" (possible for any human being) and "spiritual happiness" (only for those humans who can read and write).

Neuro-notes. The true or "heartfelt" smile is controlled by the *anterior cingulate gyrus* of the **limbic system** through **paleocircuits** of the **basal ganglia**.

See also **EMOTION**, **EMOTION CUE**.

LAUGH

Laugh and the world laughs with you,
Weep and you weep alone. . . . --Ella Wheeler Wilcox, *Solitude* (1883)

We never read of His laughing, though I am sure he did. --Billy Graham (1955:v)

Your mouth was twisted open, your tongue was stuck out halfway, your lips were pulled back and your nostrils were flared. Though you felt pleasure, your face suggested pain. Your cheeks turned ***red*** *and you doubled over, gasping. Your stomach, chest and ribs ached. You were helpless, unable even to speak*. --Robert Brody, "Anatomy of a Laugh" (1983:43)

Rhythmic vocalization. **1.** Human laughter varies greatly in form, duration, and loudness (see, e.g., Ruch 1993, Ruch and Ekman 2001). A common form of laughter includes sudden, decrescendo (i.e., strong onset to soft ending), forced-expiration bursts of breathy vowel sounds (e.g., "hee-hee," "heh-heh," "ha-ha," or "ho-ho-ho") given in response to embarrassment, excitement, or humor. **2.** In extreme form, an involuntary spasm of the respiratory muscles, accompanied by an **open-mouth smile**, flared nostrils, **tearing eyes**, **facial flushing**, and forward **bowing** motions of the head and torso. **3.** In mean-spirited form, laughter (esp. group laughter) may be directed at enemies and persons with whom we disagree or dislike, as a form of *aggression-out*. This mocking-aggressive laughter resembles the *group-mobbing* vocalizations of higher primates.

Usage: To laugh is human ("Man is the only animal who laughs," noted the French philosopher Henri Bergson; but see below, *Primatology I*). Chemically, according to some researchers, laughter provides relief from stress by releasing pain-killing, euphoria-producing *endorphins*, *enkephalins*, *dopamine*, *noradrenaline*, and *adrenaline*. Socially, laughter binds us as friendly allies united against outsiders, and against forces beyond our control. Psychologically, the comic laugh (in response, e.g., to funny jokes, puns, and satire) is a recent development perhaps linked to the evolution of **speech** (see below, *Speech*).

Anatomy. **1.** Diverse facial, jaw, and throat muscles are involved in the laugh, including *levator labii superioris*, *risorius*, *mentalis*, *depressor anguli oris* (the "frown" muscle), *orbicularis oris*, *buccinator*, and *depressor labii inferioris* (Ruch 1993). **2.** Laughter may be accompanied by a general lowering of muscle tonus and an increase in bodily relaxation, leading one, e.g., to "collapse in laughter" (see Ruch 1993). **3.** In laughing, the abdominal muscles and diaphragm contract in a respiratory "fit," not unlike sneezing or **crying**. *Zygomatic* and *risorious* muscles of the face contract in a grimacing smile; mandibular muscles may rhythmically contract as the lower jaw quivers. In a belly laugh, heartbeat accelerates, blood pressure rises, and vocal cords may uncontrollably vibrate.

Conscious control. "Does the low level of conscious control that we have over our own laughter reflect the typical level of control that non-human animals have over their own species-typical vocalizations?" (Provine 1996).

Contagious laughter. "Consider the bizarre events of the 1962 outbreak of contagious laughter in Tanganyika. What began as an isolated fit of laughter (and sometimes crying) in a group of 12- to 18-year-old schoolgirls rapidly rose to epidemic proportions. Contagious laughter propagated from one individual to the next, eventually infecting adjacent communities. The epidemic was so severe that it required the closing of schools. It lasted for six months" (Provine 1996).

Exhilaration. Laughter is frequently associated with--and thus may be a **sign** of--the **emotion** of *exhilaration* (Ruch 1993). According to Ruch (1993), exhilaration is a "pleasurable, relaxed excitation" which begins with a "sudden and intense increase in cheerfulness, followed by a more or less pronounced plateau and a prolonged fading out of the emotional tone."

Life history. The human laugh is partly learned, partly familial, and so highly contagious that we readily respond to televised "canned laughter" (see **MEDIA**, "*TV II*"). As infants, we laugh reflexively near the 10th week of life. When very old we may *cackle*, as the larynx becomes inelastic with age.

Literature. **1.** "There was laughter of warriors, voices rang pleasant, words were cheerful." --*Beowulf*. **2.** "And Laughter, holding both his sides." --John Milton (*L'Allegro*; ca. 1630).

Media. According to *Esquire* magazine, more than anything else, women want men to make them laugh (*Spokesman-Review*, Feb. 7, 1999).

Primatology I. Stimulated by the **mammalian brain**, laughter has much in common with animal calls.

Gorillas and chimps "laugh," e.g. (i.e., give breathy, panting vocalizations), when tickled or playfully chased.

Primatology II. "It is noteworthy that chimpanzee laughter occurs almost exclusively during physical contact, or during the threat of such contact, during chasing games, wrestling or tickling. (The individual being chased laughs the most.) Although people laugh when tickled, most adult human laughter occurs during conversation, typically in the absence of physical contact" (Provine 1996).

Solitary laughter. "In the absence of stimulating media (television, radio or books), people are about 30 times more likely to laugh when they are in a social situation than when they are alone" (Provine 1996).

Speech. **1.** "One of the key features of natural laughter is its placement in speech. Laughter is not randomly scattered throughout the speech stream. The speaker and the audience seldom interrupt the phrase structure of speech with laughter. In our sample of 1,200 laughs there were only eight interruptions of speech by laughter, all of them by the speaker. Thus a speaker may say 'You are going where? . . . ha-ha,' but rarely 'You are going . . . ha-ha . . . where?' The occurrence of laughter during pauses at the end of phrases suggests that a lawful and probably neurologically based process governs the placement of laughter in speech--a process in which speech has priority access to the single vocalization channel. The strong and orderly relationship between laughter and speech is akin to punctuation in written communication (and is called the punctuation effect)" (Provine 1996). **2.** ". . . the average speaker laughs about 46 percent more often than the audience" (Provine 1996).

RESEARCH REPORTS: **1.** ". . . it is scarcely possible to point out any difference between the tear-stained face of a person after a paroxysm of excessive laughter and after a bitter crying-fit" (Darwin 1872:207). **2.** Laughing strengthens *bonds of comradeship* (Van Hooff 1967:59). **3.** Laughter is more *social* than humorous (Van Hooff 1967:59). **4.** Our laugh resembles the great ape's *relaxed open-mouth face* (esp., its "rhythmic, low-pitched staccato vocalizations and . . . boisterous body movements" (Van Hooff 1967:60). **5.** "For example, they [deaf-and-blind-born children] smile and laugh as we do when they are happy and emit the correct sounds when they do so" (Eibl-Eibesfeldt 1971:12). **6.** People in good spirits may laugh 100-to-400 times a day (Fry 1983). **7.** Human laughter "seldom exceeds 7 seconds" (Ruch 1993). **8.** Laughter may be vocal or voiceless, may include all vowel and many consonant possibilities; it frequently begins with an initial "h" sound, most usually as "he-he," grading into "ha-ha" (Ruch 1993). **9.** Robert Provine, who studied 1,200 bouts of laughter in malls and public places, characterized the verbal remarks the laughing accompanied as "not funny" (Angier 1996). **10.** Provine found that **a.** laugh vocalizations last about 75 milliseconds, separated by rests of 210 milliseconds; **b.** average speakers laugh 46% more than listeners; **c.** male speakers laugh only slightly more than male listeners; **d.** female speakers laugh considerably more than female listeners; **e.** male speakers laugh 7% less than female listeners; **f.** female speakers laugh 127% more than male listeners; and **g.** speakers usually laugh at the end of complete phrases (rather than in the middle), as a kind of nonverbal punctuation.

Neuro-notes I. Visual, auditory, tactile, and vestibular (but rarely smell or taste) cues stimulate laughter's complex, reverberating chain of events involving areas of the brain stem, **hypothalamus**, and frontal

lobes, as well as centers of the motor and cognitive cerebral cortex.

Neuro-notes II. **1.** "Researchers may have found the location of [the] sense of humor in the brain, according to their presentation at the 86th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA) in Chicago, Illinois. Humor appreciation appears to be based in the lower frontal lobes of the brain, a location associated with social and emotional judgment and planning, according to imaging research" (Flapan 2000). **2.** "'As with almost any behavior, we found that laughing at a joke involves several parts of the brain,' said Dr. [Dean K.] Shibata [assistant professor of radiology at the University of Rochester School of Medicine in New York]. 'Our [fMRI] imaging results show that while the ventromedial frontal lobe is likely the center for telling you what's funny, the accompanying laughter and feeling of mirth may be triggered by connections to other areas of the brain [including the nucleus accumbens; see **PLEASURE CUE**] which are involved in motor control [moving the mouth] and positive emotions'" (Flapan 2000).

See also **ISOPRAXISM**.

FACIAL FLUSHING

Note whether she changes color while you are giving her my message . . . --Don Quixote to Sancho Panza (Cervantes 1605:566)

A flush stole over Miss Sutherland's face, and she picked nervously at the fringe of her jacket. --Arthur Conan Doyle ("A Case of Identity")

Emotion *cue*. Becoming red or rosy in the **face** from physical exercise, embarrassment, shyness, **anger**, or shame.

Usage: Facial flushing or *blushing* is elicited by social stimuli, e.g., as one **a.** becomes the focus of attention in a group, **b.** is asked to speak in public, or **c.** experiences **stranger anxiety**. Suddenly the face, ears, and neck (and in extreme cases, the entire upper chest) redden, causing further embarrassment still.

Anatomy. Blushing is caused by sudden arousal of the *sympathetic nervous system*, which dilates the small blood vessels of the face and body (see **FIGHT-OR-FLIGHT**).

Ethology. "Flushing, contrary to popular belief, is never seen in a purely aggressive individual; it is a sign of actual or possible defeat" (Brannigan and Humphries 1969:407).

Medicine. Some people blush uncontrollably in almost any social situation, and suffer such embarrassment that they undergo surgery to interrupt sympathetic nervous supply to their faces. In a *thorascopic sympathicotomy*, an incision is made through the arm pit into the thoracic cavity to sever a sympathetic nerve located close to the spine. (***N.B.***: Embarrassing **sweaty palms** may be controlled the same way.)

Observation. One of the first signs of anger is an uncontrollable *reddening of the ears*.

RESEARCH REPORTS: **1.** "In most cases the face, ears and neck are the sole parts which redden; but many persons, whilst blushing intensely, feel that their whole bodies grow hot and tingle . . ." (Darwin 1872:312). **2.** The *red face* (accompanied by overhand beating and screaming) has been observed in nursery school children who were motivated to attack but did not actually do so (i.e., they seemed "defeated"; Blurton Jones 1967:355). **3.** "[Michael] Lewis suggests that embarrassment is first seen between the ages of two and two and a half" (Ekman 1998:311). **4.** "There is general agreement among contemporary researchers that attention to the self is the cause of blushing" (Ekman 1998:324).

See also **EYE-BLINK**, **FLASHBULB EYES**.

ANGER

After Nora busted up Lindsay's wedding to Bo, the secretly pregnant Lindsay was psychotic with rage against Nora. --*One Life to Live* (*Soap Opera Digest*, May 2, 2000, p. 25)

Emotion. A usually unpleasant feeling of annoyance, resentment, or rage.

Usage: Anger shows in **a.** jaws tensed to a **biting** position; **b.** postures of the **broadside display** (e.g., **hands-on-hips**); **c.** **cut-off** and head-jerk cues; **d.** **fist**, **hand-behind-head**, and **palm-down** beating gestures; **e.** **frowning** and **tense-mouth** expressions; **f.** growling **voice tones**; and **g.** **staring**.

Anatomy. In the face, **motion energy maps** reveal that anger shows most prominently in contortions around our eyebrows for *frowning*. *Corrugator supercilii* muscles, blended with *occipitofrontalis* and *orbicularis oculi*, draw the eyebrows down, as if to shield our eyes, producing vertical furrows above the nose. At the same time *procerus*, blended with occipitofrontalis, produces horizontal wrinkles over the bridge of our nose. Anger shows in contracted *obicularis oris* and *masseter* muscles (of the tense-mouth, e.g.) as well.

Culture. In Italy, the *forefinger bite*--in which "the knuckle of the bent forefinger is placed between the teeth and symbolically bitten"--means, "I am angry" (Morris 1994:81).

Evolution. Anger is a mammalian elaboration of earlier vertebrate behavior patterns **a.** for ***fighting*** and **b.** for the display of ***dominance***.

Literature. "The youth exclaimed with sudden exasperation: 'He's a lunkhead! He makes me mad.'" -- Stephen Crane (*The Red Badge of Courage*)

Primatology. "Males [i.e., wild baboon males] often launch charges and attacks without any preliminary threat gestures" (Hall and DeVore 1972:169).

RESEARCH REPORTS: **1.** Signs of anger include ***body held erect***; *contracted brows*; *compressed mouth*, *flared nostrils*, and *"flashing eyes"* (Darwin 1872:242-43). **2.** Anger shows most clearly in the lower face and brow area (Ekman, Friesen, and Tomkins 1971). **3.** Facial expressions of anger emerge in human infants between three and four months of age (Burgoon et al. 1989:349). **4.** After a feeling of anger ". . . there may be angry vocalization and pugilistic behavior, with the arms flailing somewhat like those of a fighting chimpanzee. Or there may be gorilla-like hooting and striking of the chest" (MacLean 1993:79).

Neuro-notes. **1.** ". . . the threshold for release of noradrenaline [the anger hormone] to psychological stimuli is generally higher than that of adrenaline [the fear hormone]" (Mayes 1979:37). **2.** The **amygdala** of the **limbic system** plays a key role in the organization and expression of anger (LeDoux 1996).

See also **EMOTION**, **EMOTION CUE**, **FACIAL FLUSHING**.

BITE

Body movement. The act of closing one's jaws tightly to cut, grip, grasp, or tear with the teeth, as in **a.** eating a **Big Mac**® sandwich, **b.** clenching the jaws in frustration and anger, or **c.** inflicting pain.

Usage: Our animal nature shows clearly in the eagerness with which we may bite our enemies. In New York City, e.g., ca. 1,500 human beings report having been bitten by other humans each year (Conn and Silverman 1991:86). (***N.B.***: This is five times greater than the reported figure for rat bites [Wurman 1989:177].) In 1981, in Norfolk, Virginia, a traveling salesman was convicted of attacking a woman and biting off her nose.

Anatomy. The muscles of mastication are the *masseter* and *temporalis* (which close the mouth); and the *lateral* and *medial pterygoids* and *anterior belly of the digastric* (which open the mouth).

Biology. **1.** "As soon as a young mouse has its teeth, it will turn around and try to bite anything which pinches its tail" (Scott 1975:7). **2.** "Don't assume your dog won't bite. The most common statement from dog owners after a carrier has been bitten is, 'He's/She's never bitten anyone before!'" (flyer distributed in 2000 by the U.S. Post Office).

Evolution. Along with their role in chewing and eating, our remote ancestors' jaws, jaw muscles, and teeth played a defensive role: the face was used as a weapon (as is dramatically the case today, e.g., in crocodiles, gorillas, and grizzly bears).

Media. **1.** In their televised June 28, 1997 boxing rematch, challenger Mike Tyson committed a major foul by biting off a one-inch piece of Evander Holyfield's ear and spitting it onto the floor of the ring. Two points were deducted from his score, but in the third round Tyson tried to bite Holyfield's other ear and was disqualified from the competition. **2.** On June 9, 2001, *San Francisco Chronicle* executive editor Phil Bronstein (husband of actress Sharon Stone) was attacked and bitten on the foot at the Los Angeles Zoo by a Komodo dragon. "A zookeeper had asked Bronstein [who was on a private tour because he ". . . had always wanted to see a Komodo dragon up close."] to remove his **white tennis shoes** to keep the 5-foot-long reptile from mistaking them for the white rats it is fed, Bronstein told the *Chronicle*" (Anonymous 2001G:A2).

Neuro-notes. The muscles of biting are innervated by mandibular branches of the trigeminal nerve (cranial V, an emotionally sensitive **special visceral nerve**). Acting through the trigeminal's motor nucleus, emotional stimuli associated , e.g., with **anger**, may cause the jaw muscles to contract in uncontrollable biting movements.

Antonym: **JAW-DROOP**.

mixed with wheat flour by pastry chefs for centuries. Roasted seeds add a *nutty flavor*, which appeals to the primate palate. Seeds provide tactile enjoyment for the tongue, as well (in reptiles the tongue evolved as a sensory organ for touch; see **EXISTENTIAL CRUNCH**).

Layers II & VIII: Meat. The *browning reaction* of cooked beef releases *furans*, *pyrones*, and other carbon, hydrogen, and oxygen molecules which provide the complex oniony, chocolaty, nutty, fruity, and caramel-like tastes we prefer to the bland taste of uncooked flesh (McGee 1990). At the heart of a Big Mac are two ground-beef patties, whose cooked flavor compounds would have been familiar to *Homo erectus* in Africa 1.6 m.y.a.

Layer III: Pickle horizon. *Gherkins*, eaten in India with salt or lemon juice for 3,000 years, came to Europe during the Renaissance. Along with their *crunchy texture*, pickles add a primary sour taste which has been enjoyed with lettuce since the Roman era.

Layers IV & X: Lettuce. A Big Mac contains 1/4 cup of chopped head-lettuce (*Lactuca sativa*), a plant preferred by the ancient Greeks above all other greens. Wild lettuce was prized for the soothing properties of its magnesium content, as an aid to digestion. Because of a burger's high fat content, our **enteric nervous system** considers lettuce a welcome ingredient today.

Layers V & XI: Onions. One-half teaspoon of finely diced *onion*, a root bulb, appears in each of two strata. An onion's volatile sulphur compounds evolved as warning messages to deter hungry grubs and insects (see **SECONDARY PRODUCTS**). Wild onions were used 4,000 years ago by Egyptian peasants to season bland meals, and Egyptian mummies sometimes included onions, wrapped in separate bandages, as carry-out for the afterlife.

Layers VI & XII: Sauce. Sauce adds moisture, required for the tongue to taste chemicals in solution. Sweet and sour sauces have flavored meats for thousands of years, and the Big Mac uses a variant of *thousand-island dressing* (made from salad oil, orange and lemon juice, minced onion, paprika, Worcestershire sauce (a spicy Indian recipe), dry mustard, parsley, and salt). The nonverbal secret of a Big Mac is the riddle of its sauce.

Layer IX: Cheese. A layer of *American cheese* lies above the lettuce horizon. Cuneiform tablets place cheese in the Near East by ca. 6,000 years ago. Cheese sends salty signals to the tongue tip, and its smoothness blends well with the coarser texture of beef. Flavorful fatty acids and esters of glycerol in cheese satisfy a natural craving for fat.

Neuro-notes. While the subtlety of cabernet, truffles, and haute cuisine is processed by higher brain centers, capable of culinary learning, the primary tastes of fast food are handled subcortically **a.** in the *thalamus*, and **b.** in a buried part of the cerebral cortex called the *insula* (which is emotionally linked to the **amygdala** and **limbic system**). Like primary colors, the basic *bitter*, *salty*, *sour*, and *sweet* tastes of fast-food *coffee*, *fries*, *pickles*, and *soda* make brash rather than subtle statements.

See also **COCA-COLA®**.

MEATY TASTE

A stew with more beef than mutton in it, chopped meat for his evening meal, scraps for a Saturday, lentils on Friday, and a young pigeon as a special delicacy for Sunday . . . --Miguel de Cervantes (*Don Quixote*; 1605:25)

It's a fun product. When I meet someone at a party and tell them where I work, they ***smile****. People love hot dogs.* --Bob Schwartz, VP of Sales, Vienna Beef in Chicago (Jackson 1999:106; see below, *Hot dogs*)

Flavor cue. **1.** The usually pleasant aroma and taste of cooked animal flesh (i.e., muscles and skin). **2.** Intensely flavorful molecules created **a.** as *myoglobin*, the red pigment of raw steak, turns brown and a flavor-rich coating forms (as juices evaporate from the meat's surface), and **b.** as the *browning reaction* releases *furans*, *pyrones*, and other carbon, hydrogen, and oxygen molecules which provide the complex oniony, nutty, fruity, chocolate, and caramel-like tastes we prefer to the bland taste of uncooked meat and raw vegetables (McGee 1990).

Usage I: The aroma of sizzling *beefsteak* basted with *sage* and *garlic sauce* is an irresistible chemical **signal** transmitted when a chef brushes the meat with seasonings and sears it with flame. According to McGee, "All cooked foods aspire to the [rich and flavorful] condition of fruit" (1990:304).

Usage II: In **Nonverbal World**, the essence of charbroiled steak evokes an **emotional** desire to *approach* the aroma. Among the most evocative of all chemical signals processed by the brain are those emanating from meats and meaty **consumer products**, such as the **Big Mac**® sandwich and fried Spam®.

Evolution I. As did late-Devonian amphibians, early mammals of the Cretaceous and early primates of the Paleocene epoch passed through a predominantly *flesh-eating* stage. Acting in accordance with a primeval *chemical code*, amphibians pursued *fish* (and fellow *amphibians*), while mammals and primates

pursued mainly *insects*. With so many *carnivores* and *insectivores* on the family tree, we respond to meats with an extreme alertness, as if scripted to do so by the ancient code.

Evolution II. "Scientists theorize that the shift to hunting and meat eating was a key adaptation that let our ancestors spread beyond Africa and led to the dramatic increase in brain size associated with our human lineage. This 'dietary revolution,' as one paleontologist put it, could have changed the human facial structure by reducing the size of the molars, which previously needed to be large to chew tubers and raw vegetables. As the protruding jaw began to recede, more of the skull could be used to house the brain. And a diet of fat-rich bone marrow could lead to the development of the brain cells" (McCafferty 1999:22).

Hot dogs. **1.** An estimated 20 billion hot dogs are consumed in the U.S. each year (Jackson 1999:110). **2.** "But the **hands-down** wiener and still champion of frankfurter flackery is the annual Fourth of July hot-dog eating contest at Coney Island . . ." (Jackson 1999:110; as of June 1999, the record was 19 dogs consumed in 12 minutes [Jackson 1999:112]).

Kebabs. "A huge kebab made with 1,500 chickens was cooked at this tourist resort [in Limassol, Cyprus] Sunday [June 10, 2001] in a bid to make the *Guinness Book of Records*" (Anonymous 2001:A3).

Media. According to *Scientific American* magazine, in 1999 the per capita U.S. consumption of beef was 64.7 pounds (chicken = 49.2, pork = 48.8; Anonymous 2000D).

Prehistory I. Two m.y.a. our first human ancestor, *Homo habilis*, wandered east Africa's arid savannah grasslands in search of ripe fruit, nuts, tubers, and berries--and *small game*, *bird eggs*, *insects*, and *edible grubs*. It is likely that *Homo's* original "hunting instinct" involved the *corticomedial division* of the **amygdala**, which plays a role in mammalian hunting psychology today (Carlson 1986:486).

Prehistory II. On the savannah, meat made up 20-to-30 percent of the early human diet, as it did that of historical hunter-gatherers such as the !Kung San Bushmen of Botswana.

Prehistory III. So appealing is the taste of cooked meat that ". . . after early humans migrated into Australia and the Americas, the heavyweight animals of these new continents were driven to extinction within a few thousand years" (Anonymous 2001F:A1), according to reports in *Science* (June 2001). Mammoths, camels, mastodons, and the glyptodont, as well as giant sloths, snakes, lizards, birds and marsupials, were hunted, cooked, and eaten to extinction, according to the now more widely accepted "blitzkrieg model" of anthropologists.

RESEARCH REPORT: A craving known as *meat hunger* is a "widespread phenomenon among peoples living at a subsistence level [i.e., who are not vegetarians by choice]" (Simoons 1994:6). (***N.B.***: In the U.S., despite well-stocked produce displays, shoppers spend the largest portion of their supermarket dollar on *beef*, *chicken*, *fish*, and *pork*.)

Neuro-notes. **1.** We crave meaty taste because the **amphibian brain's** hunger for flesh is older than the **primate brain's** "acquired taste" for fruits and nuts. **2.** As it influenced the pursuit, handling, and killing of game, the amygdala also stimulated the release of digestive juices in preparation for eating the kill. Thus, today, hidden *aggressiveness* in the meat-eater's code makes a sizzling steak more exciting than a bowl of fruit. This explains, in part, why (when possible and affordable) meals throughout the world are planned around a meat dish.

See also **GLUTAMATE**, **HERBS & SPICES**, **SHELLFISH TASTE**.

NONVERBAL WORLD

I am not yet so lost in lexicography as to forget that words are the daughters of the earth. . . . --Samuel Johnson (*Dictionary*)

Some natural tears they dropped, but wiped them soon;
The world was all before them, where to choose
Their place of rest, and Providence their guide.
They, hand in hand, with wandering steps and slow,
Through Eden took their solitary way. --John Milton (*Paradise Lost, Book XII*; 1667)

Concept. **1.** A domain of ancient *social*, *emotional*, and *cognitive* **signs**, established millions of years before the advent of **speech**. **2.** A usually hidden, sensory dimension apart from that which is defined by **words**. **3.** An often unconscious medium, between reflex and reason, governed by the oldest parts of our vertebrate brain (see **NONVERBAL BRAIN**).

Good place. Nonverbal World is a landscape without language, billboards, or signposts, a realm without writing or symbols of any kind. It is a place where **information** consists of **colors**, shapes, aromas, and natural sounds--untouched by narration. This is the unspoken world we seek on mountaintops and island retreats, i.e., the good place apart from words.

Usage: We reside in a world of words, but still make many of our most important decisions about life and living as if we had never left Nonverbal World: **1.** We do not need words, e.g., to define a **kiss**, decode an *Armani* **suit**, or decipher **new car smell**; these depend on ancient signals from the wordless past. **2.** Even technical knowledge is transmitted through **nonverbal apprenticeships**, in which we watch and do rather than read a manual. **3.** We choose our vehicles, homes, and mates, e.g., on nonverbal grounds, and select wardrobes based on clothing's look and feel. **4.** Many scientists (the most notable being Albert Einstein) think in visual, spatial, and physical images rather than in mathematical terms and words. (***N.B.***: That the theoretical physicist, Stephen Hawking, used an arboreal term to picture the cosmos [i.e., affirming that the universe "could have different ***branches***,"] is a tribute to his [very visual] **primate brain**.)

Literature. "He went from the fields into a thick woods, as if resolved to bury himself. He wished to get out of hearing of the crackling shots which were to him like voices." --Stephen Crane (*The Red Badge of Courage*)

Origin. Nonverbal World originated ca. 3.5 billion years ago with the earliest known life forms, *blue-green algae* (i.e., cyanobacteria), living in shallow-water communities known as *stromatolites*. Voiceless, eyeless, unable to touch or hear, the first residents of Nonverbal World communicated chemically, through the medium of the molecule (see **AROMA CUE**).

Present day. Nonverbal World is the hidden place off the written transcript, where meaning lies not in vocabulary but in unspoken **signals** and **cues**. As anthropologists explore alien cultures and archaeologists unearth the past, we may seek our roots in a paleontology of **gesture**. Through spinal cord **paleocircuits** and cranial nerves, gestures recite an ancient wisdom which languages and literature fumble to explain today.

Observations. **1.** To **see** Nonverbal World on TV, mute the sound (gestures and body movements become clearer). **2.** To hear **emotion** on the phone, listen with your left ear (the **right brain** responds to feelings and moods). **3.** To feel the smoothness of silk, flannel, and flesh, touch with your **left hand** (the right sensory strip is more emotional than the left [in right-handed people; the reverse is (partly) true in lefties]).

Evolution I. For ca. one-half-billion years, our vertebrate ancestors defined reality without uttering a phrase. The early residents of Nonverbal World dealt with each other and with great issues of the day apart from linguistic concepts or names. Though speechless, Nonverbal World was filled with whispering winds and flowing waters, rhetorical thunder, and the calls of wild things. It bustled with movement, percolated with aromas, and bristled with feathers and fur. Constant comment was heard eons before words arrived.

Evolution II. Late in Nonverbal World's prehistory, the first words were spoken, marking the birth of a new conceptual order based on *language*. Spoken language emerged ca. 200,000 years ago as the dominant verbal medium of our species, *Homo sapiens*. But a price was paid for speaking, as words and

the knowledge for which they stand estranged human beings from Nonverbal World. As ever larger areas of our brain specialized for speaking and listening (see **HUMAN BRAIN**), attention shifted away from the sensory reality our ancestors knew to a separate reality based on speech.

Evolution III. In our mind's eye, words have more meaning than what they name. Indeed, it may not be an exaggeration to say that language has taken over our conscious brain. For not only does talk stimulate the brain's largest speech areas--Broca's and Wernicke's--it excites other regions of the neocortex (e.g., "wide areas in the frontal and parietal lobes" [Eccles 1989:89]), as well, and the brain stem (with its incredible tangle of cranial nerves). Thus, hearing, saying, or seeing a word dominates attention by neurologically engulfing our mind.

Primatology. "With regard to the vocalizations of these animals [wild baboons], it is notable that many hours of the day are spent in almost complete silence" (Hall and DeVore 1972:158).

Space. Nearing completion of their five-month mission in orbit (from March to August 2001), international-space-station residents Yuri Usachev and Jim Voss "are yearning for the smells and sounds of nature" (Anonymous 2001J).

Neuro-notes. Nonverbal World gradually came to be known as nerves evolved to grasp its features. The oldest chemical and tactile senses enabled early creatures to know the landscape--and to smell, feel, and "taste" one another's *presence* in Nonverbal World. (***N.B.***: A great deal of our **nonverbal communication**--from the **colognes** we buy to our **footwear**--is still about presence today.)

SPEECH

Out of the abundance of the heart the mouth speaketh. --*Matthew*, XII, 34

Talk on, my son; say anything that comes to your mind or to the tip of your tongue . . . --Miguel de Cervantes (*Don Quixote*, 1605:695)

Nixon: *"But they were told to uh"*
Haldeman: *"uh and refused uh"*
Nixon: *[Expletive deleted.]* --Excerpt from the Nixon Tape Transcripts (Lardner 1997)

Spoken language. **1.** A verbal and vocal means of communicating emotions, perceptions, and thoughts by the articulation of **words**. **2.** The organization of systems of sound into *language*, which has enabled *Homo sapiens* **a.** to transcend the limits of individual memory, and **b.** to store vast amounts of **information**.

Usage I: Speech (and manual sign language, e.g., ASL) has become the indispensable means for sharing ideas, observations, and feelings, and for conversing about the past and future. Speech so engages the brain in self-conscious deliberation, however, that we often overlook our place in **Nonverbal World** (see below, *Neuro-notes V*).

Usage II: "Earth's inhabitants speak some 6,000 different languages" (Raloff 1995).

Anatomy. To speak we produce complex sequences of body movements and articulations, not unlike the

motions of **gesture**. Evolutionary recent speech-production areas of the neocortex, basal ganglia, and cerebellum enable us to talk, while evolutionary recent areas of the neocortex give heightened sensitivity **a.** to voice sounds (see **AUDITORY CUE**), and **b.** to positions of the fingers and hands.

Babble. **1.** "Manual babbling has now been reported to occur in deaf children exposed to signed languages from birth" (Petitto and Marentette 1991:1493). **2.** "Instead of babbling with their voices, deaf babies babble with their hands, repeating the same motions over and over again" (Fishman 1992:66). **3.** Babies babble out of the right side of their mouths, according to a study presented at the 2001 Society for Neuroscience meeting in San Diego by University of Montreal researchers Siobhan Holowka and Laura Ann Petitto; non-speech cooing and laughter vocalizations are, on the other hand, symmetrical or emitted from the left (Travis 2001). "Past studies of adults speaking have established that people generally open the right side of the mouth more than the left side when talking, whereas nonlinguistic tasks requiring mouth opening are symmetric or left-centered" (Travis 2001:347).

Evolution I. Spoken language is considered to be between 200-thousand (Lieberman 1991) and two-million (Gibson 1993) years old. The likely precursor of speech is sign language (see **HANDS**, **MIME CUE**). Our ability **a.** to converse using manual signs and **b.** to manufacture **artifacts** (e.g., the Oldowan stone tools manufactured 2.4-to-1.5 m.y.a.) evolved in tandem on eastern Africa's savannah plains. Signing may not have evolved without artifacts, nor artifacts without signs. (***N.B.***: Anthropologists agree that some form of communication was needed to pass the knowledge of tool design on from one generation to the next.)

Evolution II. Handling, seeing, making, and carrying stone implements stimulated the creation of conceptual categories, available for word labels, which came in handy, e.g., for teaching the young. Through an intimate relationship with tools and artifacts, human beings became information-sharing primates of the highest order.

Evolution III. Preadaptations for vocal speech involved the human tongue. Before saying words, the tongue had been a humble manager of "food tossing." Through acrobatic maneuvers, chewed morsels were distributed to premolars and molars for finer grinding and pulping. (The trick was not getting bitten in the process.) As upright posture evolved, the throat grew in length, and the voice box was retrofit lower in the windpipe. As a result the larynx, originally for mammalian calling, increased its vocal range as the dexterous tongue waited to speak.

Evolution IV. ". . . the earliest linguistic systems emerged out of vocalizations like those of the great apes. The earliest innovation was probably an increase in the number of distinctive calls" (Foley 1997:70; see **TONE OF VOICE**, *Evolution*).

Gestural origin. "[David B.] Givens has called our attention to matters too often ignored: the biological imperative to communicate, present along the whole evolutionary track; the persistence, out of awareness, of very ancient bodily signals and their penetration of all our social interaction; and the powerful neoteny--human gestures and sign language signs make use of some of the same actions to signal semantically related messages. These same powerful influences, it seems from the study of sign

languages, are beneath and behind language as we know it today. Thus it should be easier to construct a theory of gesture turning into language, complete with duality of patterning and syntactic structures, and thence into spoken language, than to find spoken language springing full grown from a species but one step removed from the higher apes" (Stokoe 1986:180-81).

Gestures. **1.** Speaking gestures aid memory and thought, research from the University of Chicago suggests. In a study of 40 children and 36 adults (published in the November, 2001 issue of *Psychological Science*), subjects performed 20 percent better on a memory test when permitted to gesture with their hands while explaining how they had solved a math problem. Those asked to keep their hands still as they explained did perform as well. Gesture and speech are integrally linked, according to Susan Goldin-Meadow, an author of the study. Goldin-Meadow noted that gestures make thinking easier because they enlist spatial and other nonverbal areas of the brain. **2.** A growing body of evidence suggests that teaching babies ASL may improve their ability to speak. Again, this indicates a link between manual signing and vocal speech. Babies express cognitive abilities through certain hand gestures (e.g., by pointing with the index finger) earlier than they do through articulated words (the latter require more refined oral motor skills, which very young babies do not yet possess).

Law. According to the Federal Rules of Evidence (Article VIII. Hearsay), "A 'statement' is (1) an oral or written assertion or (2) **nonverbal conduct** of a person, if it is intended by the person as an assertion" (Rule 801. Definitions).

Media. **1.** According to the *CBS Evening News* show (October 17, 1995), the earliest known recording of a human voice was made on a wax cylinder in 1888 by Thomas Edison. The voice says, "I'll take you around the world." **2.** The world's second most-recorded human voice is that of singer Frank Sinatra; the most recorded is that of crooner Bing Crosby (Schwartz 1995).

Sex differences I. "During phonological tasks [i.e., the processing of afferent (incoming), rhyming, vocal sounds], brain activation in males is lateralized to the left inferior frontal gyrus regions; in females the pattern of activation is very different, engaging more diffuse neural systems that involve both the left and right inferior frontal gyrus (Shaywitz et al. 1995:607).

Sex differences II: Recent finding. "Study: Women Listen More than Men [Associated Press, Copyright 2000]." Nov. 28, 2000 — Score one for exasperated women: New research suggests men really do listen with just half their brains. "In a study of 20 men and 20 women, brain scans showed that men when listening mostly used the left sides of their brains, the region long associated with understanding language. Women in the study, however, used both sides. Other studies have suggested that women "can handle listening to two conversations at once," said Dr. Joseph T. Lurito, an assistant radiology professor at Indiana University School of Medicine. "One of the reasons may be that they have more brain devoted to it." Lurito's findings, presented Tuesday at the Radiological Society of North America's annual meeting, don't necessarily mean women are better listeners. It could be that "it's harder for them," Lurito suggested, since they apparently need to use more of their brains than men to do the same task. "I don't want a battle of the sexes," he said. "I just want people to realize that men and women" may process language differently. In the study, functional magnetic resonance imaging — or fMRI — was used to

measure brain activity by producing multidimensional images of blood flow to various parts of the brain. Inside an MRI scanner, study participants wore headphones and listened to taped excerpts from John Grisham's novel "The Partner," while researchers watched blood-flow images of their brains, displayed on a nearby video screen. Listening resulted in increased blood flow in the left temporal lobes of the men's brains. In women, both temporal lobes showed activity" (Source: Discovery.com *News*, December 12, 2000).

Vocal recognition. In his EMOVOX project ("Voice variability related to speaker-emotional state in Automatic Speaker Verification"), Prof. Klaus Scherer (Department of Psychology, University of Geneva) and his colleagues are researching the effects of emotion on speech to improve the effectiveness of automatic speaker verification (as used, e.g., in security systems).

RESEARCH REPORTS: **1.** "The general model encompassing both spoken and signed languages to be presented here assumes that the key lies in describing both with a single vocabulary, the vocabulary of neuromuscular activity--i.e. gesture" (Armstrong, Stokoe, and Wilcox 1995:6). **2.** "With all due respect to my esteemed colleague [Iain Davidson], our disagreement doesn't really rest so much on whether or not I see a Broca's area on [fossil cranium] 1470, whichever Homo it turns out to be . . . . Our disagreement really stems from whether or not the manufacture of stone tools gives us any insights to previous cognitive behavioral patterns, and as I wrote back in 1969, 'Culture: A Human Domain,' in *CA* [*Current Anthropology*], I think there are more similarities than not between language behavior and stone tool making, and I haven't retreated from this position, because I haven't seen effective rebuttal, just denial" (Ralph L. Holloway, posting on Anthro-L, June 21, 1996, 4:04 PM). **3.** "We tend to perceive speech sounds in terms of 'articulatory gestures,' whose boundaries and distinctions correspond to articulatory (i.e., somato-motor) features, not just sound features . . ." (Deacon 1997:359-60).

Neuro-notes I. Speaking is our most complex activity, requiring ca. 140,000 neuromuscular events per second to succeed. No animal on earth can match a human's extraordinary coordination of **lips**, jaws, tongue, larynx, **pharynx**, speech centers, **basal ganglia**, cerebellum, **emotions,** and memory, all required to utter a phrase.

Neuro-notes II. During the 1990-2000 Decade of the Brain, neuroscientists established that flaking a stone tool and uttering a word (e.g., *handaxe*) make use of the same--and closely related--brain areas. So nearly alike, in fact, are the neural pathways for manual dexterity and speech that a handaxe itself may be deciphered as though it were a paleolithic word or petrified phrase. Because **a.** the word "handaxe," and **b.** the perception of the worked stone (for which it stands) both exist as mental concepts (the neural templates for each are linked in the brain).

Neuro-notes III. Speech rests on an incredibly simple ability to pair stored mental concepts with incoming data from the senses. Ivan Pavlov (1849-1936; the Russian physiologist who discovered the *conditioned response*), e.g., observed dogs in his laboratory as they paired the sound of human footsteps (incoming data) with memories of meat (stored mental concepts). Not only did the meat itself cause Pavlov's dogs to salivate, but the mental concept of meat--i.e., memories of mealtimes past--was also called up by the sound of human feet. (***N.B.***: Pairing one sensation with memories of another [a process

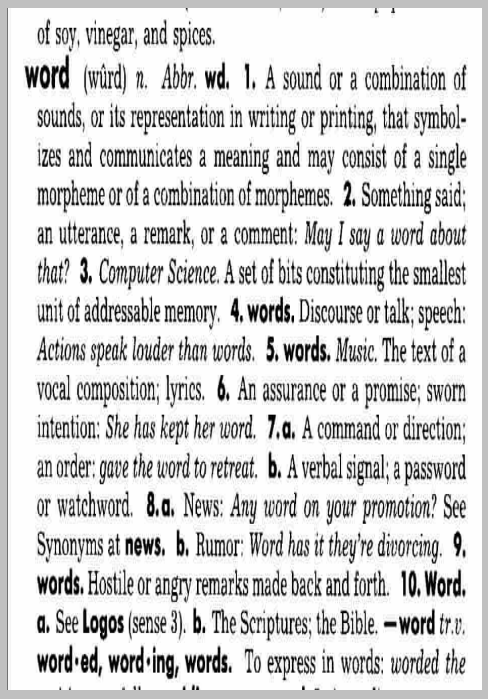
known as *sensitization* or *associative learning*] is an ability given to sea slugs, as well.)

Neuro-notes IV. Tool use itself probably increased concept formation. MRI studies, reveal that children who make early, skilled use of the digits of the right hand (e.g., in playing the violin) develop larger areas in the left sensory cortex devoted to fingering. Thus, Pleistocene youngsters who were precociously introduced to tool-making may have developed enhanced neural circuitry for the task.

Neuro-notes V. In an unpublished Carnegie Mellon University study, 18 volunteers were asked to do a language task and a visual task at the same time. Magnetic resonance imaging (MRI) measured the amount of brain tissue used by each task in voxels. Performed separately, the language and visual tasks each activated 37 voxels. Performed at the same time, however, the brain activated only 42 voxels rather than the expected 74. "'The brain can only be activated a limited amount and you have to decide where to use that activation,' says Marcel A. Just, PhD, from the Center for Cognitive Imaging at Carnegie Mellon. He plans a study in which subjects will be tested doing multiple tasks while in a driving simulator. One of those tasks will involve using a cell phone" (Lawrence 2001).

See also **VERBAL CENTER**.

WORD



of soy, vinegar, and spices.

word (wûrd) *n.* *Abbr.* **wd.** **1.** A sound or a combination of sounds, or its representation in writing or printing, that symbolizes and communicates a meaning and may consist of a single morpheme or of a combination of morphemes. **2.** Something said; an utterance, a remark, or a comment: *May I say a word about that?* **3.** *Computer Science.* A set of bits constituting the smallest unit of addressable memory. **4. words.** Discourse or talk; speech: *Actions speak louder than words.* **5. words.** *Music.* The text of a vocal composition; lyrics. **6.** An assurance or a promise; sworn intention: *She has kept her word.* **7.a.** A command or direction; an order: *gave the word to retreat.* **b.** A verbal signal; a password or watchword. **8.a.** News: *Any word on your promotion?* See Synonyms at **news.** **b.** Rumor: *Word has it they're divorcing.* **9. words.** Hostile or angry remarks made back and forth. **10. Word.** **a.** See **Logos** (sense 3). **b.** The Scriptures; the Bible. **—word** *tr.v.* **word·ed, word·ing, words.** To express in words: *worded the*

"I will say it to you in one word," Don Quixote answered, "and that word is the following: 'Set free at once that lovely lady whose tears and mournful countenance show plainly that you are carrying her away against her will and that you have done her some shameful wrong.'" --Miguel de Cervantes (1605:455-56)

We should have a great many fewer disputes in the world if words were taken for what they are, the signs of our ideas only, and not for things themselves. --Locke, *Essay on Human Understanding*

There are no words. --Zinedine Zidane, French soccer player (after France beat Brazil to win the 1998 World Cup; Wilner 1998:C1)

Verbal ***signal***. **1.** In ***speech***, an articulated sound or sounds uttered **a.** to convey **information**, **b.** to express **emotion**, **c.** to suggest ideas or opinions, or **d.** to greet a person, place, or thing. **2.** In manual *sign language*, an articulated body movement or movements used to communicate as in *speech* (above). **3.** In *writing*, an alphabetical, ideographic, pictographic, or symbolic version of a verbal sound or body motion which may be stored, e.g., through inscriptions carved in *stone*, characters printed on *paper*, or images saved on *computers*.

Usage I: Words have diverse uses as labels for objects (e.g., "walnut"), directions ("west"), and activities ("walk"). Some words (e.g., "the") have linguistic uses rather than referential or conceptional meanings. Words are spoken, signed, or written in the sequential order governed by cultural rules, *syntax*, and *grammar*.

Usage II: A great deal of our verbiage is about **artifacts** (e.g., **Big Macs®**, **blue jeans**, and **shoes**), i.e., about items in the ever-growing stockpile of material goods we possess or dream of owning. The

partnership between **consumer products** and words may be as ancient as Oldowan stone tools and the likely labels our ancestors used to articulate knowledge of their design. (***N.B.***: Echoing prehistory, artifacts and brand names form a natural partnership in the mind--and in the media--today.)

Usage III. Words themselves may become consumer products: "Protecting English against the erosion of time has been a recurring theme in attempts to save the language from decay. The time capsule entombed by Westinghouse at the 1939-40 New York World's Fair was an attempt to preserve Anglo-American civilization for a time when the language would be as dead as Sumerian" (Bailey 1991:223).

Anthropology. "To know the 'true name' of a thing was thought to be a source of power over it in many traditions" (Deacon 1997:321).

Animal behavior. Studies of apes, dogs, parrots, and sea lions have "demonstrated that other animals can acquire and use words" (Lieberman 1991:113). Studies of chimpanzees have shown that humans are "not, after all, the *only* tool-making animals" (Goodall 1990:5).

Astronomy I. "At its 17th general assembly in 1979, the IAU [International Astronomical Union] decided that, except for one high mountain already named for Scottish physicist James Clerk Maxwell, only feminine names will identify Venusian surface features" (Lupfer 1993:3).

Astronomy II. "In general, neither the names of politicians, philosophers or military figures of the last two centuries, nor the names of people associated with any still-practiced religion, are accepted [as names for newly discovered comets]" (Lupfer 1993:3).

Author's note: When asked about the irony of using words to study **nonverbal communication**, I answer that words help raise nonverbal issues to a more conscious awareness. (***N.B.***: As Joseph Conrad prefaced in *The Nigger of the "Narcissus"*: it is "by the power of the written word, to make you hear, to make you feel--it is, before all, to make you *see*.")

Evolution. The earliest words may have been nouns. A *noun* (Middle English *name*, from Indo-European ***no-men-***, "name") is used to label persons, places, animals, plants, qualities, actions, and things.

Gesture *origin*. "We take the view that language is based in gesture--that is, bodily movement to which human beings attach meaning" (Armstrong et al.1995:3). [Author's note: Words themselves are produced by articulated body movements of the vocal tract.]

Infancy. At ca. 18 months, toddlers display a keen interest in naming things, and their vocabulary of nouns rapidly grows.

Literary criticism. "The very act of naming something is an attempt both to define it and possess it" (Cohen 1993:3).

Literature. ". . . words clothed in reason's garb . . . ." --John Milton (*Paradise Lost, Book II*; 1667)

Media. In the beginning was the *Pause*, which became the *Real Thing*. **1929**: "The Pause that Refreshes." **1961**: "Things go Better with Coke." **1969**: "It's the Real Thing." **1982**: "Coke is it!" **1993**: "Always the Real Thing." **1995**: According to a Gallup Organization poll, over 60% of the Chinese population say they have heard the brand name, ***Coca-Cola***®.

Odd object words. **1.** The word "chad," of unknown origin, is the name for a small, circular piece of paper or cardboard produced by a paper punch (source: *The American Heritage Dictionary*). **2.** The word "gry," for a measurement which is the equivalent of 0.008 inches, comes from the Greek word for a speck of dirt beneath a fingernail (source: *The Dent Dictionary of Measurement*). **3.** "Jun," the name of a single star located in the constellation Cepheus, belongs to movie star Johnny Depp, according to the International Star Registry in Ingleside, Illinois (Cohen 1993:3). **4.** Some 1,474 other names for "crayfish," including, Danish *signalkrebs*, Mayan *bab*, and two Aboriginal Australian manual signs for the **arthropod**, have been compiled by C. W. Hart, Jr., in his 1994 *Dictionary of Non-Scientific Names of Freshwater Crayfishes* (Washington, D.C., Smithsonian Institution).

PET imaging. **1.** "In this positron emission tomography study we examined the pattern of neural activation associated with performance on number-letter sequencing [NLS], a purported measure of working memory included in the new Wechsler scales for memory and intelligence. After controlling for basic audition, verbalization, and attention, areas of activation were observed in the orbital frontal lobe, dorsolateral prefrontal cortex, and posterior parietal cortex. This is highly consistent with reports from the literature on activation patterns associated with working memory. *More activation peaks were observed in the right hemisphere, suggesting the participants utilized visualization of the verbal information*" (Haut et al. 2000; italics added by D. Givens to emphasize the neural link between verbal and nonverbal). **2.** Activation was demonstrated in the right posterior temporal lobe, right orbital frontal region, right posterior parietal cortex, right dorsolateral prefrontal cortex, right posterior premotor cortex, right posterior parietal cortex, and the precuneus midline; regarding the precuneus midline, slightly greater on the left) (Haut et al. 2000). **3.** "In conclusion, this study provides support for NLS as a task with a working memory component. Beyond basic verbal attention span, participants used areas of the brain associated with temporary storage, active maintenance, and organization of information. *Despite the verbal nature of the task, there was a large degree of right hemisphere activation*, which may have been a result of utilization of visuospatial components of working memory. At this point, clinicians should be cautious with interpretations regarding laterality of deficits when observing deficient performance on NLS, despite its apparent verbal nature" (Haut et al. 2000; italics added).

E-Commentary: "Prior to becoming an attorney, I was a police detective for a number of years. I am continually amazed how attorneys at depositions are typically so focused on their outlines [i.e., on *words*] than they completely ignore nonverbal, and even verbal, indicators that practically give-away the case. My presentation focuses on spotting and using these observations to determine where to probe for the truth and what to do with it when you get it." H.L., USA (8/9/99 4:21:15 AM Pacific Daylight Time)

Neuro-notes I. At the level of neurons, saying, signing, or writing a word is not unlike striking flakes

from a pebble core to make a stone tool. In right-handed people, all four activities involve premotor and motor areas on the left side of the forebrain (which controls the right side of the body). Older regions of forebrain--including the **basal ganglia** and the thalamus of the **reptilian brain**--underlie tool making and the ability to speak. Through general coordination of motor control, the substantia nigra of the midbrain is part of the speech process, as well. The hindbrain's neocerebellum, too, plays a role in coordinating the voluntary movements of our very verbal digits and very vocal tongue. Thus, neural templates for tools and words are shared on many levels of the brain.

Neuro-notes II. At the highest level, word order is overseen by circuits of the prefrontal cortex, which guides the sequential processing needed to build an artifact or utter a phrase. Regulating speech sounds is the inferior frontal gyrus (Brodmann's areas 44/45). Controlled by the frontal lobes, our fingers and speech organs follow the correct sequences required to produce oral statements and material tools.

Neuro-notes III. The supplementary motor area of the neocortex is involved in sequential processing, as well, both for verbal and some nonverbal (e.g., mime-cue) articulations. "We have found a group of cells in the cerebral cortex of monkeys whose activity is exclusively related to a sequence of multiple movements performed in a particular order. Such cellular activity exists in the supplementary motor area . . . . We propose that these cells contribute a signal about the order of forthcoming multiple movements, and are useful for planning and coding of several movements ahead" (Tanji and Shima 1994:413).

Neuro-notes IV. **1.** "Object-naming is unique to man because the anatomical basis of the ability [the *angular gyrus*] is also unique to man" (Lancaster 1968:454). **2.** As reported in the November 17, 1994 issue of *Nature*, word recognition resides in the anterior fusiform gyrus of the inferior temporal lobe, according to Gregory McCarthy and colleagues at Oxford University. **3.** "In both studies, generation of color words selectively activated a region in the ventral temporal lobe just anterior to the area involved in the perception of color, whereas generation of action words activated a region in the middle temporal gyrus just anterior to the area involved in the perception of motion" (Martin et al. 1995:102 [*Science*]).

Neuro-notes V. "Scientists at the National Institute of Mental Health in Bethesda, Md., have found that knowledge about the names of animals and tools--two broad categories of objects--gets handled by largely separate networks of brain regions" (Bower 1996:103).

Neuro-notes VI. Concrete words are processed more efficiently than abstract words (Kiehl et al. 1999). According to fMRI data, word processing involves the bilateral fusiform gyrus, the anterior cingulate gyrus, the left middle temporal gyrus, the right posterior superior temporal gyrus, and the left and right inferior frontal gyrus (Kiehl et al. 1999). Abstract and concrete word processing both involve the right anterior temporal cortex (Kiehl et al. 1999). "The results are consistent with recent positron emission tomography [PET] work showing right hemisphere activation during processing of abstract representations of language. The results are interpreted as support for a right hemisphere neural pathway in the processing of abstract word representations" (Kiehl et al. 1999).

See also **HUMAN BRAIN**, **NONVERBAL WORLD**, **VERBAL CENTER**.

BLUE JEANS

(History)

Policy 9805 states "Jeans and other types of similar apparel are not to be worn in areas where patient services are provided." --**Sacred Heart** Medical Center's weekly newsletter, *Monday A.M.* (Vol. 22, No. 17, p. 4, Spokane, Washington, April 24, 2000)

Clothing cue. Usually close-fitting trousers of coarse twill, blue cotton cloth, worn to oppose the formality of dress slacks.

Usage: Debuting in the 1954 movie, *The Wild One*, Marlon Brando's blue jeans launched *Levi's*® as a medium of mass communication (see **MEDIA**). Since the year of their patent in 1873, when rivets were added to strengthen the seams, Levi's jeans have been prized for their durability and protection. Since *Wild One*, Levi's have become a universal fashion statement of "independence," "rebellion," and youthful rejection of the **business suit**.

Color. Indigo blue dye, produced from the leaves of the *Indigofera* plant, has been ". . . found in prehistoric cave paintings and used to color wool more than four thousand years ago" (Beller 1994:103). Synthetic indigo dye is used to color modern blue jeans.

Consumer product. In 1994 Levi's 501 was the best-selling jean in the world (Beller 1994).

Media. Worn with **boots** in the 1955 movie, *Rebel Without a Cause*, blue jeans reinforced the illusion that James Dean had his feet solidly planted on the sidewalk (see **ANTIGRAVITY SIGN**). Meanwhile, the rumpled fit of Dean's trousers sent a rebellious message to businessmen in gray-flannel suits. Blue

jeans neither matched the corporate uniform of the day, nor exhibited the crisp crease worn as a status sign in the boardroom.

Primatology I. The groomed or scruffy appearance of a monkey's fur is a visual sign of high or low status, respectively. The best-groomed male baboon, e.g., is often the troop leader, and in the corporate domain leadership often shows in pressed jackets and conspicuously creased slacks. By combining bulky leather jackets, wrinkled denim, and boots, Brando and Dean not only threatened the establishment but launched a "disobedient" fashion statement which continues to challenge the status quo today.

Primatology II. A curious **sign** emanates from *Rebel's* studio posters: James Dean conspicuously displays his derrière. He stands in the movie ad with his back turned and his hands thrust into his jeans' back pockets. If Dean were any other primate than a human, primatologists would say he was *presenting* his hindquarters. In monkeys and apes, presenting is a **gesture** of **submission** and sexual display (see **LOVE SIGNAL**). The tiny red tag on the back of Levi's jeans is a **messaging feature,** designed to draw attention to the wearer's buttocks.

Primatology III. Presenting hindquarters in blue jeans became more fashionable in 1977 when a 15-year-old girl, Brooke Shields, bent over to advertise *Calvin Klein*® jeans. The curvilinear human behind is, among primates, a unique **cue** born **a.** of muscles for upright posture (*gluteus maximus*) and **b.** adipose tissue (i.e., fat) stored for childbirth. In her ads, Shields asked the rhetorical question, "You know what comes between me and my Calvins? Nothing."

RESEARCH REPORTS: **1.** According to NASA, the mean buttock circumference in men is 39.2, and in women 37.4, inches. Though women have fuller, rounder bottoms, derrières of both sexes are featured in jeans ads (see **LOVE SIGNALS I**). **2.** The favorite color of Americans is blue.

See also **ARM-SHOW**, **FOOTWEAR**, **LEG WEAR**.

BODY ADORNMENT

A sweet disorder in the dress
Kindles in clothes a wantonness. --Herrick, *Delight in Disorder*

After its invention some 9,000 years ago: *Cloth would soon become an essential part of society, as clothing and as adornment expressing self-awareness and communicating variations in social rank. For good reason, poets and anthropologists alike have employed cloth as a metaphor for society, something woven of many threads into a social fabric that is ever in danger of unraveling or being torn*. --John Noble Wilford (1993:C1)

Clothing should always move with your body. Fashion is an extension of body language. A new garment creates a new posture--and a new attitude--in its wearer. --Véronique Vienne (1997:160)

*Wearable **sign***. **1.** The act of decorating the human frame to accent its grace, strength, beauty, and presence, or to mask its less attractive features and traits. **2.** Visually distinctive patterns of body piercing, dress, scarification, and tattoos worn to express a personal or a social (e.g., an ethnic, military, or national) identity.

Usage: **1.** What we place upon our bodies (e.g., **clothing**, **footwear**, **hats**, makeup, and tatoos) adds color, contrast, shape, size, and texture to our primate form. Each day, myriad **messages** of adornment broadcast personal **information**--in a *continuous* way (i.e., as "frozen" gestures)--about our ethnicity, status, affiliation, and moods. **2.** We may use clothing cues as **a.** uniforms (or "clothing signs"), **b.** fashion statements ("clothing symbols"), **c.** membership badges ("tie-signs"), **d.** social-affiliation signs ("tie symbols"), **e.** personality signs ("personal dress," e.g., the bow tie), and **f.** socio-political-economic signs ("contemporary fashion"), according to a typology developed by SUNY Fashion Institute of Technology professor, Ruth P. Rubinstein (1994). **3.** "Social rank . . . has probably always been encoded through symbols in the material, design, color, and embellishment of the clothing" (Barber 1994:150).

Anatomy. Before pants, skirts, and shoes, there was the unadorned primate body itself: eyes, teeth, skin, hair, and nails, along with shapes formed of muscle, fat, and bone. Before adornment, the **nonverbal brain** expressed feelings and attitudes through **body movements**, **postures**, and **facial cues**. But with the advent of clothing and shoes the body's nonverbal vocabulary grew, as shoulders "widened," ankles "thinned," and feet stood up on tiptoes (see **HIGH HEEL**). As "optical illusions," stripes, colors, buttons, and bows accented or concealed natural signs, and drew attention to favored--while diverting eyes from less favored--body parts.

Bylaw. "We recognize the essential wholesomeness of the human body and that life is enhanced by the naturalness of social nudity." --American Association of Nude Recreation bylaws

Culture. The world's most extreme adornment may be the Afghan robe-like dress called a *burqa*: "I explain I was curious to see the world from within a burqa [journalist Vivienne Walt wrote], whose only opening, an oblong grid over the eyes, cuts peripheral vision, blurs everything else and makes breathing more difficult. [Gul] Bibi [38, from Kandahar, Afghanistan] laughs skeptically, then declares: 'I've been wearing this since I was a small girl. If I didn't, I would feel men were eating me with their eyes'" (Walt 2002:1A).

Law. The nonverbal power of clothing may be revealed by its absence. "The United States Supreme Court holds that strip clubs whose exotic dancers wear G-strings and pasties won't lure as many drunks and criminals to the neighborhood as clubs that permit the last stitch of clothing to be dropped" (Auster 2000:16).

Media. **1.** According to the *New York Times*, the discovery by James Adovasio (Mercyhurst College) and Olga Soffer (University of Illinois at Urbana) of ancient weaving embedded in fired clay pushes the date of humankind's earliest cloth back to 27,000 years ago (Fowler 1995). **2.** *Forget that old hippie saying, you are what you eat. In the modern world, you are what you wear*. --Suzy Gershman (*Spokesman-Review*, Webster 2000).

Prehistory. Early evidence for personal ornamentation consists of a European stone pendant with decorative grooves, and a tapered neck around which to tie a thong (Scarre 1993:43).

Fur. As primates, we are also mammals for whom a dense matte of fur is an evolutionary birthright. Anthropologists do not know when or why humans lost their body hair, but it is clear that clothing originated as a *fur substitute* to cover the skin and genitalia. (***N.B.***: That we see nude bodies in the workplace on but the rarest of occasions testifies to the power of clothing today. Once fashion appeared in **Nonverbal World**, it never went out of style.)

Beads. If a bear-skin robe made the body **loom** large, decorating the garment with beads attracted greater notice still. The elaborate beadwork of a man's fur clothing found at a 23,000 year old hunter's burial ground in Sungir, Russia, remained long after the furs themselves had rotted away (Lambert 1987). As fashion media, however, leather and beads could go just so far. Only after fabric replaced fur did clothing became truly expressive.

Leather. Full body dress originated in Africa or Eurasia to protect the body and keep it warm. The first clothes were made of prepared *animal hides*. Stone scraping tools from Neanderthal sites in Europe provide indirect evidence for hide preparation, suggesting that cold-weather clothing could be at least 200,000 years old (Lambert 1987).

Flounce & weave. The earliest domesticated sheep, from Zawi Chemi Shanidar, Iraq, suggest that *wool clothing* originated 10,500 years ago (Wenke 1990). Unwoven skirts and shawls made of flounces of tufted wool or flax were worn by the ancient Sumerians 5,000 years ago (Rowland-Warne 1992), although one of the earliest known *textiles*--a linen-knit bag from Israel (found in Nahal Hemar cave)--is thought to be 8,500 years old (Barber 1994).

Fiber & fabric. More recently, the invention of the flying shuttle (1733), the spinning jenny (1764), and the 19th century power-loom made cotton fabrics available in ever greater quantities, as **consumer products**. Mass produced clothing first appeared in 1851 with the invention of the sewing machine, and increased in production with the use of *synthetic fibers* (e.g., Orlon in 1952). As the adornment medium became subject to greater control, the diversity and number of clothing cues burgeoned (see **MESSAGING FEATURE**). (***N.B.***: In 1993 a Lands' End® Mesh Knit shirt contained *4.3 miles* of 18 singles cotton yarn [Anonymous 1993].)

Tattoo signals. "[U.S.] Teenagers with tattoos are more likely than their peers to drink too much, have sex too early, get into fights and engage in other risky behavior, a University of Rochester study shows" (Anonymous 2001E).

The color purple. With fabrics came dyes, and the ability to signal social status with ***color cues***. In ancient Rome, e.g., only the emperor was allowed to wear a robe dyed *royal purple* (Barber 1994:150).

E-Commentary: "I've called you before on other feature stories and you've been very helpful. Currently, I'm doing a story on teen fashion. I'm looking at what's going to be the prevailing trend for spring/summer (it's lots of loud color). I have a question: What, in general, are teens trying to accomplish with the fashion and sense of style they cultivate?" --J.W., *Sun Chronicle*, Attleboro, MA (3/17/00 11:57:54 AM Pacific Standard Time)

Neuro-note. To the very visual **primate brain**, fashion statements are "real" because, neurologically, "seeing is believing."

See also **ARM-SHOW**, **BLUE JEANS**, **BUSINESS SUIT**, **HAIR CUE**, **NECKWEAR**, ***WWW.Bananarepublic.com***.

FOOTWEAR

Clearly we have a richer, more complicated relationship with our shoes than we do with, say, our sweaters. --Elizabeth Kastor (1994:30)

With white shoes you're making a statement. You can't be somebody meek and wear white shoes. --Joe Zee, *Allure* magazine fashion market editor (Allen 1995:D1)

Shoes hold the key to human identity. --Sonja Bata, founder of the Bata Shoe Museum in Toronto (Trueheart 1995:C10)

Clothing cue. **1.** A **consumer product**, such as boots, shoes or slippers, to protect and decorate the **feet**. **2.** A highly expressive article of clothing designed to convey **information** about gender, status, and personality (see **MESSAGING FEATURE**).

Usage I: Worldwide, shoes are among the most expressive of all nonverbal cues (see also **HAT**). This reflects **a.** the foot's **primate** evolution as a *grasping organ* (i.e., as a neurological "smart part"), and **b.** the curious fact that our foot's sensory mapping on the brain's parietal lobe abuts that of the *genital organs* (i.e., our feet are similarly sensitive, ticklish, and sexy; see **HOMUNCULUS**).

Usage II: Frequently, feminine footwear shows *personality and uniqueness* (and says, e.g., "I'm someone special"), while masculine footwear is part of a uniform to mark *membership in a group* (to say, e.g., "I'm on the management team," or "I'm a cowboy").

Archaeology I. The oldest indirect evidence for footwear may be found in a Spanish Upper Paleolithic

cave painting of a man clad in *animal-skin boots* and a woman clad in *furry boots*, dating to between 14,000 and 17,000 years ago. The oldest footwear yet unearthed is a 10,000-year-old *sagebrush-bark sandal*, with straps running around the heel and over the top of the foot. Like the foot's sole itself, the bottom was ridged for better traction (as are, e.g., Birkenstocks® today). About 2,200 years ago, the Romans made shoes more comfortable by adapting them to the actual shapes and sizes of feet. About 1,300 years ago, Arabs in Cordova, Spain, introduced shoes made of tanned leather, the favored material of most shoes today.

Archaeology II. Humans have been *decorating* their sandals and shoes at least since the beginning of the Neolithic Age, ca. 10,000 years ago. According to archaeologists who found them in homes, tombs, and burials, the earliest sandals came in hundreds of *designs*. Thus, *style* in footwear was important from the very beginning, just as it is today.

Culture. In the Middle East, Singapore, and Thailand, showing the sole of a shoe (while sitting down), accidentally or deliberately, to another person is an insult. The *sole-show* is insulting because ". . . the bottom of the shoe is seen as the lowliest part of the body, the part that steps in dirt" (Morris 1994:77).

Evolution. As a rule, shoes evolve at a slower rate than clothing. **Women's shoes** change more frequently--and far more dramatically--than **men's shoes**.

Fetish. ". . . shoes are the clearly visible yet strangely private vocabularies of our fantasies, our private fetishes. They are the subject of what psychologists consider Western culture's most common sexual fetish, a fetishism that spreads beyond those overt souls who only enjoy love when it wears insanely constricting, wildly spiked heels" (Kastor 1994:30).

Folklore. "'In the case of female symbolism, I think the shoe is pretty explicit,' says Alan Dundees, professor of anthropology and folklore at the University of California at Berkeley. 'The foot fitting in the shoe--you have the act, the same as putting a finger through a ring. There's some actual iconic representations of the sexual act here'" (Kastor 1994:30).

See also **BOOT**, **GOOSE-STEP**, **HIGH HEEL**, **SNEAKER**.

FEET

Why do we even bother to read palms? Feet are so much more revealing. --Elizabeth Kastor (1994:30)

Most women think they have ugly feet. --Sharilyn Abbajay, general manager, Elizabeth Arden salon (Chevy Chase, Maryland; Roberts 1995:D1)

Smart parts. **1.** The terminal end organs below the legs, used for *standing*, *walking*, ***dance***, and *display* (see **FOOTWEAR**). **2.** Those body parts which **a.** make direct contact with the earth and ground, **b.** reveal dominance and submission by *toeing out* or *toeing in*, respectively (see **SHOULDER-SHRUG DISPLAY**, *Constituents*); **c.** link to sexual modules of the brain's sensory parietal lobe (as expressed, e.g., in foot fetishism); **d.** inadvertently point toward or **angle away** from liked or disliked individuals, respectively; and **e.** through **men's** and **women's shoes**, mark gender, identity, and status.

Usage: Like our **hands**, our feet are neurologically gifted. As *smart parts* and *sensory feelers*, e.g., they

are well connected to diverse areas of the brain. Feet are sexually expressive and sensitive, as well, through proximity to sensory nerves of the genitalia (toes and genitals abut on the sensory homunculus [Willis 1998C; see below, *Neuro-notes*]). For these reasons, feet are highly expressive organs which play a major role in **nonverbal communication** throughout the world.

Anatomy. The oldest human footprints have the same platform-and-lever design as modern feet. Between the sturdy heel bone and little toe is a stout *5th metatarsal* bone which evolved as a platform. Today, it carries the weight while the body is standing. The early *1st metatarsal*, on the foot's inner side (between the heel and big toe) also thickened--for walking. Today, the 1st metatarsal enables us to push off as we step, and forms part of the foot's cushioning arch, which is accented in **high heel shoes** and comforted in **sneakers**. (***N.B.***: 25% of all bones of the human body are in the feet.)

Anthropology. Abruptly in Africa (i.e., ca. four m.y.a.), after descending from trees to the savannah grasslands, human beings began walking upright. Hands were no longer needed for travel, and fingers were liberated to continue their (primate) evolution as super-sensitive tactile antennae. At the same time--despite their own tactile savvy and prehensile IQ--feet were sentenced to bipedal "foot duty." (***N.B.***: While our hands advanced, our feet were grounded.)

Anthropometry. Mean foot breadth averages 3.5" in women, and 3.9" in men; length averages 9.5" and 10.7", respectively (Kantowitz and Sorkin 1983:494-95).

Archaeology. Evidence for human feet dates back ca. 3.5 m.y.a. to the tracks of three upright ancestors (probably *australopithecines*) who strolled across a bed of volcanic ash on the east-African savannah, in what is now Laetoli, Tanzania. The footprints are nearly identical to those of modern humans.

Embryology. In the womb, human feet resemble the *grasping* feet of monkeys and apes. (***N.B.***: Though earthbound, our feet never outgrow their innate ability to reach out and touch.) Lagging behind hands, lower-limb buds form by the end of the 4th week of life. By week seven, *digital rays* appear on the buds (which resemble fleshy paddles). By week eight toes separate through a process of programmed cell death. Between the 5th and 12th weeks, muscles enter from outside the growing limbs as bones and tendons form inside them. Like creeping vines, nerves grow into the lower extremities and cable the feet to multiple sites in the brain, and at three months, a human fetus can wiggle its toes.

Media. The following movies cast feet in sexually expressive cameo roles: **1.** *Bull Durham* (Kevin Costner, nude, paints Susan Sarandon's toenails); **2.** *Goodbye, Columbus* (sitting on her bed, Ali MacGraw polishes her toes and talks dirty to Richard Benjamin); **3.** *Lolita* (James Mason gives Sue Lyon a pedicure in a seedy motel); and **4.** *Overboard* (Goldie Hawn receives a pedicure on her yacht from her butler, Roddy McDowall; Roberts 1995 [see below, *Neuro-notes*]).

Paleontology. Originating as *pelvic fins* for water travel, feet evolved into the five-digit extremities which enabled the earliest **amphibians** and **reptiles** to **walk** and run, and to paddle through ancient seas. By ca. 70 m.y.a., as the first primates took to the trees, feet became touch-sensitive and skilled for climbing and grasping, and, later, for handling objects, such as insects and fruit (though the hands

remained superior in dexterity and manipulative skill). (***N.B.***: Because they were more agile and neurologically better connected, early primate feet were "smarter" than the feet of their mammalian ancestors.)

Space. A left foot was the first human body part on the Moon. On Sunday, July 20, 1969, Neil Armstrong planted his left boot on the fine, powdery lunar surface, at 10:39 PM (EDT). "Still holding on [to the Lunar Module], he stretched out his toe and dragged it backward several times, furrowing the soft ground [i.e., he palpated the plain]" (Chaikin 1994:209).

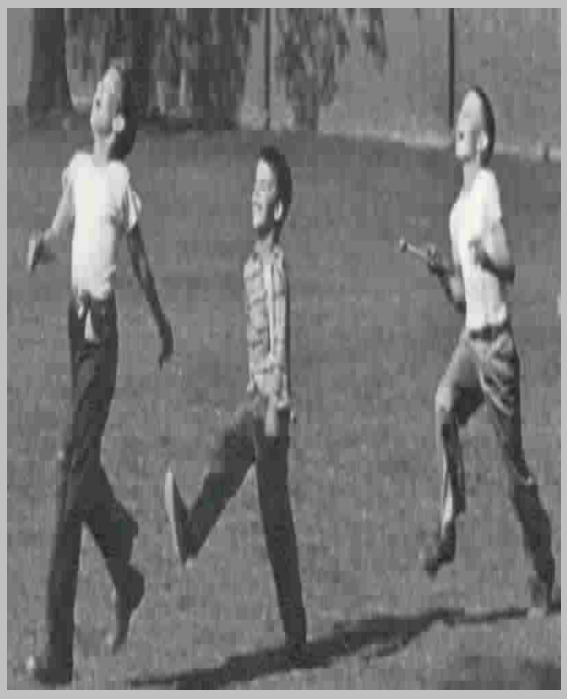
E-Commentary I: "Feet position and action often correlate with how we feel, i.e., happy feet when we are excited; dangling high heel shoes when we are in a seductive or playful mood; unmoving when we want to be left alone. For example, I have noticed that when two people are talking, their feet **mimic** each other; when a third person arrives, if they don't wish this person to partake, they will turn at the waist and greet, but their feet remain fixed. If the third person is liked, the original two usually will move their feet and create a comfortable openness, so that they can form a triangle. I have also noticed that jurors often move their feet and point them to the door when they don't like an attorney as he is presenting." --J.N., FBI (4/20/00 7:22:29 PM Pacific Daylight Time)

E-Commentary II: "I work for a radio magazine programme called "Outlook" at the BBC World Service. I am producing a special programme about feet--their physiology, role, history, and other interesting aspects and stories about people's feet. Your organisation sounds very interesting. I'd be very grateful if you could help out with any interview/feature suggestions or get in touch with me about this as soon as possible." –Producer, Outlook, BBC World Service (9/21/00 5:12:18 AM Pacific Daylight Time)

Neuro-notes. Fewer human beings are strongly right-footed (46%) than strongly right-handed (72%). The foot bottom has the thickest skin of any body part (ca. an eighth of an inch). Yet despite their natural padding and cushioning layer of fat, feet are extremely sensitive. They have more tactile nerves than the back, legs, arms, or shoulders, and take up more room on the sensory, parietal neocortex (the SI cortex) than the entire torso (see **HOMUNCULUS**; toes and genitalia are neural neighbors on the parietal sensory strip). That feet are so well connected to the brain explains why they "think" and "speak" like (and seemingly crave the attention of) hands.

See also **BOOT**, **GOOSE-STEP**.

DANCE



The body dances in time with the speech. --Condon and Ogston (1967:225)

The truest expression of a people is its dances and its music. Bodies never lie. --Agnes de Mille

Body motion. A repetitive series of usually rhythmic movements of the body and body parts (esp. **feet**, **hands**, and **shoulders**) to a musical beat, based on the alternating oscillations of **walking**.

Usage: An ancient and powerful medium of nonverbal communication, dance is a nearly universal venue of human **courtship**. Dance not only synchronizes a couple's physical movements (e.g., as they move to the beat of the same drummer), but their moods and feelings as well. Some dance forms (e.g., break dancing, military marching, and the tribal war dance) stimulate strong feelings of togetherness and esprit de corps through the reptilian principle of **isopraxism**.

Anthropology. "One field which still awaits exploration is the question of how far a dominant kinesthetic awareness of certain parts of the body is related to psychological factors. If posture and movement of an individual are closely interdependent with his psychological state, would not stylized posture and gesture in the dance of a people be relevant to a general psychological trend in their life?" (Holt and Bateson 1944:52; the authors contrast, e.g., "rhythmic, rotating movements of the pelvic region" with "rigid" postures of the torso and hips in dancing.)

Motions. The human form is more noticeable when it is moved. Thus, dancers not only **attract attention** of their own partners but of onlookers as well. Through principally **palm-down** motions, the arms participate in dance as "walking" forelimbs. Exaggerated reaching (i.e., extension) movements of the

arms (e.g., while waving the hands high above one's head) signal strong **emotion** through a principle of ***nonverbal release***. In dancing, **a.** we show our emotions, physical prowess, and health, and **b.** giving our partners an opportunity to **touch**.

Popular culture. When Joey Dee and the Starlighters played loud music with a beat at the Peppermint Lounge in New York in the 1960s, "even the waitresses were twisting" (Sutton 1984:33).

Neuro-notes I. The oscillating movements and rhythmic footsteps of dance are keyed to a two-point *pedestrian beat*. The natural rhythm of our upright, bipedal gait is coordinated by the same spinal **paleocircuits** which once programmed the oscillatory *swimming* motions of the earliest fishes (Grillner 1996; see **AQUATIC BRAIN & SPINAL CORD**).

Neuro-notes II. In right-handed dancers, music appeals to the more emotional, intuitive, and nonverbal right-brain hemisphere. Thus, dancing couples are on similar *feeling* (rather than rational *thinking*) wavelengths .

See also **MUSIC**, **RAPPORT**.

Detail of photo by Alfred Eisenstaedt (copyright *Life*)

WALK

*He even walked like a crab, as if he were **cringing** all the time*. --Elia Kazan, commenting on actor James Dean (Dalton 1984:53)

Body movement. To travel by taking steps with the legs and **feet**, at a pace slower than jogging, sprinting, or running.

Usage: While we walk on our hind limbs to commute from point **A** to point **B**, the manner and style of our gait (e.g., *marching*, *mincing*, or *swaggering*) telegraphs **information** about our status, feelings, and moods. Our bipedal walk's two-point rhythm provides the neurological foundation for **a.** music's syncopated beat, and **b.** the oscillating movements of **dance**.

Anthropology. A bipedal stride enabled our human ancestors to cover great distances on African **grasslands** ca. three m.y.a. Survival required that they stay *continually on the move* (Devine 1985). The earliest physical evidence for human-style walking dates back 3.5 m.y.a. to the tracks of three upright ancients (probably australopithecines) who strolled across a bed of fresh volcanic ash one day on the east-African savannah, in what is now Laetoli, Tanzania. The footprints are nearly identical to those of modern humans, only smaller.

Evolution. Our legs originated ca. 400 m.y.a. from the *lobe fins* of Devonian fishes resembling

crossopterygians.

Media *I*. "I am in the moment, living the experience, when I am walking." --Joy Evans (*Washington Post*, November 25, 1995)

Media II. The scariest movie monsters walk upright like human beings. Their resemblance to people renders them even more terrible than ordinary land (i.e., quadrupedal), air, and sea monsters. Bipedal dynosaurs (e.g., *Velociraptor* and *Tyrannosaurus* in the 1993 movie *Jurassic Park*), insectoids (*Aliens*, 1996), and primates (*King Kong*, 1933) resonate with horrific images of the upright human form.

Pediatrics. Babies begin advancing one limb at a time on all fours between the 6th and 9th months of life, to *crawl* for the sheer pleasure of movement (Chase and Rubin 1979). Infants are born with two walking reflexes. The plantar reflex causes an infant's lower limbs to contract the extensor muscles when their feet touch a horizontal surface. Held under the arms, a baby can support its own weight and take several steps forward. The plantar reflex lasts for two months, and is not present in all infants. When a baby's leg touches the side of a flat surface, it will automatically lift its leg and place its foot on the horizontal plane. This, the tactile placing reflex, is also present in many other terrestrial vertebrates.

Philosophy I. Followers of Aristotle (384-322 BC), who founded the Lyceum in 335 BC, were known as *peripatetics* because they walked and underwent "restless practices" (Flew 1979:265) as they thought and shared ideas, rather than merely **sitting** in place.

Philosophy II. The two-point rhythm of walking's stride clears the mind for thinking. (***N.B.***: Perhaps, after telling the spinal circuits to "take a walk," the forebrain shifts to automatic pilot, so to speak, freeing the neocortex to ponder important issues of the day.) Many philosophers were lifetime walkers, who found that *bipedal rhythms* facilitated creative contemplation and thought. In his short life, e.g., Henry David Thoreau walked an estimated 250,000 miles--ten times the circumference of earth.

U.S. politics. "The black-footed species [of Pacific albatross, nicknamed "gooney bird"] . . . has a more distinctive walk--head down and clavicles hunched like shoulders. 'After [Richard Milhous] **Nixon** visited here [Midway Island] during Vietnam, the black-footed species' distinctive method of walking suddenly looked familiar,' says [U.S. Fish and Wildlife manager Rob] Shallenberger. 'Since then, it's been referred to as the Nixon walk'" (Friend 2000:54).

E-Commentary: "I was hoping you might be able to help me. I am a New York based author writing a book called *The Encyclopedia of Aggravations and Annoyances*. I am trying to find information on a particular occurrence, when you're walking down the street and you try to pass someone but you both dodge to the right then to the left. I have read articles on this in the past, but I have been unable to find them again. As the director of the Center for Nonverbal Studies, I was hoping you might be able to point me in the right direction?" Laura Lee (4/5/01 8:56:24 PM Pacific Daylight Time)

RESEARCH REPORTS: **1.** "The legs of an amphibian served the same function as the inertial force of water for a swimming animal, providing a fulcrum that enabled early **amphibians** to be little more than fish that swam on land" (Jerison, 1976:11). **2.** Basal ganglia initiate movement and ". . . are responsible for the automatic movements we make without thinking" (Restak, 1995:16).

Neuro-notes I. The natural rhythm of our upright, bipedal gait is coordinated by the same spinal **paleocircuits** which programmed the oscillatory *swimming* motions of the early fishes (Grillner 1996).

Neuro-notes II. Something deep in our vertebrate soul finds walking for its own sake an evolutionary necessity. Impulses to go on walkabout are coordinated by oscillatory circuits of the *spinal cord*, by excitatory centers of the ***aquatic midbrain***, and by the **basal ganglia** of the ***reptilian forebrain***. (***N.B.***: Neurologically, our nonverbal nature lies in movement.)

See also **ARM-SWING**, **GOLF**, **RAPPORT**, **SWAGGER-WALK**.

SHOULDER-SHRUG

It had the power to drive me out of my conceptions of existence, out of that shelter each of us makes for himself to creep under in moments of danger, as a tortoise withdraws within its shell. --Joseph Conrad (*Lord Jim*, 1899; see below, *Origin*)

Gesture. **1.** To lift, raise, or flex-forward one or both **shoulders** in response **a.** to another person's statement, question, or physical presence; or **b.** to one's own inner thoughts, feelings, and moods. **2.** One of several constituents of the larger **shoulder-shrug display**.

Usage I: The shoulder-shrug is a universal sign of resignation, uncertainty, and submissiveness. Shrug cues may modify, counteract, or contradict verbal remarks. With the statement, "Yes, I'm sure," e.g., a lifted shoulder suggests, "I'm not so sure." A shrug reveals misleading, ambiguous, or uncertain areas in dialogue and oral testimony, and thus may provide a **probing point**, i.e., an opportunity to examine an *unverbalized* belief or opinion.

Usage II: The shrug gesture bears an interesting relationship to the English word, *just*, as in, "I don't know why I took the money--I just took it." In this sense, "just" conveys a feeling of powerlessness and uncertainty as to motive. The word also connotes "merely," as in "Just a scratch" (Soukhanov 1992:979). These diminutive aspects of the word "just" resonate with the cringing, crouched aspect of the shoulder-shrug cue (see below, *Origin*).

Anatomy. The *trapezius* and *levator scapulae* muscles lift the shoulder blades (*scapulas*). Trapezius (assisted by *pectoralis major*, *p. minor*, and *serratus anterior*) medially rotates (i.e., ventrally flexes) the shoulders, as well.

Football. On January 25, 1998, in an NBC Sports interview conducted after his team had won Super Bowl XXXII in San Diego, Denver Broncos quarterback, John Elway, *shrugged his shoulders* and said, "I can't believe it."

Media. Actor James Dean's *defensive shrug* set his style apart from the stiffer performances of male leads

of his time. The contrast between Dean's nonverbal *diffidence* and Rock Hudson's square-shouldered *dominance* in the 1956 movie *Giant*, e.g., is so dramatic it seemed shoulders had been written into the script. But they had not, for Dean's shrug, according to director Elia Kazan, was "natural." Dean *cringed* all the time. As *American Icon* author, David Dalton, wrote, "Jimmy's body is a universe where gravitational pull stems from instability; fascination from asymmetrical shifts and awkward physical contortions formed under internal stress" (1984:53).

Observations. **1.** Responding to his father's question ("Do you have your lunch money?"), a son's left shoulder *lifts slightly* as he answers, "Yes." The father replies, "Better make sure." **2.** **Bowing** forward, a finance director peeks around his boss's doorway and *lifts his shoulders* as he asks, "May I talk to you, sir?" **3.** While conversing in a hotel bar, a man and woman *flex*, *pitch*, and *roll their shoulders* flirtatiously over cocktails (see **LOVE SIGNALS III**).

Origin. The shrug gesture originates from an ancient, protective **crouch** pattern innervated by **paleocircuits** designed for **flexion withdrawal**. The *shoulder-shrug complex* was originally identified by Charles Darwin in 1872.

Outer space. On July 11, 1996, while orbiting in the Russian spacecraft, Mir, U.S. astronaut Shannon Lucid *shrugged her shoulders*, *tilted her head*, and gestured with her *palm up* as she answered questions about her six-week delay in returning to Earth. "You know," she told NBC's *Today Show*, "that's life."

Primatology. Shoulder-shrugging has been seen in South African adult and young adult baboons as a sign of fear and uncertainty, and as a response subsequent to the startle reaction (Hall and DeVore 1972).

U.S. politics. On September 9, 1998, in Orlando, Florida, President Bill Clinton *shrugged his shoulders* and **gazed-down** at a public apology as he said, "I've done my best to be your friend. But I also let you down, and I let my family down, and I let this country down." (*Washington Post*, September 10, 1998).

RESEARCH REPORTS: **1.** "When a man wishes to show that he cannot do something, or prevent something being done, he often raises with a quick movement both shoulders" (Darwin 1872:264). **2.** *Pulling in the shoulders* is a response to spatial invasion (Sommer 1969). **3.** The *shrug* is listed in two checklists of universal nonverbal signs: **a.** as "A fairly sudden raising of both shoulders" (Brannigan and Humphries 1972:60), and **b.** "Raising both shoulders" (Grant 1969:533). **4.** *Shrugging the shoulders* is a submissive sign in children (McGrew 1972).

Neuro-notes. As a branchiomeric muscle, upper trapezius is emotionally responsive (i.e., "gut reactive"; see **PHARYNGEAL ARCH**), and quite difficult to control by conscious means. Upper trapezius is innervated by the *accessory nerve* (cranial XI), a **special visceral nerve** which also feeds into the voice box (or *larynx*). Thus, shoulder-shrugs and vocal whines may be given at the same time.

See also **ADAM'S-APPLE-JUMP**, **HEAD-TILT-SIDE**, **PALM-UP**, **TONE OF VOICE**.

SHOULDER-SHRUG DISPLAY

I think it captures his personality perfectly because it shows his vulnerability. --Linda McCartney (describing musician Tim Buckley)

Global ***body movement***. Identified by Charles Darwin in1872, an interrelated set of 13 body motions, from the head to the toes, used worldwide to show helplessness, resignation, and **uncertainty**.

Usage: Individually or in combination, signs from the shoulder-shrug display (e.g. **head-tilt-side**, **shoulder-shrug**, and pigeon-toes)--suggest feelings of resignation, powerlessness, and **submission**. In **courtship** and **rapport**, the cues show harmlessness and friendly intent, thus inviting physical approach and affiliation.

Constituents. The shoulder-shrug display involves the entire body in a visual crouch. As described by Darwin (1872), the display consists of **1.** raised shoulders (elevated; trapezius and/or levator scapulae muscles contracted), **2.** head-tilt sideward (lateral flexion), **3.** elbows bent and held into the body (flexed and adducted), **4.** upraised palms (forearms supinated; see **PALM-UP**), **5.** palm-show (wrist extended), **6.** open hand (digits extended), **7.** fingers spread (abducted), **8.** eyebrows raised (frontalis contracted; see **EYEBROW-RAISE**), and **9.** mouth opened (digastric and suprahyoid contracted; see **JAW-DROOP**). A century later, **10.** pouted lips (mentalis contracted; see **LIP-POUT**), **11.** knock-knees (tibial torsion), **12.** bending forward at the waist (flexion, slight bowing; see **BOW**), and **13.** pigeon-toeing (toes angled in) were added to the display (Givens 1977).

Origin. The shoulder-shrug display incorporates defensive **crouch** movements from the protective **tactile withdrawal** reflex.

Media. In TV news reports, as she approached, gazed at, and spoke to "commoners," England's Princess Diana flexed her *shoulders forward* and *tilted her head* to the side, thus showing compassion for those beneath her station. (***N.B.***: Nonverbally, Lady Diana connected by curtseying back.)

Neuro-notes. Socioemotional stimuli for shrug-display cues involve the forebrain's **amygdala** (LeDoux 1995, 1996) and **basal ganglia** (or "reptilian core"; MacLean 1990). Submissive feelings find expression in coordinated muscle contractions designed to bend, flex, and rotate parts of our axial skeleton and appendicular skeleton, to "shrink" the body and show a harmless "lower" profile. (***N.B.***: Unlike the **high-stand display**, diverse motions of the shrug complex were designed for *defense* rather than for offense--for self-protection in the physical world, as well as for self-protection in a *social world* mediated by signs, signals, and cues.)

UNCERTAINTY

But I am bursting from a doubt within if I do not free myself from it. --Dante Alighieri (*Purgatorio, Canto XVI*)

Shadows, gray ripples of doubt and discomfort, suddenly appeared and moved just beneath the surface of his pale eyes. --George C. Chesbro (*Shadow of a Broken Man*, 1977:8)

Emotion. A cognitive feeling of indecision, misgiving, or doubt.

Usage: Uncertainty shows in **a.** involuntary sideward eye movements called **CLEMS**; **b.** **self-touch** gestures; **c.** **frowns**; **d.** **hand-behind-head** cues; **e.** side-to-side **head-shakes**; **f.** **head-tillt-side**, **g.** **lip-pout**, **lip-purse**, and **tense-mouth**; **h.** **palm-up** gestures; and **i.** the **shoulder-shrug**.

Observation: Barely visible fragments of the above signs may reveal uncertainty (see **PROBING POINT**).

Salesmanship. "The prospect's finger to the side of his nose is a fairly sure sign of doubt" (Delmar 1984:46).

RESEARCH REPORTS: **1.** Signs of deep and "perplexed reflection" include the *frown* (contraction of the *corrugator* or "muscle of reflection"); ***downward-cast eyes***; *touching the forehead, mouth,* or *chin*; and *beard-pulling* (Darwin 1872:220-26). **2.** "In states of perplexity men will rub their chins with their hand, or tug at the lobes of their ears, or rub their forehead or cheeks or back of the neck. Women have very different gestures in such states. They will either put a finger on their lower front teeth with the mouth slightly open or pose a finger under the chin" (Montagu 1971:208). **3.** "The *huu* of puzzlement, surprise, or slight anxiety is directed toward such things as small snakes, unknown creature rustlings, dead animals, and the like. This sound is made even when if a chimpanzee is alone" (Goodall 1986:131).

Evolution. Feelings of uncertainty demonstrate a link between *emotional* and *cognitive* (i.e., "thinking") modules of the **primate brain**.

Neuro-notes. An uncertain feeling is a *secondary emotion* **a.** mediated by the emotional **limbic system** (esp. the **amygdala** and *anterior* **cingulate gyrus**), and **b.** linked to cognitive thought processes via circuitry in *prefrontal, sensory,* and *association* modules of the *cerebral cortex* (Damasio 1994).

See also **HUMAN BRAIN**.

CLEM

Gaze direction. **1.** An acronym for "*conjugate lateral* **eye** movement." **2.** A nonverbal response, often to a verbal question, in which the eyes move sideward (to the right or left) in tandem.

Usage: CLEMs--involuntary eye movements to the right or left--signal information processing, reflection, and thought. Because they reflect unvoiced **doubt**, as well, CLEMs may used as **probing points**.

Saccades. In a classic study by Harnad (1972) of the lateral eye movements of mathematicians during mental reflection, it was noted that rightward movement associated with symbolic thinking, while leftward movement associated with visual thinking. Left-movers were thought to be more creative.

RESEARCH REPORTS: **1.** Conjugate lateral eye movements are an index of brain-hemispheric activation (Gur 1975). **2** "People can be categorized as either 'right lookers' or 'left lookers' because approximately 75 percent of an individual's conjugatelateral eye movements are in one direction" (Richmond et al. 1991:89). **2.** "CLEM is usually quite prominent when someone is working on a task that requires them [sic] to think or reflect" (Richmond et al. 1991:89).

E-Commentary: "Love your site. I found it while trying to find out why my sister-in-law will occasionally start talking and will look up into the corner. My aunt use to do the same thing, and it drove me crazy. The position is: head level or slightly elevated; facing the person they are talking to; the eyes look up to the ceiling 45 degrees to left or right of the person that they are talking to. Sometimes the entire time they talk, they will keep the same eye position. Thanks for all the wonderful information." --Ron (6/22/01 7:53:42 PM Pacific Daylight Time)

See also **GAZE-DOWN**, **MIME CUE**, **STEEPLE**.

EYES

Body parts. Paired organs of vision, the *movements*, *lid positions*, and *pupil size* of which reveal a great deal about our **emotions**, convictions, and moods.

Usage: Gaze direction clearly shows others where our attention lies. We have developed an amazing ability to gaze back into the eyes of our beholders to gauge their feelings. However, being looked at so arouses the *sympathetic nervous system* (see **FIGHT-OR-FLIGHT**) that we may feel compelled to glance away. Perhaps because the eye's *retina* is an outgrowth of the forebrain, peering into someone else's eyes is not unlike seeing into the **brain** itself. This may be why the sacred *Eye of Horus* (the All-Seeing Utchat of Ancient Egypt) had so many complex meanings.

Anatomy. The resting position of an open eyelid is maintained by the *levator palpebrae superioris* muscle. Relaxed, the lower lid barely touches the bottom circumference of our *iris*, while the upper eyelid covers a good deal of its top. When excited, we *widen* our eye opening (or *palpebral fissure*), and *narrow* it when we feel threatened. Sudden eyelid closure is part of a protective, mammalian *facial grimace* brought on by the **startle reflex** (Salzen 1979). Widened eyes reflect emotions of the *fight-or-flight* response (see **FLASHBULB EYES**).

Culture. "Oriental jade dealers wear dark glasses, so that they do not give the game away when they see a particularly good example" (Morris 1994:198).

Evolution I. Our golf-ball-sized eyes glissade in bony sockets above the nose. Their spherical shape may be traced back to amphibian ancestors of the Carboniferous period (earlier, eyes had been flat and fishlike). Large eyes today accent the horizontal aspect of our face by counteracting the verticality of our

nose.

Evolution II. Light-sensitive *eyespots* originated more than 500 m.y.a. in animals without backbones. Despite their primitiveness, or perhaps because of it, horizontally paired eyes are the primary focus of the human face today.

Fascination. We are enthralled by eyes. From the moment of birth we respond to our mother's eyes as if programmed to do so. Babies **smile** at black geometric spots--perceiving them as "eyes" by six weeks of age (Kandel et al. 1991:994). In adults, **eye contact** shows personal involvement and creates intimate bonds. Mutual gaze narrows the physical gap between us.

Primatology. As primates, for whom **facial expressions** provide key social and emotional **information**, we continually probe each other's eyes for *positive* or *negative* mood signs. We are acutely aware of being noticed by **strangers**. In waiting rooms we periodically glance up and scan for roving eyes (much as do monkeys in a cage).

True feelings. Eyes appear in the human embryo by ca. 22 days of age. From that time--through an incredible chain of neural commands--eyes accurately reflect how we feel about and relate to the people in our **Nonverbal World**. Eyes convey unpleasant feelings through *closed* eyelids and an *averted* gaze. Positive or provocative feelings show in *opened* eyelids, *dilated* pupils, and *direct* gaze (cf. **PHARYNGEAL ARCH**).

E-Commentary: "I would love to know what 'bedroom eyes' look like? Might want to consider adding to your Dictionary. Thank you." –PictoRL Software Group, USA (9/14/00 5:56:35 PM Pacific Daylight Time)

Neuro-notes I. Suddenly narrowed or *slitted* eyes may reveal disagreement or **uncertainty**. A quick *tightening* of the eye-orbital muscles (i.e., of the *orbicularis oculi*, which we tense to show pain [Prkachin and Craig 1995]) hides much of our iris and eyeball behind lowered hoods. Negative feelings associated with doubt or misunderstanding (i.e., *cognitive dissonance*) quickly pass from the **limbic system** to the hindbrain's *facial nucleus* (cranial VII), which triggers a brief narrowing of the eyes as if to protect against emotional "pain."

Neuro-notes II. Rest-and-digest nerve fibers activate the pupillary sphincter muscles of the irises to constrict the pupils. Fight-or-flight nerve fibers from the superior cervical ganglion activate dilator muscles to expand the diameter of the pupils.

See also **CLEM**, **EYE-BLINK**, **GAZE-DOWN**.

FIGHT-OR-FLIGHT

Ready response. An emergency reaction in which the body prepares for combat or escape from potentially dangerous situations, animals, or people.

Usage: Many **nonverbal signs** (e.g., dilated pupils, **sweaty palms**, bristling hair [i.e., piloerection], and a faster breathing rate--along with **squaring the torso** for battle or **angling away** to prepare for flight) are visible in stepped-up visceral feelings and body movements of the fight-or-flight response.

Evolution. Fight-or-flight is an ancient *sympathetic* response pattern which, in the **aquatic brain**, accelerated heartbeat rate, raised blood-sugar level, and released hormones from the adrenal gland, preparing an alarmed fish to chase-and-bite, or to turn-tail-and-flee.

Facial color. Also called the "fight, fright or flight" response, the sympathetic nervous system may telegraph its state of mind in the *whiteness* (i.e., pallor) or *redness* (i.e., flushing) of the face. Pallor, associated with extreme **fear** or **anger** (i.e., rage), is caused by *vasoconstriction* of the facial blood vessels, brought on by the release of large amounts of adrenaline and noradrenaline. Associated with embarrassment or slight-to-moderate anger, a flushed face (which may begin with a faint blush at the top of the ears) is caused by *vasodilation* of the facial blood vessels, due to adrenaline. (***N.B.***: Currently, the physiological differences between fear and anger are not well understood.)

Observation. Fight-or-flight cues (see, e.g., **CUT-OFF**, **EYE-BLINK**, **EYEBROW-RAISE**, **FACIAL FLUSHING**, **FLASHBULB EYES**, and **HAND-BEHIND-HEAD**) are visible not only in warfare and physical combat, but also in corporate meetings around a **conference table**.

Waiting. Human beings are easily angered when they are kept waiting, e.g., in airline terminals, hospital

emergency rooms, and heavy traffic. As adrenaline and noradrenaline levels rise, flyers, patients, and commuters may be more prone to aggression and violence than they are when permitted to move freely about. (***N.B.***: In England, more nurses are attacked in emergency departments than in psychiatric wards.)

E-Commentary: "I'm really interested on getting information about nonverbal language in aggressive people, fighting aggressors, flight-or-fight behavior, etc. I teach adrenaline conditioning training here in Mexico, and I really want to learn more to give more professional classes to my students. If I understand more about the body language of aggressors, attackers, and street people, it will help me a lot." –J. M., Mexico (9/21/00 1:02:09 PM Pacific Daylight Time)

Neuro-notes. **1.** In the 1920s, physiologist Walter B. Cannon identified the sympathetic nervous system's *emergency reaction*, which prepared the body to exert high levels of physical energy (Cannon 1929). **2.** In the 1930s, while stimulating regions of the **hypothalamus** of the cat, physiologist W. R. Hess identified the *defense reaction*, which included tendencies to fight or flee. **3.** The fight-or-flight response is coordinated by central command neurons in the hypothalamus and brain stem which "regulate the sympathetic outflow of both the stellate ganglion and the adrenal gland" (Jansen et al. 1995:644). **4.** ". . . the threshold for release of noradrenaline [the 'anger hormone'] to psychological stimuli is generally higher than that of adrenaline [the 'fear hormone']" (Mayes 1979:37).

Antonym: **REST-AND-DIGEST**. See also **FREEZE REACTION**.

SWEATY-PALMS

Emotion cue. The excretion of eccrine-gland moisture onto the palmar surface of the hands in response to anxiety, stress, or **fear**.

Usage: Sweaty palms may be detected while shaking hands. It is reputed that former F.B.I. director J. Edgar Hoover would not hire candidates whose handshakes were moist and cold.

RESEARCH REPORTS: **1.** Cannon's "emergency reaction" involves redistribution of blood from the skin and viscera to the muscles and brain (Cannon 1929; see **FIGHT-OR-FLIGHT**). **2.** A college student's GSR (galvanic skin response) is greatest when he or she is approached frontally by a member of the opposite sex (McBride et al.1965; see **STRANGER ANXIETY**).

Neuro-notes I. Like other **body-motion** cues, sweating requires the movement of body parts to deliver its watery substance to the skin's surface. *Myoepithelial* cells, which contain smooth-visceral-muscle-like organs, contract to squeeze the sweaty fluid through thin ducts in the skin. Myoepithelial "muscles" are innervated by sympathetic nerve fibers; the muscle-like organs also contract in response to adrenaline (Horne 1995:411).

Neuro-notes II. **1.** "Studies in animals have established that the **amygdala** is critical for emotional conditioning [e.g., of the SCR or skin conductance response (i.e., sweaty palms)], whereas several human and nonhuman primate studies have established that the hippocampus and surrounding regions are necessary for establishing declarative knowledge" (Bechara et al. 1995:1115). **2.** "Bilateral damage to the amygdala entirely blocked the ability . . . to acquire conditioned SCRs . . ." (Bechara et al. 1995:1117). **3.**

The subject "failed to generate SCRs to the CSs [conditioned stimuli] in both the visual and auditory experiments but was able to provide accurate and complete factual information regarding which stimuli had been followed by the US [unconditioned stimulus]" (Bechara et al. 1995:1117). **4.** The amygdala is "essential for the coupling of sensory stimuli with affect . . ." (Bechara et al. 1995:1117).

See also **APOCRINE ODOR**, **FACIAL FLUSHING**.

EMOTION CUE

Sign. **1.** A **facial expression**, **body movement**, or **tone of voice** indicative of **emotion**. **2.** Specifically, e.g., a **fist** of **anger**, a **jaw-droop** in surprise, or a **throat-clear** of **uncertainty**.

Usage: We have a rich vocabulary of emotion cues showing how we feel about ourselves and others. In the realm of emotion, words are often less trustworthy than nonverbal signs. This is because the latter cues are usually unintentional, involuntary, and unconscious. While some emotion cues (see, e.g., **POUT** and **SMILE**) are well known, many (see, e.g., **ADAM'S-APPLE-JUMP** and **TENSE-MOUTH**) have neither common names nor listings in standard verbal dictionaries.

Anatomy I (face). **1.** Eye, nose, mouth, throat, and laryngeal openings are controlled by muscles and nerves from tissues of ancient **pharyngeal arches**. Thus, **a.** we may close (i.e., *constrict*) our facial features to show negative emotion (e.g., **frown**, throat-clear), and **b.** open (i.e., *dilate*) them to show pleasant feelings and moods (e.g., **eyebrow-raise**, **laugh**). **2.** **Facial flushing** is visible as *sympathetic nerves* respond to **fight-or-flight** impulses (e.g., from *embarrassment* due to **stranger anxiety**).

Anatomy II (body). **1.** A powerful feeling may *release* neck reflexes (e.g., of the **ATNR**), resulting in **hand-behind-head** gestures or hyperextended reaching cues. **2.** **Fear** may show as the **amygdala** activates our body's protective **freeze reaction**. **3.** *Horror* may show in the two-handed lip-touch cue.

Anatomy III (face and body). "At the neuromuscular level emotion is primarily facial activity and facial patterning, and secondarily it is bodily (postural-gestural, visceral, and sometimes vocal) response" (Izard 1971:185; but note that Izard's hypothesis, because it is advanced by a specialist on the human face, is doubtful; see, e.g., **ENTERIC BRAIN**).

RESEARCH REPORTS: There is long-standing debate about emotion cues: are they *learned* or *innate*? Clearly, both nature and nurture (i.e, culture [see, e.g., **ISOPRAXISM**]) play roles, but for any given cue (see, e.g., **EYE-BLINK**) one or the other may predominate. **1.** ". . . the different races of man express their emotions and sensations with remarkable uniformity throughout the world" (Darwin 1872:130-31). **2.** ". . . there are probably no universal symbols of emotional states" (Birdwhistell 1970:30). **3.** ". . . while the facial muscles which move when a particular affect is aroused are the same across cultures, the evoking stimuli, the linked effects, the display rules and the behavioral consequences all can vary enormously from one culture to another (Ekman and Friesen 1969:73). **4.** "Even though no credible research indicates that facial expressions are entirely learned, that does not mean that learning perspectives have no place in our understanding of facial expressions" (Richmond, et al. 1991:76).

Neuro-notes I. Unlike fish, amphibians, and reptiles, we are strongly emotional beings who run "hot" or "cold," and rarely feel neutral about the days of our lives. Emotion cues commence with activity in the brain's **limbic system**. When stimulated, its *septum*, e.g. (a pleasure area of the forebrain), may arouse

facial expressions of **happiness** and *joy*. With those we **love**, the mammalian brain's **cingulate gyrus** inspires *grooming*, *nuzzling*, and *cuddle* cues.

Neuro-notes II. PET studies indicate that, in right-handed normal subjects, the *right inferior frontal cortex* is activated during the assessment of facial emotion (Nakamura et al., 1999).

See also **MAMMALIAN BRAIN**, **NONVERBAL COMMUNICATION**, **NONVERBAL RELEASE**.

FIST

That's what makes a blow from the hand, Flask, fifty times more savage to bear than a blow from a cane. The living member--that makes the living insult, my little man. --Herman Melville, *Moby Dick* (1980 [1851]:135)

Hand signal. A **gesture** made with the hand closed, the fingers flexed, and the tactile pads held firmly against the palm.

Usage: Clenched fists signal an aroused emotional state, as in **anger**, excitement (e.g., to cheer on a team), or **fear**. In a business meeting, unconscious fisting is a visible sign of anxiety (see **SELF-TOUCH**) or unvoiced disagreement (see **PROBING POINT**).

Culture. In Pakistan, displaying a clenched fist toward another is a nonverbal sign used to display an "obscene insult" (Morris 1994:71).

World politics. In 1968 the raised fist (see **HIGH-STAND DISPLAY**) was broadcast to a worldwide TV audience, as it was presented by U.S. Olympic medalists as a power salute demonstrating defiance from the victory stand (Blum 1988). Politicians who have used the aggressive fist gesture to hammer home rhetorical points include Adolph Hitler, Nikita Kruschev, and Manuel Noriega (Blum 1988).

RESEARCH REPORTS: **1.** "Rage, anger, and indignation are exhibited in nearly the same manner throughout the world. . . . There is, however, an exception with respect to clenching the fists, which seems confined chiefly to the men who fight with their fists" (Darwin 1872:242). **2.** In nursery school children, the *beating movement* ". . . is an overarm blow with the palm side of the lightly clenched fist. The arm is sharply bent at the elbow and raised to a vertical position then brought down with great force

on the opponent, hitting any part of him that gets in the way" (Blurton Jones 1967:355). **3.** Blind-and-deaf-born children clench their fists in anger (Eibl-Eibesfeldt 1971:12). **4.** In the infant's transition to sleep, "Fists closed for more than several seconds indicate increasing fatigue or distress . . ." (Papousek and Papousek 1977:70). **5.** The closed fist is a widespread gesture of *power* and *triumph*, and a worldwide sign to show *forceful emphasis* and *threat* (Morris 1994:70, 72-73).

Antonym: **PALM-UP**. See also **GOOSE -STEP**.

FEAR

The thing that numbs the heart is this:
That men cannot devise
Some scheme of life to banish fear
That lurks in most men's ***eyes***. --James Norman Hall, *Fear*

Emotion. A usually unpleasant, visceral feeling of anxiety, apprehension, or dread.

Usage: Fear shows in **a.** an exaggerated **angular distance**, **b.** release of **apocrine odor**, **c.** increase in breathing rate, **d.** trembling and chattering teeth, **e.** **crouching**, **f.** **crying**, **g.** displacement gestures, **h.** a faster **eye-blink** rate, **i.** the fear grin, **j.** widely opened **flashbulb eyes**, **k.** **flexion withdrawal** gestures, **l.** the **freeze reaction**, **m.** the hair-bristle, **n.** an accelerated heart rate, **o.** tightened muscle tension (esp. in muscles innervated by **special visceral nerves**, e.g., *trapezius*), **p.** screaming, **q.** squirm cues, **r.** staring eyes with enlarged pupils, **s.** **sweaty palms**, **t.** **tense-mouth** cues, **u.** the **throat-clear**, **v.** an audibly tense **tone-of-voice**, and **w.** **yawning**.

Art. Completed in 1893, the staring eyes and **open mouth** of the terrified face in *The Scream*, by Norwegian artist Edvard Munch, has become a cultural icon of humankind's ambient level of fear.

Food, fear of. According to SUNY-Stony Brook psychologist Alexandra Logue, "This [innate] fear of new foods is to protect us from something that might be poisonous . . ." (Hall 1992:C10; see **TASTE CUE**).

Media. We so enjoy fear that the most portrayed movie character is Bram Stoker's Count Dracula. To

date, over 155 representations of the character have appeared on the screen (McFarlan 1990:165).

RESEARCH REPORTS: **1.** Signs of fear include standing like a "statue motionless and breathless," crouching down, violent heartbeat, pale skin, cold sweat, erect hair, trembling muscles (esp. the lips), hurried breathing, dry mouth, yawning, catching of the throat, dilated pupils, rigid muscles, and protruding eyeballs (Darwin 1872:290-92). **2.** Fear shows most clearly in the *eye area* (Ekman, Friesen, and Tomkins 1971). **3.** In vertebrates, nonverbal responses to fearful (i.e., potentially harmful) stimuli include *escape*, *avoidance*, *hiding*, *wary watching*, *immobility*, *freezing*, *cowering*, *clinging*, and *cessation of general activity* (Russell 1979). **4.** Facial expressions of fear emerge in human infants between five and seven months of age (Burgoon et al. 1989:349).

Evolution. Fear is a mammalian elaboration of the sympathetic nervous system's **fight-or-flight** response.

Neuro-notes. Nuclei of the **amygdala** play key roles in the mediation and expression of fear (LeDoux 1996).

See also **STRANGER ANXIETY**.

ANGULAR DISTANCE

Posture. **1.** The spatial orientation, measured in degrees, of an individual's shoulders relative to those of another. **2.** The position of a speaker's upper body in relation to a listener's (e.g., *facing* or *angled away*). **3.** The degree of **body alignment** between a speaker and listener, as measured in the *coronal plane* (which divides the body into front and back).

Usage: Angular distance reveals how we relate to (i.e., feel about) people sitting, standing, or waiting nearby. Our upper body unwittingly *squares-up*, *addresses*, and "*aims*" at those we like, admire, and agree with, but angles away from disliked persons and people with whom we disagree. In a friendly conversation, formal interview, or staff meeting, e.g., a greater angular distance (i.e, *turning away*) substitutes for greater linear distance. Angular distance may range from 0 degrees (*directly facing*) to 180 degrees (*turning one's back*).

Salesmanship. "Do not turn your upper body away from the prospect. It doesn't make you look casual; it makes you look afraid, uninterested, or even unfriendly" (Delmar 1984:47).

U.S. politics. Known to be ill-at-ease around people, former **President Richard Milhous Nixon** revealed his discomfort with an exaggerated angular distance, as if to "remove" himself from others nearby. White House photographs taken at staff meetings in the early 1970s show a seated Mr. Nixon, with shoulders turned away from his advisors at angular distances of 90 degrees.

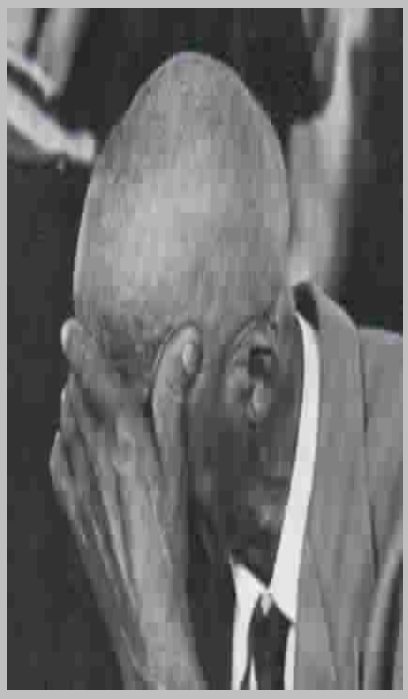
RESEARCH REPORTS: **1.** Eight positions (from *face to face* to *back to back*) are noted in the original **proxemics** notation system (Hall 1963). **2.** GSR (**sweaty-palm** response) is greatest when subjects are approached frontally (McBride, King, and James 1965). **3.** With adult strangers, boys create a greater angular distance than girls (Stern and Bender 1974). **4.** The frequency of *trunk rotation* "showed a

marked increase" in conditions of severe crowding (Baxter and Rozelle 1975:49).

E-Commentary: "In *The Nonverbal Dictionary* you say that when, in a courtship interaction, a partner orients his upper body toward the other, forming a square, the posture signals interest. I've noted that when I am in a psychotherapy setting, I often unconsciously adopt this position with my patients, and I know that I've a natural disposition to be emphatic with them." --Dr. Marco Pacori, Italy (1/19/00 6:42:03 AM Pacific Standard Time)

See also **BODY WALL**, **CUT-OFF**, **IMMEDIACY**.

POSTURE



I raised my body erect again as one should walk, though my thoughts remained bowed down and shrunken. --Dante Alighieri, *The Divine Comedy, Canto XII*

Nonverbal ***sign***. **1.** A bearing, pose, or stance of the body or it parts: e.g., a **crouched** posture. **2.** A fixed, stationary body position as opposed to a fluid **body movement**.

Usage: When sustained (i.e., held longer than two seconds), a body movement such as a **bowed-head** may be considered a posture. Though duration varies, postures frequently are more expressive of attitudes, feelings, and moods than are briefer gestures and fleeting motions of the body.

Primatology. "The stance of a baboon, independently of any specific gesture, may indicate differences in tension and of individual status. . . . . The dominant male baboon tends to walk very directly and 'confidently' through different parts of a feeding area or when moving across country" (Hall and DeVore 1972:166).

Salesmanship. "Your posture is almost military but not stiff and uncomfortable-looking. Your **shoulders** are not stooped with the weight of the world, because you are not bent and broken by your burdens " (Delmar 1984:33).

RESEARCH REPORTS: **1.** An early experimental study (by James [1932], based on ratings by judges) identified four postural categories: **a.** ***forward lean*** ("attentiveness"); **b.** *drawing back* or ***turning away*** ("negative," "refusing"); **c.** ***expansion*** ("proud," "conceited," "arrogant"); and **d.** *forward-leaning trunk, bowed head, drooping shoulders,* and *sunken chest* ("depressed," "downcast," "dejected") (Mehrabian 1972:19). **2.** Frieda Fromm-Reichmann (1950) inferred feelings from observing and imitating the

postures of psychiatric patients (Mehrabian 1972:17). **3.** Albert Mehrabian proposed two primary dimensions of posture: **a.** **immediacy**, and **b.** relaxation (Richmond et al. 1991:63).

See also **ANGULAR DISTANCE**, **BODY WALL**.

Detail from photo by Elliott Erwitt (copyright *Magnum, Holiday*)

CROUCH

*Primeval **posture***. An originally protective body position, of great age, in which the limbs bend and the spinal column flexes forward, to press the arms, legs, and torso close to the ground (as in cowering).

Usage: **Paleocircuits** of the crouch posture underlie many **gestures** used today (see, e.g., **BOW**, **HEAD-TILT-SIDE**, and **SHOULDER-SHRUG**) to express a servile, **submissive**, or timid attitude, feeling, or mood.

RESEARCH REPORTS: **1.** In the dog: "Instead of walking upright, the body sinks downwards or even crouches, and is thrown into flexuous movements; his tail, instead of being held stiff and upright, is lowered and wagged from side to side; his hair instantly becomes smooth; his ears are depressed and drawn backwards, but not closely to the head; and his lips hang loosely" (Darwin 1872:56). **2.** Crouching has been observed in subordinate bonnet macaques (Rahaman and Parthasarathy 1968). **3.** Motherless rhesus monkeys crouched and "showed symptoms similar to disturbed mental patients" (Pugh 1977:200).

Paleontology I. The vertebrate crouch display is formed of ancient bending motions designed to remove animals from danger. A reflexive act, controlled by the spinal cord, bending the body moves it away from hazards, reduces its exposed surface area, and makes it look "smaller." Nonverbally, *flexed* body movements used to crouch lower to the ground predate *extension* movements used to rise or lift above the terrestrial surface (see, e.g., **HIGH-STAND DISPLAY**); thus, our remote ancestors crouched before they stood tall.

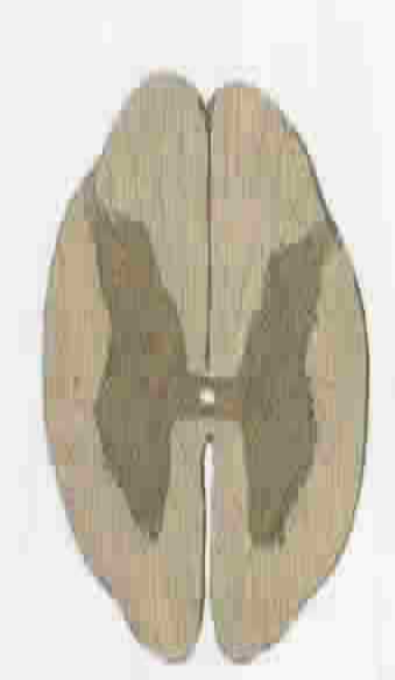
Paleontology II. Crouching can be traced to an *avoider's response*, which is tactile in origin rather than visual, as in the high-stand display. So primitive is the crouch posture's *flexor reflex* that it exists even in immature fish and amphibian larva. Stimulating the skin of these simple creatures leads to side-to-side

bending movements, which, in a watery world, remove them from dangers signaled by the touch.

Neuro-notes. The crouch is keyed to paleocircuits formed of primitive, spinal-cord *interneurons* in charge of **tactile withdrawal**. Similar "tap withdrawal" movements have been observed in spineless animals, such as the nematode worm. Working through pools of interneurons controlling the muscular *stretch reflex*, the worm's body, like ours, automatically bends away from danger.

Antonym: **ANTIGRAVITY SIGN**. See also **PALM-UP**.

PALEOCIRCUIT



Neuro term. **1.** A preconfigured pathway or network of nerve cells in the forebrain, brain stem, or spinal cord utilized in **nonverbal communication**. **2.** A pre-established neural program, of great age, for sending (or receiving) nonverbal **signs**. **3.** An ancient, neural "platform" for bodily expression, configured millions of years before the advent of cortical circuits for **speech**.

Usage: Paleocircuits are modules and passageways preserved in living nervous tissue, much as fossils have solidified no longer living tissues into lifeless stone. Tracing the paleocircuits of nonverbal signs helps us unravel their origin, evolution, and meaning.

Anatomy. Paleocircuits channel the electrochemical impulses required for muscles to contract, e.g., as visible signs of **happiness** or **sadness**, in the *nonverbal present*. As "living fossils," paleocircuits preserve information about gestures from the *nonverbal past* as well.

Evolution. In the **aquatic brain and spinal cord**, e.g., ancient networks of *motor neurons* and *interneurons* evolved to control the body movements of our oldest animal ancestors, the jawless fishes. From these ancient neuronal micropaths, instructions reached local muscle groups to move individual body parts. From the very beginning of vertebrate life, microscopic systems of spinal interneurons stood between motor neurons and sense receptors, affecting the input and outflow of nonverbal signs. Thus, it was established early on that the spinal cord should be more than a passive pipeline to carry sensory messages to the brain and motor signals back to the body. Like the brain itself, our spinal cord is replete with paleocircuits which have "minds of their own" (e.g., for managing **tactile withdrawal** and the oscillating, rhythmic movements of **walking**).

Neuro-notes. **1.** Paleocircuits are subcortical nerve nets and pathways which link bodily *arousal centers* (of the *reticular activating system*), **emotion** centers (of the **hypothalamus**, **amygdala**, and **cingulate gyrus**), and motor areas of the forebrain (**basal ganglia**) and midbrain (*superior* and *inferior colliculi*), with muscles for the body movements required by nonverbal signs. **2.** "Only a few of the descending [motor] pathways [from the brain] synapse directly on spinal cord motor neurons. Instead, most of the descending projections influence the activity of interneurons that are interposed in reflex circuits and thus alter ongoing spinal reflex activity" (Willis 1998E:186).

SADNESS

Emotion. An unpleasant visceral feeling of sorrow, unhappiness, depression, or gloom.

Usage: Sadness shows **a.** in **bowing** postures of the **body wall**; **b.** in the **cry** face and **lip-pout**; **c.** in **gazing-down**; **d.** in a slumped (i.e., flexed-forward) posture of the **shoulders**; and **e.** in the audible sigh.

RESEARCH REPORTS: **1.** Signs of sadness include *drooping eyelids*; *flaccid muscles*; *hanging head*; *contracted chest*; *lowered lips, cheeks, and jaw* (*"all sink downwards from their own weight"*); *downward-drawn mouth corners*; *raised inner-ends of the eyebrows* (i.e., *contraction of "grief muscles"*); and *remaining motionless and passive* (Darwin 1872:176-77). **2.** Sadness shows most clearly in the eye area (Ekman, Friesen, and Tomkins 1971).

Evolution. Sadness is a mammalian feeling which stems from **a.** grief associated with maternal-infant *separation*, and **b.** defeat inflicted in **fighting** for ***dominance***.

Anatomy. In acute sadness, muscles of the **throat** constrict, salivary glands release a viscous fluid, repeated swallowing movements are seen, the eyes close tightly, and the lacrimal glands release tears. Facial signs include **a.** frowning eyebrows (*corrugator supercilii*, *occipitofrontalis*, and *orbicularis oculi* muscles contract); **b.** frowning mouth (*depressor anguli oris*); **c.** pouted or compressed lips (*orbicularis oris*); and **d.** depression and eversion of the lower lip (*depressor labii inferioris*)--as the facial features constrict (as if) to seal-off contact with the outside world.

Primatology. "Gradually, over several years, he [a chimpanzee who lost his mother at age 3] developed abnormal behavior, consisting of social isolation, unusual posturing, rocking, an increase in self-grooming, and a habit of pulling out hairs and chewing them" (Hamburg et al. 1975:247).

Neuro-notes. Each of the four cranial nerves for *chewing* (V); *moving the lips*, *crying*, and *salivating* (VII); and *sighing* and ***swallowing*** (IX and X) originally played a gut-reactive, *visceral* role (see **SPECIAL VISCERAL NERVE**) related to the *gastrointestinal tract* (Goldberg, 1995:35). The sick "gut feeling" we associate with sadness is mediated by the **enteric nervous system**, located in the stomach, intestines, and colon.

Antonym: **HAPPINESS**. See also **MAMMALIAN BRAIN**.

BOW

If you come up too quickly, it won't seem like you are really apologizing. --Yamagishi (Sugawara 1996)

Posture. To bend, curl, or curve the upper body and head forward.

Usage: Around the world, people bow **a.** to greet, **b.** to defer, **c.** to show courtesy, and **d.** to pray. In some cultures the bow is a formal gesture, as in Japan, e.g., where people are judged by their bows. A casual hello to Japanese colleagues is a quick bend to a 15-degree angle; a respectful greeting to customers or superiors is a 30-degree bow; a formal apology involves a quick bend to a 45-degree angle, held to a count of three, with a slow return to upright posture.

Anatomy. Bowing the trunk forward starts with flexor muscles of the stomach's *recti abdominis*, assisted by the backbone's *erector spinae*. These muscle groups are supplied directly by spinal nerves rather than by more evolved nerve plexuses. The bow's submissive tone stems from the role these muscles and nerves originally played in curling the head and trunk forward into a protective ***crouch***. (Sudden *head-lowering* and *back-rounding* in response to an employer's remarks thus reveals weak or "spineless" resignation.)

Baseball. In Japanese baseball, pitchers remove their **caps** and bow toward home plate after hitting a batter with a ball.

Culture. **1.** In Japan, the forwardness of one's bow reflects status; e.g., those higher in status bow less deeply to those lower in status. It is considered bad form for westerners to bow too deeply to lower status Japanese. **2.** Among the Mossi of Burkina Faso, the most servile gesture is the *poussi-poussi*. "To poussi-poussi, Collett [1983] explains, one takes off shoes and headgear (which add height), sits with the legs

'tucked to one side,' lowers the body, and beats on the ground. (Historically, men also threw dust on their heads.)" (Givens 1986:155). **3.** "In the Muslim world, the *body kowtow*--in which one kneels down and touches the ground with the forehead--is used in prayer to show humility before the deity (Morris 1994:11).

Humility. The English word *humble* means being "close to the ground." It comes via Old French's *umble* from Latin's *humilis*, "low, lowly." The word derives from Latin's *humus*, "earth," and is related to the English word *human*. In its original sense, being human meant being an "earthly being," as opposed to being an ethereal, immortal god in the sky (Ayto 1990). The Indo-European root for *man* is *dhghom, for *on the ground* is *dhghm, and for *earth* is *dhghom-o (Susan N. Skomal, personal communication).

Submission. Bowing at the boss's door is a common act inspired by the **reptilian brain**. Before entering a superior's inner sanctum, American workers may *pause, bend at the waist, flex their necks forward,* and *lower their heads* to peek in. Though without a formal tradition of bowing, they ritually lower themselves at the boss's door, as if doing so were written into the job description.

RESEARCH REPORTS: **1.** Bonnet macaques *bow heads* in extreme fear (Rahaman and Parthasarathy 1968). **2.** *Bowing* (Eibl-Eibesfeldt 1970), *bent-forward* (Scheflen 1972), and *body-kowtow* (Morris 1994) postures involve forward *bending* (ventral flexion) of the spinal column; each of these nonverbal cues makes its submissive appeal by showing *harmlessness*.

Antonyms--**ANTIGRAVITY SIGN**, **HIGH-STAND DISPLAY**. See also **BODY WALL**.

HAT

Clothing cue. **1.** A highly expressive **consumer product** worn as a covering for the head. **2.** Distinctively styled head garb with varied markings, colors, shapes, and fit, designed to communicate a wearer's *identity*, *gender*, *occupation*, *mood*, and *favorite sport*.

Usage: Because of their prominence and proximity to the **face**, hats make impressive statements about our social status, affiliation, and personality (see **HAIR CUE**). Indeed, whatever we place atop our 15-pound heads--which loom conspicuously above our upright bodies for all to see--will be interpreted as nonverbal **signs**.

Observation. In hat stores, shoppers may unwittingly reflect the power of head wear. After an uneasy **smile**, e.g., hats which fit the head but not the persona are hastily removed. A proper hat, on the other hand, stays put and rides out of the store atop the owner's head. Self-conscious thoughts that "everyone is noticing" soon fade (i.e., become old hat) as the wearer assimilates his or her "new personality."

Anthropology. According to University of Illinois archaeologist, Olga Soffer, the earliest-known headwear may be represented by a woven cap worn by an Upper Paleolithic figurine (the Venus of Willendorf) from Austria (Wong 2000). Venus figurines date back to ca. 27,000 years ago. (***N.B.***: Others have interpreted the impressions on Venus's head as coifed hair.)

Cap I. For men, wearing a baseball cap says: "I belong to a team." Although caps display the emblems of professional ball clubs, in a deeper sense the group they most accurately refer to is the generic association of men. Unlike women's hats which are designed to show individuality, men's hats are part of a uniform to show membership on a team (thus explaining the standardized design of turbans, fedoras, fezzes, and military caps).

Cap II. Wearing a baseball cap (the biggest selling U.S. hat) helps a man feel "stronger." On the **isopraxic** principle of "same behavior" (see **REPTILIAN BRAIN**), cap wearers draw strength **a.** from nonverbal bonds to fellow cap-wearers, and **b.** from the psychic power of male bonding in team sports. There is no better sign for judging a man's unspoken allegiances with other men than through the **messaging features** of his cap.

Cap III. The startling coloration of some sports caps not only makes them more noticeable than our hair alone, but carries a hidden warning message as well. Conspicuous blotches and bright flashes of color resemble the markings of dangerous animals, e.g., of bees, hornets, and poisonous snakes. Bold stripes and jolting patterns of black, white, yellow, red, and orange (which in the animal kingdom are *aposematic* warning messages aimed at predators) are as common in sports caps as in, e.g., skunks, tigers, and poison-arrow frogs. The markings seem to say, "Don't tread on me; I am toxic, noxious, and bad."

Brim. A hat brim suggests masculine "fierceness" by visually enlarging a man's bony *brow ridges* (which are natural signs of strength in the male skull, though less prominent now than in Neanderthal times). Drawn down on the forehead, brims mimic eyebrows lowered in anger (as caricatured, e.g., by the cartoon character, "Yosemite Sam"; see **FROWN**). With its turned-down brim, the fedora worn by Humphrey Bogart made him look "meaner," while its vertically ascending crown increased his standing height. (***N.B.***: Because a baseball cap lacks the fedora's vertical stature, some men reshape the rounded crown to produce a jaunty vertical riser in front; see **HIGH-STAND DISPLAY**. Young American men are self-conscious about the appearance of their cap's brim shape, and strive for an insouciant curvilinear, rather than a senior's flattened [i.e., unmodified], "stock" appearance.)

Media. Hats have become a form of mass media. "'In the last seven years or so, licensed [sports] products

as a whole started taking off and baseball caps became a fashion statement,' explains Ron Meshil, chief operating officer of Manny's Baseball Land, a sports merchandise store in Palm City, Fla" (Oldenburg 1995:D5).

Style. A woman's hat, which shows style, individuality, and presence, can also suggest power and strength. Cowboy hats and fedoras, among the best selling headware for women in the U.S., reflect allegiance to predominantly male "teams." Alternatively, Floppy berets and Garbo slouch hats frame the face like soft-falling tresses of hair, to seem more appealing, approachable, and feminine. (***N.B.***: Few men wear feminine hats. A woman has more freedom about her head's say-so in **Nonverbal World**.)

Neuro-notes. We respond to hat cues, as we respond to natural cues of the face, **a.** via **paleocircuits** linked to the **amygdala**; and **b.** through modules of the primate brain's *inferior temporal lobe*, which respond to specific **facial expressions**. The amygdala mediates our response to **fearful** facial cues. The scarier the face (or the hat) the more activity registers in the left amygdala (Suplee 1996), which alerts the **hypothalamus** to mobilize the body for danger. (***N.B.***: The facial "fear response" also has been observed in rhesus monkeys. Even when reared in isolation from birth, young monkeys respond appropriately to threatening faces with a *fear grin* [Sackett 1973].)

See also **EYEBROW-LOWER**, ***WWW.Lids.com***.

MESSAGING FEATURE

Could Montgomery Ward's 131 different designs of pocket knife be said to be the result of the discovery of new ways of cutting? --Forty (quoted in Petroski 1992:25)

Children would not sit still until they got their hands on Silly Putty. Then they sat only long enough to press it against their favorite comics and peel away the impressions. --John Lacy (1995)

Sign. **1.** A usually brief communication crafted into the design of a plant, animal, or **consumer product**. **2.** A meaningful mark, line, shape, pattern, brand, label, seal, banner, badge, decoration, symbol, gloss, color, aroma, spice, cadence, tone, edging, spangle, or appliqué added to a product to transmit **information** (rather than, e.g., to provide functionality, durability, or strength).

Usage: Through messaging features--e.g., the *hem*, *lapels*, and *shoulder pads* of a **business suit**--consumer products "speak" to us as **gestures**. Messaging features evolve through a process of product selection, which gives voice to seemingly innate human preferences for products that not only function well but also "*express themselves*."

Silly Putty®. An intriguing case in point is a chemical concoction of boric acid and silicone oil called *Silly Putty*. Invented in 1943 by a General Electric employee trying to develop a synthetic rubber, the substance had no practical use and seemed doomed to extinction. But the compound survived--marketed in shiny, plastic Easter-egg shells--as its messaging features (e.g., the *innocent pink hue*, *lively bounce*, *doughy feel*, and *colorful case*) gave the product something to meaningful to "say" to children. That is, it had the right nonverbal stuff as a toy, and after mention in the *New Yorker's* "Talk of the Town" (see **MEDIA**), a Silly Putty craze ensued, and endured for half a century as a child's plaything and later as a symbol of 1950s innocence and youthful optimism. (***N.B.***: In 1968, Silly Putty was carried into space by the Apollo 8 astronauts to alleviate boredom and to anchor down tools [Lacy 1995].)

Biology. Millions of years before the advent of products, however, messaging features were already prominent in biology. Peculiar features of the orangutan's face, e.g., are its ***cheek flanges***--very visual, fleshy flaps on the right and left sides of a mature male's face. Though without practical function, cheek flanges visually "enlarge" an orangutan's face to signal dominance, rank, and seniority (much as the graying "silverback" saddle cue bespeaks dominance in male gorillas). (***N.B.***: In Borneo, a male orang's cheek flanges appear at ca. eight, and reach full size by ca. 15 years of age [information complied by Susan E. Wong, CNS].)

Botany. In plants, messaging features are called **secondary products**. In the tobacco plant, e.g., **nicotine** is a secondary product.

Refrigerator magnets. Our preference for products that express themselves is clearly revealed in the burgeoning magnetic artifacts that adorn our refrigerators: ". . . beginning in the mid-'60s, magnets in thousands of shapes (from faux Oreos to mini-Mickey Mice) mysteriously appeared like alien beings,

and the refrigerator was transformed. It became a kind of family album, a rotating exhibition of the crayonist's art, a recipe repository, and anything else we might want. What it can never be again is an inexpressive cooler of Tuesday's meatloaf" (Edwards and Nelson 1993:B5).

E-Commentary: "Dave, over the years I have observed that bumper stickers and car decals often are very emblematic of the belief system, and often of the plasticity, of the mind of their owners. Aside from the usual tourist stickers or flags, those bumper stickers that espouse one view over another, or some irrational fear of government intervention, speak volumes of their owners' personalities. Many of these people are argumentative, unwilling to reconcile, and hostile in their beliefs that their ideas or beliefs trump all others. In essence, they would be defined by some as extremists. When I tried to logically converse with them, I met little success in communicating, because often there is just one view: theirs. It can serve as a warning to the cognoscenti in dealing with them, and it can help to avoid a confrontation as well. In fact, I encourage attorneys to ask potential jurors during voir dire what kinds of bumper stickers they have on their cars; sometimes it is amusing, other times it is illuminating." --Joe Navarro, M.A., Special Agent, FBI (8/17/01 6:23:44 AM Pacific Daylight Time)

Neuro-notes. Like many successful products, Silly Putty has something to "say." Its brightly colored egg case addresses the *ventral temporal lobe*; when bounced it speaks to the *middle temporal gyrus*. At a deeper level, via emotional modules linked to vision centers of the ***amphibian midbrain***, lively movements give Silly Putty its "personality." The smoothness of its ovoid container--which audibly clicks when snapped shut--pleases *free nerve endings* and *vibratory receptors* of children's hands, as well.

See also, **BRANCH SUBSTITUTE**, **MESSAGE**.

BUSINESS SUIT

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As soon as he saw that it was daylight, being by no means slothful, the knight quitted his downy couch and proceeded to dress himself, donning his chamois-skin suit and drawing on his traveling ***boots*** *to hide the rents in his hose. Over all he threw his scarlet cloak and, placing on his head a* ***cap*** *of green velvet trimmed in silver, he strapped on his baldric and his good keen-bladed sword and then picked up a large rosary that he always carried and with a solemn* ***strut*** *set out for the anteroom where the duke and duchess, already dressed, appeared to be expecting him.* --Miguel de Cervantes (*Don Quixote*, 1605:804)

He [Cary Grant] had a wide head so he wore his shoulders wider to balance it. -- Alan Flusser (Sporkin 2000:137)

Taking off your jacket creates an atmosphere of trust. --Véronique Vienne (1997:154)

Display. **1.** A coat and matching pants or skirt designed to downplay personal identity and showcase upper-body strength. **2.** A tailored garment worn to suggest high status and power in business, government, and military affairs.

Usage: Strength cues from the **broadside display** are tailored into every Brooks Brothers® suit. A coat's

squared shoulders exaggerate the size and "strength" of the upright torso. Dropped to fingertip level, the jacket's *hemline* visually enlarges the upper body to pongid (i.e., gorilla-like) proportions. Flaring upward and outward, *lapels* enhance the illusion of primate *pectoral strength*. *Pads* and *epaulets* cover inadvertent **shrugs** and slips of the shoulder blades, to mask feelings of **submission** or **uncertainty**, in the boardroom or on the battlefield.

Business. **1.** "The best suit colors [for men] are navy [see below, *U.S. Politics, Symbolism*], medium blue, tan, and all shades of gray. Brown is a color that demands caution. A lot of people have a negative reaction to it, and it can easily look cheap" (Bixler 1984:112). **2.** "A well-cut, well-fitting [women's] suit can be accessorized into an office look without being frilly, authoritative without being dull" (Bixler 1984:148). **3.** "The best basic colors for women are black, brown to camel, burgundy, blue to navy, beige to taupe, and all shades of gray. The darker the color, the more authority the suit will impart to the woman wearing it. In some workplaces, women need all the power support from their clothing that they can get" (Bixler 1984:157).

Evolution. Through a process of consumer product selection, business suits today resemble power uniforms. As a fashion statement, the *broadside display* may first have appeared in animal-hide clothing of the Neanderthals, ca. 200,000 years ago. The first solid evidence for the display, however, appears in the Roman *toga*. As early as 200 B.C., men in tunics draped wool or linen *toga-cloths* over their left shoulders, to make the upper body look "thicker" and more formidable than when dressed in a tunic alone (Rowland-Warne 1992).

Literature. "Beowulf put on his warrior's dress, had no fear for his life. His war-shirt, hand-fashioned, broad and well-worked, was . . . to cover his body-cave so that foe's grip might not harm his heart, or grasp of angry enemy his life." --*Beowulf* (ca. 1,200 years old)

Natural history. Konrad Lorenz (1966) hypothesized that fish adopt the bright colorations and markings of rival fish species, to reduce attack and "escape from interspecific aggression."

Recent history. From togas to *doublets* (1300s), to *shortcoats* (1600s), *court coats* (1700s), and *sport coats* (1990s), clothing enabled men to seem "bigger" and to present "larger" versions of themselves in public. Today, the conservative design of the business suit allows men and women to display a more powerful, influential silhouette in business and public affairs.

U.S. Politics I. "Dark blueness is all. The Blue Suit Endureth in Washington, a monument to sobriety and every politician's right to pursue the electoral majority and look okay on television [see **MEDIA**]. This dates, as does everything else in modern history, it seems, to that great benchmark of American politics: the first Kennedy-Nixon debate in 1960. Richard Nixon--pale and sweating, his shirt collar loose on his neck from a recent illness--wore a light gray suit. *Light gray*. It made Nixon seem insubstantial and meek. On black and white television, he and the backdrop were the same color, a combination of wet cement and cardboard. He became invisible but for a pair of rubbery hands wiping sweat on his ashen face with a white hankie" (Sherrill 1992:31).

U.S. Politics II. "John Kennedy's handkerchief stayed in his pocket. He had a slight tan. His suit was

deep and dark and blue" (Sherrill 1992:31).

SEMANTICS: **1.** The contemporary *success suit* (Molloy 1988) is replete with *frozen gestures* (Hall 1959) which suggest muscular strength and bulk. Unlike body movements that come and go, a suit's "pumped" arms (see **ARM-SHOW**) and squared shoulders beam continuously from a wearer's frame. **2.** The crisp, tailored look frames a permanently established "wedge" shape. Lapels lie flat, buttons blend in, and shoulders are firmly defined within the jacket's stable edges and secure collar. **3.** As a protective garment, the suit sacrifices personality for strength. Instead of loud plaids or bright colors, e.g., darker shades of grey, green, and *navy blue* convey a serious, formal look. (Because the latter hue contains black but is not forbiddingly dark itself, navy remains the preferable power color of the corporate world.)

Symbolism. Dark blue seems "heavier" and more "serious" than lighter colors, e.g., pinks and yellows, which feel both physically and emotionally "lighter" than navy. Blue itself creates a calm, pleasant, transcendent mood, and symbolizes dignity and truth (Richmond et al. 1991). Adding black's symbolic power to blue makes navy the ideal choice for business. Black alone is too "intense," dark brown too "sad," and light grey too "insubstantial" for influence peddling in **Nonverbal World**.

See also **MEN'S SHOES**, **NECKWEAR**, **SHOULDERS**, **WOMEN'S SHOES**.

BOOT

Boots--boots--boots--boots--movin' up and down again! --Kipling, *Boots*

I had a driving interest in footwear and the artistic possibilities of making boots. A saddle is a saddle, you just see brown leather. But boots . . . you see red, yellow, fuchsia, and chartreuse. --D.W. Frommer, bootmaker (Hadley 1993; see **COLOR CUE**)

Clothing cue. **1.** A usually heavy, protective covering for the **foot**, made of leather, rubber, or **vinyl**. **2.** A conspicuous **sign** of authority and power designed to accent the foot's ability to stomp.

Usage: Nonverbally, boots suggest strength by adding **a.** *stature* (i.e., increasing a wearer's vertical height; see **LOOM**) and **b.** *stability* (i.e., giving steadiness to stance; see **ANTIGRAVITY SIGN**).

Anatomy. Boots give us a more powerful gait and commanding stance. The boot-shaft's snug contact with pressure-sensitive *Pacinian corpuscles* of the lower leg provides tactile reassurance, while supporting the long tendons that drop into our feet from muscles above. Boots also stabilize the ankle joint. By adapting to the physical needs of our feet (and to the psychic needs of our **reptilian brain**) Doc Martens® helped young men and women of the 1990s feel secure on the streets.

Cowboy boots. Fashion trainer John Molloy found that women consider men in cowboy boots more attractive than men in ordinary shoes. (***N.B.***: Standing on tiptoes shifts the body's center of gravity forward, causing cowboy-boot wearers to compensate by leaning forward as well. This makes the human derrière--already prominent by primate standards--protrude an additional 25% [see **HIGH HEEL**]). Originally adapted from the moderately high *Cuban heel*, American cowboy boots add ca. two inches to standing height. (***N.B.***: A man's business shoe has only a 1/2-to-3/4 inch upper base of polyethylene, and

a 1/2 inch layer of rubber attached below, called a *heel lift*, which works as a shock absorber.)

Evolution. Boots evolved from leather sandals, as straps grew longer and thicker to support a human's congenitally weak ankles. Sandals reaching above the ankle (the oldest status symbol for feet yet discovered) were worn exclusively by Roman army officers. Gradually, the leather pieces widened until they enclosed the entire foot.

Media. By popularizing thick, buckled *motorcycle boots*, Marlon Brando (*The Wild One* 1954) and Peter Fonda (*Easy Rider* 1969) furthered the role of footwear as a fashion statement designed to figuratively "stomp" the establishment's powers-that-be.

Psychology. Blind-and-deaf-born children stamp their feet in anger (Eibl-Eibesfeldt 1971:12).

Stamping. "In man, stamping the feet in anger seems also to be a ritualized attack movement" (Eibl-Eibesfeldt 1970:96).

See also **BLUE JEANS**, **GOOSE-STEP**, **LEG WEAR**, **MEN'S SHOES**.

COLOR CUE

My eyes fastened themselves upon the old scarlet letter, and would not be turned aside. --Nathaniel Hawthorne (*The Scarlet Letter*, 1850)

The caskets come in a variety of team colors. --Anonymous (1994)

Peach and mauve are dead, he [Rubbermaid designer Andre Doxey, manager of color and lifestyle trends] said. Hunter green, slate blue and ecru (an off-white) are the shades of the day, injected into company ***products*** *to give the customer the sense they [sic] are in sync with the latest fashions and sports logos. "If you have a passé color," Doxey said, "it means you are not in communication with the world today."* --Jay Mathews (1995B:H4)

Light signal. A material substance, such as a dye, ochre, paint, pigment, stain, tarnish, tincture, tinge, tint, or wash, that transmits a message about hue.

Usage: Color cues transmit **information** about emotions, feelings, and moods. In fashion, wearing the same color suggests a social tie, such as shared membership in a club, gang, pack, school, sorority, team, or tribe. States mark their national identities with colorful dyes affixed to banners, crests, flags, and seals. Color plays a special role in **courtship**.

Biology. "Among mammals, only the primates have acquired the biological machinery needed for highly acute color vision" (Jacobs 1995:196).

Blue and red, for women. "'If your boss is a man, wear lots of blue to the office--it says you've got brains. If your boss is a woman, wear a lot of red--it says you can take the heat'" (color expert Bride Whelan, quoted in Vienne 1997:150).

Crayola®. "Crayola colors may change (the line now includes 112 different shades) but their names

rarely do. The two exceptions: Prussian blue (which in 1958 became midnight blue in response to teacher recommendations that kids no longer relate to Prussian history) and the very popular flesh (more accurately re-labeled peach in 1962, in recognition that not everyone's flesh was the same shade)" (Hoffman 1996:23).

Consumer products. **1.** "The name of a color can be critical. One color on Ford's Taurus, purchased by older buyers, is called Silver Frost; the same color on the Focus, targeted at Gen-Xers, is called CD Silver" (Mello 2000:15). **2.** "'Sales were so low [for the gray and purple-tinted, "Lavender Steel" colored 1997 Toyota Tacoma pickup], we decided to change the name to Cool Steel for 1998,' she [Christine Dickey, Toyota's color and trim manager] said. 'Orders immediately doubled'" (Mello 2000:15).

Greige. The color "griege," fashion designer Giorgio Armani's trademark, is a subtle mixture of grey and beige (Showalter 2001).

Evolution. ". . . the old idea that primate trichromacy evolved in the context of **fruit** detection and identification enjoys some current support" (Jacobs 1995:203).

Media. "The brain takes delight in an exaggeration of shapes or color it finds appealing, such as the intensely saturated yellows of Van Gogh's sunflowers, UCSD neuroscientist Vilayanur Ramachandran says." (*San Diego Union-Tribune* interview with UC-San Diego neuroscientist, Vilayanur Ramachandran [May 7, 1999, A1, A19])

Medieval knighthood. Because so few Europeans could read, symbols and colors (rather than numbers and words) were used to tell knights apart. *Gold* symbolized generosity; *red*, bravery; *green*, joy; *blue*, loyalty; *purple*, royalty; and *black*, grief.

Pink. "Psychologically, pink has been judged the 'sweetest' color" (Vargas 1986:144). Pink causes the **hypothalamus** to signal the adrenal glands to slow their secretions, thus reducing heart rate and blocking **anger** (*Brain/Mind Bulletin*, reported in *Science Digest*, Nov./Dec., 1980, p. 26).

Preferences. "Blue and red are by far the favorite colors of most adults. Green usually comes in third and purple fourth with yellow and orange vying for last place" (Vargas 1986:141).

Prehistory. Early evidence for human use of a color cue consists of a quartzite rubbing stone and a lump of red ocher, found at Becov in Bohemia, and dated to ca. 250,000 years ago. Actual use of the powdery red pigments rubbed from the ocher is, however, as yet unknown (Scarre 1993:39).

Primary colors. "People whose lack of education and/or low income provides them limited opportunities for emotional outlets prefer pure hues, especially those from the warm end of the spectrum" (Vargas 1986:142; note a similarity to *primary tastes*: see, e.g., **BIG MAC**, *Usage* and *Neuro-notes*).

Primatology. "Humans, apes, and Old World monkeys have trichromatic vision because they possess an autosomal gene that encodes a blue light-sensitive pigment and at least two X-linked genes that encode red- and green-sensitive pigments" (Shyue et al. 1995:1265).

Neuro-notes I. ". . . one person--someone with a well-developed colour area (V4), say--may look at a bowl of fruit and be struck by the gleaming colours and the way they relate to each other. Another--with a more active depth discriminatory area (V2)--may be caught instead by the three-dimensional form of the display" (Carter 1998:108).

Neuro-notes II. Colors surrounded by yellow look bluer, while those surrounded by blue look yellower, due to a process called *simultaneous color contrast*.

RED

Moods: Hot, affectionate, **angry**, defiant, contrary, hostile, full of vitality, excitement, love.

Symbolic Meanings: **Happiness**, lust, intimacy, love, restlessness, agitation, royalty, rage, sin, blood.

Football. "Knute Rockne tried to stimulate his players by using a red-walled locker room, while the opponents were lulled in restful blue quarters" (Vargas 1986:152).

Media. Dramatic motion pictures such as *The Red Badge of Courage* (1951), *Lady in Red* (1979), and *Reds* (1981) feature, respectively, hostile, sexual, and political meanings of redness.

BLUE

Moods: Cool, pleasant, leisurely, distant, infinite, secure, transcendent, calm, tender.

Symbolic Meanings: Dignity, **sadness**, tenderness, truth.

Media. Motion pictures such as *Blue Hawaii* (1962) and *Blue Lagoon* (1980) feature feelings of leisure and coolness associated with the color blue.

YELLOW

Moods: Unpleasant, exciting, hostile, cheerful, joyful, jovial.

Symbolic Meanings: Superficial glamor, sun, light, wisdom, royalty (China), age (Greece), prostitution (Italy), famine (Egypt).

Media. Motion pictures such as *Yellow Submarine* (1968) and *Yellowbeard* (1983) feature fanciful and light-hearted meanings of yellowness.

Visibility. Yellow is a high-visiblity hue. Black on yellow, the highest contrast known, is used on U.S. cautionary road signs. And, as a color engineer noted, ". . . Yellow Cabs are not as common as one may think. They simply stand out among other automobiles" (Vargas 1986:143).

ORANGE

Moods: Unpleasant, exciting, disturbed, distressed, upset, defiant, contrary, hostile, stimulating.

Symbolic Meanings: Sun, fruitfulness, harvest, thoughtfulness.

Aviation. Commercial aircraft voice recorders (i.e., "black boxes") are painted orange to be more visible to searching human eyes.

Interior design. "In another factory, employees were in the habit of standing around a drinking fountain and visiting. When the soft green walls of the area were repainted vivid orange, workers took a drink and left" (Vargas 1986:153).

Media. The 1971 film, *A Clockwork Orange*, features disturbed, hostile meaning of orangeness.

PURPLE

Moods: Depressed, sad, dignified, stately.

Symbolic Meanings: Wisdom, victory, pomp, wealth, humility, tragedy.

Media. Films such as *The Purple Heart* (1944) and *The Color Purple* (1985) feature the tragic meaning of purple.

GREEN

Moods: Cool, pleasant, leisurely, in control.

Symbolic Meanings: Security, peace, jealousy, hate, aggressiveness, calm.

Architecture. "Black Friars Bridge in London with its extensive black iron work was well known for its frequent suicides. When the city fathers painted it bright green, they were surprised to discover that suicides declined by more than one third" (Vargas 1986:153).

Consumer products. The color green strongly attracts our attention, and is used in traffic lights, under the first and last steps of escalators, and in rented bowling shoes.

Media. Dramatic motion pictures such as *Green Pastures* (1936) and *The Green Promise* (1949) feature the pastoral meanings of green and greenness.

BLACK

Moods: Sad, intense, anxiety, **fear**, despondent, dejected, melancholy, unhappy.

Symbolic Meanings: Darkness, power, mastery, protection, decay, mystery, wisdom, death, atonement.

Psychology. Our aversion to the sight of black may be innate (Thorndike 1940).

Media. Black is used in movie titles more than any other color. Films such as *Black Fury* (1935), *The Black Hand* (1950), and *Black Robe* (1991) feature death, and the darker meanings of black.

BROWN

Moods: Sad, not tender, despondent, dejected, melancholy, unhappy, neutral.

Symbolic Meanings: Melancholy, protection, autumn, decay, humility, atonement.

Media. Brown is rarely used in movie titles.

WHITE

Moods: Joy, lightness, neutral, cold.

Symbolic Meanings: Solemnity, purity, chastity, femininity, humility, joy, light, innocence, fidelity, cowardice.

Media. White is used in movie titles more than any color but black. Films such as *White Mama* (1980), *White Hunter Black Heart* (1990), and *White Lie* (1991) feature the darker, racial meanings of whiteness.

See also **SIGNAL**, *Chinese lanterns*.

LOVE

Like an avalanche where you have to run for your life. --Roger (age 9)

Emotion. **1.** A powerful feeling of affection, devotion, and fondness for a person, place, or thing. **2.** An intense feeling of attachment to a family member, esp., to a baby or young child. **3.** A strong desire to be near a person who is the object of sexual passion.

Usage: As intangible as it is illogical, love is thought to be our noblest and strongest emotion. Love may show in **a.** **arousal cues**, **b.** breathing rate, **c.** **courtship**, **d.** the *en face* gaze, **e.** **facial flushing**, **f.** **head-tilt-side**, **g.** heart rate, **h.** the hug, **i.** **isopraxism**, **j.** the **kiss**, **k.** **love signals**, **l.** personal distance, **m.** pupil size, **n.** **synchrony**, and **o.** **tone of voice**.

RESEARCH REPORTS: **1.** "Although the emotion of love, for instance that of a mother for her infant, is one of the strongest of which the mind is capable, it can hardly be said to have any proper or peculiar means of expression . . ." (Darwin 1872:212). **2.** "I agree with Darwin that there is no distinctive facial expression for love" (Ekman 1998:212).

Neuro-notes. Love evolved from **paleocircuits** of the **mammalian brain** (specifically, modules of the *cingulate gyrus*) designed for the *care*, *feeding*, and grooming of offspring. (***N.B.***: There is a strong tendency to take care of, feed, and groom the people [and objects, e.g., automobiles] we love.)

See also **LOVE SIGN**, **OBJECT FANCY**.

HEAD-TILT-SIDE

See how she leans her cheek upon her hand! --Shakespeare, Macbeth, II, 2

Gesture. Leaning the head over laterally, toward the right or left **shoulder**.

Usage: Head-tilt-side may be used **a.** to show friendliness and foster **rapport**; **b.** to show *coyness*, as in **courtship**; **c.** to strike a **submissive** pose (e.g., to show *deference* to one's boss); and **d.** to respond to *cute* signs (i.e., to immature cues emanating, e.g., from kittens, puppies, and babies).

Anatomy. Head-tilt-side involves **a.** the *scalene* muscles, which connect the neck bones (cervical vertebrae) to the upper two ribs, as well as **b.** the *trapezius*, and **c.** the *sternocleidomastoid* muscles. Controlled by "gut reactive," **special visceral nerves** (see also **PHARYNGEAL ARCH**), the latter two muscles are well equipped to express **emotions**, feelings, and moods.

Culture. In Spain, tilting the head sideways and resting the cheek in the palm of the hand is a deliberate signal which says, "Sissy!" (Morris 1994:21).

Media. Head-tilting was a signature cue of method actor, James Dean. Dean's head-tilts seemed to say, as *East of Eden* director, Elia Kazan put it, "Pity me, I'm too sensitive for the world" (Dalton 1984:60).

Origin. Head-tilt-side is one of several *self-protective* gestures stemming from the larger **shoulder-shrug display** (see also **CROUCH**).

RESEARCH REPORTS: **1.** Head-tilt-side is used extensively by men and women as a flirting or courtship cue (Eibl-Eibesfeldt 1970; Givens 1978, 1983). **2.** Sideward head-tilts have been decoded as signals of *shyness* in young children (McGrew 1972), and in adults (Givens 1978). **3.** "Females tilted their head [sic] to one side significantly more than males: 18 out of 20 times recorded. The head-tilt seemed to be more obvious in male-female greetings" (Kendon and Ferber 1973:152). **4.** "This head [tilt] gesture may convey an attitude of coyness or submissiveness, but it is so common that one can almost always find such a head position in any group of women" (Key 1975:152).

E-Commentary: "People frequently ask me 'Is your neck stiff?' I also have had numerous counseling sessions with our managers about client complaints regarding my attitude. I have had multiple spine operations, including the cervical spine, therefore, something always hurts, and sometimes I am stiff without being aware of it. Could my 'posture' have much to do with the way I am perceived by other people, specifically my 'stiff neck' position?" --USA (9/10/00 6:43:49 PM Pacific Daylight Time)

See also **LOVE SIGNAL**.

RAPPORT

A 1997 study by the Center for Creative Leadership in Greensboro, N.C., with Manchester Partners International, says that even in this tight job market, 40 percent of management hires fail, and the key reason for the turnover (82 percent) is their inability to build good relationships with peers and subordinates. --San Diego Union-Tribune (Anonymous 1998)

The subtlety of making impressions demands self-awareness . . . . --Mark H. McCormack (*What They Don't Teach You at Harvard Business School*, 1984:27)

Relationship. A pleasant feeling of mutual trust, affinity, and friendship established through **verbal** and **nonverbal** means.

Usage: Rapport shows in **a.** reduced **angular distance**, **b.** direct **body alignment**, **c.** mutual **eye contact**, and **d.** **palm-up** cues; and in the **e.** eyebrow-flash, **f.** **head-nod**, **g.** **laugh**, **h.** **shoulder-shrug**, and **i.** **zygomatic smile**.

Business. "Don't exploit rapport; build it for future business" (Doreen K. Givens, N.D., personal communication).

Observation. We use many of the same childlike cues sent and received in **courtship** to establish rapport in business (e.g., to please customers, solicit clients, and woo colleagues; see **LOVE SIGNAL**).

Personal chemistry. "Personal chemistry helps people rise above their competition to be selected and hold jobs they're offered. The ability to work well with others is often the defining reason one person is selected over another" (Anonymous 1998:C-1).

Salesmanship. "Your nonverbal strategy . . . is not to mirror the prospect's stiff, closed posture but to lead

him into more relaxed, open postures by your example" (Delmar 1984:43-4).

Word origin. *Rapport* derives from Old French ("to bring back") via Latin ("to carry"), from the 7,000 year-old Proto-Indo-European root, *per*-[2], "fellow traveler" (Soukhanov 1993; see **WALK**). Nonverbally, traveling together motivates bonding through feelings of **isopraxism**.

RESEARCH REPORTS: **1.** "We can observe how in human beings conversation is practiced as a bond-forming ritual. In such conversations hardly any factual information is passed on, as they consist largely of extremely banal, constantly repeated statements concerning such matters as the weather" (Eibl-Eibesfeldt 1971:151). **2.** "Salesmen may court prospects over **lunch**, using the full range of seductive units to solicit a warm social bond which may be exploited economically. . ." (Givens 1978A:358). **3.** "More smiling, facial pleasantness, head nods, frequent and open gestures, and eyebrow raises have the same effects as more **gaze**: They accompany a desire for intimacy. . ." (Burgoon et al. 1989:322).

Antonym: **FIGHT-OR-FLIGHT**. See also **IMMEDIACY**.

BODY ALIGNMENT

Posture. The degree of orientation between a speaker's torso and that of a listener (e.g., *facing* or *angled away*), as measured in the *coronal plane* (which divides the body into front and back; see **ANGULAR DISTANCE**).

Usage: We show agreement, liking, and loyalty by aligning the upper body with that, e.g., of our boss. It is often possible to identify the most powerful (i.e., highest status) person seated at a **conference table** by the relative number of torsos aimed in his or her direction. While the less influential may glance freely about, and turn their heads toward colleagues as they speak, their torsos remain loyally oriented to the individual they most respect.

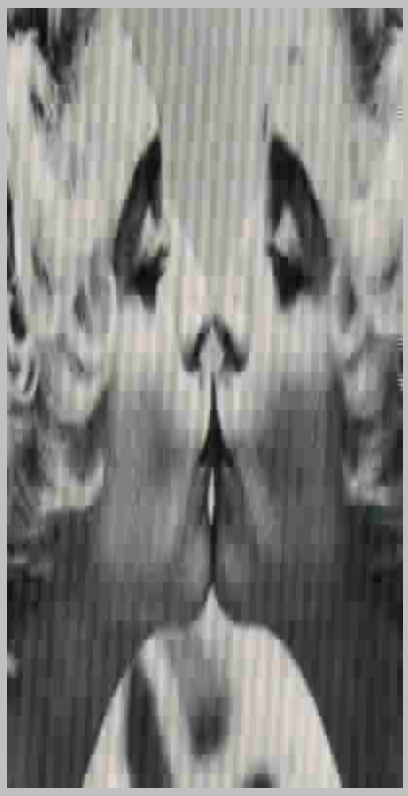
World politics. "At summit, when [Ronald] Reagan and [Mikhail] Gorbachev faced each other with similar postures, they were likely to be in agreement, or close to agreement" (Blum 1988:6-6).

RESEARCH REPORTS: **1.** Direct torso alignment in the *face-to-face body orientation* presents a formal, businesslike posture (Scheflen 1964). **2.** Aiming the upper body conveys greater feelings of liking (i.e., of ***immediacy***) than when the body is angled away (Mehrabian 1969). **3.** *Lean-forward* suggests friendliness (Mehrabian 1974), while *lean-backward* expresses a more negative pose (Mehrabian 1969). **4.** A non-aligned, *parallel orientation* discloses neutral or passive moods which may grade into disliking or disagreement (Scheflen 1964, Richmond et al. 1991).

Courtship. Women (and men) unthinkingly "aim" their upper bodies at partners they like--even while angling their faces and eyes away. *Squaring-up* with the shoulders is a nonverbal invitation to **speak**.

See also **CUT-OFF**.

KISS



Kiss me as if you made believe
You were not sure, this eve,
How my face, your flower, had pursed
Its petals up. --Robert Browning, *In a Gondola*

The anatomical juxtaposition of two orbicularis oris muscles in a state of contraction. --Dr. Henry Gibbons, *Definition of a Kiss*

Blair walks in and gives Cristian a big sloppy kiss to make Max jealous. --*One Life to Live* (*Soap Opera Digest* synopsis, May 2, 2000:109)

Touch cue. **1.** To caress, touch, or gently feel with the **lips**. **2.** To press one's lips against those of another.

Usage: We kiss to show our affection, as in kissing a child, parent, or lover (see **LOVE SIGNALS IV**).

Consumer products. In 1995, Revlon claimed that its ColorStay Lipcolor® "won't kiss off on your teeth, your glass . . . or on him." Later in 1995, "Procter & Gamble, the manufacturer of Max Factor and Cover Girl cosmetics, asked Revlon to provide support for its claims within a week" (Hamilton 1995:F1).

Courtship: "Ever so slowly, the couple's heads will loom closer and closer, like docking spacecraft. Three inches away and closing, their faces will roll several degrees right or left, in synchrony, so the noses will clear. And the lips begin a cautious link-up. The pair seals together in the first kiss" (Givens

1983:91-2).

Culture. **1.** In Latin countries, a man may kiss the back of a woman's hand to greet her with respect. His *hand kiss* should be "effortless, noiseless and moistureless" (Morris 1994:113). **2.** In Vatican City, kissing another's foot is a "humble salutation" (Morris 1994:76). Extremely rare, the *foot kiss* ". . . still survives in a ritual form when the Pope symbolically washes and kisses the feet of poor people in Holy Week" (Morris 1994:76; see also **BOW**, *Humility*).

Media *I*. Jane Wyman and Regis Toomey kissed for 185 seconds in the 1940 movie *You're in the Army Now*.

Media II. "I would like to think that someone who had respect for me and cared about me . . . would have kissed me on the cheek [rather than squarely on the lips] and said 'I'm delighted to meet you'," nurse Darva Conger confessed on the Feb. 23, 2000 "Good Morning America" show, in an interview about how she felt after marrying a total stranger, Rick Rockwell, on the Feb. 15, 2000 Fox TV special, *Who Wants to Marry a Multimillionaire*.

Media III. On kissing Leonardo DiCaprio: "Sharon Stone proclaimed that 'kissing him was like kissing your arm.' He got another scathing review from 'Romeo + Juliet' costar Claire Danes: 'Our chemistry ended when the cameras stopped.' Then 'Titanic's' Kate Winslet revealed: 'It was like kissing my brother'" (Davis 2000:53).

Primatology. Chimpanzees may kiss and embrace after a fight.

RESEARCH REPORTS: **1.** "Nuzzling, licking, sucking, playful biting, kissing, and so on, which appear to have a broad geographical distribution as sexually meaningful signs, can be used to communicate the emotional intimacy that is prerequisite to sexual intercourse" (Givens 1978:352). **2.** "Many mammals 'kiss' before mating as a way of stimulating a partner's maternal instincts. Dolphins nibble, cats give playful bites, dogs lick faces or nuzzle flanks, and chimps press lips in their courtship" (Givens 1983:93). **3.** "Our kiss originates from a mammal-wide sucking reflex" (Givens 1983:93). **4.** "Mouth-to-mouth contact with the lips" is a worldwide sign of **love** (Morris 1994:155).

Neuro-notes. The most sensitive area of our **face** is the perioral area (which includes the lips and **nose**). Kissing sensations travel through the trigeminal nerve (cranial V), which carries impulses received from the lips. Reflecting its importance, trigeminal is served by three sensory nuclei, extending from the upper spinal cord through the brainstem to the **amphibian midbrain**. Pleasurable *protopathic* or light-touch sensations travel from the principal and spinal nuclei through evolutionary-old pathways to the thalamus, then to areas of the **mammalian brain** (including the **cingulate gyrus**, prefrontal cortex, and basal forebrain), as well as to primary sensory areas of the parietal cortex (see **HOMUNCULUS**).

See also **EMOTION CUE**, **REST-AND-DIGEST**.

Detail of photo by Bruce Weber (Madonna; copyright Bruce Weber)

LOVE SIGNALS IV

Courtship. Any of several **signs** exchanged during the fourth or *touching phase* of courtship.

Usage: From verbal and nonverbal cues exchanged in the *speaking phase* (see **LOVE SIGNALS III**), men and women progress to the fourth or *tactile* stage of courtship. Older than words, older than *Homo sapiens*--older even than vertebrates--touch encodes a primordial sense of closeness (see **TOUCH CUE**). Among the least ambiguous and most believable of signs, touch cues are profoundly "real" to the brain. Tactile messages lead couples ahead in the courting progression, often despite reasonable objections, to one of **Nonverbal World's** most rewarding experiences.

Baby signs. Humans are mammals, for whom reassuring *hugs*, *snuggles*, *nuzzles*, and *kisses* evolved as nurturing cues in the mother-infant bond. That we touch lovers softly, as parents caress babies, happens for sound evolutionary reasons. Just as enamored elephants intertwine their trunks and wooing whales

nuzzle, so couples touch **a.** to stimulate the *caring* and **b.** to simulate the harmlessness, of infancy. Through the tactile channel, men and women "become each other's baby."

Culture. **1.** "KUALA LUMPUR, Malaysia--Islamic police turned Valentine's Day into a fright night for 208 Malaysian couples, raiding hotel rooms and lovers' lanes to enforce rules against illicit sex and cuddling [Islamic law forbids unchaperoned touching between unmarried couples]" (Anonymous 2001C:A5). **2.** "'Adults would call it [the full-contact "freak dance" style sweeping U.S. high schools] the Kama Sutra with clothes on. That's what one of my chaperones calls it,' says East Valley High [Spokane, Wash.] Principal Jeff Miller" (Lalley 2001:F1).

First touch. The first touch--a milestone in courtship--is likely to seem casual, unpremeditated, and "accidental" rather than "serious." An eager hand reaches out to a neutral body part (e.g., to a forearm or shoulder) which reacts by *accepting* the contact or by *pulling away*. Sensitive tactile pads of our fingertips used as tactile antennae gauge the slightest startle (see **STARTLE REFLEX**), tenseness (see **FREEZE REACTION**), or hesitation of response. Negative replies include angling away (see **ANGULAR DISTANCE**), leaning away, and no reaction. Positive responses include **a.** lifting the shoulders (see **SHOULDER-SHRUG**), **b.** sideward **head-tilt**, and **c.** *returning the touch with a touch*. Thus, partners learn a great deal from the first manual contact, which deftly probes beneath words to feelings. Touching another's body, which captures full attention, is the evolutionary true test of where a partner stands.

Hugging. Primate *holding* in the arms, a natural mothering response, is met with *clinging*, an infantile sign of needing to be mothered. Thus, *embracing* is the evolutionary correct way to say "I love you," and the proper primate way to say "I need you" as well. As humans embrace, a gentle *rocking motion* from side to side occurs. *Swaying*, a positive sign, stimulates pleasure centers linked to the inner ear's ***vestibular sense***. Thus, not only do we rock babies but also those adults we love as well.

Intention to touch. An unacquainted couple may telegraph unconscious wishes to touch by extending their arms and reaching their hands toward the partner across a table top. In courtship, the hand-reach is a commonly used **intention cue**.

Kissing. Locked in an embrace, ever so slowly the couple's heads may loom closer and closer, like docking spacecraft. Three inches away and closing, their faces roll several degrees right or left, in synchrony, so the noses will clear, and the lips begin a cautious link-up. The pair seals the fourth stage of courtship with a **kiss** (see also **HOMUNCULUS**).

RESEARCH REPORTS: **1.** "Nuzzling, licking, sucking, playful biting, kissing, and so on, which appear to have a broad geographical distribution as sexually meaningful signs, can be used to communicate the emotional intimacy that is prerequisite to sexual intercourse" (Givens 1978:352). **2.** "In courtship, only the ancient language of touch can convince and reassure us that the ultimate closeness, sexual intercourse, will be OK" (Givens 1983:83). **3.** In the fourth stage, "The expressions of affection that appear match those between caregiver and child" (Burgoon et al. 1989:328).

E-Commentary I: "How can I distinguish when a relation is a courtship or only a friendship per nonverbals posture? Do you have some indication I can follow?" --Danilo S., Brazil (7/14/01 5:18:49 PM Pacific Daylight Time)

E-Commentary II: "Hi, Danilo--Thanks for your e-mail. Yes, courtship and friendship look very much alike, nonverbally. With courtship, though, you begin to see more and more touching. Other than that, like I say, the two are essentially alike. Good luck!" --David Givens (7/16/01 10:50:23 AM Pacific Daylight Time)

Neuro-notes I. Touch cues to the face travel through the *trigeminal nerve* (cranial V), which carries impulses received from the skin of the face, lips, and frontal scalp. Reflecting its importance, trigeminal is served by three sensory nuclei, extending from the upper spinal cord through the brain stem to the amphibian midbrain. Pleasurable "light" (i.e., *protopathic*) touch sensations travel from the *principal* and *spinal* nuclei through evolutionary-old pathways to the *thalamus*, then to primary sensory areas of the parietal cortex (i.e., the homunculus). In other mammals, trigeminal is connected to whiskers used to explore the world immediately about the head. Though we do not have specialized whiskers (or *vibrissae*), our upper-lip hairs are extremely sensitive to pleasurable "light" touches.

Neuro-notes II. The most sensitive area of our face is the *perioral area* (which includes the lips and nose). The perioral area receives "serious" touches in courtship. Gently blowing in a partner's ear is pleasurable, as well, through stimulation of cranial nerves *VII*, *IX*, and *X*. Soft, touching cues are pleasurable because the thalamus routes information received from them to areas of the **mammalian brain** (including the *cingulate gyrus*, *prefrontal cortex*, and *basal forebrain*).

See also **LOVE SIGNALS V**.

LOVE SIGNALS III

Out of the abundance of the heart the mouth speaketh. --Matthew, XII, 34

Other parts of the body assist the speaker, but the hands speak themselves. --Quintilian

Courtship. Any of several nonverbal **signs** exchanged during the *conversation phase* of courtship.

Usage: From preverbal cues of *presence*, *gender*, *friendliness* (i.e., a willingness to be approached), and *sexual attractiveness*, men and women progress to the third or *speaking* stage of courtship. Talking to a stranger is a formidable hurdle in the progression to intimacy. Many couples remain locked in a nonverbal dialogue, unable to utter a **word** (see **STRANGER ANXIETY**). Those who do converse move beyond posturing to a harsher reality: **speech**.

Exclusive duo. To speak, a man rotates his **face** toward a woman. She revolves her face to gaze back into his **eyes**. Conversation locks the pair in a mini-territory as a courting duo. The visual focus on each other's lips, eyes, cheeks, and brows excludes others nearby, and reveals subtle cues with which to probe future possibilities of physical intimacy. Gazing too long (see **EYE CONTACT**), turning the face too far to one side (**CUT-OFF**), or in-rolling the lips to a thin line (**LIP-COMPRESSION**) may be decoded unconsciously as negative cues.

Lunch signals. Perhaps the most common nonverbal device for reducing conversation-phase stress is *eating*. Chewing, **crunching**, and grinding, e.g., reduce tension. Moreover, like a drug, food engages our nervous system's calmer *parasympathetic* division (see **REST-AND-DIGEST**). A tranquil mood arrives through *ventromedial-nucleus* circuits of the hypothalamus (Guyton 1996), as feelings of "tameness"

come through stimulation of the brain's reward centers (Guyton 1996). Heartbeat slows, pupils constrict, palms warm and dry. Relaxation and peace of mind (the reverse of fight-or-flight) make it easier for couples to bond through words. Eating together stimulates bonding through the principle of **isopraxism**, as well, e.g., as couples share nachos, clink glasses, and break fortune cookies together. (***N.B.***: The soft, tactile cues used while making love (see **LOVE SIGNALS V**) also reflect the body's parasympathetic mode.)

Media. "More than anything else, women want you to make them **laugh**" (according to *Esquire* magazine [*Spokesman-Review*, Feb. 7, 1999]).

Oral exam. Speech tests the limits of physical closeness. While nonverbal cues show the body's "hardware," words reveal a verbal "software" of personal ideas, values, and intelligence, and inner notions about life and living. Thus, the conversation phase begins a deep probing, as pointed and subtle questions are asked. The *face-to-face* closeness of speaking accents the impact of nonverbal signs, signals, and cues as well.

Oral gambit. Polls reveal that what is said (i.e., the *opening line*) matters less than the saying (i.e., the *content* itself). According to *Parade* Magazine, e.g., a simple "Hi" works 71% of the time for men and 100% of the time for women, to launch the conversation phase. (***N.B.***: What popular polls exclude, of course, is the *preparatory posturing* needed to prompt a verbal reply.)

RESEARCH REPORTS: **1.** "Speaking, or more broadly, linguistic-like contact--which would include American Sign Language, writing [e.g., e-mail], using mutually unintelligible languages, and so on--appears to be essential if courtship is to proceed" (Givens 1978:351). **2.** Women rate men more physically and sexually attractive when they verbally **a.** *solicit* a partner's opinion, **b.** *show sensitivity* to a partner's perspective, and **c.** *display warmth* and "agreeableness" (Bower 1991). **3.** Men rate *highly agreeable* women as most attractive and desirable as dates (Bower 1991). **4.** "The topic of conversation is irrelevant to the formation of a bond. . . . It is highly animated, responsive, immediate, and submissive" (Burgoon et al. 1989:326). **5.** Across cultures, women seek mates who speak about their *ambition*, *industriousness*, and *good financial prospects* (Bower 1995). **6.** "Thoughts and emotions are interwoven: every thought, however bland, almost always carries with it some **emotional undertone**, however subtle" (Restak 1995:21).

E-Commentary I: "I just spent a few minutes going through *The Nonverbal Dictionary* and am searching for an answer. My boss came in the other day to welcome me to my new position with this organization. I have to tell you I am very attracted to my new boss (we are both single) and I think he feels the same way towards me. When he came in to welcome me I was sitting at my desk in my room. As I swung around on my chair to greet him, he took a chair and placed it in front of me less than 3 feet directly in front of me. He was smiling and welcoming me to my new position and how impressed he was at my interview and with my education/skills. I am trying to find out if your site has information regarding **sitting postures**. You see, my boss was sitting with both his legs wide apart. I've noticed in other meetings he normally sits with them together or less than 6 inches closed. Can you help or guide me to a site where I can find why he did that?" --R.St.L., USA (9/24/99 12:12:12 PM Pacific Daylight Time)

E-Commentary II: "I have a rather interesting nonverbal situation that has been moving along for almost two years. I met a rather powerful male political figure who, on our first meeting, engaged in heavy eye contact, lip pouts, palm up displays, open stance and self touch (back of the head and face) and even at the end of this meeting a quick wink. I encouraged this with an involuntary head tilt, smile, side glances and the like. I think it was very unusual for both of us to behave this way. Since this time I have contacted him, in writing, about certain issues to which he has been receptive. I have also had brief visits with him on several other occasions. On each of these in person meetings, I am overwhelmed by his visual attention. He attempts to engage me in eye contact that lasts longer than a few seconds, and I react by gazing away and squinting/grimacing. I would like to be more direct, but the situation is very overwhelming. Do you think this is somewhat clunky courtship behavior or is it more of a connection to the power constructs of a political role? This interaction is disquieting, and I would like to figure out what is going on. Thank you for your help. disquieting, and I would like to figure out what is going on. Thank you for your help." --K.S. (5/3/01 12:32:33 PM Pacific Daylight Time)

Neuro-notes. A recent invention, vocal language may date back only ca. 200,000 years. As human primates, we have not fully come to grips with the prolonged, face-to-face closeness required for speech. Speaking to a stranger, e.g., stresses our autonomic nervous system's *sympathetic* (i.e., **fight-or-flight**) division, which **a.** speeds our heartbeat, **b.** dilates our pupils, and **c.** cools and moistens our hands. The limbic brain's **hypothalamus** instructs the *pituitary gland* to release hormones into the circulatory system, arousing our blood, sweat, and fears.

See also **LOVE SIGNALS IV**.

STRANGER ANXIETY

Emotion. An innate anxiety, mistrust, or wariness of foreigners, newcomers, outsiders, or other unacquainted and unknown individuals.

Usage: A panoply of nonverbal signs reveals our anxiety as we interact with unfamiliar people. Before city life, our ancestors spent most of their time dealing face-to-face with people they knew. Today, we spend a great deal of time interacting with strangers.

Psychology. Our aversion to the intrusion of strangers into our usual areas may be innate (Thorndike 1940; see **PROXEMICS**).

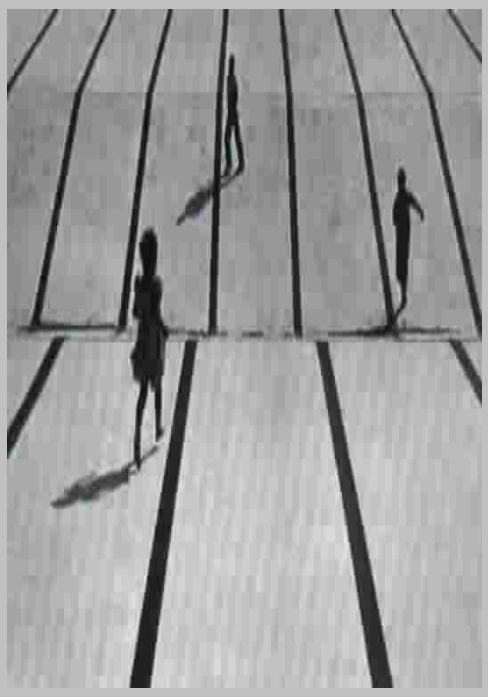
Sweaty palms. "No social relationship is more stressful than the encounter with a stranger, an unknown and potentially threatening fellow human being. . . . studies of the galvanic skin response (e.g., McBride et al. 1965) indicate that anxiety increases in subjects, i.e., skin resistance decreases, as they are approached by strangers" (Givens 1978d:351).

RESEARCH REPORTS: **1.** A mild form of stranger anxiety is *social jeopardy*: "By saying something, the speaker opens himself up to the possibility that the intended recipients will affront him by not listening or will think him forward, foolish, or offensive in what he has said" (Goffman 1967:37). **2.** Among Zhun/twasi infants (of N.W. Botswana), responses to strangers include *cling*, ***cry***, *approach mother*, *gaze aversion*, *gaze at mother*, *pucker-face*, ***mouth-hand***, *stare*, ***smile***, ***laugh***, and *touch* (Konner (1972). **3.** In western children, responses to strangers include *sobering*, slight ***frowning***, and *marked and*

pronounced puckering (as negative signs; infants respond more negatively to adult than to child strangers; Lewis and Brooks 1974). **4.** In a study of 150 adult encounters with unfamiliar adults, 90% (137) showed negative signs, e.g., "**lip-compression**, lip-bite, **tongue-show**, tongue-in-cheek; downward, lateral, and maximal-lateral gaze avoidance [see **CUT-OFF**]; **hand-to-face**, hand-to-hand, hand-to-body, and **hand-behind-head** automanipulations; and postures involving **flexion and adduction** of the upper limbs" (Givens 1978d:354). **5.** "For a time, scientists thought almost all infants this age [6-to-8 months] were distressed by unfamiliar people. It's now clear that babies react to new people in a wide variety of ways" (Chase and Rubin 1979:118).

See also**FIGHT-OR-FLIGHT**, **FREEZE REACTION**.

PROXEMICS



I have learned to depend more on what people do than what they say in response to a direct question, to pay close attention to that which cannot be consciously manipulated, and to look for patterns rather than content. --Edward T. Hall (1968:83)

. . . *Every cubic inch of space is a miracle.* --Walt Whitman (*Leaves of Grass*, "Miracles")

The desire for personal mobility seems to be unstoppable--it is, perhaps, the Irresistible Force. --Charles Lave (1992)

Spatial signs, signals and cues. According to its founder, Edward T. Hall, proxemics is the study of humankind's "perception and use of space" (Hall 1968:83).

Usage: Like **facial expressions**, **gestures**, and **postures**, space "speaks." The prime directive of proxemic space is that we may not come and go everywhere as we please. There are cultural rules and biological boundaries--explicit as well as implicit and subtle limits to observe--everywhere.

Body space I. Scientific research on how we communicate in private and public spaces began with studies of animal behavior (ethology) and territoriality in the 19th and early 20th centuries. In 1959, the anthropologist Edward Hall popularized spatial research on human beings--calling it *proxemics*--in his classic book, *The Silent Language*.

Body space II. Hall identified four bodily distances--*intimate* (0 to 18 inches), *personal-casual* (1.5 to 4 feet), *social-consultive* (4 to 10 feet), and *public* (10 feet and beyond)--as key points in human spacing behavior. Hall noted, too, that different cultures set distinctive norms for closeness in, e.g., **speaking**, business, and **courting**, and that standing too close or too far away can lead to misunderstandings and even to *culture shock*.

Body space III. Summarizing diverse studies, Vrugt and Kerkstra (1984:5) concluded that, "In interaction between strangers the interpersonal distance between women is smaller than between men and women."

Crowded space I. "*A persistent and popular view holds that high population density inevitably leads to violence. This myth, which is based on rat research, applies neither to us nor to other primates*" (Waal et al. 2000:77).

Crowded space II. "This pathological togetherness [resulting from a rat population explosion which led to killing, sexual assaults, and cannibalism], as Calhoun [1962] described it, as well as the attendant chaos and behavioral deviancy, led him to coin the phrase 'behavioral sink'" (Waal et al. 2000:77).

Crowded space III. "*In some of the short-term crowding experiments conducted by others and ourselves, monkeys were literally packed together, without much room to avoid body contact, in a cramped space for periods of up to a few hours. No dramatic aggression increases were measured. In fact, in my last conversation with the late John Calhoun, he mentioned having created layers of rats on top of each other and having been surprised at how passively they reacted*" (Waal 2000:10).

Culture. In Japan, one may *hand prow* (i.e., face the palm-edge of one hand vertically forward in front of the nose), and **bow** the head slightly, to aplogize for crossing between two people, or intruding into another's space to move through a crowded room. "The hand acts like the prow of a ship cutting through water" (Morris 1994:115).

Elevator space. **1.** "In choosing to approach someone in order to push the [button on the control] panel, men and women reacted to different signals (Hughes and Goldman 1978); men preferred to approach people who stood with eyes averted to people who looked at them and smiled; women, however, preferred to approach someone who looked and smiled" (Vrugt and Kerkstra 1984:9). **2.** "Chimpanzees take this withdrawal tactic one step further: they are actually less aggressive when briefly crowded. Again, this reflects greater [primate] emotional restraint. Their reaction is reminiscent of people on an elevator, who reduce frictions by minimizing large body movements, **eye contact** and loud vocalizations" (Waal et al. 2000:81).

Escalator space. "Men reacted more to the person standing [immediately, i.e., just one step behind, with the hands reaching forward on the rail so as to be visible to the person ahead] behind them than did women" (Vrugt and Kerkstra 1984:9). "Women seem to prefer to act as if they do not notice anything, so that unwanted contact can be avoided. Men make it clear in their reactions that they do not appreciate such a rapprochement" (Vrugt and Kerkstra 1984:10).

Library space. Regardless of an "invader's" sex, men already seated at an otherwise unoccupied table view opposites most negatively, while already seated women view adjacents most negatively (Fisher and Byrne 1975).

Parking space. "A study of more than 400 drivers at an Atlanta-area mall parking lot found that motorists defend their spots instinctively" (AP, May 13, 1997; from research published in the *Journal of Applied Social Psychology*, May 1997). "It's not your paranoid imagination after all: People exiting parking

spaces really do leave more slowly when you're waiting for the spot . . . . It's called territorial behavior . . ." (AP, May 13, 1997).

Office space I. Office workers spend the day in an average 260 square-foot (down from 1986's 275 square-foot), usually rectangular space. Corporate downsizing and belt-tightening mean that many staffers now find themselves working in even smaller, modular, 80-square-foot *cubicles*. (***N.B.***: For some prehistoric context, consider that our hunter-gatherer ancestors spent their workdays on an estimated 440-square-*mile* expanse of open savannah.) Cubicles replaced the more exposed, "pool" desks which had earlier lined the floors of cavernous group-occupied workrooms. Though maligned in Dilbert cartoons, cubicles at least provide more privacy than the 1950s open workrooms, and offer needed respite from visual monitoring (which is known to be stressful to human primates).

Office space II. "German business personnel visiting the United States see our open doors in offices and businesses as indicative of an unusually relaxed and unbusinesslike attitude. Americans get the feeling that the German's [sic] closed doors conceal a secretive or conspiratorial operation" (Vargas 1986:98).

Restaurant space. Corner and wall tables are occupied first (Eibl-Eibesfeldt 1970).

Home space I. Americans spend an estimated 70 years indoors, mostly in the secure habitat of an average-sized, 2,000-square-foot residences called a *home* (from the Indo-European root, **tkei-**, "settle" or "site"). (***N.B.***: Because there is no counterpart in primate evolution for a life lived entirely indoors, we bring the outdoors in. Thus, better homes and gardens include obvious replicas, as well as subtle reminders, of the original savanna-grassland territory, including its warmth, lighting, colors, vistas, textures, and plants.)

Home space II. Upon re-entering our home (after several hours of absence), we feel a peculiar need to wander about the home space to "check" for intruders. In mammals, this behavior is known as *reconnaisance*: ". . . in which the animal moves round its range in a fully alerted manner so that all its sense organs are used as much as possible, resulting in maximal exposure to stimuli from the environment. It thus 'refreshes its memory' and keeps a check on everything in its area" [this is "a regular activity in an already familiar environment," which does "not require the stimulus of a strange object"] (Ewer 1968:66).

Neighborhood space. The prime directive of neighborhood space is, "Stay in your own yard." That we are terribly territorial is reflected in fences by the barriers they define. According to the American Fencing Association, 38,880 miles of chain link, 31,680 miles of wooden, and 1,440 miles of ornamental fencing are bought annually in the U.S. (***N.B.***: Each year Americans buy enough residential fencing to encircle the earth nearly three times.)

City space I. Biologists call the space in which primates live their *home range*. The home range of human hunter-gatherers (e.g., of the Kalahari Bushmen in southern Africa) spreads outward ca. 15-to-20 miles in all directions from a central *home base*. The home range of today's city dwelling humans includes a home base (an apartment or a house) as well, along with favored foraging territories (e.g., a shopping mall and supermarket), a juvenile nursery (i.e., a school), a sporting area (e.g., a **golf** course), a work space (an

office building, e.g.)--and from two-to-five nocturnal drinking-and-dining spots. We spend most of our lives **a.** occupying these favorite spaces, and **b.** orbiting among them on habitually traveled pathways, sidewalks, and roads.

City space II. "*Fixing Broken Windows*, a book by [Rutgers criminologist George] Kelling and co-author Catherine Coles, became a bible for New York City's 'zero-tolerance' policy toward abandoned cars, abandoned buildings and even graffiti. [new paragraph] "Kelling and Coles argue that even small signs of crime and decay in a neighborhood, such as broken windows, encourage crime by signaling that such behavior is tolerated" (Bayles 2000: 3A).

National space. We live in one of ca. 160 sovereign nations which together claim 54% of earth's surface, including almost all of its land and much of its oceans, waterways, and airspace. Over ninety percent of all nations, including the U.S., have unresolved border disputes (see ***WWW.Army.mil***).

Outer space. *No national sovereignty rules in outer space. Those who venture there go as envoys of the entire human race. Their quest, therefore, must be for all mankind, and what they find should belong to all mankind*. --Lyndon Baines Johnson

U.S. politics. "Distance between two shakers who are still connected at the hand signifies either distrust, aloofness, or reserve. Democratic presidential candidate Michael Dukakis, often criticized in the media for his lack of passion in his campaign style, tends to shake hands by planting his feet and extending his right arm out to meet the oncoming hand of the other shaker" (Blum 1988:7-4).

Neuro-notes I. **1.** In imaging studies of our brain, the neural basis of spatial location and navigation shows activation of the right hippocampus. Travel to a place activates the right caudate nucleus of the **basal ganglia** (Maguire et al. 1998). **2.** "The navigation system includes special 'place cells' and 'direction cells' [in the hippocampus] that flicker visibly in MRI images when a research subject tries to find his or her way through a simulated urban environment" (Boyd 2000). **3.** "A section of the [London taxi] cabbies' brains, called the hippocampus, became enlarged during the two years they spent learning their way around the vast, complicated metropolis" (Boyd 2000; see **PRIMATE BRAIN**, *Climbing cues*).

Neuro-notes II. Damage to the right parietal lobe's angular gyrus and supra-marginal gyrus may cause problems in our ability to use space (such as, e.g., a difficulty in dressing, problems orienting in space, trouble drawing figures in 3D, and neglect of the body's entire left side). Lesions in the right hemisphere's parietal lobe may affect our spatial comprehension.

See also **ANGULAR DISTANCE**, **CONFERENCE TABLE**, **LOOM**, **STEINZOR EFFECT**, **TOUCH CUE**.

HAIR CUE

The bangs ascend in a topknot, not unlike the tuft of a displaying male bird (see below, *Media*).

Ya know, I spend a long time on my hair, and he hit it; he hit my hair. --John Travolta, *Saturday Night Fever*, 1977 (Schaffer 2001:20)

Identity marker. **1.** The style, color, shape, and sheen of the cylindrical, filamentous projections covering one's scalp. **2.** Any of the visual, tactile, and olfactory signs emanating from human head hair.

Usage: Like our **face**, our hairstyle is a nonverbal *signature display* representing who, what, and even "why" we are. Our hairdo is a badge of identity reflecting membership in a group, and also showing our desire to identify with (i.e., be like; see **ISOPRAXISM**) other people. Rather like a baseball cap, our hair may be used to show membership on a corporate, military, or religious "team" (see **HAT**).

Baldness. In the U.S., men spend ca. $2 billion each year to reduce hair loss (known medically as *androgenetic alopecia*; Segell 1994). Men have used hair-loss potions at least since ancient Egyptian times 3000 years ago; in 400 B.C., e.g., Hippocrates devised ". . . a remedy for his own hair loss made of opium, horseradish, pigeon droppings, beetroot, and spices (Segell 1994:114).

Bangs. "Indeed, whether wispy and short or soft and long, today's bangs look 'whimsical and fun,' says hairstylist Frédéric Fekkai, who counts Ashley Judd and Sharon Stone among his clients. Even better, notes Cindy Crawford's cutter Stephen Knoll, 'it's a great way for women to disguise frown lines on their foreheads'" (Scott 2000:129).

Big hair. **1.** Women mark lifestyle and career changes with different hairstyles, according to Grant

McCracken in his 1997 book, *Big Hair: A Journey into the Transformation of Self*. **2.** The tendency to trash big hair ". . . started long before President Clinton's alleged involvement with a series of women who subsequently lost several pounds of hair after being taken under the wings of image consultants" (Turner 1998:E1). **3.** "Upper-class women in the [ancient Egyptian] Middle Kingdom also developed a taste for huge wigs, the tresses of which were sometimes bound with ribbons of silver or linen and topped with still more jewelry, as fancy as any from the court of [French queen from 1774-93] Marie Antoinette" (Barber 1994:204).

Biology. We spend an unusual amount of time noticing, monitoring, and commenting on each other's hair (or its absence). This is because, in mammals generally, clean hair is a sign of high status, good health, and careful grooming. The biological equivalent of scales, feathers, and fur, hair not only keeps our head warm and dry, but also protects our braincase from sunshine. Hair once provided camouflage, too, and helped our ancestors blend into the natural landscape. Today's hairstyles help us blend into the social scene as well.

First impression. A Procter & Gamble study led by Marianne LaFrance (2000) of Yale found that, in the U.S., hairstyle plays a significant role in first impressions. For women, **a.** short, tousled hair conveys confidence and an outgoing personality, but ranks low in sexuality; **b.** medium-length, casual hair suggests intelligence and good nature; and **c.** long, straight, blond hair projects sexuality and affluence. For men, **a.** short, front-flip hairstyles are seen as confident, sexy, and self-centered (see below, *Media*: 1950s); **b.** medium-length, side-parted hair connotes intelligence, affluence, and a narrow mind; and **c.** long hair projects "all brawn and no brains," carelessness, and a good-natured personality.

Hair-preen. Women may run their fingers through their hair around men they are attracted to (see **LOVE SIGNALS II**).

Makeover. To see how you would look in a variety of new hairstyles, click on **www.makeoverstudio.com**.

Media. In the 1950s, magazine and TV images of Elvis Presley popularized the rebellious *ducktail*, in which the hair sweeps back to meet in an upturned point at the rear of the head, and the bangs ascend in a *topknot*, not unlike the tuft of a displaying male bird. In the 1960s, anti-establishment *bushy hair* for men was popularized by magazine and TV images of the Beatles, a British pop group whose members wore their hair noticeably longer than other males of the time. In the 1970s, very long *straight hair* for women was popularized by magazine and TV images of the American folksinger, Joan Baez, whose dark tresses contrasted with the shorter, *chemical-permanent* styles of the time. In the 1980s, pop singer Madonna's TV-video-pictured soft-tousled *blond hair* popularized a sexier, Marilyn Monroe look of the 1950s era. In the 1990s, TV ads of Chicago Bulls player, Michael Jordan popularized the *shaved-head look*, originally introduced by actor Yul Brynner in the 1956 movie, *The King and I*.

Optics. Like a lion's *mane*, our head hair grows longer than the hair on our body. Our mane borders three sides of the face (like a bottomless picture frame) to contain and exhibit its features. Bushy (i.e., longer and thicker) manes draw attention to themselves, and to the faces they contain, making the ears,

forehead, ***nose***, and *chin* look comparatively "smaller." Shorter, thinner manes bring less notice to themselves, but make *brows*, *cheekbones*, *jaws*, and *noses* loom "larger" on the facial plain.

Sex. The relative full or close-cropped look of our head mane explains the traditional contrast between men's and women's hair. Short, military cuts show off masculine *power traits*: *bony brow ridges*, *prominent noses*, and *larger jaws*. Longer, thicker hair showcases feminine **eyes** and **lips** while downplaying the more manly traits. Men may project additional "strength" with dense *facial manes*. Beards "widen" the lower face, while mustaches turn the lip corners downward to project a "fierce" look. It is only hair, after all, but to the very visual **primate brain**, appearances are "real." (***N.B.***: "Because the top rulers were virtually always male, the royal headdress in [ancient] Egypt also came to symbolize virility and included a false beard" [Barber 1994:150].)

RESEARCH REPORT: According to anthropologists, in many societies long hair shows "openness," "passion" and "lack of inhibition"; while shaved heads and short hair symbolize "discipline," "denial," and "conformity" (Alford 1996).

Neuro-note. The emotional appeal of human head hair is mediated, in part, by grooming-related tendencies wired into paleocircuits of the **cingulate gyrus**.

See also **FACIAL I.D.**, **FACIAL RECOGNITION**.

ISOPRAXISM

Side by side, like oxen that go yoked . . . --Dante Alighieri, *Purgatorio, Canto XII*

Imitation. **1.** "A non-learned *neurobehavior* in which members of a species act in a like manner" (Soukhanov 1993:135). **2.** A deep, reptilian principle of *mimicry*, i.e., of copying, emulating, or aping a behavior, **gesture**, or fad. **3.** An impulsive tendency to, e.g., **a.** stand and *clap* as audience members nearby stand and applaud, or **b.** wear the same style of jewelry, clothing, or **shoes**.

UsageI: Isopraxism explains why we dress like our colleagues and adopt the beliefs, customs, and mannerisms of the people we admire. Wearing the same team jersey or franchise **cap** to look alike suggests like thinking and feeling, as well. Appearing, behaving, and acting the same way makes it easier to be accepted, because "same is safe."

Usage II: The word *isopraxis* (Greek *iso-*, "same"; Greek *praxis*, "behavior") was introduced by the neuroanatomist Paul D. MacLean, who first used it in print in 1975 (see below, *Word origin I*). Examples include **a.** the simultaneous ***head-nodding*** of lizards, **b.** the group *gobbling* of turkeys, and **c.** the synchronous *preening* of birds. In human beings, isopraxism "is manifested in the hand-clapping of a theater audience and, on a larger scale, in historical mass migrations, in mass rallies, violence, and hysteria, and in the sudden widespread adoption of fashions and fads" (Soukhanov 1993:135).

Imitation. "'Because "imitation" is such a "loaded" word in the social and behavioral sciences, commonly implying "conscious" learning or mimicking, I shall avoid it in the context of experimental work, referring instead to *isopraxis*, or *isopraxic* behaviour, meaning performance of the same kind of behaviour'" (MacLean, quoted in Soukhanov 1995:90).

Media I. Media advertisements (e.g., of famous athletes drinking **sodas**, or eating **hamburgers**) enhance

the sales of consumer products--and demonstrate the persuasive force of "monkey see, monkey do." **1.** One of the most dramatic isopraxic events in history was featured as a "Classic Moment" by *Life* magazine (1990). The two-page photograph by Ken Regan of the Moon Wedding (January 1983) shows parallel rows of 2,074 white-clad brides (all wearing Simplicity pattern No. 8392 gowns), and 2,074 dark-suited men, standing with serious (i.e., **blank face**) expressions in Madison Square Garden, waiting to be joined in the largest mass wedding on Earth. **2.** "And as Princess Grace of Monaco following her April 1956 wedding to Prince Rainier, this well-bred Philadelphia girl (1929-1982) was so adored that when she held a large Hermès bag over her belly to discretely conceal her first pregnancy, the purse became an enduring status item, known as the Kelly bag" (Sporkin 2000:140).

Media II. "Instinct and Emotion," a new CD from the San Francisco based project Lefthandeddecision, features a 33 minute long selection, "Isopraxism," which, according to reviews, "could very well stand as a release of its own."

Salesmanship. "You lead the prospect by starting closer to his posture and expression, and then gradually becoming more relaxed" (Delmar 1984:44).

Synchrony. ". . . the speech, body motion and bioelectric activity in a normal speaker appeared to display synchronous patterns of change. The person listening also displays patterns of change of body motion and bioelectric activity which seem to be harmonious with those of the speaker" (Condon and Ogston 1966:234; see **DANCE**).

Word origin I. "*Isopraxis* is the coinage of neuroanatomist Paul D. MacLean, M.D., the retired chief, Laboratory of Brain Evolution and Behavior, National Institute of Mental Health, now a senior scientist there. His word first appeared in print in 1975 in his piece 'The Imitative-Creative Interplay of Our Three Mentalities," in *Astride the Two Cultures. Arthur Koestler at 70* (H. Harris, ed.)" (Soukhanov 1995:90).

Word origin II. "As you read the word *isopraxism*, you are watching a preexisting word, *isopraxis*, undergo initial transformation into a variant spelling. The longevity of the new variant cannot yet be predicted. David B. Givens, director of academic relations at the American Anthropological Association, used the *-m*; this variant spelling first appeared in the nontechnical media in a United Press International story dated March 24, 1981. In an interview with me, Dr. Givens remarked that the *-m* spelling, commonly seen in the literature of anthropology, is 'more for the ordinary reader, as opposed to *isopraxis*, which is better understood by science types. . . . With the *-m* spelling, ordinary people might be inclined to use the word more'" (Soukhanov 1995:90).

E-Commentary: "David, in the area of isopraxism, I have found that getting people to breathe at the same rate, blink at the same rate, head nod, and do other gestures at the same time is very effective in establishing effective communication. And that just happens to be my definition of a good, productive interview." --Joe Navarro, Special Agent, FBI (8/7/01 5:52:00 PM Pacific Daylight Time)

RESEARCH REPORTS: **1.** "Doing the same thing" is a powerful bonding agent in **courtship**; e.g., in the Canada goose: ". . . the female responding to him with the same actions that he makes" (Ogilvie 1978:100). **2.** "The chameleon effect refers to nonconscious mimicry of the postures, mannerisms, facial expressions, and other behaviors of one's interaction partners, such that one's behavior passively and unintentionally changes to match that of others in one's current social environment" (Chartrand and Bargh 1999:893). **3.** Research has shown **a.** that our motor behavior unintentionally matches that of strangers with whom we work on tasks, **b.** that mimicking the postures and movements of others facilitates interaction and increases liking, and **c.** that "dispositionally empathic" people exhibit the chameleon effect more than do less empathic individuals (Chartrand and Bargh 1999).

Neuro-notes: Our tendency to imitate clothing styles and to pick up the nonverbal mannerisms of others is rooted in **paleocircuits** of the **reptilian brain**. "The major counterpart of the reptilian forebrain in mammals includes the corpus striatum (caudate plus putamen), globus pallidus, and peripallidal structures [including the substantia innominata, basal nucleus of Meynert, nucleus of the ansa peduncularis, and entopeduncular nucleus]" (MacLean 1975:75).

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WORD WATCH

By Anne H. Soukhanov (October 1993)

isopraxism *noun*, a non-learned neurobehavior in which members of a species act in a like manner: "Dressing like your colleagues and neighbors dress 'reflects a deep reptilian behavior principle called "*isopraxism*,"' says [the research anthropologist David B.] Givens. '*Isopraxism* involves mimicking,' he says. 'You're allies. You look alike, think alike. It's easier to be accepted if you look like others. "Same" is safe'" (*Washington Post*).

BACKGROUND: *Isopraxism* is a variant spelling--intended, Givens says, to appeal to nonscientific readers--of *isopraxis*, a word coined by the neuroanatomist Paul D. MacLean, who first used it in print in 1975. It is composed of the Greek prefix *iso-*, one sense of which is "uniform," and the Greek word *praxis*, one sense of which is "custom." Examples of *isopraxis* in the animal kingdom include the simultaneous head-nodding of female and juvenile lizards in response to a male's territorial display, and the group gobbling response of tom turkeys. Among human beings it is manifested in the hand-clapping of a theater audience and, on a larger scale, in historical mass migrations, in mass rallies, violence, and hysteria, and in the sudden widespread adoption of fashions and fads. [10/93]

HEAD-NOD

Gesture. **1.** A vertical, up-and-down movement of the head used to show agreement or comprehension while listening. **2.** A flexed-forward, lowering motion of the skull, used to emphasize an idea, an assertion, or a key speaking point.

Usage: Rhythmically raised and lowered, the head-nod is an *affirmative* cue, widely used throughout the world to show understanding, approval, and agreement. Emphatic head-nods while speaking or listening may indicate powerful feelings of conviction, excitement, or superiority, and sometimes even **rage**.

Anatomy. **1.** In the affirmative head-nod, *longus capitis*, *rectus capitis anterior*, and *longus colli* flex our neck and head forward, while *splenius* (a deep muscle of the back) and *trapezius* bend the head and neck backward. **2.** In the emphatic head-nod, *forced expiration* while stressing an important word contracts muscles of the abdominal wall (i.e., the *oblique* and *transverse* muscles, and *latissimus dorsi*), which depress our lower ribs and bend our backbone and head forward (Salmons 1995:818-19).

Evolution. **Paleocircuits** for the reptilian *head-bobbing* display (used aggressively by lizards, e.g., to affirm their presence in **Nonverbal World**) may underlie the nods we ourselves use to reinforce our words. The reptilian principle of **isopraxism** may explain why speakers and listeners often nod in synchrony.

RESEARCH REPORTS: **1.** Though other types of affirmative head movements have been observed cross-culturally (LaBarre 1947), the affirmative head-nod is well-documented as a nearly universal indication of accord, agreement, and understanding (Darwin 1872; Eibl-Eibesfeldt 1970, 1971; Morris 1994). **2.** "Others see it [the head-nod] as an abbreviated form of submissive body-lowering - in other words, as a miniature **bow**" (Morris 1994:142).

Neuro-notes. That we head-nod in agreement may be due, in part, to trapezius's origin as a "gut reactive" branchiomeric muscle for *respiration* and *feeding* (see **SPECIAL VISCERAL NERVE**). **1.** Today, e.g., it assists movements of a baby's head in accepting the breast--a behavior some have used to explain the universality of the head-nod cue (e.g., Morris 1994:142). **2.** Moreover, the *accessory nerve* (cranial XI, which innervates trapezius), has a relationship with the *vagus nerve* (cranial X, which innervates the larynx in producing "hmm," "uh huh," and other "digestive" vocalizations). Thus, the affirmative head-nod may reflect an agreeable response to food. **3.** Regarding the emphatic head-nod, the strong physical emphasis during its downward phase suggests a separate origin from the "yes" nod, which begins with an upward motion.

See also **HEAD-SHAKE**.

BODY WALL

Ancient body part. **1.** Nonverbally, an expressive unit consisting of the head and trunk (without the face, shoulders, arms, hands, legs, or feet). **2.** Those muscles connecting the skull, spine, and ribs. **3.** The "primal body," resembling the primordial *feeding tube*, from which the human form evolved ca. 500 m.y.a.

Usage: Movements and postures of the body wall (see, e.g., **BODY-BEND**, **BODY-SHIFT**, and **BOW**) are **a.** more basic, **b.** more trustworthy as **cues**, and **c.** less subject to conscious manipulation or control than are other body movements (e.g., of the fingers, hands, legs, and feet) and postures. The muscles, nerves, and movements of the body wall resemble those of the first vertebrates ever to swim in **Nonverbal World**, the jawless fishes (see **AQUATIC BRAIN & SPINAL CORD**).

Anatomy. On the basis of function (rather than mere convention), anatomists divide the human skeleton into *primary* and *secondary elements* (Horne 1995). The basic distinction between an *axial* (i.e., skull, spine, and ribs) and *appendicular* (i.e., pectoral and pelvic girdles, and limbs) skeleton is reflected in our nonverbal communication, as well. As expressive cues, movements of the body wall are more fundamental as mood signs than are our hand, arm, and leg motions.

Evolution. Before faces and limbs, there was the body wall. Its skeletal muscles were designed to move the body from one place to another. Sinuous waves of contraction bent the body wall, producing the swimming motions that took animals **a.** toward food and mates, and **b.** away from enemies. Undulations moved from the head to the tail, and laterally from *side-to-side*. (***N.B.***: The ancient body wall bent the backbone *forward* [ventral flexion], and *backward* [dorsal flexion] as well [Kent 1969].)

Observation. In a business meeting (where feelings run high), the most truthful gestures come not from

the limbs but from the torso. Isolating on unconscious *locomotion* movements (i.e., on sideward, forward, and backward *bending* motions), as bodies unwittingly align, approach, avoid, or repel one another, reveals where colleagues truly "stand" around the **conference table**. From the jawless fishes of Ordovician seas to the predatory sharks of Wall Street, messages of the body wall are much the same.

RESEARCH REPORTS. **1.** *Epaxial muscles*, which extend from the base of the head to the tip of the tail, dorsal to the transverse processes, include the *longissimus*, *iliocostalis*, and *transversospinalis* groups, and the intervertebral muscles. "Epaxial muscles in tetrapods perform the same primary function as in fishes--side-to-side and dorsoventral flexion of the vertebral column" (Kent 1969:218). (Epaxial muscles also help to move the head.) **2.** Regarding *hypaxial muscles*: ". . . in the majority of tetrapods the muscles of the body wall are used chiefly to compress the viscera and to operate the ribs for respiration" (Kent 1969:220).

See also **PALEOCIRCUIT**.

BODY-BEND

Posture. To contract muscles of the primitive **body wall**, causing the spinal column to tip forward, sideward, or backward from standard **anatomical position**.

Usage: As expressive **cues**, body-bend (i.e., axial-skeleton) postures are more fundamental as mood signs than are leg and arm (i.e., appendicular) postures. Bending the spinal column away from the person seated beside oneself at a **conference table**, e.g., is a reliable--and wholly unconscious--sign of *disagreement*, *disliking*, or *shyness*. (See **BODY SHIFT**.)

Anatomy. Bending motions of the head and trunk are neurologically "simple" as signs. Unaffected, unintended, and unconscious, they are among the most reliable indicators of mood. ***Bowing***, for instance--flexing the spinal column forward (*ventrally*)--is a protective response which also shows **submissiveness** and lowered social status. (***N.B.***: Even without a formal tradition of bowing [e.g., such as that of the Japanese] we may still tip our head and bend our spinal column forward when entering a superior's office doorway. *Rearing*, on the other hand--extending the spine backward [*dorsally*]--conveys arrogance and disdain [see **HEAD-TILT-BACK**].)

Culture. In southern Italy, the *buttocks thrust*--in which the stiffened (extended) upper body bends forward and the buttocks thrust backward, toward another person--is a sign of "obscene disdain" (Morris 1994:16). According to Morris, "This simple gesture is essentially an excretory insult, with the message 'I defecate on you'" (1994:16).

Evolution. Our body began as a simple tube, with a mouth at the front end to take in food, and a vent at the rear to eliminate waste products. Among the oldest body movements were those for *locomotion*. Muscles of the body wall contracted to produce rhythmic *sideward bending* motions. These oscillatory

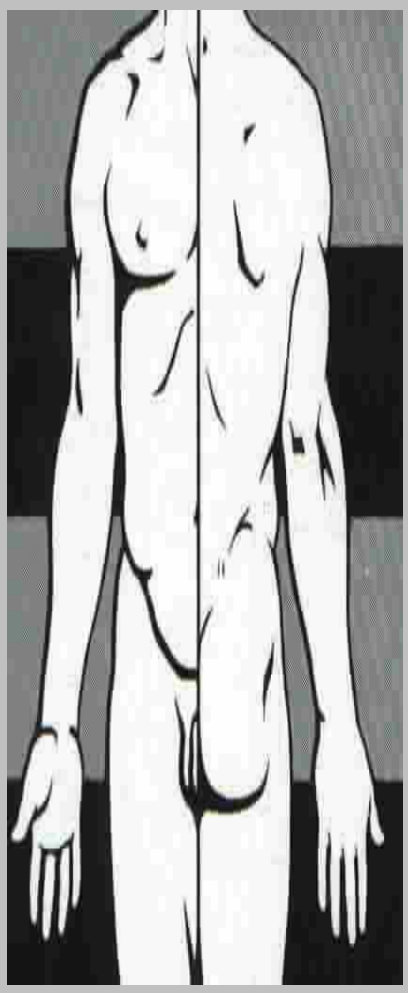
swimming movements took animals toward food or mates, and away from harm.

Neuro-notes. The first side-to-side oscillations were wired into **paleocircuits** of the **aquatic brain & spinal cord**. They appeared as *alternating movements* of the body's right and left sides. Extremely primitive, the same spinal circuits enable us to **walk**, swim, and **dance** today.

See also **ANGULAR DISTANCE**.

Detail of drawing (Peck 1951:32; copyright Oxford University Press)

ANATOMICAL POSITION



Like a marionette, Jimmy's body obeyed an unnatural yet coherent set of physical laws all their own. Alternating contractions and expansions, tautness dissolving into jangling looseness, his body seemed to operate on hinged joints held up from a point beneath the nape of his neck, his psychological springs like the shade too tightly wound. --Elia Kazan, commenting on actor James Dean (Dalton 1984:53-4)

Standard. **1.** An arbitrary position of the body used to define movements as *deviations* from the standard it defines. **2.** An unusual **posture**, suggestive of humility or supplication, in which the body stands *upright* with *arms extended* by its sides, *palms rotated forward*, and *feet resting flat* upon the floor.

Usage: Myriad *joints* in our hands, arms, feet, legs, shoulders, pelvis, and spine make the possible number of **body movements** and **gestures** incalculably immense. Thus, in recording an observation, anatomical position is useful as a schematic device for description. Movements away from its standard may carry information as **signs**.

Anatomy. "Close inspection reveals it [anatomical position] as an energy consuming position, seldom actively adopted and involving some scapular rotation and adduction, full lateral rotation of the humerus, direct mediolateral disposition of the elbow joint's axis, full supination of the forearm and hand and with the pollex [thumb] laterally placed!" (Bannister 1995:15).

Literature. ". . . in the blurred circles of light . . . appeared a chin upturned, two closed eyelids, a dark hand with silver rings, a meager limb draped in a torn covering, a head bent back, a naked foot, a throat bared and stretched as if offering itself to the knife." --Joseph Conrad (*Lord Jim*)

Media. Few of us ever use this unnatural posture. However, in the 1951 movie, *An American in Paris*, Gene Kelly waited in anatomical position below a fountain for his dance partner, Leslie Caron, to return to his side. With his hands in the **palm-up** position, Kelly's humble "open" posture invited her to approach. The anatomical posture is seen on TV in NFL football games, as well, in players who are accused of pass interference.

See also **BASELINE DEMEANOR**, **BLANK FACE**.

Detail from drawing (copyright 1951 [Stephen Peck/Oxford])

MEDIA

In his 1961 speech, FCC chairman Newton Minow called television nothing more than a "*vast wasteland*" (Jankowski and Fuchs 1995:125).

*From the end of World War II on, America was on an unbelievable program of homogenization--**fast food**, commercial air travel, the interstate highway system. And the crown prince of homogenization was network television.* --Robert Thompson, professor of film and television at Syracuse University (DeBarros 2000:1A)

*Electronic **signals***. The great, bristling background noise of TV, CD, radio, print, and computerized sounds, words, and graphic images filling the modern world's PCs, pagers, palm pilots, phone lines, transmission cables, and air waves.

Usage I: As the ancient world once resonated with natural sounds of, e.g., animal cries, storms, flowing waters, and whistling winds, ours blusters with media today. Media has become a seamless electronic web for the display of consumer **products** and services.

Usage II: Each day, we are occupied by media for longer periods than we sleep. Television, e.g., occupies four hours and nine minutes of the average American's daily routine; radio, three hours; recorded music, 36 minutes; newspaper reading, 28 minutes; book reading, 16 minutes; magazine reading, 14 minutes; home video, seven minutes; and movies in theaters, two minutes (Harwood 1992).

Golf. "No longer can golf be considered a 'minor' TV sport; [thanks to Tiger Woods' dominance of the game,] it is right up there with baseball and basketball now, and second only to the behemoth of the NFL whenever Woods plays and contends" (McCleery 2000:40).

Images and words. Product chatter is a dominant theme in the great background noise of media.

Commercial spots, print ads, and digitally enhanced billboard designs, e.g., rely on a partnership forged in prehistory between **a.** **nonverbal images** and **b.** **words**. As the original media through which we communicated about our bone, stone, and shell implements, nonverbal images and words (which synergistically reinforce each other) are still the most powerful venue for selling products of **vinyl**, silicon, and steel. (***N.B.***: And products made of grain, as well. Fewer Americans scoop generic oats from a barrel, e.g., than buy pre-packaged cereals from Quaker. Oats are merely oats, but *Quaker Oats*® are "100% Natural.") Despite the power of words, that our PCs are increasingly graphics-, video-, and icon-oriented is a sign **Nonverbal World** is here to stay.

Magazines. "[Alison] Field's study, in *Pediatrics*, is believed to be the first to go directly to adolescent girls--548 in grades 5 through 12--to find out how much magazines influence their body images. "About seven in 10 say magazine pictures influence their ideas of the perfect body shape, and nearly half report wanting to lose weight because of a magazine picture" (*USA Today*, March 2, 1999, D1; see **BODY DYSMORPHIC DISORDER**).

Media. **1.** According to a *Spokesman-Review* article about Mike and Sarah Aho, and their Spokane, Washington family's experience beginning a life without TV: "The Ahos noted an unexpected bonus: Because the kids don't see many commercials, they have incredibly short Christmas lists" (White 2000:F8). **2.** Regarding the Amazon Indians of Sao Gabriel da Cachoeira, Brazil (according to Orlando Jose de Oliveira, president of the Indigenous People's Federation): "When Indians started getting television, they stopped working and only worried about getting money for diesel fuel to run the generators so they could watch soap operas" (Astor 2001:A3).

Media commercials. "Harvard economist Juliet Schor claims that every additional hour of TV a person watches each week increases that person's annual spending by about $200" (*Spokesman-Review*, Feb. 7, 1999).

Motion pictures. "Decades later, women are still inspired by Audrey Hepburn (1929-1993), who set trends for **ballet flats**, **sleeveless dresses**, **bateau-neck tops**, **capri pants** and **pixie haircuts** . . ." (Sporkin 2000:137).

Observation. Fashion statements are shaped by isopraxic ads and commercials, in which colorful images combine with jingles, rhymes, and catchy words.

TV I. Invented in 1924, television is catching on for *Homo sapiens* faster than fire caught on a million years ago for *H. erectus*. In 1991, e.g., 13% of all human beings lived in one of the world's 650 million TV households (Kidron and Segal 1991). That we automatically turn our heads and eyes toward a TV commercial's percussive, sudden noises is due to an inborn, auditory reflex located in the **amphibian brain**. TV advertisers rely on this midbrain response for us to pay attention to commercials. TV ads circumvent the FCC's rules for volume by making every sound in a commercial approach the allowable maximum, a modification known as "volume compression" (Feldman 1989:82).

TV II. Invented in 1953 by CBS electrical engineer, Charles Douglass, ***canned laughter*** stimulates an

unconscious contagion of **isopraxic** chuckling in viewers (Anonymous 1993B). Douglass called his invention "audience reaction."

TV III. Commercial color TV began in 1954 (source: *Collier's Encyclopedia*), making the medium friendly to color-conscious human primates.

TV IV. Watching television is the activity Americans say they look forward to most each day (Conn and Silverman 1991:95). The average American spends four hours a day viewing television programming (Cole 1981:184).

TV V. Foods most often mentioned or consumed on prime-time shows are alcohol, coffee, and soft drinks (Anonymous 1993C).

TV VI. **1.** Children watching TV pay "elevated attention" to **a.** women and women's voices, **b.** children and children's voices, **c.** **eye contact**, **d.** puppets, **e.** animation, **f.** peculiar voices, **g.** movement, **h.** lively music, **i.** auditory changes, **j.** rhyming, and **k.** vocal repetition [in Hale and Lewis]. **2.** Children watching TV pay "depressed attention" to **a.** men and men's voices, **b.** animals, **c.** inactivity, and **d.** still drawings [in Hale and Lewis]. **3.** Children gazing at a screen "beyond 10 seconds" display a relaxed body, a head-slouch forward, and a **jaw-droop** [in Hale and Lewis]. **4.** In 1999, televised professional wrestling was blamed in at least three U.S. child killings, when, allegedly imitating such wrestling stars as Terry "Hulk Hogan" Bollea and Steve "Sting" Borden, one youngster "clotheslined," slammed, or stomped another child to death (Spencer 2001:A7).

E-Commentary: "I am a student at the University of the Incarnate Word in San Antonio, Texas. I am currently researching nonverbal communication through commercials. I was wondering if you could lead me to some sources on the subject. Anything you could come up with will be greatly appreciated." --J.S. (3/26/00 11:09:29 AM Pacific Standard Time)

E-Commentary: "I could really use your help in a presentation I'm doing for a group of client news anchors and reporters. One recurring problem we have with the performance of anyone who reads copy for a living is that vocal emphasis is frequently misplaced. Sometimes, they try to place emphasis or stress on too many words, and it can make them sound very artificial and somewhat mechanical. I was wondering if you knew of any research out there regarding vocal emphasis. I know there's been a lot done recently because of efforts to replicate the human voice and better understand it in speech recognition software and the like. You were the first place I thought to check." –L.G., Senior Communications Consultant, Frank N. Magid Associates (8/11/00 1:02:19 PM Pacific Daylight Time)

Neuro-notes. By using pictures *and* words, media engages both the right and left sides (i.e., hemispheres) of the cerebral neocortex (see **HUMAN BRAIN**). The right cortex (of right-handed individuals) communicates with modules of the older **mammalian brain**. With its flicker and shifting scenes, TV engages modules of the amphibian brain as well.

See also **BLUE JEANS**, **COCA-COLA®**, ***WWW.Viacom.com***.

GOLF

At the 1981 Benson and Hedges golf tournament in Fulford, York, Bernhard Langer hit his ball onto the 17th green from atop the limb of a tree.

"[Pursuant to Rule 13-2:] The area of his intended stance or swing" *means that prior to a stroke, a player may not break any limbs growing on a tree that interferes with his swing* . . . --Tom Meeks (*Golf Journal*, October 2000, p.56)

Hunting and gathering. **1.** An evolutionary correct game with which to rekindle the *savannah experience* our nomadic ancestors knew in Africa. **2.** A game enjoyed by small, face-to-face bands of players, wandering through artificial grasslands in pursuit of spherical prey, striking white balls with high-tech **branch substitutes** called *clubs*.

Usage I: Nonverbally, golf reconnects players **a.** to *arboreal*, **b.** to *savannah-grassland*, and **c.** to *hunter-gatherer* roots. Golfers focus incredible attention on gripping the club, e.g., which in shape and thickness resembles a tree branch. Blending **power** and **precision grips**, they strike **vinyl** balls as if swatting small prey animals.

Usage II: In the career realm, important deals are nurtured on the golf course. Stalking through artificial grasslands in close-knit groups (see **ISOPRAXISM**), sticks in hand--hunting for game balls and walloping them--business people enjoy the same concentration, competition, and camaraderie their ancestors felt two m.y.a. in Africa. (***N.B.***: No gas stations, subways, or billboards disturb the "natural" view.)

Adornment. "After winning preliminary rounds [to qualify for the National Long Drive Championships] the Golfing Gorilla [a Tacoma, Washington human primate dressed in a gorilla costume] has been told

by officials his suit is unsuitable [because, under PGA rules, all players must 'be properly groomed']" (Kelly 1983).

*Culture and the **color** green*. "With this camaraderie, we were cut off from our ethnic roots, bias and prejudice. We were merely men against the course. We had transcended our race, color and ethnicity. The only color we saw was the color green" (Tharwat 2000:52; see below, *The color yellow*).

History. Originally known as *colf*, golf was played in Holland from the year 1297 A.D. (at least), with balls made of fine-grained hardwoods (e.g., elm, box, and beech). In 1848 a superior ball was made from tree sap known as *gutta percha*, boiled and shaped in iron molds.

Media. "'It recalls the savanna from which we came," said golf course architect Desmond Muirhead, who designed the Muirfield Village course with Jack Nicklaus.
"'It resonates with the older parts of our brain and our background as hunter-gatherers and upright bipedal animals," said David Givens, director of the Center for Nonverbal Studies, a Spokane, Wash., research and consulting organization" (*Columbus Dispatch*, Blundo 2001).

Prehistory I. Twenty m.y.a. in the Miocene, parts of East Africa changed from dense rain forest to open woodlands, as the arboreal ancestors of humans began living a part of their lives on the ground. (***N.B.***: The first ground-dwelling humanoid may have resembled *Ramapithecus*, a fossil ape who lived ca. 15-to-7 m.y.a. in Europe and Asia.)

Prehistory II. Two m.y.a. in the Pleistocene, the first humans (genus *Homo*) lived in eastern Africa as hunter-gatherers, on tropical, shrubby grasslands--in hot, flat, open countryside with scattered trees and little shade known as *savannahs* (from Taino *zabana*, "flat grassland").

Prehistory III. *Homo habilis* would feel at home strolling the 8th hole at Pebble Beach, e.g., with its cliffs, surf, boulders, and tree-lined hills spanning the horizon. Its fairway resembles a game trail, its sand traps could be dried salt ponds, and neither office buildings nor power poles disturb the "natural view."

The color yellow. "Stonewolf Golf Club in Fairview Heights, Ill., a private course designed by Jack Nicklaus, is suing three fertilizer companies for allegedly supplying faulty products. The course claims slow-release fertilizer released too quickly last summer, saturating 17 of 18 fairways with urea, a derivative of mammal urine, which killed the grass and turned the areas yellow" (Anonymous 2000E:7).

Trees and animals. Names of golf courses suggest we perceive them as natural habitats. The best-rated U.S. public course, *Brown Deer Park* (Milwaukee, Wisconsin), e.g., is named after the most-hunted U.S. game animal, the deer. The best-rated private course, the *Cypress Point* Club at Pebble Beach in California, is named after a tree. Hell's Half Acre, reputedly the world's largest sand trap, is located in New Jersey on the 7th hole of a course named *Pine Valley*.

Neuro-notes I. Because the savannah experience took place during a critical time in human evolution--as *Homo's* brain was expanding faster than any brain in the history of vertebrates--grassland habitats left an

indelible mark on the species. Today, e.g., we remodel earth to our liking by flattening and smoothing its surface, idealizing the original plains upon which our ancestors hunted, gathered, and camped. We still find psychic comfort in semi-open spaces; indeed, *Neo-Savannah Grassland*, with its scattered bushes and reassuring clumps of trees, is the landscaping theme of golf courses, college campuses, city parks, and cemeteries.

Neuro-notes II: "yips". "Physical and psychological factors may contribute to a phenomenon in golf known as the 'yips' [a form of dystonia, which '. . . affects musicians, stenographers, dentists and others who frequently are forced to repeatedly assume a prolonged, abnormal posture']--an acquired problem of sudden tremors, jerking, or freezing while putting--according to a summary of current Mayo Clinic research published this week [January 8, 2001] in *Sports Medicine*. Aynsley Smith, PhD, director of sport psychology and sports medicine research at the Mayo Clinic in Rochester, Minnesota, says preliminary research indicates that more than 25% of avid golfers develop the yips, which adds an estimated 4.7 strokes to the average 18-hole score of an affected player.

"Fast, downhill, and left-to-right breaking putts of 2-5 feet were most likely to produce symptoms, although long putts caused problems for some golfers. Playing in or leading a tournament, tricky putts, and playing against specific competitors were also associated with yips episodes.

"'While pressure situations make the problem worse, it is difficult to imagine why good golfers would suddenly begin having the yips after years of successful performance if it was only a matter of anxiety or 'choking,' " says Dr. Smith. 'Although performance anxiety may cause the yips in many golfers, muscle and nervous system deterioration caused by prolonged overuse may be at the root of the problem for other players. This may explain why some get relief and play successfully by changing their grip or by switching to a longer putter.' In the second phase of the Mayo Clinic research, investigators measured the heart rate, arm muscle activity, and grip force while putting of 4 yips-affected golfers and 3 nonaffected counterparts. Those with the yips had higher average heart rates and demonstrated increased muscle activity, particularly in the wrists. In addition, while nonaffected golfers were able to make an average of 9 out of 10 consecutive 5-foot putts, the yips-affected golfers only made half of theirs" (Anonymous 2001).

Neuro-notes III. "It takes nearly a millisecond for the impact shock to travel up the club shaft and milliseconds more for nerve pathways to carry the sensation to the brain. So by the time a player can feel the hit, the ball has already flown as much as a foot off the tee and is no longer in contact with the club head" (Suplee 1997:A3).

See also **LAWN DISPLAY**, **NONVERBAL LEARNING**, **NONVERBAL WORLD**.

BRANCH SUBSTITUTE

Artifact. Any of numerous and diverse **consumer products** (e.g., *baseball bats*, *clothing irons*, and *tennis rackets*) designed to be held tightly in a **power grip**.

Usage I: Because the human hand was originally designed for climbing, we find primal pleasure in gripping a ***golf*** *club*, *handrail*, or *steering wheel*. Holding a *hammer*, e.g., satisfies our inner primate's need to grasp objects (just as strolling satisfies our need to **walk**).

Usage II: Swinging a bat or ironing clothes stimulates tactile nerve endings to refocus our *orienting attention* inward (i.e., toward the branch substitute itself), away from potentially stressful events "out there." Thus, the power grip exerts calming effects through a physiological principle of acupressure massage or *shiatsu* (see **SELF-TOUCH**). Because the forebrain's *thalamus* cannot process all incoming signals at once, grasping an object can reduce anxiety and block pain.

Word origin. The word *branch* comes from Latin branca, "paw," possibly from Celtic (see **TREE SIGN**).

Neuro-notes. Our brain devotes an unusually large part of its surface area to fingers, thumbs, and palms (see **HOMUNCULUS**). Branch substitutes engage many areas of the *cerebral neocortex*, as well as evolved sub-regions of the *basal ganglia* and *cerebellum*. Ironing clothes, e.g., involves a highly evolved area of our neocortex, the *parietal lobe*. The posterior parietal's *left* side is specialized for language, while its *right* side helps process information about **a.** relationships among *objects in space*, **b.** the *position of our hands*, and **c.** our *motivational state*. As we press a collar, "The right parietal lobe is specially concerned in the handling of spatial data and in a non-verbalized form of relationship between the body and space" (Eccles 1989:197).

See also **OBJECT FANCY**.

POWER GRIP

Body movement. **1.** A manner of grasping an object tightly, in a usually closed **fist**, between the palm and fingers. **2.** To clutch, hold, or seize a bat, branch, club, or other object firmly with the hand.

Usage I: Our tight-fisted gestures given in **anger**, arousal, and **fear** employ the muscles and neural circuits of the power grip. Unlike its cerebral cousin--the **precision grip**--the power grip has its roots in a primitive *grasping reflex*, and often signals an **emotional** rather than a reasonable response.

Usage II: Holding objects tightly (e.g., steering wheels, posts, and handrails) is curiously pleasurable (perhaps as a holdover from our primate past and penchant for climbing trees; see **PRIMATE BRAIN**). Thus, power-gripping sports such as baseball, tennis, and **golf** are very popular today (see **BRANCH SUBSTITUTE**).

Culture. In Syria, clenching both hands in power grips, and raising them together over the midriff, with the thumbs positioned outward--as if stretching a rope--means, "I will strangle you" (Morris 1994:74).

Embryology. "A newborn infant has a grasp and a reaching reflex. He will automatically close his fingers tightly around any object placed in the palm of his hand" (Chase and Rubin 1979:177).

Evolution. The power grip originated as a primate adaptation for *climbing*.

Neuro-notes. In grasping a racket or a club, sensory feedback to the motor cortex may unconsciously tighten our grip. Stimulated by grasping, pressure-sensitive tactile receptors cause further excitement and contraction of muscles to unwittingly increase the tightness of our grip.

See also **HANDS**, **OBJECT FANCY**.

Detail from photo by Jakob Tuggener

PRECISION GRIP

Body movement. **1.** A manner of grasping an object between the opposed tactile pads of the thumb and fingertips. **2.** A digital manipulation of fine motor control used, e.g., to write with a pencil, thread a needle, or change a lightbulb.

Usage: Our most thoughtful, conceptual, and "high-level" hand gestures (e.g., **mime cues**) frequently employ the muscles and neural circuits of the precision grip. A case in point is the **steeple** gesture, which is used when one is immersed in deep thought. Precision cues may take form, e.g., as the cerebral cortex processes financial, scientific, and other complex types of information or ideas. The precise digital opposition reflects precise mental calculation and technical thought.

Archaeology. The earliest evidence for use of the precision grip to produce symbolic art is an engraved, flat piece of shale-like ochre (red hematite [artifact no. SAM-AA 8937]) from Blombos Cave, South Africa. The etched, angular geometric pattern indicates that its maker could form abstract ideas over 70,000 years ago, according to Dr. Christopher Henshilwood of the South African Museum in Cape Town.

Culture. When asking a question, an Italian may *hand purse* (i.e., bring the tactile pads of the thumb and fingers together, and oscillate the palm-upward hand, up and down, by alternately flexing and extending the wrist). "Essentially this is a request for clarity. It is a 'precision posture' of the hand that says 'I want precise information'" (Morris 1994:115).

Evolution. The *precision grip* originated as an adaptation for primate *grooming* and *finger-feeding*. By ca. 40 m.y.a., the higher primates could oppose the thumb pad to the side of the second digit to clean

insects from fur, pluck berries from bushes, and bring food to the mouth. By ca. 2.6 m.y.a., hominids such as *Homo habilis* used an improved precision grip (i.e., opposed the thumb against the digital pads themselves) to make crude Oldowan stone tools. By ca. 100,000 years ago, early humans used the fully modern precision grip, just as it is employed today (Trinkaus 1992). As a *precision cue*, precise opposition of the tactile pads suggests that dexterous brain modules have shifted into gear for activities such as problem-solving, planning, tool usage, and thoughtful design.

RESEARCH REPORTS: **1.** "In particular, the way one holds a pen (and other, similar objects) is known as the precision grip--and even our closest primate relatives cannot manipulate objects with such delicacy and skill" (Staski and Marks 1992:190). **2.** "Fine manipulative skills and a dependence on tools to exploit resources are hallmarks of the human species" (Trinkaus 1992:346). **3.** The tactile pads of *Homo habilis* are as highly developed as those of modern human beings (Wills 1993).

Neuro-notes. The precision grip reflects an incredibly complex neural-wiring plan which has made our fingers intellectual "smart parts" of the highest order. We are able to thread a needle (or to pantomime the act) through intricate *sequences* of finger movements controlled by the *prefrontal neocortex*, working in tandem with two areas of the *parietal neocortex*: **a.** the *supramarginal gyrus* (Brodmann's area 39), and **b.** the *angular gyrus* (Brodmann's area 40). On the right side of the brain, these areas have specialized in order to process *spatial information*, while on the left side, to process **speech**. The prefrontal neocortex has improved our ability to sequence nonverbal hand and finger movements, while the parietal neocortex has bettered our ability to locate objects in space, to decode complex gestures, and to recognize objects placed in our hands by touch alone (i.e., without seeing them).

See also **HANDS**.

MIME CUE

Gesture. **1.** A position or movement of the **hands** used to depict the shape, motion, or location of a person, place or thing. **2.** A speaking gesture in which the hands and fingers mimic physical, spatial, and temporal relationships among objects, activities, and events. **3.** A hand gesture with neurological circuits as complex as those for **speech**.

Usage: Because they reveal the presence of *conceptual thought*, mime cues are our most intellectual gestures. Unlike **palm-down**, **palm-up**, and **self-touch** cues, which convey mainly **emotion**, mime cues also express narrative thinking, relationships among objects, and the association of ideas. In this regard, mime cues resemble the spoken **words** they so often accompany.

Application point. Used sparingly, mime cues lend authority, contribute to visual understanding, and add drama to key speaking points.

Evolution. Mimicking complex sequences of acts--demonstrating the body movements used, e.g., to make stone tools, build brush shelters, and topple trees--mime cues represent an advanced, conceptual form of nonverbal communication. Given in serial order, miming may have been our species' first step on the intellectual path leading to *nonverbal narrative*, the precursor of the verbal *sign* and *vocal* languages used today.

Semantics. **1.** In a conversation about throwing a baseball, we may *mime the motion* with our hands. **2.** Mime cues depict **a.** *relationships among objects* (e.g., "closer than," "as big as," "heavier"), **b.** *attributes* (e.g., "flat," "long," "rounded"), and **c.** *action sequences* (e.g., "I pick up snow," "form a snowball," and

"throw it at you"). **3.** A typical mime sign is the *walking-figure*, used to mimic the body's rhythmic, strolling gait.

RESEARCH REPORTS: **1.** In the literature on nonverbal communication, mime cues have been called *illustrators* (Ekman and Friesen 1969). **2.** Of the eight kinds of illustrator gestures defined by Ekman and Friesen (1972), *pictographs* (i.e., drawing a picture in space with the hands) most closely resemble mime cues.

E-Commentary: "I am most interested in your nonverbal dictionary as I am engaged in writing a book on word usage. I have raised a couple of points in my book that I would like to pass along. These are both instances where modern verbal communication has stimulated nonverbal communication. First is finger quotes, where the person delivering the message indicates a quotation -- literally or 'ironically'--by holding up two fingers on each hand, representing the two strokes of the quotation mark. The whole body goes into delivering finger quotes, the shoulders, the eyebrows, mouth, arms, chest. That such a minor bit of technical punctuation should be transformed into expressive body language strikes me as odd. Second is telephone talking, where the three middle fingers are folded in and the hand is held up as if the thumb and pinkie were the receiver and transmitter of a telephone." --Tom Parmenter (6/12/01 8:28:48 AM Pacific Daylight Time)

Neuro-notes I. To mimic an act such as, e.g., changing a lightbulb, mime cues use the *same brain modules* to move the *same muscles* as the physical activity itself. Thus, neurologically, swinging a bat is nearly the same as gesturing the act of batting without using the bat itself. Computer imaging studies show that *mentally rehearsing* an activity involves the same brain areas, as well (Sirigu, et al. 1996:1564). **1.** Mime cues engage many areas of our *cerebral neocortex*, as well as evolved sub-regions of our *basal ganglia* and *cerebellum*. **2.** Asked to pantomime the use of an object (e.g., a screwdriver), we orient our hand toward the imagined object's target (i.e., the screw). Important in the ability of right-handers to use such *transitive* mime cues is the *left supplementary motor neocortex* (Watson et al. 1992:685-86). **3.** Increased *regional cerebral blood flow* (*rCBF*) in this region ". . . occurs only when movements have an extrapersonal [i.e., transitive, rather than intrapersonal (as in giving a military salute)] frame of reference" (Watson et al. 1992:686).

Neuro-notes II. Miming in temporal order and tracing shapes in space involve a highly evolved area of our neocortex's *parietal lobe*. The posterior parietal's *left* side is specialized for language. Its *right* side helps us process relationships among *objects in space*, along with information about the *position of our hands* and our *motivational state*, all at the same time. **1.** The right posterior parietal helps us perform and perceive *complex gestures*, and recognize *complex objects* placed in our hand, unaided by vision (Ghez 1991B:623). **2.** "The right parietal lobe is specially concerned in the handling of spatial data and in a non-verbalized form of relationship between the body and space" (Eccles 1989:197). **3.** As it integrates arriving visual, spatial, auditory, and tactile information, our parietal cortex receives emotional input from the ***cingulate gyrus*** of the **mammalian brain**. The parietal lobe then directs our body movements for gesture (and our tongue movements for speech) through fiber links to premotor areas of our brain's *frontal cortex* and *lateral cerebellum* (Ghez 1991B:623). **4.** Mime cues are produced by nerve impulses traveling down the *lateral corticospinal tract*. This evolutionary recent pathway channels the fine-motor

control of our finger and wrist muscles required by the mime gesture.

See also **APRAXIA**, **POINT**, **STEEPLE**.

PALM-DOWN

Gesture. **1.** A speaking or listening cue made with the fingers extended and the hand(s) rotated to a downward (or *pronated*) position. **2.** A posture in which the hands and forearms assume the prone position used in a *floor pushup*.

Usage: While speaking or listening to another's remarks, palm-down gestures show confidence, assertiveness, and **dominance**. (Palm-down gestures contrast with the friendlier, and more conciliatory, **palm-up** cue.) Accompanied by aggressive, palm-down "*beating*" signs, our ideas, opinions, and remarks appear stronger and more convincing. In particular, the palm-down cue is highly visible above a **conference table**, where it is raised and lowered like a judge's gavel.

Anatomy. Military (i.e., floor) pushups involve muscles of **a.** the shoulder girdle (*trapezius, pectoralis, serratus anterior, rhomboid*) and upper arm (*triceps*); **b.** the forearm (*pronator teres, pronator quadratus*); **c.** the wrist (*extensor carpi*); and **d.** the digits (*extensor digitorum*). Braided nerve networks from the *cervical* and *brachial plexuses* coordinate the palm-down cue. Our forearm's *pronator teres* muscle is the prime mover, as innervation is supplied through the 8th cervical and 1st thoracic nerves, by way of the brachial plexus. *Pronator quadratus*, stimulated by the 6th and 7th cervical nerves, also plays a role.

Culture. In Greece, the pronated *palms thrust* or "Double Moutza" gesture, with the arms extended horizontally and thrust outward toward another person, is an insult with which to say, "Go to hell twice" (Morris 1994:196). Like other palm-down gestures with specific cultural meanings (e.g., the widespread *hand wag* for "No!", the Saudi *hand slap* for "contempt," and the Italian *forearm thrust*, which is used as a sexual insult [Morris 1994]), Moutza signals incorporate the pancultural aggressiveness of our pronated hands.

Observations. **1.** In the boardroom, a chairwoman uses a *down-turned palm* as a gavel to order, "Quiet, please!" **2.** A mother disciplines her child using *overturned palms* to accent her words. **3.** A Ghanaian tribal elder gestures forcefully with *beating motions* of his pronated palm to convince westerners that his wives *do* prefer polygamy. **4.** An angry CEO warns senior staff, using a stiffened *palm-down hand* to accent his words: "Starting *today*, I will not accept late reports."

U.S. politics I. In the 1992 presidential debates, candidates Bill Clinton, Ross Perot, and President George Bush filled the TV airwaves with palm-down cues to demonstrate the superiority of their ideas. The candidates' statements were analyzed, in turn, by political talk-show hosts, whose televised palm-down gestures added stature to their own ideas about the election process.

U.S. politics II. "Palms turned toward the floor send dominance signals . . ." (Blum 1988:6-11). "The hand that is on top in any given handshake signifies the dominant party" (Blum 1988:7-1). In October 1950, General Douglas MacArthur extended a palm-down hand to shake with President Harry S. Truman (Blum 1988). "Less than a year after this October handshake, Truman fired MacArthur because the president felt the general was *too* aggressive" (Blum 1988:7-3).

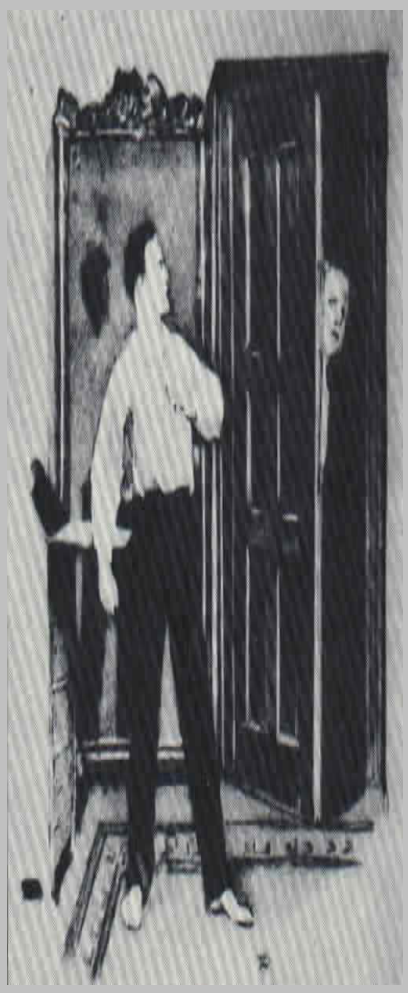
RESEARCH REPORTS: **1.** In the workplace, management may use palm-down cues to delegate work assignments, announce new procedures, and outline official corporate goals. **2.** Authoritative palms pronate as teachers profess, as lawyers dissent, and as financial planners advise. **3.** Common palm-down signs include the corporate **table-slap**, the athlete's *high-five* slap of victory, and the football fan's two-fisted *triumph display* (see **ANTIGRAVITY SIGN**). **4.** Palm-down cues have been observed as *anger signs* in infants and children (Blurton Jones 1967, Givens 1978b). **5.** *Push* and *flat gestures* appear in Grant's (1969) and Brannigan and Humphries' (1972) checklists of universal signs. **6.** Palm-down signs are diagnostic of a *dramatic* or *dominant* nonverbal style (Norton 1983). **7.** *Palms down* is a worldwide speaking gesture used to "hold down" an idea or "calm down" the mood of an audience (Morris 1994:194-95). **8.** *Palms front*, made with hyperextended wrists and pronated palms, shows "I disagree" or "I hold you back" (Morris 1994:195).

Neuro-notes. As we make a strong verbal statement, our palms may rotate downward, as if preparing our body to press-up to a postural **high-stand**. Like keeping upright without consciously deciding to do so, we beat the air about us with little awareness or willful intent to drive home our strongest points. The **amygdala** (acting through reptilian areas of **basal ganglia** [MacLean 1990, Grillner 1996]) may control our palm-down gestures. That we show dominance by pronating, extending, and figuratively *stomping* with our forelimbs reflects the amygdala's evolutionary kinship with the basal ganglia. While the former directs our emotional stance, the latter governs our stance in relation to gravity. Thus, slapping a desktop

for emphasis is not unlike the sumo wrestler's ceremonial stomp in a ring. Both are postural displays with which to demonstrate stability, strength, and standing on the earthly plain.

See also **GOOSE-STEP**.

DOMINANCE



Hark, the dominant's persistence till it must be answered to! --Robert Browning (*Oxford Dictionary of Quotations*, 1979)

No two men can be half an hour together but one will acquire an evident superiority over the other. --Samuel Johnson (Boswell's *Life*, 1776)

Status signal. The exercise of influence, power, or control over another.

Usage: Dominance shows in such nonverbal signals **a.** the **business suit**, **b.** the **eyebrow raise**, **c.** the **hands-on-hips** posture, **g.** the **head-tilt-back** cue, **h.** the **palm-down** gesture, **i.** the **swagger walk**, **j.** the **table-slap**, **k.** a lower **tone of voice**, and **l.** the wedge-shaped **broadside display**. Dominance cues may also be used to express a confident mood.

RESEARCH REPORTS: **1.** *Aggressive elements* include the *head brought forward* toward another person, *chin out* (i.e., pushed forward), *wrinkled skin* on the bridge of the nose, and "A sharp movement of the head towards the other person" (Grant 1969:530). **2.** "Dominance [in tree shrews] is more subtly expressed by the displacement of subordinate animals from the rest boards or food trays . . ." (Sorenson 1970:160).

Evolution. Signs of dominance evolved from offensive body movements derived from the **fight-or-flight** response, and are expressed through displays designed to make the body seem more powerful, threatening, and "bigger" to the eye (see **ANTIGRAVITY SIGN** and **HIGH-STAND DISPLAY**). Dominance cues may be used to express **anger** as well.

Neuro-notes. The *archistriatum* (the "most ancient" striatum, i.e., the **amygdala** of the **basal ganglia**) and *paleostriatum* (the basal ganglia's "ancient" striatum or *globus pallidus*) evolved to show **reptilian** dominance and submission through programmed movements and postural displays (MacLean 1990). In a dominant or aggressive pose, we unthinkingly *square our **shoulders*** and *stand tall*. The basal ganglia assist in this threatening posture through fiber links of the *ansa lenticularis*, which reach downward to hindbrain paleocircuits of the *pontine reticular excitatory area*, which descend, in turn, to spinal-cord circuits that excite *antigravity muscles* of our neck, back, shoulders, and legs. Configured to expand--i.e., to **loom** "larger" in relation to gravity and the terrestrial plain--our dominance clearly shows in body movements and postures.

See also **SUBMISSION**.

Illustration for *Sherlock Holmes* by Sidney Paget (copyright 1892 by *Strand* Magazine)

FRUIT SUBSTITUTE

The scent which comes from the fruit, and from the spray that is diffused over the green leaves, kindles within us a craving to eat and to drink . . . . --Dante Alighieri (*Purgatorio, Canto XXIII*)

Consumer product. A food product (e.g., a candy bar, cookie, or donut) sweetened with sugar to resemble the taste of the ripened ovaries of apple, banana, and other seed-bearing plants.

Usage: So successful have fruit substitutes become as "edible **signs**" (i.e., as foods suggesting the presence of ripe fruits and berries), that they are as common in the modern diet as fruit itself. A fruit substitute's sweetness usually comes from table sugar (i.e., *sucrose*), a crystalline carbohydrate which suggests the fruity sweetness of *fructose* (for which--as a nonverbal sign--it stands). Today's fruit substitutes reconnect us to our fruit-eating, primate past

Juicy fruit. When primates took to the trees ca. 50 m.y.a. in the Eocene, they supplemented a basically **insect diet** with ripened fruit. The evolution of our "sweet tooth" is reflected in our ancestors' teeth. Insect-eaters had spiked cusps on their molar teeth, while fruit-eaters had flatter, rounder molars for grinding. Eocene-primate molars show a flattened adaptation for pulping" fruit flesh (the better to taste its fructose). Our tricuspid teeth enable us to pulp grapes, bananas, and Juicy Fruit® chewing gum.

Tasty fruit. Fourteen m.y.a., as Miocene primates descended from trees to the terrestrial plain, a powerful appetite for fructose descended with them. Today, combining sweetness with ca. 300 varieties of flavor molecule, *strawberries* are among the tastiest of real fruits. With ca. 200 flavors, *raspberries* also delight the tongue. *Bananas* are less flavorful, yet their 17% sugar content--which ties them for "sweetest" with

the Chinese *litchi*--has helped make bananas the world's best-selling fruit (Hockstader 1992).

Tastykakes®. And yet, bananas are still not sweet enough, because it is a peculiarity of our species that we indulge our primate sweet tooth with fruit substitutes rather than with actual fruit. Half of the U.S. population, e.g., does not eat a single piece of fresh fruit a day (Sugarman 1992). In a lifetime, Americans eat more candy (1,500 lbs.) than apples (1,400 lbs.; Heyman 1992). Apples, oranges, and raspberries have **bowed** to sweeter-tasting candies and pastry products, such as Tastykakes®, which encode more chemical information, and have more to "say."

Flavor. Decoded in the *chemical channels* for **taste** and **smell**, a piece of fruit is usually no match for a baked good. As culinary signals, cookies and donuts are designed to send far more complex sets of messages **a.** to tongue receptors, through sweet--as well as *salty*--tastes, and **b.** to nasal receptors, through rich *caramelized aromas* of baked sucrose and deep-fried fat. A banana's natural flavor molecules (called *esters*) are pleasant, but are no match for the salty-sweet, buttery taste, and resonant aroma, e.g., of *strudel*.

Prehistory. Giving sweets (e.g., sugar cane, butter creams, and chocolate-covered ants) is a "friendly" gesture in all societies. The earliest prehistoric candy may have been bee honey, which is still a popular commodity among living hunter-gatherers, such as the !Kung Bushmen, today. In written history, honey is mentioned in ancient hieroglyphic texts, as in, "Honey for the funeral procession of the [Egyptian god] Osiris" (Martin 1991:182).

Today. Earth's best-selling fruit substitute is *Life Savers*®. Over 35 billion rolls have been sold since 1913 (McFarlan 1990). Had they grown on trees, the colorful candies might have appealed to Miocene-primate tongues as well. Indeed, in the U.S.A. today, a candy bar is more appealing--and psychologically more "real" as food than an orange or a tangerine. (***N.B.***: There are no seeds, and a candy bar's "peeling substitute" is easier to remove.)

Neuro-notes. Sweetness stimulates taste buds of the tongue tip, which convey signals through the facial nerve, via the hindbrain, to the forebrain. There, the message splits, as part travels **a.** to *unconscious areas* of the **limbic system** (**amygdala** and lateral **hypothalamus**), and **b.** to the conscious cerebral cortex (via thalamic relays to the postcentral gyrus and insula). (***N.B.***: That we crave sugar instinctively is suggested by babies born without a cerebral cortex, who respond to sweet but reject bitter tastes.)

See also **JUICE SUBSTITUTE**, **NUT SUBSTITUTE**.

SHELLFISH TASTE

Honey and locusts were the viands that nourished the Baptist in the desert . . . . --Dante Alighieri (*Purgatorio, Canto XXII*)

Flavor cue. **1.** The usually pleasant aroma and taste of cooked *arthropods*, including shrimp, lobster, and crab. **2.** A flavor, greatly enhanced by *umami* (Konosu et al. 1987; see **GLUTAMATE**), which "speaks" to the tongue as "meat" (see **MEATY TASTE**).

Usage: Human beings have a peculiarly powerful craving for the cooked muscle tissue of shellfish, insects, spiders, and grubs. The appetite is deeply rooted in our primate past as *insectivores*.

Evolution I. The earliest-known Paleocene primate (*Purgatorius*), e.g., ate insects, which belong to the same biological phylum (*Arthropoda*) as lobsters and shrimp. Primates have been heavy insect eaters throughout their 65-million years, and lemurs, lorises, and tarsiers (the least evolved of the living primates) eat mainly insects today. (***N.B.***: The evolutionary raw bar is open for our closest primate relatives, as well. Chimpanzees, e.g., enjoy *termites* and lowland gorillas snack on *ants*.)

Evolution II. Our love of arthropod flesh reaches further back in time than primates, however. The saga began ca. 450 m.y.a. ago in Ordovician seas, when the giant lobster *Pterygotus* dined on (then) soft-headed vertebrates. For 100 million years shellfish ate vertebrates, until the latter's bony brain case formed in the late Devonian period. (***N.B.***: Our hardened skull may have originated, in part, as a defense against giant lobsters.) The evolutionary table turned as harder-headed amphibians pursued arthropods on dry land, eating them instead.

Prehistory. It is likely that early humans ate arthropods whenever and wherever they could. Modern

hunter-gatherers, e.g., relish grubs, *caterpillars*, and *tarantulas*, roasted in coals until their meaty flesh is well-done. (***N.B.***: Today, U.S. urbanites cook long-tailed arthropods from the sea, and serve their succulent bodies in sauce made from reddened fruits of the nightshade family--they call the dish *shrimp cocktail*.)

Anthropology I. Theaters in parts of Mexico sell fried *leaf-cutter ants* as a crunchy snack food (see **EXISTENTIAL CRUNCH**). Fried ants taste like bacon, according to members of the New York Entomological Society, who sampled ants and exotic insects at their 100th anniversary banquet in 1992. Roasted *kurrajong grubs* from Australia resemble lean sausages, they discovered, and fried *mealworms* taste like honey-roasted nuts.

Anthropology II. **1.** Feasting on *gumbo*, *crab cakes*, and *lobster bisque* marks an evolutionary victory over Pterygotus and other giant arthropods. **2.** The flavor of *chocolate-covered ants* is made more pungent by pyrazine molecules given off as warning signs. (***N.B.***: Found in ants, beetles, and butterflies as *alarm pheromones*, pyrazines have also been isolated as **aroma cues** in fried beef, cocoa, coffee, and roasted nuts [McGee 1990].)

Chemistry. Synthetically duplicated, "snow crab flavor" consists of the chemical **messaging features** glycine, arginine, alanine, glutamate, inosine, monophosphate, sodium chloride, and dibasic potassium phosphate (Konosu et al. 1987).

See also **NUTTY TASTE**.

GLUTAMATE

Taste cue. **1.** An amino acid used to enhance flavors and add a pleasant **meaty taste** to food products. **2.** The fifth basic taste--MSG--called *umami* by the Japanese. **3.** A flavor additive which prompts food items to "speak" to the tongue as "meats."

Usage: With a rich "meaty" flavor, glutamate is a frequent additive to edible **consumer products** such as crackers, chips, seasonings, soup bases, sauces, and "natural flavorings." Rich in free glutamate, parmesan cheese and tomatoes, e.g., appeal to the tongues of carnivores.

Evolution. ". . . many animals most likely seek out glutamate as a marker for high-protein foods" (Mirsky 2000:34 [*Scientific American*]).

History. MSG dates back to Oriental antiquity, to *sea tangle*, a seaweed used to make stock. Unknown in Europe until the 16th century, the New World's tomato, combined with onions and olive oil by Spanish chefs, has become a main ingredient of soups, sauces, pastes, and juices. (***N.B.***: Malay *kaychup* evolved as catsup in England, and was mass-marketed as a consumer product in the U.S. by the H.J. Heinz Co. in 1876.)

Chemistry. High levels of free glutamate (a building block of protein) are found in mushrooms, tomatoes, and peas. Hydrolyzed vegetable protein breaks into glutamic acid, which turns into the white crystalline flavor enhancer, monosodium glutamate (MSG): $COOH(CH_2)_2CH(NH_2)COONa$.

Neuro-note. A study of the *gustofacial reflex* of newborns (as young as 24 hours in age) found **a.** that unseasoned soup stock produced an *aversion response*, but that **b.** soup seasoned with MSG produced an *acceptance response* (National Food Safety 1987).

See also **SHELLFISH TASTE**, ***WWW.Soups.com***.

TASTE CUE

. . . the two noblest of things, which are sweetness and light. --Swift (*The Battle of the Books*)

Sensation. **1.** A chemical **sign** received by sensors in the tongue, lips, and mouth. **2.** In tandem with **aroma cues**, a component of the complex **message** we decode as *flavor*.

Usage: Taste cues--the basic **messaging features** of food **products**, *recipes*, and ethnic *cuisines*--are chemically blended in cooking. (***N.B.***: "Cuisine," from Latin *coquere*, to cook, derives from the Indo-European root *pekw-*, to cook, ripen [note the allusion to *fruit*; see **FRUIT SUBSTITUTE**].)

Types. Taste cues may be *salty*, *sour*, *bitter*, *sweet*, or "*meaty*" (see **GLUTAMATE**, **MEATY TASTE**).

Anatomy. Our sense of taste is not as keen as our sense of smell (i.e., more molecules of a food product are required for taste than smell; *coffee*, e.g., smells richer than it tastes). Bumps on the tongue (*papillae*) house clusters of *taste buds* which contain as many as 50 receptor cells each. The receptors themselves (found also in our palate and pharynx) resemble primitive *neuromasts* on the outer skin of fish and amphibians (see **TOUCH CUE**, *Evolution*).

Media. According to an article in the *New York Times*, we are remarkably conservative about our taste for foods: ". . . most people eat the same limited assortment of foods over and over again" (Hall 1992:C1). "Breakfast seems to be the most predictable meal of the day. Even those who embrace the unfamiliar at lunch or dinner will eat the same breakfast for weeks, months or even years without ever feeling the urge to introduce a new ingredient" (Hall 1992:C1; see **ENTERIC BRAIN** and **FEAR**, *Food, fear of*).

Origin. Taste elaborated as a means for the earliest pre-vertebrate ancestors of *Homo* to find food (see **ORIENTING REFLEX**, *Evolution*).

Pharyngeal delight. Some peppery tastes are esteemed for stimulating the back of the throat. Tuscan olive oils, e.g., which are made from earlier harvested, greener olives, leave a peppery flavor in the pharynx, as do the best New Orleans gumbos. The "hot taste" of Tuscan oils, gumbos, and chili peppers is sensed, as a tactile irritant, by cranial nerve V (the trigeminal [see below, *Trigeminal "taste"*]), which also enjoys the carbonation of soda pop, the "coolness" of mint, and the alcoholic "bite" of martinis, margaritas, and wine.

Psychology. Our aversion to bitter tastes may be innate (Thorndike 1940).

Trigeminal "taste." **1.** A third chemical sensor, working alongside smell and taste, is the trigeminal sense. Trigeminal (cranial V) nerve endings in the tongue and oral cavity sense, e.g., *pungent* chemicals given off by such "hot" spices as red chili pepper (capsaicin), black pepper (piperine), mustards and horseradish (isothiocyanates), and onions (diallyl sulfide). They also respond to "cool" spices, such as mint (menthol), and to the chemical "bite" or "sharpness" of ethyl alcohol in tequila and rum. In each of these cases, our trigeminal nerve endings respond to chemical *irritants* rather than to gustatory taste cues per se (which are sensed instead by the facial nerve [cranial VII]). Trigeminal "taste" is an important ingredient in many--perhaps in most--of the world's cuisines. (***N.B.***: Though human babies initially experience aversive reactions to pungency in food, by adulthood they have acquired a seemingly indispensable need for trigeminal stimulation at mealtime.) In beverages and food products, our trigeminal sense also craves mechanical (e.g., crunchiness and texture) and thermal stimulation (e.g., the heat and cold of coffee and cola). **2.** The trigeminal sense of "taste" evolved as a pain warning system, to protect the tongue and oral cavity from potentially dangerous or toxic substances. Many plants--notably those we use as spices--have evolved "pain" messages to discourage organisms (e.g., snails, insects, and mammals) from eating their leaves, stems, fruit, and seeds (see **SECONDARY PRODUCT**). **3.** Why humans crave trigeminal stimulation in foods, beverages, and oral-care products (e.g., in minty mouthwashes, toothpicks, and toothpastes) is still a mystery. It has been suggested that the capsaicin in chili peppers works to release opium-like substances which address the brain as **pleasure cues**. Perhaps we like the thrill of culinary danger (see **HERBS & SPICES**, *Usage*).

Neuro-notes I. We not only taste, but like or dislike the tastes of our food. From birth through childhood, e.g., we find sweet tastes *pleasant* and bitter tastes *unpleasant* (but as adults, we may learn to appreciate the bitter taste of coffee). The sweet taste of *sucrose* (the ingredient of table sugar), e.g., has a calming effect on infants, and reduces their reactions to pain. (***N.B.***: Sugar on a pacifier reduces crying and slows an upset baby's heart rate by 30 beats per minute (Blass 1992). Our enjoyment of *salt* is innate.

Neuro-notes II. Taste cues are conducted through cranial nerves VII, IX, and X to the gustatory nucleus, which projects to the thalamus. From the latter, neurons project **a.** to the cerebral cortex's gustatory region (Brodmann's area 3b), and **b.** to the insula. Like aroma cues, taste cues evoke strong **emotions**.

See also **BIG MAC**®, **COCA-COLA**®, **EXISTENTIAL CRUNCH**, **MINT**.

AROMA CUE

Calvin Klein's Escape contains apple, litchi, black currant, mandarin, plum and peach; Oscar de la Renta's Volupte contains melon; Ellen Tracy and Rose Cardin have peach. --Linda Dyett (*Lear's*, Nov. 1992, page 95; see **FRUIT SUBSTITUTE**)

Scent signal. **1.** *Incoming*: A chemical sign received through the nose or mouth. **2.** *Outgoing*: A chemical sign emanating from various natural sources, including scent glands (see, e.g., **APOCRINE ODOR**), flowers, resins, herbs, and cooked foods, as well as from synthetic substances found, e.g., in deodorants, room fresheners, and **vinyl**.

Usage: Aroma cues are powerful triggers of emotion and memory. Though our sense of smell is weaker than that of most animals, we still recognize some 10,000 scents (Axel 1995:154), many of which can subtly alter moods. Manufactured aromas (see, e.g., **NEW CAR SMELL**) can influence decisions to buy **consumer products**.

What's that smell? --Kramer
Nobody has BO like this! --Jerry
Mutant BO! --Elaine
Like a punch in the face! --Jerry
I love horse manure! --Elaine (*Seinfeld* rerun, May 4, 2000)

Anatomy I. The surface of a newborn's skin is covered with apocrine scent glands, which give off an

identifiable "baby smell" (Panati 1987:254). Later these are replaced by mature scent glands in the adult's arm pits, breasts and groin areas. Thick hair in these regions helps broadcast the scent by increasing its surface area. A human's underarms have the largest apocrine scent glands of any primate.

Anatomy II. About 65 body hairs sprout from a square inch of human skin (Wallace et al. 1983:254). Each hair follicle gives off a scented (Kent 1969:100), oily substance known as *sebum*, secreted into the hair shaft by mammalian *sebaceous glands*. The oiliest parts of the human body are the nose and forehead. Sebum evolved originally as a waterproofing substance for to protect fur from over wetting (Stoddart 1990:49). Despite sparse body hair, human beings have more sebaceous glands than almost any other mammal (Stoddart 1990:50). As the young become sexually mature, the output of sebaceous glands may triple (Stoddart 1990:55).

Evolution I. Smell is our oldest nonverbal channel, and aroma cues can be traced far back in time to the first chemical messages sent and received by single-celled creatures.

Evolution II. "By learning the [molecular] language that cells use to speak to one another . . . we will be able to listen in on their conversations and, ideally, find ways to intervene when the communications go awry and cause disease. We may yet reduce 'body language' to a precise science" (Scott and Pawson 2000:79).

Evolution III. The olfactory sense evolved as an "early warning" system to detect food, mates, and dangers (e.g., predators) from a distance. As *eating*, *mating*, and *warning* signs, therefore, aroma cues are taken very seriously by the brain. Smell is a volatile, "thin-skinned" sense because scent receptors lie on the bodily surface itself (i.e., on the nasal cavity's *olfactory epithelium*), rather than beneath layers of skin as in the case of touch. Few changes have been made in aroma receptors since the time of the jawless fishes (ca. 500 m.y.a.), making smell a conservative, compelling, and trusted sense.

Evolution IV. About 1,000 of our ca. 100,000 mammalian genes (one percent) encode our ability to detect approximately 10,000 scents, from the *diallyl disulfide* of garlic to the *furans* of broiled **steak**. Smell accounts for the largest gene family yet discovered in mammals (Axel 1995), and through its unconscious code we savor the most intimate secrets of **Nonverbal World**.

Media. **1.** "'Aromatic engineering', as it is called, is a billion-dollar business in the US, pumping designer smells into offices and shopping malls to make us feel better, work harder, and spend our money more freely" (Burne 2000:II). **2.** "The magic machine contained a cassette with a 'palette' of 128 chemical odors that could be combined to generate an almost infinite number (actually, 10 to the 120th power) of smells by software programmed with mathematical models of specific odors. Users, by clicking on a mouse, could manipulate the mixture of scents to create a signature perfume, or simply create new, weird smells (and e-mail them). Or they could summon up a specific smell corresponding to an image on the screen. Or they could passively receive the smells encoded in, say, a game. Computer game companies have jumped at the chance to do deals with DigiScents, which plans to start selling i-Smell early next year for $50 to $200" (Grimes 2000).

Perfume. **1.** As **consumer products**, perfumes mingle scent and taste in a synesthetic blend that appeals

to the chemical senses. Their crystal, glass, and plastic containers are colored, contoured, shaped, and textured to appeal to the senses of vision and touch. **2.** Chanel No. 19 and Paco Rabanne were the first "FiFi" Awards winners. The official theme of the 2000 FiFi awards ceremonies was "The Scentury of Sensations, Beyond Time and Space."

Primary odor qualities. At least six primary odors have been identified: *floral* (e.g., rose), *ethereal* (pear), *musky* (musk), *camphor* (eucalyptus), *putrid* (rotten eggs), and *pungent* (vinegar) (Willis 1998B:180). *Mint* is a common seventh candidate; I would add *smoke* as an eighth.

Salesmanship I. A man selling himself or a product to a woman should wear *baby powder*. A woman selling to a woman should use a *fruity fragrance*. A man selling to a man should wear a *light spicy fragrance*. A woman selling to a man should wear *no fragrance* at all, recommends Dr. Alan Hirsch, head of the Smell and Taste Research Foundation in Chicago.

Salesmanship II. "You can never go wrong without fragrance, but you can make a big mistake by wearing it, despite what the cosmetics companies would like you to believe" (Bixler 1984:207).

Sexuality. "'I am convinced,' says Ann Gottlieb [the fragrance designer who created Calvin Klein scents], 'that men find fruitiness, especially in combination with something sweet and warm--musk, vanilla, or amber, or a combination thereof--very, very sexy indeed'" (Dyett 1992:95).

RESEARCH REPORTS: **1.** The olfactory sense is self-absorbing and *narcissistic*, while the visual sense is *futuristic* (MacLean 1973:43). "I discovered that a little smell of horse manure once a week was more effective than a cocktail for quieting something deep down inside of me" (MacLean 1973:20). **2.** More than any other sense, smell evokes strong emotional tendencies to approach or avoid (Kapit et al. 1987:99). **3.** In fish, e.g., the most primitive reaction to a waterborne aroma cue is a reflexive contraction of muscles, leading the animal toward or away from the source of the scent (Kent 1978:402). (***N.B.***: Potent colognes have a similar effect in buses and elevators today.)

Neuro-notes I. Our emotional **limbic system** is tied closely to the sense of smell (see **MAMMALIAN BRAIN**). *Primary olfactory cortex* projects to the **amygdala**, *anterior insula*, and medial and lateral portions of the *orbitofrontal* cortex. Part of the amygdala receives fibers directly from the *olfactory bulb*. Thus, aroma cues carry information to the limbic system in a remarkably direct and immediate way (Nauta and Feirtag 1979:35).

Neuro-notes II. We smell with our brains. The final interpreter of a smell is the primary olfactory cortex (Pool 1987:48) located on the temporal lobe. Aroma cues travel through the nostrils to lima-bean-sized olfactory bulbs (above the nose), and pass to the limbic system where emotional memories are processed in the amygdala and hypothalamus. One of the earliest smell signals we and other mammals process is the odor of mother's milk (Pool 1987:48).

See also **EMOTION CUE**, **TASTE CUE**.

APOCRINE ODOR

Aroma cue. **1.** A pungent, musky scent produced by dense concentrations of *apocrine glands* in the underarms, and by lesser concentrations in the face, scalp, ears, eyelids, genital area, and navel. **2.** A natural, animal-like aroma which can be emotionally stimulating and sexually attractive. **3.** A urinous odor, from glandular secretions which increase after puberty, thought to have been (and may still be) used as messages of personal identity, territoriality, and courtship.

Usage: Many consider apocrine odor offensive (e.g., as a sign of poor grooming), and use deodorants to mask its smell. Ironically, some deodorants, colognes, and perfumes contain scents designed, like apocrine scent itself, to mimic the musky, urinous odor of our own sexual steroids.

Neuro-notes. Controlled by *sympathetic nerves* of the **fight-or-flight** response, our apocrine glands are highly responsive to emotional stimuli. About two dozen chemical compounds contribute to apocrine underarm scent. Odorless until digested by bacteria, millions of possible smell combinations suggest that apocrine odor may be used to announce our personal identity, presence, and sexual moods.

See also **AROMA CUE**, **NEW CAR SMELL**.

NEW CAR SMELL

In their language they do not say 'Give me a kiss' but they say 'Smell me'. --Rother's 1890 description of the Khyoungtha hill people of India (Stoddart 1990:10)

Aroma cue. A scented **consumer product** designed to mimic the leather, rubber, plastic, and **vinyl** aromas of a show-room-new motor vehicle interior.

Usage: We find the synthetic odor of new car smell **pleasant** because it contains chemical analogs of natural plant resins, animal esters, and sexual steroids.

Evolution. New car smell, which may be sprayed from aerosol cans, was developed by International Flavors and Fragrances of New York, which supplies odor cues for Downey Fabric Softener® and Colgate's Irish Spring® soap.

See also **APOCRINE ODOR**, **ARPEGE**®, **BIG MAC**®.

VINYL

Artifact. A chemical compound of *ethylene* (CH_2CH) and chlorine, used as a basic ingredient in **consumer products** made of plastic.

Usage: Nonverbally, the chemical makeup of vinyl's ethylene resembles plant *phytosterols* found, e.g., in incense, and animal *steroids* found, e.g., in *testosterone* and female *oestrodiol* (Stoddart 1990). Vinyl components in athletic, computer, and automotive products have a hidden appeal many find mildly aphrodisiacal. Like rubber goods, vinyl products in **footwear**, keyboards, and floor mats have a subliminal appeal, recognized by none and yet understood by all.

See also **AROMA CUE**, **NEW CAR SMELL**.

ARPEGE

Aroma cue. A commercial perfume for women created in 1927 by Jeanne Lanvin.

Usage: Like other scented signs, Arpege® bypasses thinking centers of our brain and "speaks" directly to emotions through the **limbic system**. Combining *rose*, *jasmine*, *orange blossom*, and ca. 60 natural oils and extracts, Arpege is a classic **consumer product** for the nose. The name, derived from the Italian word, *arpeggio* (a musical term for playing the tones of a chord in quick succession rather than simultaneously), reflects the perfume's stratigraphic "layers" of smell.

Media. The 1927 commercial--"Promise her anything, but give her Arpege"--became an advertising classic as memorable as the scent itself.

Message. Like other successful fragrances, Arpege has three, layered odor groups or *notes*. The top note (rose) registers first; the middle (jasmine) provides body; and the base note (musk) gives warmth, texture, and staying power. Initially, our nose detects the floral aromas of the top and middle notes, which smell sweet. Then the sexually stimulating *erogenic* aroma of animal musk registers, creating an "unforgettable" mood. (***N.B.***: The fruitiest commercial fragrance yet designed may be Calvin Klein's Escape, which contains apple, litchi, black currant, mandarin, plum and peach [Dyett 1992:95].)

RESEARCH REPORTS: **1.** Regarding perfumes, the top notes are floral, and the middle notes "are made from resinous materials which have odours not unlike those of sex steroids, while the base notes are mammalian sex attractants with a distinctly urinous or faecal odour" (Stoddart 1990:163). **2.** "Also winning favor among men is Shiseido's new women's fragrance, Feminite du Bois, a clear and effervescent blend of cedar [see **TREE**], spices, and rose" (Dyett 1992:95).

See also **EMOTION**, ***WWW.Chanel.com***.

HANDS-ON-HIPS

Posture. **1.** An *akimbo* position, in which the palms rest on the hips with the elbows flexed outward, bowed away from the body. **2.** *Akimbo*: "In or into a position in which the hands are on the hips and the elbows are bowed outward: *children standing akimbo by the fence*" (*American Heritage Dictionary* [Soukhanov 1992:40]).

Usage I: Hands-on-hips shows that the body is prepared to "take steps" **a.** to perform, **b.** to take part in, or **c.** to take charge of an event, activity, or work assignment. As a nonverbal **cue**, the posture shows that the body is poised to "step forward" (e.g., **a.** to carry out a superior's order, **b.** to discipline or threaten a subordinate, or **c.** to defend against those who "overstep their bounds").

Usage II: The outward-bowed elbows (in tandem with the upper-arms' *abducted* position [i.e., held *away* from the torso]) widen, expand, and visually "enlarge" the upper body, making it look more powerful in size (see **BROADSIDE DISPLAY**).

Usage III: In variant *thumbs-forward* form, hands-on-hips is made with hands in the supinated (i.e., **palm up**) position of the **shoulder-shrug display**. This more "effeminate" posture is less apt to signal aggressiveness than to telegraph uncertainty or thoughtfulness. In standard *thumbs-backward* position, hands-on-hips is made with hands in the more dominant pronated (i.e., **palm down**) position of the high-stand display. Thus, the latter is a more aggressive posture. (***N.B.***: In *The Right Stuff*, Tom Wolfe wrote that jet pilots avoided using the feminine thumbs-forward posture sometimes adopted by gay men.)

Origin. Hands-on-hips is an **antigravity sign** derived from *pronated* postures of the **high-stand display**. Resting the hands on the hips "locks in" the expansiveness of the gesture, i.e., as a postural **looming** sign.

Law enforcement. **1.** "It's pretty hard to tell how people may feel about us as we approach them in the field. Is this going to be a run-of-the-mill check with no problems--or a confrontation? There is a gesture [i.e., hands-on-hips] that people make, though, that helps answer this question. It's produced unconsciously when people are irritated about something and it can be seen from yards away if you're paying attention" (Baile 2000:8; see below, ***E-Commentary***). **2.** When I was interrogating a suspect, ". . . I saw he had one hand on his hip. He seemed to want to confess by the presence of other nonverbal indicators and I thought I was making headway. But the gesture was actually helping him not confess. I finally realized what was going on--so I broke his stance by dropping my pen. Shortly after he picked up my (conveniently) dropped pen, he confessed" (Baile 2000:8).

U.S. politics. Hands-on-hips has been analyzed as a "classic sign of confidence" **a.** in the painting of George Washington crossing the Delaware River, **b.** in Woodrow Wilson while lecturing at Columbia University at the turn of the century, and **c.** in presidential campaign media footage of Walter Mondale in 1984 (Blum 1988).

E-Commentary I: "I've always been fascinated with the Arms Akimbo gesture and use it all the time while on patrol. I've found that, in situational context, it usually means the person is in a negative state of mind. Thus if an officer can see this, it's a head's up there may be trouble. And I've even caught myself doing it when I'm upset. I've found it quite reliable in determining state of mind, which is important for any law enforcement officer." --Jeff Baile (7/29/00 9:24:45 AM Pacific Daylight Time)

E-Commentary II: "David, in regard to arms akimbo, I have to agree with Baile that, in my experience, it is a territorial-claiming gesture usually present when something is wrong. Many a child has come home to a mother waiting at the door with her arms akimbo. Nothing further need be said: the kid is in trouble. I don't recommend that officers responding to domestic situations stand in doorways with arms akimbo. They are blocking the king's castle, they are being territorial, and it is a hostile statement when defusion is needed instead. On the other hand, I encourage female officers to use arms akimbo more often to establish greater territory, and thus greater authority." --Joe Navarro, Special Agent, FBI (8/7/01 5:46:35 PM Pacific Daylight Time)

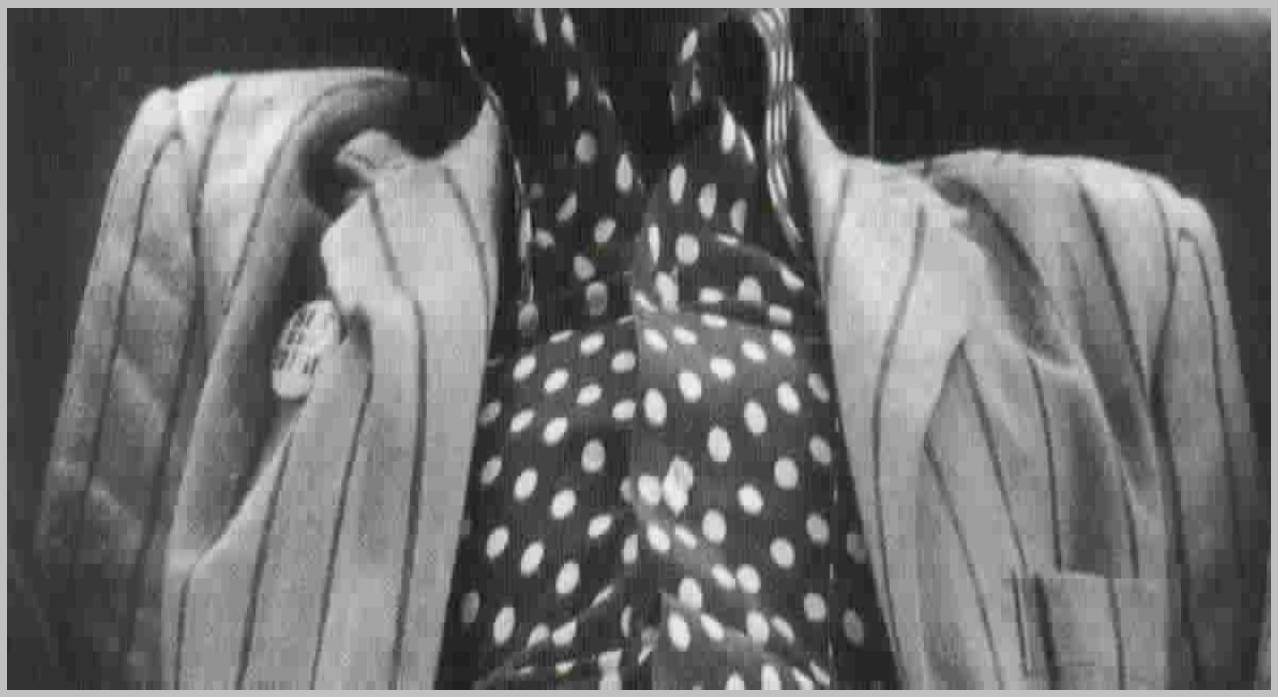
RESEARCH REPORTS: **1.** Hands-on-hips was identified as a human "posture type" by anthropologist Gordon Hewes (1957). **2.** The psychologist Albert Mehrabian later found that in standing

communicators, "arms-akimbo" was used more with disliked than with liked partners (Mehrabian 1969). **3.** "The arms-akimbo position is more likely when you are talking to a person you see as having a lower status than your own" (Knapp 1972:101). **4.** *Arms akimbo*, a worldwide gesture, means "Keep away from me" (Morris 1994:4). **5.** "This is an unconscious action we perform when we feel anti-social in a social setting. It is observed when sportsmen have just lost a vital point, game or contest" (Morris 1994:4). **6.** Hands-on-hips is a Malaysian and Philippine sign of **anger** and *seething rage* (Morris 1994). **7.** One- and two-handed, stylized versions of the akimbo posture are used by African American girls and women to show anger, **disgust**, and *disagreement* (from observations of the author).

Neuro-notes. As a *locomotion* posture, based on antigravity extension and pronation of the forelimbs, hands-on-hips forms as the **limbic system** instructs the **basal ganglia** to prepare our limbs for movement.

See also **BOOT**, **GOOSE-STEP**, **REPTILIAN BRAIN**.

BROADSIDE DISPLAY



Power cue. The act of enlarging or exaggerating the body's size to **dominate**, threaten, or bluff an opponent.

Usage: To appear physically powerful, humans and other vertebrates display *expanded silhouettes* to loom larger than they truly are. Business and military jackets, e.g., exaggerate *broad shoulders* and *wide chests*, just as puffer fish (family Tetraodontidae) show *swollen profiles* by inflating like balloons.

Pisces power. Early fishes may have turned the *widest parts* of their bodies toward rivals, just as modern cichlid, puffer, and cod fish do today (Marshall 1965).

Chameleon clout. Following pisces, amphibians (e.g., frogs) *puff up* fraudulently--or deceptively deflate, as the situation warrants--to threaten or yield. Of the toad, Porter states, "It will inflate its body with air, making itself appear much larger, or it will bow its head forward, thus forming its body into a crouched ball" (1967:40). Chameleons *turn a broadside* toward enemies to visually "expand" in size, or crouch down to lower their profile and "shrink" (Cloudsley Thompson 1976).

Saurian size. Lizards stiffen all four legs in aggressive **high-stand displays**. Even limbless snakes appear "bigger" or "smaller" through illusions of size. To threaten, the hognose snake, e.g., *rises vertically*, widens its head like a cobra, thrusts its body forward, and makes loud hissing noises. But to surrender, it reverses the display: gasps feebly, rolls over on its back, shudders, and plays dead (Porter 1967).

Mammalian mass. Cats, dogs, and other fur-bearing creatures enlarge with "big hair" (see **HAIR CUE**). Like fish and lizards, cattle turn a broadside when threatened to show their most fearsome angle. The antelope's *dark dorsal line*, e.g., frames its broadside silhouette for illusory greater size and "nearness."

Primate punch. Our closest relatives, the higher primates, show dominance by straightening and holding their arms *away from the body*, or submission by bending and pulling the arms into their sides. Mountain gorillas, e.g., *beat* upon broadened chests, and their body hair stands on end, as the apes give off big-seeming bursts of odor, and claxon-like roars. Few broadsides fill a space more convincingly than the gorilla's *rush threat*.

Human hubris. A fashionable broadside is *tailored* into every Brooks Brothers® jacket (see **BUSINESS SUIT**).

Neuro-note. The vertebrate visual system is reflexively designed to warn of danger from suddenly **LOOMING** objects.

See also **CROUCH**, **SWAGGER WALK**.

HIGH-STAND DISPLAY

Looking as tall as possible and expanding the chest is universally employed by human beings as a means of intimidating an adversary, as witness the behavior of small boys. --Hans Hass (*The Human Animal*, p. 146)

Posture. **1.** A vertically **looming** stance in which the body "enlarges" through extension of the limbs. **2.** A primeval "pushup" intended to lift the quadrupedal body higher off the ground.

Usage: The high-stand is an **antigravity** display used to show a superior, confident, haughty attitude or mood. It is a forerunner of the aggressive *pushup* used by some lizards, and of our own assertive **palm-down** cue as well.

Culture. "Whereas high status communicators are generally relaxed in North America, in Japan they assume stiff, erect postures with feet firmly planted on the floor . . ." (Burgoon et al. 1989:194).

Sea origin. It is likely that **paleocircuits** for "standing tall" developed in sea creatures before animals set foot on land. Fossil evidence is lacking, but in living fishes, such as gobies, status and rank vary in proportion to physical *body size*. The very big dominate the merely large, who in turn dominate the small. Gobies and other piscines, however, may appear "bigger" through an array of nonverbal illusions. To loom larger, a goby *stiffens* and *raises* its fins, *lifts* its head, *puffs* out its throat, and *flares* its gill covers. Cichlid fish, e.g., erect vertical fins and turn to display a "bigger" *broadside* (see **BROADSIDE DISPLAY**). Puffer fish balloon in size, cod fish bulge their heads and jut out their pelvic fins to threaten, and mudskippers raise their bodies on vertical fins in aggressive displays.

On terra firma. In land animals, forelimb extension lifts the body's front end to more vertically imposing heights. Doing a pushup makes living iguanas and lizards, e.g., look "bigger" than they appear with their

bellies lowered to the ground. The Australian frilled lizard rears and erects its *frill*, while the cobra rears and spreads its *hood*.

Mammals. Mammals push up in aggressive *stiff-walk* postures. Bulls, e.g., take several *stiff-steps* to loom "large" before galloping ahead at full charge. Bears, coyotes, and wolves *strut* with a stiff-legged gait to carry their bodies higher off the ground. A dominant wolf *stands over* its submissive foe. Primates show dominance by *straightening their legs* and *widening their arms*. A gorilla, e.g., displays with a stiff-legged *bluff charge*. An aggressive chimpanzee rises to a bipedal stance, *widens* its bristling arms, and **swaggers** from side to side to seem "big." Rearing on the hindlegs is a posture directed by adult or young adult baboons at other baboons in the wild; it can prelude attack or escape (Hall and DeVore 1972).

Humans. To embody the vertebrate's natural weapon, sheer size, we assume a *John-Wayne stance*, i.e., we stand tall, bristle, square our **shoulders**, broaden our bodies with the **hands-on-hips** gesture, talk in deep tones, and toe-out to military oblique. (***N.B.***: That the vertebrate eye responds to changes in size makes it possible for different species to understand each other's cues. Park rangers advise, e.g., that we *stand up* and *wave our arms* to threaten mountain lions encountered in the wild [see below, Warning signs]. As a human-to-human cue: "Wave your arms if you need a lifeguard--this is an international distress signal, whether you are in the water or on the beach" [source: San Diego Lifesaving Association, *San Diego Union-Tribune*, July 4, 1998, E-1].)

U.S. politics. Borrowing Winston Churchill's 1941 "V for Victory" hand gesture, Richard Milhous Nixon extended both arms fully outward and upward, and gave the American people two V for Victory hand gestures in his triumphant 1968 tickertape parade. This manic version of the high-stand display later became one of Mr. Nixon's trademark nonverbal cues (see also **ANGULAR DISTANCE**). "Amid the din of a cheering crowd, the [i.e., Mr. Nixon's] fingers up for victory also signals acceptance of tribute to a powerful and confident leader" (Blum 1988:3-12).

Warning signs. In 1996, the University of California at Berkeley put up a dozen 12" by 18" aluminum signs to warn students of the dangers of nearby mountain lions. The signs recommend ". . . that people raise their arms to make themselves appear larger to the lion, and, if attacked, to fight back and remain standing" (*Chronicle of Higher Education*, Sept. 27, 1996).

Neuro-notes. Paleocircuits mediating the high-stand display consist of small networks of spinal-cord *interneurons* in charge of the *muscle stretch reflex*. These mini-networks mediate *antigravity responses*, i.e., the muscular contractions which automatically extend our limbs to keep us standing upright (without our consciously deciding to do so).

See also **BASAL GANGLIA**, **REPTILIAN BRAIN**.

LOOM

The good knight-errant, even though he may behold ten giants with heads that not merely touch but rise above the clouds; and even though each of these giants may have two tallest towers for legs while his arms resemble the masts of huge and powerful ships; even though each may have eyes that are like great mill wheels and that glow more brightly than any glass furnace--in spite of all this, he is not to be in the least frightened but with highborn mien and intrepid heart is to give them battle and if possible vanquish and destroy them in a moment's time. --Miguel de Cervantes, *Don Quixote* (1605:545)

Size display. **Gestures** and **messaging features** which appear massive, magnified, and powerful--and often dangerous or imminently threatening to the mind.

Usage: The looming phenomenon gives innate meaning to nonverbal cues of *size* (see, e.g., **ANTIGRAVITY SIGN**, **BROADSIDE DISPLAY**, and **HIGH-STAND DISPLAY**; cf. **CROUCH**). Impressive mountains, large stones, and tall **trees** frequently are viewed with wonder and may be considered as sacred objects.

Evolution. "Looming, on the other hand, is more recent in evolution than the tactile crouch, and it is at base a visual response. Without eyes to see it the loom literally would make no sense. But to those with eyes, the movements and postures of expansion evoke strong, automatic reactions. Big is innately threatening to the vertebrate eye itself" (Givens 1986:163).

Literature. "It was a body capable of enormous leverage--a cruel body" (F. Scott Fitzgerald [of Tom Buchanan], *The Great Gatsby*).

Psychology. Our aversion to large animals or objects approaching rapidly may be innate (Thorndike

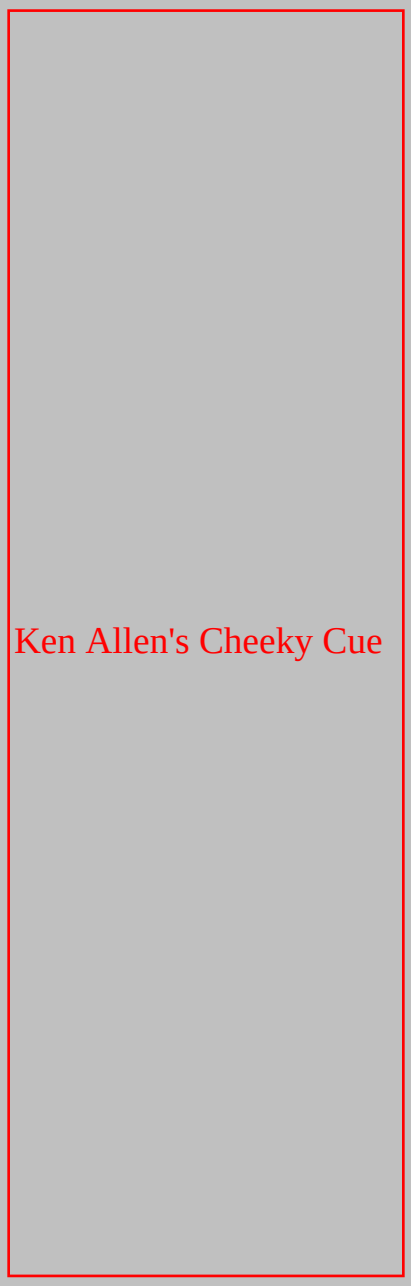
1940).

RESEARCH REPORTS. **1.** A steady increase in the size of a shadow projected on a screen produced *avoidance* movements in fiddler crabs, frogs, chicks, turtles, and human babies (Russell 1979). **2.** "Absolute size--physical bulk itself--is a key biological variable in social status and in relations of **dominance** and **submission**" (Givens 1986:147). **3.** "Egyptian pyramids, for example, give iconic testimony to a pharaoh's superior status; while the Japanese **bow** (from the waist) bespeaks humility through feigned shortness" (Givens 1986:146).

Neuro-notes. Nonverbal "big" threatens **paleocircuits** in the visual system, perhaps even within the eye itself. Movements and postures of expansion evoke the strong, automatic reaction known as the *looming response*, seen in birds only three hours after hatching, and in puppies at two-weeks of age. At 14 days, babies will avoid a rapidly dilating shape projected to "loom" on a screen--as if they already knew the danger portended by large, moving objects.

See also **BUSINESS SUIT**.

NONVERBAL INDEPENDENCE



Principle. The idea that nonverbal signs, signals, and cues evolve separately--as **information**--apart from the evolution of matter or energy.

Usage: Nonverbal independence is a reminder that messages emitted by gestures, clothing styles, and consumer products, e.g., have "lives of their own," not unlike the **secondary products** of aromatic herbs and medicinal plants. The mouth-like shape of an automobile's **vehicular grille**, for instance, evolved apart from the vehicle's energy, mechanical, or safety needs.

Cheek flange. A dramatic example of nonverbal independence is the conspicuous cheek flange of the adult male orangutan, which evolved solely for purposes of communication (see **MESSAGING FEATURE**, *Biology*).

See also **AROMA CUE**, **HERBS & SPICES**.

SECONDARY PRODUCT

Sign. **1.** In botany, a chemical compound not essential to the *structural* or *nutritional* needs of a plant, but required for its ability to *communicate*. **2.** A compound less involved in the *matter* or *energy* of, e.g., an aromatic, spice, or medicinal plant, than in the ***information*** it transmits to other plants and animals.

Usage: Conceptually, secondary products may be used as models for the evolution of the **messaging features** found in diverse consumer product designs. Secondary plant products demonstrate the largely separate evolutionary paths taken by information, matter, and energy (see **NONVERBAL INDEPENDENCE**).

Evolution. Many of the estimated hundreds of thousands of secondary plant products (e.g., alkaloids such as nicotine; cyanogenic compounds; flavonoids; insect anti-juvenile hormones; rare amino acids; rubber-like polymers; and terpenoids) evolved for purposes of defense against insects and other plant pests.

See also **AROMA CUE**, **HERBS & SPICES**.

HERBS & SPICES

Just a dash awakens dips, soups, salads, sauces, and entrées --Label on a bottle of The Spice Hunter's® "California Cayenne"

Aroma cues. **1.** Any of several aromatic plants (e.g., *parsley*, *sage*), trees (*bay*, *cinnamon*), or roots (*ginger*, *sassafras*) used **a.** in medicines; **b.** in perfumes, deodorants, and colognes; and **c.** in food and drink as flavorings. **2.** Leaves, flowers (e.g., *chamomile*), bark, or roots containing odor molecules specifically designed (like insectoid *pyrazine* molecules) as olfactory warning signs to deter insects and other invertebrate pests.

Usage: Though often bitter-tasting, we use herbs and spices as *seasonings* to perk up the palate. In small amounts, their warnings put our sense of smell on alert, heightening food flavors with unconscious whiffs of "danger." In cologne, plant *phytosterols* (e.g., in *incense*) resemble animal steroids (e.g., male testosterone and female oestrodiol; Stoddart 1990) and thus carry sexually suggestive **messages**.

Principle. Herbs and spices illustrate a principle of **nonverbal independence**, i.e., that a **sign** may evolve independently from its material carrier (or "sign stuff"), and exhibit a separate reality (designed solely to convey **information**). The defensive odor molecules of herbs and spices (called ***secondary products***), evolved apart from ordinary plant requirements for energy, reproduction, and growth. Just as herbs and spices repel insects, the tuberous roots of garlic & onions repel worms and snails (see, e.g., **BIG MAC**®).

RESEARCH REPORT: Many plant-odor signs use pyrazines as nontoxic warnings (McGee 1990). E.g., the *true mints* (including sage, *rosemary*, *marjoram*, *oregano*, and *thyme*) evolved powerful odors of *camphor*, *eucalyptol*, and *limonene* to keep insects at bay. From the *laurel* family, cinnamon bark's balsamy orange aroma has been used since biblical times. Its smell may be considered an insect repellent, like the odor of *cumin* (from the *carrot* family), an ingredient of Indian *curry powder*. Sage contains *terpenes* (*cineol* and *borneol*) designed to ward off pests, as well.

Neuro-notes. Herbs and spices address *pungency* (trigeminal nerve) sensory nerve endings (see **TASTE CUE**, *Trigeminal "taste"*).

See also **APOCRINE ODOR**, **GLUTAMATE**, **MEATY TASTE**, **MINT**.

MINT

Aroma cue. Any of several plants of the aromatic genus, *Mentha*, used in diverse consumer products (e.g., cakes, candies, cookies, and toothpaste).

Usage: Peppermint is used to flavor sweets, candies, and various liquor drinks. Spearmint is often used in cooking. The distinct flavor of mint does not blend well with other herbs. Mint adds a refreshing taste to fruits, and to certain cooked meats such as lamb.

Evolution. Many plant-odor signals (e.g., pyrazines) evolved as nontoxic warning signs (McGee 1990:311). Ever popular *true mints*, including *sage*, *rosemary*, *marjoram*, *oregano*, and *thyme*, evolved strong odors of *camphor*, *eucalyptol*, and *limonene* (see **COCA-COLA**) to keep insects at bay.

Anatomy. Menthol (a crystalline alcohol obtained from peppermint oil) tricks heat-sensing organs (thermoreceptors) of the tongue and skin into sending messages to the brain that the sensation tastes and feels "cool" (Feldman 1991:192).

Consumer product. Crest®, a toothpaste by Procter & Gamble, was introduced in 1955. The flavor of Regular Crest is primarily wintergreen, while Mint Crest is primarily spearmint. According to web documents published by Procter & Gamble, "Good flavor is important in toothpaste since people will not brush regularly and carefully unless they like the taste." (***N.B.***: Crest is advertised on network TV and in family magazines. "Our TV schedule is split between daytime and nighttime programs. Daytime programs enable us to reach a sizeable audience of homemakers, while nighttime shows provide broad exposure to an 'all family' audience." See **MEDIA**.)

Neuro-notes. Mint sends a multimodal message to aromatic (smell), gustatory (taste), and pungency (trigeminal nerve) sensory nerve endings (see **TASTE CUE**, *Trigeminal "taste"*).

COCA-COLA®

(Illustrated)

A Coke is a Coke, and no amount of money can get you a better Coke than the bum on the corner is drinking. All the Cokes are the same, and all the Cokes are good. Liz Taylor knows it, the President knows it, the bum knows it, and you know it. -- Andy Warhol (Patton 1992:23)

Drinkable sign. **1.** A sweet-tasting **juice substitute** with complex flavors and a carbonated "texture" which appeals to millions of consumers throughout the world. **2.** A hand-held **consumer product** with an incredible presence in the **media**. **3.** A refreshing beverage which encodes a vast amount of chemical information, and has a great deal to "say."

Usage: **1.** As a nonverbal medium, Coca-Cola "speaks" through **aroma**, **touch**, and **taste cues**. To the palate, e.g., cola communicates with complex *flavor molecules* found in ripe fruit and broiled steak. Bubbly carbonation provides an interesting *pseudo-texture* to stimulate the tongue (see **EXISTENTIAL CRUNCH**). In tandem with the sugary taste of *sucrose* (a crystalline carbohydrate suggesting the fruity sweetness of *fructose* [for which it stands])--and aggressive advertising--its chemical messages have made Coca-Cola the most recognized brand name on earth. **2.** In the modern diet, fresh-fruit drinks (e.g., orange juice) have been largely replaced by sweeter-tasting beverages. In the U.S., e.g., soft drinks outsell fruit juices three-to-one.

RESEARCH REPORTS: **1.** The carbohydrate sucrose ($C_{12}H_{22}O_{11}$) has a calming effect on infants. In concentrated amounts, it stimulates the release of natural opium-like substances (or *opioids*), which can reduce pain and pacify crying (Blass 1992). **2.** The alkaloid caffeine ($C_8H_{10}N_4O_2$) is a mild stimulant used to release *norepinephrine* in the brain (Restak 1994; see **PLEASURE CUE**).

Caffeine. **1.** "A majority of consumers tested cannot detect the flavor of caffeine in soft drinks, Johns Hopkins University researchers have found, and they believe that manufacturers must be adding caffeine to cola for other reasons" (Anonymous 2000). **2.** "'I was struck by soft drink manufacturers' claims that they add caffeine solely as a flavor enhancer,' Dr. Roland R. Griffiths told Reuters Health. 'I think it would be useful for them to acknowledge the mood-altering, physical dependency effects of their drinks'" (Anonymous 2000).

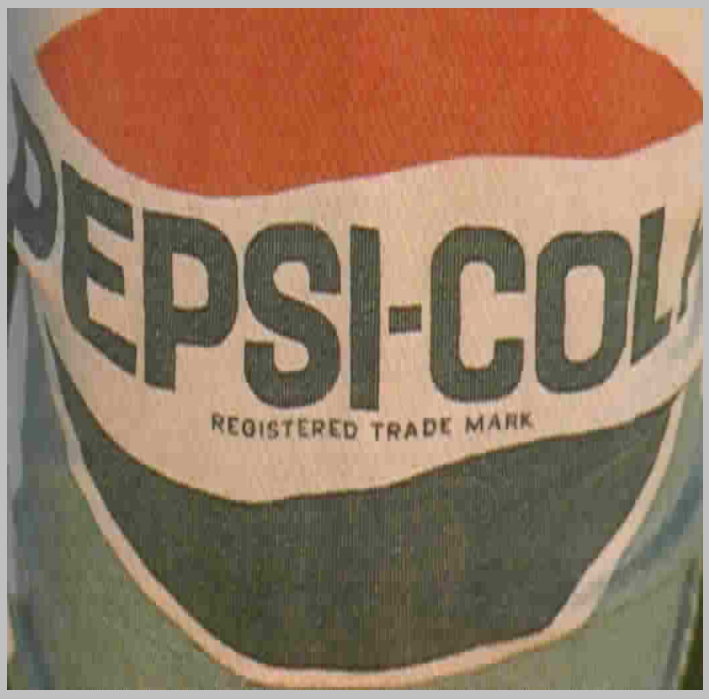
Evolution. A cola's sugary taste reconnects us with our fruit-eating primate past. When Eocene-primate ancestors took to the trees ca. 50 m.y.a., they supplemented a basically insect diet with ripened fruit. Drinking a Coke®, we are for a brief moment absorbed in the present moment, i.e., in the animal sense of the *now*.

Neuro-notes. Coca-Cola's harmony of *caramelized* sucrose, *cola seeds*, *vanilla* and *spices*, and oils of *orange*, *lemon*, and *lime*--along with a relatively high *caffeine* level--appeals to pleasure areas of the brain. Sweetness, e.g., stimulates taste buds of the tongue tip which convey their signals through the hindbrain's *facial nerve* (Cranial VII) upward to the *forebrain*. There the message splits. Part travels to unconscious areas of the **limbic system** (specifically, to the **amygdala** and lateral **hypothalamus**), and part goes to the more conscious cerebral cortex (through thalamic relays to its *postcentral gyrus* and *insula*). That we crave sugar instinctively is suggested by babies who are born without a cerebral cortex, and who respond to sweet but reject bitter tastes.

See also **CANDY**, **FRUIT SUBSTITUTE**, **MEATY TASTE**.

Detail of a 1935, Sunday morning photo by Ben Shahn for the U.S. Farm Security Administration.

JUICE SUBSTITUTE



It's the Real Thing. --Coca-Cola Bottling Co. (1969)

Consumer product. A usually **colorful**--but sometimes clear--frozen or liquid food product (e.g., a cherry popsicle, orange soda, or strawberry milkshake) sweetened with sugar to resemble the taste of natural *fruit juice*.

Usage: Historically, squeezed fruit juice has been one of humankind's favorite refreshments. Iced-fruit juices and French *sorbets*, e.g., date back some 300 years. In the late 1990s, *Tropicana*® ***orange juice*** was among the top-ten most popular grocery-store items sold in the U.S. (***N.B.***: Orange juice contains glucose, fructose, and sucrose; flavor compounds known as *terpenes*; and the minerals potassium and phosphorus.)

Evolution. The sweetness of a juice substitute is usually increased by adding table sugar (*sucrose*), a crystalline carbohydrate which suggests the fruity sweetness of *fructose*, for which it stands (i.e., as a nonverbal **sign**). Today, an incredible vocabulary of sucrose signals reconnects our species to its fruit-eating, primate past (see **FRUIT SUBSTITUTE**).

Soda signs. In the modern diet, fresh-fruit drinks have been largely replaced by sweeter beverages which suggest their presence and stand in their stead. In the U.S., e.g., soft drinks outsell fruit juices three-to-one. Carbonated sodas contain high levels of sucrose, as well as of artificial colorings and flavorings. Today, the most recognized brand name on earth belongs to a dark, bubbly juice substitute known as ***Coca-Cola***®.

Cola cues. Coke® is a complex harmony of cola seeds, vanilla, and spices; and oils of orange, lemon,

and lime--blended with evolutionary-unprecedented quantities of caffeine and sucrose. In the 1990s, Coke Classic® and Pepsi® were, respectively, the 2nd and 3rd most popular grocery-store items in annual sales (behind Marlboro® **cigarettes**).

See also **NUT SUBSTITUTE**.

ORANGE JUICE

Consumer product. A flavorful drink made of the squeezed, pulpy fruit of the southeast Asian evergreen tree, genus *Citrus*.

Usage I: **1.** Currently orange juice is one of the best-selling American food products. In the early 1990s, e.g., Tropicana® orange juice was among the top-ten most popular grocery items sold in U.S. retail stores (Krantz 1991:312). **2.** While fresh-squeezed orange juice is still served as a breakfast item in some restaurants, most consumers now purchase the product either as a frozen concentrate or in refrigerated containers available in retail convenience stores and supermarkets.

Usage II: According to the Florida Department of Citrus, in 2000: **a.** the average supermarket devoted 40 linear feet of shelf space to orange juice, compared to 27 linear feet in 1998; **b.** the U.S. consumer bought orange juice in larger sized containers (over a third sold in a 96-ounce container or larger); and **c.** almost one-fifth all orange juice sales were for calcium-fortified products (Santangelo 2000).

Ingredients. Orange juice "speaks" to the brain through a molecular code of **a.** glucose, fructose, and sucrose; **b.** salts and esters of citric acid (C6H8O7-H2O); **c.** **flavor compounds** known as terpenes; and **d.** the minerals potassium and phosphorus.

Fructose. Humans are primates, and primates have a natural craving for the sweetness of ripened fruit. Fruits and berries were prized 60 million years ago in the Paleocene Epoch, when primates first took to the trees. Forty-six million years later, when the early ancestors of apes and humans returned to the terrestrial plain, a powerful appetite for fructose descended with them.

Sucrose. The sweet taste of sucrose has a pacifying effect on human infants, and reduces their reactions to pain through the release of endogenous opioids (Blass 1992).

Terpenes. Orange juice contains flavor compounds, such as *terpenes*, which can help neutralize carcinogens, as well as vitamin C which can block substances thought to cause cancer (McGee 1990:239-40). Orange juice is also high in vital minerals such as potassium and phosphorus (Robertson 1976:474).

Branding. According to a 2000 report by Roper Starch Worldwide, in the mid-to-late 1990s brand loyalty for orange juice (i.e., consumers reporting to have "one favorite brand") rebounded upward eight percentage points to 44%.

Breakfast. Research indicates that consumer buying behavior shifts significantly between breakfast and lunch. Morning decisions appear to be habitual and are based on taste and nutritional value. At lunch, flavor more heavily dictates choices (Tallmadge 1998). Orange juice contains glucose, fructose and sucrose, which can energize sleepy humans at breakfast. By weight, the sugar content of orange juice is 11%, compared to 3% for tomato, 4% for cranberry and 6% for grapefruit juice (McGee 1990:163).

Supermarkets stock an average 30,000 food items, yet most shoppers buy the same 25 familiar foodstuffs over and over again (Hall 1992). Humans are most conservative about their *condiments* (especially ketchup, mustard and mayonnaise), *breakfast cereals* and *peanut butter*--and rarely buy any but their favorite brand (Long 1990:48). The most conservative and predictable meal for humans is breakfast. Eating out, they will almost always order "the usual." At home, they will gladly eat their favorite combination of muffin, sausage and coffee for months without seeming to need a change.

As one addict confessed in the *Washington Post*, "I've eaten Cheerios for breakfast practically every day for the past decade" (Santelmann 1993). He went on to say he had never found a bug in a box of Cheerios. Imitation or Brand-X Cheerios, the author lamented, neither look nor taste right, nor do they crumble right, and "their color is all wrong."

The evolutionary constants in a human's breakfast are sugars--sucrose, fructose, glucose, dextrose and lactose. Donuts, beignets, jellies, juices and honey echo the primordial appetite for morning fruit.

Lunch and dinner. Humans are slightly more adventurous when it comes to lunch and dinner, yet most will choose the same basic dishes, foods and brand names for years, or even decades, with little variation. Familiar foods are known and psychologically "safe" to hungry humans, who will choose what satisfied them in the past rather than gamble on unknown recipes or restaurants.

Fear of new foods may be an evolutionary protection against eating poisons (Hall 1992). Specialized taste buds at the back of a human's tongue are sensitive to bitter, poisonous substances. An innate gag reflex helps keep babies from swallowing bitter-tasting fluids, and adults are quick to notice unfamiliar or "funny" tastes in food, especially in milk.

See also **JUICE SUBSTITUTE**.

EXISTENTIAL CRUNCH

(Fritolay)

Food cue. **1.** A usually pleasant tactile sensation derived from chewing crisp vegetables, nuts, and **nut substitutes**. **2.** A crackling texture, conducted by sensory nerves of the jaws, teeth, and tongue, and featured in the design of many edible **consumer products** (esp. *snack foods*).

Usage: We crave the crunchiness of nuts, and extend the properties of crunching to *crackers* and *corn chips*, which are served crisp. For added crunch, we add *sprinkles* to cookies, *chopped nuts* to ice cream, and *salt crystals* to pretzels. (***N.B.***: The most advanced *corn flakes* stay crunchy in milk.)

Evolution. Like their forest-dwelling Oligocene ancestors (ca. 30 m.y.a.), the first humans on the African savannah ate nuts as well as fruit. The jaws and teeth of *Ramapithecus*, e.g., reveal that early apes ate small, hard, nut-like foods 15-8 m.y.a. in the Miocene. In the mid-1990s, Americans spent $200 million a year on nutcrackers, grew 3.5 billion lbs. of peanuts annually, and were terribly fond of peanut butter (smooth and crunchy).

Primatology. Just as chimpanzees gather to eat crunchy foods, Americans consume *bread sticks* and *party nuts*, and *shell peanuts* together at baseball games. In Africa, chimpanzees shell *panda* nuts together under treetops in the Tai forest of Cote d'Ivoire (Ivory Coast). The chimps socialize as they crack the hard shells with pieces of wood, carefully placing each panda nut in a knothole before smashing it.

Candy messages. The three best-selling U.S. candy bars--M&M's®, Snickers®, and Reese's Peanut

Butter Cup®--contain nuts and are crunchy rather than merely soft. Each of the top three combines sweetness and *nuttiness* in a proven evolutionary formula for primates. The crisp candy coatings of M&M's®, one of the most popular candies of all time, encase milk chocolate mixed with finely ground *peanut powder*.

Nut Substitutes. The most popular U.S. snack food is neither a seed nor a nut, but a crunchy nut substitute: the *potato chip*. Potato chips were accidentally invented in New York in 1835 when a diner complained that his french fries were too mushy; the cook served them thinner and fried to a crisp, and by the 1960s supermarket executives had classified potato chips as necessity items. Potato, corn, and other vegetable chips have the look and feel of primate *finger food*.

See also **BIG MAC®**, **COCA-COLA®**, **MESSAGING FEATURE**, **TOUCH CUE**.

NUT SUBSTITUTE

Consumer product. A baked or deep-fried food product (e.g., cookies, crackers, and Fritos®) designed to mimic the **taste** and **crunchy texture** of roasted nuts, seeds, or fruits (in the latter case, e.g., stalks of the cashew plant).

Usage. As primates, we are seemingly pre-adapted to enjoy the flavor and texture of nut substitutes. Throughout the Middle East, e.g., crusty breads, pastries, and candies are liberally sprinkled or covered with whole seeds for their flavor, texture, and crunch. Papodams, tortilla chips, and Crackerjacks®--along with taro, yucca, sweet-potato, beet, parsnip, carrot, rutabaga, celery-root, and seaweed chips--are among the thousands of ethnic cuisines designed to satisfy our need for culinary snap, crackle, and pop.

Big *crunch*. The largest potato chip manufactured by *Homo sapiens*--nearly two feet across--was made in 1990 of potato flour at the Pringles plant in Jackson, Tennessee. Consumers, however, prefer smaller chips which have the look and feel of *finger food*. As primates, we are natural finger-feeders who enjoy bringing edibles to our prehensile **lips** with the sensitive, tactile pads of our **hands**.

Existential crunch. That crispy snacks so overpower us is because, as an existentialist philosopher might say, they represent an "authentic" form of existence which transcends the desire for softer, "unreal" foods, such as Twinkies®.

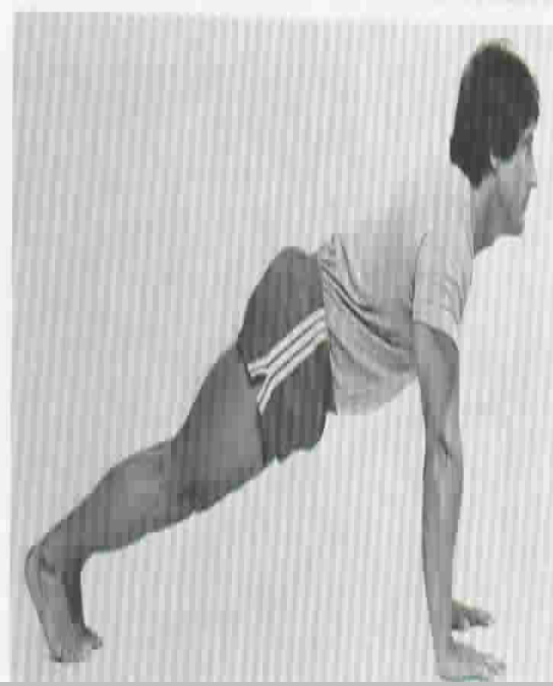
Global crunch. The proclivity to commune with our inner-primate self through the tactile medium of grinding is so powerful that, according to the U.S. Snack Food Association, Americans munch an average 21.42 lbs. of chips, popcorn, pretzels, and so on, each year (Hall and Baumann 1994).

Salt craving. A desire for salty snacks (as opposed to, e.g., craving a chocolate bar) may indicate the need for a real meal, according to a study published in the March, 2001 issue of the *International Journal of Eating Disorders* (Vol.29, pp. 195-204; the study was led by Dr. Lionel Lafay of INSERM in Villejuif, France).

Neuro-notes. Our back teeth and the forward two-thirds of our tongue receive **incoming** crunch sensations from nut substitutes through branches of the *facial nerve* (cranial VII). Like flavor cues, texture cues are processed on two levels: **a.** *consciously* in the cerebral cortex and **b.** *unconsciously* in the **limbic system**. As crunching registers in the forebrain, nut substitutes provide a pleasurable snack-food experience.

Detail from a Wheat Thins® box (copyright 1999 by Nabisco)

ANTIGRAVITY SIGN



He, above the rest in shape and gesture proudly eminent, stood like a tower. --John Milton (*Paradise Lost, Book I*; 1667)

Evolution. **1.** One of several nonverbal cues derived from body movements designed to counteract the pull of gravity. **2.** An assertive gesture or posture utilizing antigravity *extensor* and *pronator* muscles. **3.** Specifically, **palm-down** speaking gestures and dominant postures of the **high-stand display**.

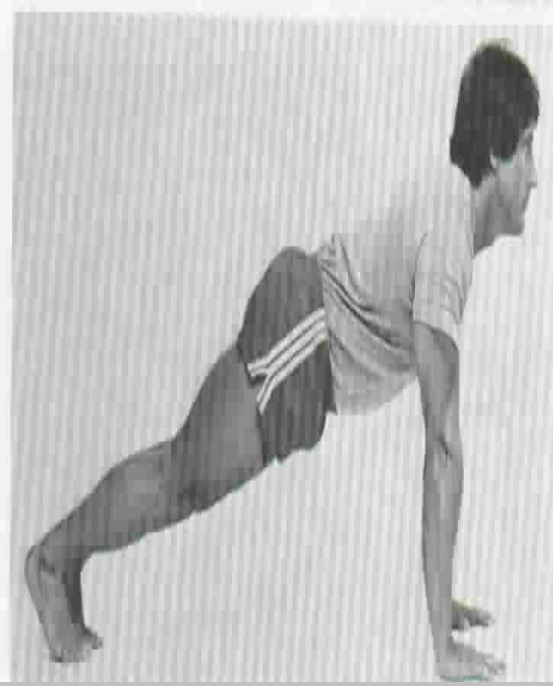
Usage: We accent our words with authoritative *palm-down cues*, and show we mean business by *squaring* our shoulders, *lifting* our faces and chins, and visibly *standing tall*. Around the world, antigravity signs are featured in business, government, and military wear (see **BUSINESS SUIT**).

Paleontology. Fossils of the oldest known North-American amphibian, *Hynerpeton bassetti* (365 m.y.a.), show that its hands and arms were strong enough to do a pushup akin to the aggressive *press-up* posture of lizards, basilisks, and iguanas. *Hynerpeton's* jointed elbows might have permitted the animal to extend its forelegs in what would have been Nonverbal World's first *high-stand display*. The mobile shoulder girdle and muscular forelimbs would have enabled *Hynerpeton* to lift its body higher above the earthly plain, to dominate, command respect, and "take charge."

Neuro-notes. Our body's innate ability to show a superior, confident, or haughty attitude through postures engineered to withstand gravity's force--i.e., assuming a higher or lower *stance* upon the earthly plain--evolved from **paleocircuits** of the **amphibian brain**. Antigravity extensor muscles of the neck, trunk, arms, and legs contract when signals are received from cerebellar and vestibular centers responding to *pontine reticular nuclei*. The latter brain-stem circuits may be excited by emotional stimuli from the **limbic system**.

See also **BROADSIDE DISPLAY**.

ANTIGRAVITY SIGN



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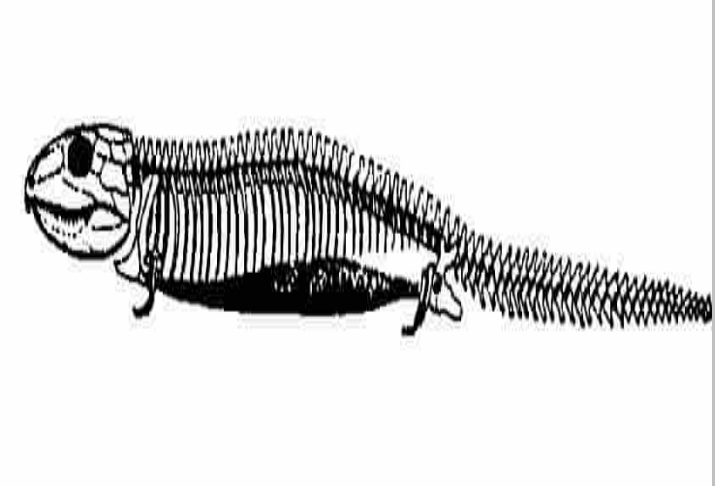
See also **BROADSIDE DISPLAY**.

AMPHIBIAN BRAIN



Evolution. **1.** Collectively, those older parts of the human brain which developed during the amphibian transition from water to land in the Devonian period of the Paleozoic Era. **2.** Specifically, those modules of the amphibian *midbrain* and *forebrain* which evolved to further life above the waterlines of ancient seas. **3.** Those amphibian-inspired **paleocircuits** **a.** for *hearing* and *seeing* in a higher, drier world, and **b.** for *postural stance* in terra firma's gravitational pull.

Usage: Several common gestures and postures (derived, e.g., from the auditory **startle** and the **high-stand display**) originated ca. 380 m.y.a. in modules of the amphibian brain. (The latter itself evolved from modules and **paleocircuits** of the **aquatic brain**.) Today these play key roles in the expression of **dominance** and **submission**.

Media. Sudden movements, looming objects, and bright lights trigger midbrain *vision centers* which reflexively orient our face and eyes to novel or dangerous stimuli. Meanwhile, midbrain *hearing centers* stay tuned to abrupt changes in sound. Thus, with its fluctuating cuts in scenery, camera angle, and volume, TV addresses the amphibian brain.

Neuro-notes I: midbrain. As amphibian ancestors emerged from primeval lakes and seas to live part of their lives on land, seeing and hearing sharpened. Two paired centers of the amphibian midbrain--the *inferior* and *superior colliculi*--evolved as processing stations for audiovisual cues. The former's hearing centers (the *auditory lobes*) unconsciously prompt us to **crouch** from loud noises. The latter's vision centers (the *optic lobes*) reflexively focus our attention on body motions, gestures, and objects that move.

Neuro-notes II: forebrain. Unlike water's buoyancy, land presents an incredibly heavy environment in which **antigravity signs** (e.g., the reptilian press-up to a high stand) evolved. The forebrain module in charge of the earliest aggressive "pushup" was a motor area presently called the *striatal complex*. What remain of its paleocircuits (see **BASAL GANGLIA**) inspire us to extend our limbs to show dominance as John-Wayne did in the 1960 movie, *The Alamo*, by similarly "standing tall."

See also **PALM-DOWN**, **REPTILIAN BRAIN**.

STARTLE REFLEX

I'm an eccentricity specialist. --Michael Richards (Kramer on *Seinfeld*)

Neuro term. **1.** A sudden, involuntary movement made in response to a touch, an unexpected motion, or a loud noise. **2.** A set of automatic protective movements designed to withdraw the body and its parts from harm.

Usage: Many defensive **postures** and **submissive gestures** (e.g., diverse movements of the **shoulder-shrug display**) derive from **paleocircuits** of the mammalian startle. Its status as a reflex explains why human beings (in all cultures) **a.** ***blink*** and *grimace*; **b.** *flex* the neck, elbows, trunk, and knees; and **c.** *elevate* the **shoulders** when feeling physically, emotionally, or socially threatened (Andermann and Andermann 1992:498).

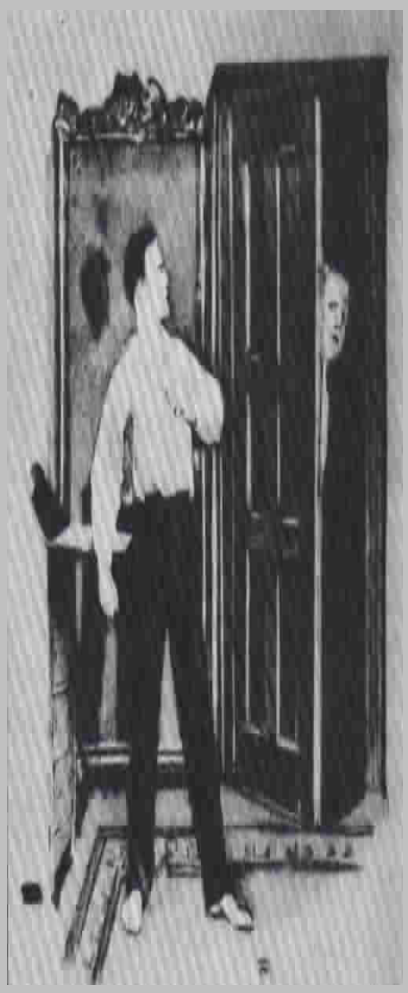
Media. Eccentric twisting, plunging, blinking, and flexing spasms made from 1989-98 by *Seinfeld* TV character, Cosmo Kramer are typical of people with an *exaggerated startle response*. Increasing with anxiety and fatigue, the startle underlies such culturally recognized "startle syndromes" as Indonesian *latah*, Japanese *imu*, and Lapland's *Lapp panic* (Joseph and Saint-Hilaire 1992:487-88).

RESEARCH REPORTS: The startle reflex is related to the *Moro* or "clamping" reflex of young primates, which includes **a.** arm, leg, and spinal-column *extension* movements; **b.** head **bowing** (over the chest); and **c.** **crying** (McGraw 1943:19). Present in the human fetus after 30 weeks, the startle is predominantly a *flexor* reflex, possibly rooted in the primitive *orienting* response (Joseph and Saint-Hilaire 1992:487).

Neuro-notes. Sudden movements, **looming objects**, or bright lights trigger midbrain *optic centers* which automatically turn our faces and eyes toward what could be dangerous--before the forebrain knows, on a conscious level, danger even exists. The midbrain's *auditory lobes*, meanwhile, are reflexively attuned to changes in sound. Located just below the optic-center lobes, these pea-sized areas control our *auditory startle*. Picked up by the *cochlear nucleus*, a scream received by the auditory lobes triggers the **amygdala** and circuits of the reticulospinal tract to activate the startle. Thus, recoiling from a karate yell, e.g., is a primal response prompted by paleocircuits of the **amphibian brain**.

See also **CHATTERING TEETH**, **FLEXION WITHDRAWAL**.

SUBMISSION



People sometimes perceive my shyness as my being aloof. --Julia Barr (Brooke, *All My Children*, quoted in *Soap Opera Digest*, May 2, 2000, p. 128)

Status. The act of acknowledging, complying with, or surrendering to the power or will of another.

Usage: Submission shows in **a.** an exaggerated **angular distance**; **b.** **body-bend**, **body-shift**, and **bowing**; **c.** displacement cues; **d.** **facial flushing**; **e.** **freeze reactions**; **f.** **gaze-down**; **g.** give-way; **h.** **head-tilt-side**; **i.** **isopraxism**; **j.** **laughing**; **k.** **palms-up**; **l.** exaggerated **personal distance**; **m.** **pigeon toes**; **n.** **shoulder-shrugging**; **o.** shyness; **p.** the **Steinzor effect**; **q.** higher **vocal pitch**; and **r.** **yawning**. (Note the considerable overlap between expressions of lower status and **fear**.)

RESEARCH REPORTS: **1.** *Submissive* or *flight elements* include *evade* (sharp head or shoulder movements away from another), *chin in* (tucked strongly into chest), *mouth corners back*, *lip licks*, *lower lip out*, *lower lip tremble*, *lips in*, and *swallow* (Grant 1969:528-30). **2.** Submissive acts in young children include *cry*, *scream*, *rapid flight*, *cringe*, *hand cover*, *flinch*, *withdraw*, and *request cessation* (Strayer and Strayer 1980).

Courtship. Submissive cues show that one is "approachable" (see **LOVE SIGNAL**).

Salesmanship. "Thus, the focus of the first moments of the meeting is to demonstrate to the prospect that you are an inoffensive, likable person, and this is not going to be an uncomfortable hard sell" (Delmar 1984:44-5).

Evolution. Submission originated from an ancient, biological tendency to flee from danger (see **FIGHT-OR-FLIGHT**). Nonverbal **signs** (e.g., **crouching** postures and diminutive size displays) evolved to mimic the visual act of escape (i.e., of increased physical separation between bodies, which then seem "smaller" through the optical illusion of distance). In mammals, submission elaborated as *feelings of inferiority* evolved in tandem with signs of lowered social status (see **MAMMALIAN BRAIN**).

Transexuality. The loss of male hormones ". . . made me more retiring, more ready to be led, more passive" (Morris 1974:152).

Neuro-notes. Through vertebrate eyes, *big* is interpreted as "dangerous" while *small* deciphers as "safe" (see **LOOM**). The *amygdala* and *basal ganglia* of the forebrain play important roles in the expression of submissiveness.

See also **DOMINANCE**, **EMOTION CUE**.

Illustration for *Sherlock Holmes* by Sidney Paget (note the cringing posture behind the door; copyright 1892 by *Strand* Magazine)

BODY-SHIFT

Postural *cue*. A slight or substantial change in body position, e.g., **a.** shifting one's weight in a chair, or **b.** angling one's torso to a new direction at a **conference table** (see **ANGULAR DISTANCE**).

Usage: A sudden body-shift may telegraph an unspoken feeling, mood, or opinion, and thus offer a **probing point**.

Salesmanship. *One signal of a prospect's skepticism*: "A sudden shift in posture" (Delmar 1984:46).

RESEARCH REPORTS: **1.** "Slight postural shifts and the direction of visual focus are [in monkeys] two extremely subtle movements that communicate a potentially changing emotional state and an awareness of surrounding activity or tension" (Dolhinow 1972:231). **2.** "Gross changes in body position, such as shifting in the chair, may show negative feelings toward the person one is talking to" (Mehrabian 1974:90).

Neuro-notes. Because they are supplied by *segmental spinal nerves* directly--rather than by the more elaborate *nerve plexuses* which govern limb movements--trunk-bending and body-shifting represent a simpler, more straightforward venue for the expression of emotion. This is because, unlike our arm's tangled brachial-nerve plexus (an intricate, evolutionary add-on designed to coordinate the arm's dexterity and movement), our segmental spinal nerves have retained their more primitive role in the

control of posture. Thus, governed by **paleocircuits** of the **basal ganglia** and brain stem, gross body-shifts may reveal anger, disagreement, and disliking more directly.

See also **BODY-BEND**, **BODY WALL**.

BASAL GANGLIA

Brain. **1.** An involuntary motor system of the **reptilian brain** used to initiate **body movements**, **facial expressions**, and **postures**. **2.** Large, rounded masses of forebrain, used subconsciously to adjust, coordinate, and smooth out body movements, e.g., for **speaking**, **smiling**, **walking**, and **pointing**.

Usage: For neuroanatomist Paul D. MacLean, the basal ganglia are important parts of our reptilian heritage. Territorial gestures and postural displays, e.g., of **dominance** and **submission**, are shaped by these subcortical structures. Such status signs are analogous, MacLean thinks, to nonverbal displays of modern reptiles used to show *physical presence*, to *challenge competitors*, and to *attract mates* (MacLean 1990).

RESEARCH REPORTS: **1.** The [basal ganglia's] putamen is mainly connected to the premotor and motor cortex and overactivity [i.e., oversupply of dopamine] in this pathway is thought to account for the physical tics in Tourette's syndrome" (Carter 1998:67). **2.** The [basal ganglia's] caudate nucleus has more connections to the orbital cortex--an area concerned with higher order planning of activity. Overactivity in this pathway [i.e., dopamine excess] is thought to result in obsessive-compulsive disorder [OCD]" (Carter 1998:67). **3.** Studies ". . . suggest the existence of certain pathophysiologically important abnormalities in central neurocircuitries, especially in cortico-striatal [i.e., basal ganglia]-thalamic circuitry, in OCD" (Arai 2000).

Anatomy. Our basal ganglia represent a more ancient motor system than what was to develop millions of years later in the brain's *neocortex*. Less skilled, e.g., than the neocortex's *primary motor area*, the basal ganglia control basic movements such as the human **arm-swing**. While walking, we automatically swing our arms because the basal ganglia assume we are still *quadrupeds*.

Evolution. In early reptiles, the basal ganglia's *archistriatum* (i.e., the "most ancient" striatum, or **amygdala**) and *paleostriatum* (i.e., the [merely] "ancient" striatum, or *globus pallidus*) evolved to show *identity*, *power*, and *submission* through programmed movements and postural displays (see **ANTIGRAVITY SIGN**, **CROUCH**). In early fishes, the precursor circuits of our present basal ganglia were linked to the primeval "smell brain," and led to swimming motions toward positive chemical signals (e.g., food and mates) and away from negative chemical signs (e.g., of enemies; see **AROMA CUE**).

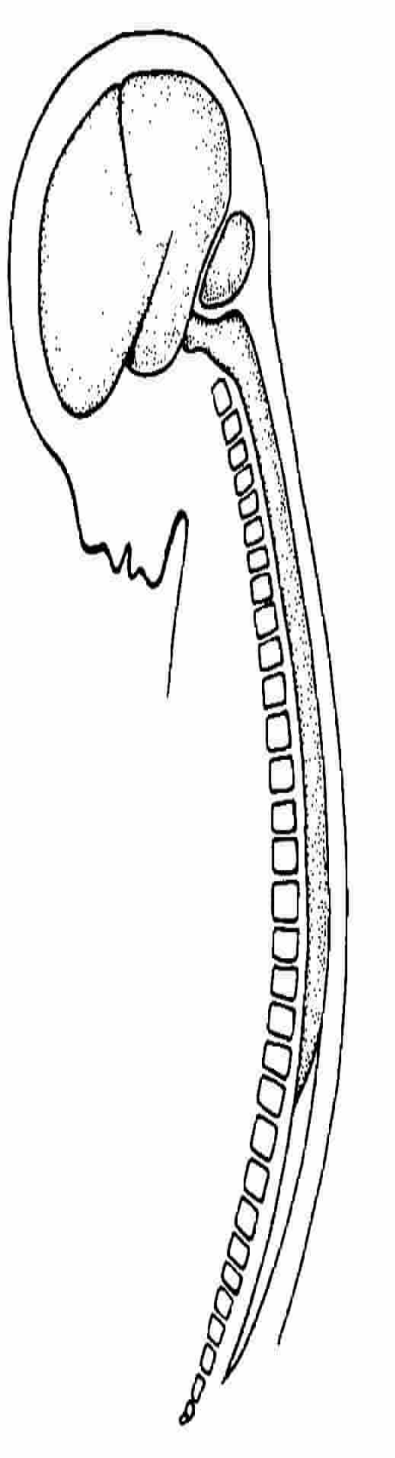
Neuro-notes I. Apart from our conscious awareness, the basal ganglia set patterns for key body postures and expressive cues. They turn-on and switch-off ancient *spinal circuits* for locomotion and postural communication, e.g., and *hindbrain circuits* for facial expressions and emotional displays (see **PALEOCIRCUIT**). Basal-ganglia damage from *Parkinson's disease* shows in a rigid, expressionless, *masklike face* and a stiff, shuffling gait with non-swinging *motionless arms*.

Neuro-notes II. **1.** ". . . the apparent site of that extra brain power [required for the ability to speak a second language, whether mastered as a child or as an adult] is a deep brain region called the putamen [of the basal ganglia] . . ." (Barinaga 1995:1437). **2.** ". . . 'there is some sort of extra control of articulation' required for them to speak their second language" (Barinaga 1995:1437).

Neuro-notes III. **1.** "Firstly, the BG provide internal motor cues that enable the release of submovements from the SMA [supplementary motor area; see **STEEPLE**, *Neuro-notes II*], for execution by the motor cortex. The cue (phasic neuronal activity) interacts with the SMA (sustained neuronal activity) to string submovements together in the correct timing sequence. The second function is to contribute to cortical motor set (sustained neuronal activity) which maintains whole movement sequences in readiness for running and execution. This contribution may be to the SMA, premotor area or to both" (Iansek et al. 1995). **2.** "The BG is only utilized in these two functions when the movements or sequences are skilled and require few attentional resources for their performance" (Iansek et al. 1995; see **NONVERBAL LEARNING**). **3.** "In Parkinson's disease a defective cue leads to slowing of skilled movement sequences and associated instability of submovements (each submovement cumulatively decreases in amplitude and velocity). This is the phenomenon of *hypokinesia*. A defect in the contribution to motor set leads to an inability to initiate whole skilled movement sequences (*akinesia*)" (Iansek et al. 1995; italics added).

See also **BROADSIDE DISPLAY**, **HIGH-STAND DISPLAY**.

NONVERBAL BRAIN



*Men ought to know that from the brain, and from the brain only, arise our pleasures, **joys**, **laughter** and jests, as well as our **sorrows**, **pains**, griefs and **tears**.* --Hippocrates (5th Century, B.C.; quoted in Kandel et al. 1991:iv)

Neuro term. **1.** Those circuits, centers, and modules of the central nervous system which are involved in sending, receiving, and processing speechless **signs**. **2.** In right-handed individuals, modules of the *right brain* cerebral hemisphere, considered to be more *nonverbal*, *holistic*, *visuospatial*, and *intuitive* than the verbal, analytic, sequential, and rational left brain hemisphere (see **HUMAN BRAIN**, *Right brain*, *left*

brain). **3.** Those ancient centers (e.g., nuclei) and **paleocircuits** of the nervous system which evolved in vertebrates--from the jawless fishes to human ancestors (e.g., *Homo habilis*)--for communication before the advent of speech.

Usage: Just as the brain's newer ***speech centers*** (e.g., Broca's area) control language communication, earlier areas of the nonverbal brain control communication apart from words. Knowing its parts and wiring helps us decode nonverbal **messages**.

Media. "A skillful outline can be more appealing than a photographic image. The simple line appeals to the brain which has limited attention and limited abilities to process information rapidly." (*San Diego Union-Tribune* interview with UC-San Diego neuroscientist, Vilayanur Ramachandran [May 7, 1999, A1, A-19])

Literature. The first recorded verbal reference to the human brain is Egyptian (the **word** *'ys*), written on papyrus in the 17th Century, B.C. (Kandel et al. 1991).

Evolution. Our nonverbal brain consists of six interrelated divisions, outlined below, which merged in an evolutionary process from ca. 500-to-two m.y.a.:

(1) **AQUATIC BRAIN & SPINAL CORD**: The oldest neural division, present in the jawless fishes, includes the spinal cord's *interneuron pools* and *motor neuron pathways* **a.** for **tactile withdrawal**, and **b.** for the rhythmic, oscillatory movements of swimming (and much later, for **walking**).

(2) **AMPHIBIAN BRAIN**: With amphibians, **1.** the *pontine reticular excitatory system* becomes more elaborate. The pontine tegmentum's link to the spinal cord's anterior horn motor neurons and muscle spindles raised the body by exciting antigravity extensor muscles (see **ANTIGRAVITY SIGN**). **2.** The *vestibulospinal pathway* elaborated--from receptors in the inner ear via the vestibular nerve (cranial VIII), and via cerebellar fibers to the vestibular nucleus in the upper medulla--running the length of the spinal cord for body **posture** (i.e., basic stance) in relation to gravity. **3.** The *tectospinal tract* evolved, consisting of the superior (and inferior) colliculus and its links, via the brain stem, running **a.** to cervical cord interneurons, then **b.** to anterior horn motor neurons, then **c.** to spinal nerves, and finally reaching **d.** muscle spindles for postural reflexes to sights and sounds. **4.** And the *rubrospinal tract* further evolved: paleocircuits from the red nucleus of the midbrain running **a.** to thoracic cord interneurons, then **b.** to anterior horn motor neurons, and finally **c.** to muscles and muscle spindles for postural tone of the limbs' flexor muscles.

(3) **REPTILIAN BRAIN**: With reptiles, **1.** the *vestibuloreticulospinal system* evolved to control axial and girdle muscles for posture relative to positions of the head. **2.** The *basal ganglia-ansa lenticularis pathway* reverberated links between the **amygdala** and **basal ganglia** via the ansa lenticularis and lenticulate fasciculus to the midbrain tegmentum, red nucleus, and reticular system to spinal cord interneurons required for the **high-stand display**.

(4) **MAMMALIAN BRAIN**: With mammals, **1.** the *amygdalo-hypothalamic tract* became more elaborate: the central amygdala's link to the hypothalamus, via the stria terminalis, provided wiring for defensive postures (see, e.g., **BROADSIDE DISPLAY**). **2.** *Hypothalamus-spinal cord pathways* adapted as well: the hypothalamus's dorsomedial and ventromedial nuclei fed **a.** indirectly via the brain stem's reticular system, and **b.** directly through fiberlinks to lower brain-stem and spinal-cord circuits to cord motor neurons for **emotion cues** (see, e.g., **ANGER**). **3.** The *septo-hypothalamo-midbrain continuum* evolved: the medial forebrain bundle (from the olfactory forebrain and limbic system's septal nuclei) via the hypothalamus's lateral nuclei to midbrain-tegmentum brain-stem motor centers, mediated emotions (see, e.g., **FEAR**). **4.** The *cingulate gyrus facial circuit* evolved: links run from the anterior cingulate cortex **a.** to the hippocampus, **b.** to the amygdala, **c.** to the hypothalamus, and **d.** through the brain stem, finally **e.** to the vagus (cranial X) and facial (cranial VII) nerves which, respectively, control the larynx and facial muscles required for vocalizing and moving the lips.

(5) **PRIMATE BRAIN**: With primates, **1.** the *neocortex's corticospinal tract* further evolved: the posterior parietal cortex linked to supplementary motor, premotor, and primary motor cortices (with basal-ganglia feedback loops) via the corticospinal tract, to cervical and thoracic anterior-horn spinal interneurons, and to motor neurons in control of arm, hand, and finger muscles for skilled movements of the **precision grip**. **2.** Modules of the *inferior temporal neocortex* evolved to provide visual input **a.** to the occipital neocortex's parvocellular interblob system (V1 to V2 and V4), permitting recognition of complex shapes, and **b.** to the inferior temporal cortex permitting heightened responses to **hands** and the ability to **recognize faces**.

(6) **HUMAN BRAIN**: With hominids, **1.** the *corticobulbar tract* further evolved: corticobulbar pathways to the facial nerve (cranial VII) permitted intentional **facial expressions** (see, e.g., **SMILE**). **2.** *Broca's cranial pathways* evolved: Broca's-area neocircuits via corticobulbar pathways to multiple cranial nerves permitted **speech**. **3.** And *Broca's spinal pathways* evolved: Broca's-area neocircuits via corticospinal pathways to cervical and thoracic spinal nerves permitted manual sign language and linguistic-like **mime cues**.

See also **ENTERIC BRAIN**, **NONVERBAL LEARNING**, **ORIENTING REFLEX**.

PAIN CUE

If you had a hundred masks upon your face, your thoughts however slight would not be hidden from me. --Dante Alighieri, *Purgatorio, Canto XV*

Sign. A visible muscle contraction of the **face** or body in response to unpleasant sensations of suffering due to physical injury, trauma, or emotional distress.

Usage. Painful touches to the skin, e.g., may excite the midbrain's reticular area enough to produce a visible response, such as a facial *wince* or a *frown*. A casual touch from someone we dislike can produce the same response (because physical and psychic pain cross paths in **Nonverbal World**).

Anatomy. Pain may show in **a.** narrowed or closed eye openings with **b.** raised cheeks (as the eye-orbit muscles contract); **c.** eyebrow-lowering with **d.** wrinkling on the bridge of the nose (as corrugator and associated muscles contract); and **e.** a raised upper-lip with **f.** wrinkling at sides of the nose (as levator muscles contract; Prkachin and Craig 1995).

Chest pain. **1.** "A clenched fist to the centre of the sternum conveys the gripping quality of the pain (Levine's sign . . .) while a flat hand describes the sensation of crushing heaviness . . . . Tight band-like chest pain may be represented by a movement of the palmar surfaces of both hands laterally from the

centre of the chest . . ." (Edmondstone 1995). **2.** "This study has shown that if patients admitted to a coronary care unit illustrate the nature of their chest pain by placing a clenched fist [Levine's sign] or a flat hand on the sternum, or by drawing both palms laterally across their chest, there is a 77% chance that their pain is due to cardiac ischaemia. If they do not use these signs there is an even chance that their pain is non-ischaemic. These signs are not discriminatory, but a positive response lends support to a diagnosis of cardiac ischaemia " (Edmondstone 1995).

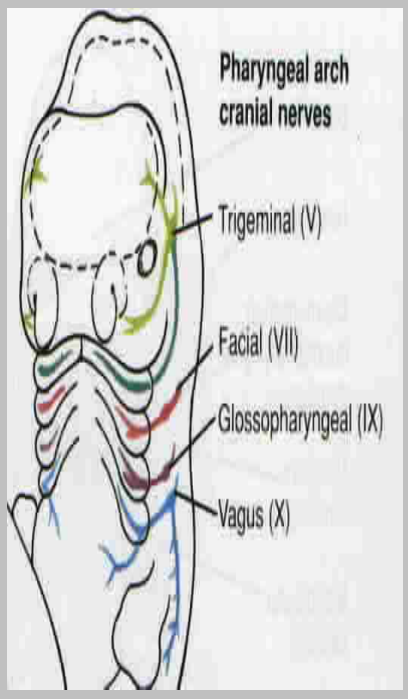
Culture. In the Middle East, patting the chest over the heart with the palm of the right hand means, "I need help." "The action mimes a fast heartbeat, implying that the gesturer is in a state of panic" (Morris 1994:148).

E-Commentary: "This summer I worked around a burn hospital and happened to see a chart with the 'faces of pain' on it. Because the Shriners Hospitals receive patients from all around the world, language is sometimes a barrier; however, this poster is in each room showing different levels of pain depicted in the facial expression. I have been looking for that poster on the internet but cannot locate it." –Debbie (10/27/00 3:00:29 PM Pacific Standard Time)

Wong-Baker FACES Pain Rating Scale. "The success of the Wong-Baker FACES Pain Rating Scale has far exceeded our expectation. We have received numerous requests for the scale and for various types of information, one of them being the development of the instrument. In 1981, Donna Wong, a nurse consultant, and Connie Morain Baker, a child life specialist, were working in the burn center at Hillcrest Medical Center, Tulsa, OK. We frequently saw children who were in pain, and because of their young age, had difficulty communicating how they were feeling. Many times their complaints and cries were misunderstood by the staff, and their pain was not effectively controlled. We believed that we would be able to assess their pain better if the children were given the proper tools to communicate with" (**Wong On Web**).

See also **SPECIAL VISCERAL NERVE**.

SPECIAL VISCERAL NERVE



Neuro term. **1.** A nerve linked to a facial, jaw, neck, shoulder, or throat muscle that once played a role in eating or breathing. **2.** A cranial nerve whose original role in digestion and respiration renders it emotionally responsive today.

Usage: Special visceral nerves mediate those "gut reactive" signs of **emotion** we unconsciously send through **facial expressions**, **throat-clears**, **head-tilts**, and **shoulder-shrugs**. Nonverbally these nerves are indeed "special," because the muscle contractions they mediate are less easily (i.e., voluntarily) controlled than are those of the skeletal muscles (which are innervated by *somatic* nerves).

Evolution. Associated with the **pharyngeal arches**, special visceral nerves control the branchiomeric muscles which once constricted, or dilated, "gill" pouches of the ancient alimentary canal.

Anatomy I. Special visceral nerves include efferent fibers of **a.** the *trigeminal nerve* (cranial V, for biting and chewing); **b.** the *facial nerve* (cranial VII, for facial expression); **c.** the *glossopharyngeal nerve* (cranial IX, for swallowing); **d.** the *vagus nerve* (cranial X, for **tone of voice**); and the *accessory nerve* (cranial XI, for **head-shaking** and the shoulder-shrug).

Anatomy II. The **paleocircuits** of visceral nerves--which originally mediated the muscles for *opening* (i.e., dilating) or *closing* (i.e., constricting) parts of the primitive "gill" apparatus in eating and breathing--are today linked to the **limbic system**.

Vagus nerve stimulation. "As the nerve is stimulated [by electrical current from an implanted VNS generator device to treat resistant depression], some people may experience a tingling sensation,

hoarseness, or the urge to cough" (Cantor 2001).

Neuro-notes. The *special visceral motor column* (in which special visceral nerves are rooted) lies in separate brain-stem and spinal-cord areas from the *somatic motor column* (which controls skeletal muscles). Overall, the structure of special visceral nerves in mammals is *conservative* (i.e., is much the same as it used to be in fishes; Walker 1986:223). The most conservative nerve of all (see Walker 1986:213) may be the glossopharyngeal (cranial IX), which renders cues such as the **Adam's-apple-jump** and throat constriction of the **cry** so sensitive, trustworthy, and revealing of mood. In fishes, the vagus may have been formed from four separate nerves, each similar to the glossopharyngeal (Walker 1986:213), and may have worked mainly as muscle constrictors. In reptiles, the accessory nerve split off from the vagus: "With the elaboration of the cucullaris to form the trapezius and sternocleidomastoid complex, we find that the special visceral motor fibers that supply these muscles separate from the vagus to form a new cranial nerve, the accessory (XI)" (Walker 1986:223).

See also **DISGUST**.

IMMEDIACY

Emotion cue. **1.** The degree to which a nonverbal **message** conveys liking or disliking. **2.** Nonverbally, an expression of emotional *attachment* (or a feeling of *closeness*) to another person. **3. Signs** that show *heightened sensory stimulation*, *attentiveness*, and *liking* (Mehrabian 1981).

Usage: Immediacy (which most often refers to *friendly* rather than unfriendly cues) shows in **a. angular distance**, **b. body alignment**, **c.** body-lean, **d. cut-off**, **e. eye contact**, **f.** hand-reach signs, **g. isopraxism**, **h. love signals**, **i.** muscle tension, **j.** musk, **k. object fancy**, **l. palm-up** signs, **m.** perfume cues, **n. personal distance**, **o.** pupil size, **p. rapport**, **q. tone of voice**, **r. touch** cues, and **s. zygomatic smiles**.

RESEARCH REPORTS: **1.** Immediacy is the "directness and intensity of interaction between two entities" (Mehrabian 1967:325). **2.** Immediacy promotes *psychological closeness* (Anderson 1979). **3.** "In short, immediacy behaviors express approach or avoidance and, in the process, affect the level of sensory involvement of the participants" (Burgoon et al. 1989:100). **4.** "Immediacy is the degree of perceived physical or psychological closeness between people" (Richmond et al. 1991:205).

See also **EMOTION**, **FIGHT-OR-FLIGHT**.

CUT-OFF

Body movement. A form of ***gaze avoidance*** in which the head is turned fully away to one side.

Usage: In a conversation, a sudden cut-off gesture may indicate **uncertainty** or disagreement with a speaker's remarks. Sustained cut-off may reveal shyness or disliking.

Salesmanship. *One signal of a prospect's skepticism*: "Looking suddenly up and to the side" (Delmar 1984:46).

RESEARCH REPORTS: **1.** *Facing away* is a reaction to spatial invasion (Sommer 1969). **2.** "After the host and the various guests embraced, they backed off and one or both always looked away. [Adam] Kendon calls this the cut-off and thinks it may be an equilibrium-maintaining device [to re-establish a proper level of intimacy]" (Davis 1971:46). **3.** ". . . we have repeatedly seen in normal 3- to 4-month-old infants extreme head aversion function to terminate intrusive maternal behavior" (Stern 1974:188-89). **4.** "In all cases [in the presence of strange adults] boys turn their heads away to the side more than do girls" (Stern and Bender 1974:241). **5.** *Gaze aversion* "increased dramatically" in conditions of crowding (Baxter and Rozelle 1975:46).

E-Commentary: "Do you know if there's been any research on whether you can read anything on intent from the direction someone glances when they look away during a conversation? I had a client who's a reporter tell me she believes it's an indication of deceit for someone to glance to their right (as if looking into the future and searching for their words) as

opposed to glancing to their left (as if searching the past to make sure their words are accurate.) Is this a bunch of crap, or is there something to that [see **CLEM**]. I promised her I'd ask you." --L.G., Senior Communications Consultant, USA (11/19/99 2:14:15 PM Pacific Standard Time)

See also **ANGULAR DISTANCE**, **HAND-BEHIND-HEAD**.

EYE CONTACT

Drink to me only with thine eyes,
And I will pledge with mine. . . . --Ben Jonson, *To Celia*

As soon as I walked into the room, that man looked at me, immediately looked away and never met my eyes during the interview. --Susan House of Chicago, at a job interview in California ("I'm fat," House said [Bennett 2001:D3])

Sign. **1.** A visual connection made as one person gazes into the **eyes** of another. **2.** A highly emotional link established as two people simultaneously observe each other's eyes.

Usage: Gazing at another's eyes arouses strong **emotions**. Thus, eye contact rarely lasts longer than three seconds before one or both viewers experience a powerful urge to glance away. Breaking eye contact lowers stress levels (as measured, e.g., by breathing rate, heart rate, and **sweaty palms**).

Anatomy. The six muscles that cooperate to move each of our eyeballs are ancient and common to all vertebrates. The muscles' nerves link to unconscious as well as to thinking parts of our **brain**. *Levator palpebrae superioris*, the muscle that raises our upper eyelid, arose from *superior rectus* (one of the six muscles that rotate the eyeball itself). Note that because their connective tissue coats still are fused, we automatically *lift our eyelids* when we look up.

Cops. What gives police officers away in a roomful of people is their habit of looking too intently and too carefully at others (Joe Navarro, FBI special agent, personal communication, August 2001).

Culture. In Japan, listeners are taught to focus on a speaker's neck in order to avoid eye contact, while in the U.S., listeners are encouraged to gaze into a speaker's eyes (Burgoon et al. 1989:194).

Espionage. "If someone should surprise you, stay calm. Look him right in the eye--always maintain eye contact. That way you don't look shifty-eyed, but, more important, all he will notice is your eyes." --CIA operative David Forden to Colonel Ryszard Kuklinski (Chelminski 1999; see **DECEPTION**)

Garden party. "After the host and the various guests embraced, they backed off and one or both always looked away. [Anthropologist Adam] Kendon calls this the cut-off and thinks it may be an equilibrium-maintaining device. Every relationship except a very new one has its own customary level of intimacy and if a greeting is more intimate than the relationship generally warrants, some kind of cut-off is needed afterward so that everything can quickly get back to normal" (Davis 1971:46).

How to accept criticism. "Look at the person criticizing you to show you are paying attention (but don't stare or make faces [and do **nod your head** to show you understand])" (Meisner 1998:106).

Literature. **1.** "At last, her shot being all expended, the child stood still and gazed at Hester with that little, laughing image of a fiend peeping out--or, whether it peeped or no, her mother so imagined it--from the unsearchable abyss of her black eyes." (Nathaniel Hawthorne, *The Scarlet Letter* [1850]) **2.** ". . . the attentive eyes whose glance stabbed." (Joseph Conrad, *Lord Jim* [1899]) **3.** "He met the eyes of the white man. The glance directed at him was not the fascinated stare of the others. It was an act of intelligent volition." (Joseph Conrad, *Lord Jim* [1899])

Nursery school. "The commonest response to me on my first visit, and to people making rare visits to the nursery school, is initially to stop and stare with no marked expression at the stranger. I find that if I look back at a staring child or make any approach to it, it is likely to look away or go away. But if I make no response the child stops staring and often then brings some **object** to me and holds it out towards me at about the level of its waist" (Blurton Jones 1967:353).

Primatology I. As primates we show an extreme alertness to where others are looking. Though we consciously control where our own eyes hover and land, eyes have "minds of their own" as well. We feel compelled to look at objects and body parts which our **primate brain** finds interesting (e.g., **faces**, **hands**, and **trees**)--or to gaze away from what it finds distasteful. In response to feelings of shyness, **submissiveness**, and **stranger anxiety**, an inner primate voice warns us to be careful and to "watch where we look." In crowded elevators, e.g., our eyes cannot roam freely across another's faces (as they can, e.g., freely watch **media** faces pictured in magazines and shown on TV).

Primatology II. **1.** "Thus, one interpretation of avoiding visual contact--which has been described in rhesus, baboons, bonnet macaques, [and] gorillas--is that it is a means of avoiding interactions" (Altmann 1967:332). **2.** "Facial expressions observed in threatening animals [wild baboons] consist of 'staring,' sometimes accompanied by a quick jerking of the head down and then up, in the direction of the opponent, flattening of the ears against the head, and a pronounced raising of the eyebrows with a rapid blinking of the pale eyelids" (Hall and DeVore 1972:169).

U.S. politics. "'I looked the man in the eye. I found him to be very straight-forward and trustworthy,' [President George] Bush said of the former KGB agent [Russian leader Vladimir Putin] standing by his

side. 'We had a very good dialogue. I was able to get a sense of his soul'" (Condon 2001:A1).

RESEARCH REPORTS: **1.** We generally begin an utterance by *looking away* and end it by *looking back* at the listener. While speaking, we alternate between *gazing at* and *gazing away* (Nielsen 1962, Argyle and Dean 1965, Kendon 1967). **2.** There is more *direct gaze* when people *like each other* and *cooperate* (Argyle and Dean 1965). **3.** People make *less* eye contact when they *dislike* each other or *disagree* (Argyle and Dean 1965). **4.** In primates, the unwavering gaze evolved as a sign of *dominance* and *threat* (Blurton Jones 1967, Eibl-Eibesfeldt 1975), while gaze avoidance originated as a *submissive cue* (Altmann 1967). **5.** "The [Bushmen] children often used to stare at each other until finally one gave up, by averting the eyes, **lowering the head** and **pouting**" (Eibl-Eibesfeldt 1975:184). **6.** "When the subjects gazed at the interviewer's eyes, the hand **self-manipulations** of the subjects increased, reflecting the upsetting effects of monitoring the interviewer's face during interaction" (Bod and Komai 1976:1276). **7.** *Direct gaze* (along with forward body and **smiling**) is a trustworthy sign of *good feeling* between new acquaintances (Palmer and Simmons 1995:156).

E-Commentary I: "As you said, it is very difficult to spot the dilation of the pupils, especially if the person has dark eyes. But my experience with hypnosis has helped me to identify some cues related to this phenomenon. When I hypnotize a person, I stay near his or her face, and can observe his or her pupils--and at the same time I note that other changes occur in the expression of gaze as well. In other words, I observe that when a person dilates the pupils, the gaze also appears to stare, empty and absent. So, when I see these expressions in the gaze of a person, even if he or she is far away, I know the pupils are dilated." --Marco Pacori (2/23/00 4:26:01 AM Pacific Standard Time)

E-Commentary II: "I found your page to be quite informative on the subject of eye contact, which is my chosen topic for my sociology class. I chose eye contact because as I walk through the halls at school, as well as when I enter a classroom where there are students sitting, I find that a majority of them, of all ages, shapes, and sizes, won't make eye contact with me. I have also observed this behavior in others who walk in after me. Since I believe eye contact to be the first, and therefore most important form of communication, I wonder why people avoid it so. Thus, my choosing eye contact for my paper." --P.B., Ivy State Technical College, Terre Haute, IN (9/13/99 11:37:24 AM Pacific Daylight Time)

E-Commentary III: "I stumbled on your web site as I was looking for the possible meaning to a nonverbal situation I encountered. I was speaking to a woman (personal, not work related) about a situation where someone we both know very sneakily managed to slough a task onto me that she had volunteered to do. The entire time I was speaking to this woman--easily 2-3 minutes--her eyes were totally closed! It was the most bizarre thing I've ever seen. Her face never left looking directly at me but her eyes were completely closed--she never opened them for so much as a second. I'm thinking that this was a defensive cue, but to have them closed for so long struck me as very odd. I noticed it immediately and couldn't take my eyes off her, waiting to see how long they would stay shut. I don't think I heard a word she was saying because of this eye behavior." --Megan (4/10/01 7:30:01 AM Pacific Daylight Time)

E-Commentary IV: "I have a question about eye contact. I've started a new job and my first day (yesterday) coincides with another member of our technical team (a woman) who also started yesterday. Whenever the three of us are standing together, my boss looks more directly at her than at me. Is this a sign of his disapproval and possible dislike of me, and his favoritism of her? I hate to start a new job on such a negative note, but I feel really rejected when he does this. Could you lend some thoughts as to whether this is disapproval or perhaps he just feels more comfortable with her? I'm not sure." --Adena (4/10/01 9:51:06 PM Pacific Daylight Time)

E-Commentary V: "Thanks so much for your response! He and I had a one-on-one conversation in his office my first day. This was such an important day for me. I was eager to get off on a good note. My colleague and I started the same day and he met with her first. He spent a lot of time with her and then when he met with me, he was so strange. He kept looking down and away from me. Then, he kept shuffling papers around and would stand up and walk over to his desk. After this, he was in a hurry to finish our meeting and kind of non-verbally tossed me out of the office. I guess I'm feeling like the yucky step-child in this boss/employee relationship when compared to my colleague. After this meeting, the next day, is when he approached both of us and started a conversation but looked at her the entire time. How strange!" --Adena (4/12/01 10:10:51 PM Pacific Daylight Time)

Neuro-notes. Feelings of **dominance**, **submission**, liking, and disliking pass from the **limbic system** and **basal ganglia** to the midbrain's *oculomotor* (cranial III), *trochlear* (IV), and *abducens* (VI) nerves (see **AMPHIBIAN BRAIN**). Acting in concert, these nerves lead our eye muscles to pull together in downward or sideward movements, depending on mood. Thus, e.g., submissive and aversive feelings move our eyes *subcortically* through **paleocircuits** established long ago in vision centers of the *midbrain*.

See also **EYE-BLINK**, **CLEM**, **GAZE-DOWN**, **LOVE SIGNALS III**.

Detail of photo by Esther Bubley (copyright *Life*)

HUMAN BRAIN

Give thy thoughts no tongue . . . . --Shakespeare (*Hamlet, I, 3*)

Evolution. **1.** Collectively, those modules, centers, and circuits of the brain which developed ca. 4 million-to-200,000 years ago in members of the genus, *Homo*. **2.** Specifically, those areas of the primate *forebrain*, *midbrain*, and *hindbrain* adapted for **a.** *emotional communication*, **b.** *linguistic communication*, **c.** *sequential planning*, **d.** *tool-making*, and **e.** *rational thought*.

Usage I: The human brain is both *verbal* (see **SPEECH** and **WORD**) and ***nonverbal***. Sometime between ca. 4 million and 200,000 years ago (anthropologists are not sure when) human beings began to speak. And yet, despite the immense power of words, nonverbal signals are still used **a.** to convey **emotions**, feelings, and moods; and **b.** to express the highs and lows of social status. Moreover, vocalizing itself--perhaps because speech and manual signing co-evolved--is accompanied in every culture by a panoply of **palm-up**, **palm-down**, **pointing**, and **mime cues**. (***N.B.***: Mime cues *pantomime* shapes, relationships, and concepts, unexpressed before *Homo* set foot in **Nonverbal World**.)

Usage II: Incredibly little is new in the human brain that cannot be found (on a simpler scale) in the **aquatic**, **amphibian**, **reptilian**, **mammalian**, and **primate brains** preceding it. Yet, from a nonverbal perspective (i.e., one focusing on communication), what sets our brain apart are those highly specialized areas which control *fine motor movements* of the fingers, lips, and tongue, all of which evolved as neurological "smart parts."

Intellectual digits. Areas of neocortex empowered members of the genus *Homo* to move their fingers through complex sequences of steps resulting in the manufacture, e.g., of *Oldowan stone tools* (see **ARTIFACT**). Following up perhaps 200,000 years ago, early members of *Homo sapiens* moved their

fingers, lips, and tongues in a parallel, sequenced manner to communicate *about* the manufacture of tools and artifacts. By mirroring the process, i.e., by pantomiming it through patterns of articulation (manual as well as vocal), *language* was born.

Mental imagery. The brain creates its own nonverbal imagery (i.e., "sees" without external visual input, through the "mind's eye") by activating ". . . the dorsal (area 19) and ventral (fusiform gyrus) visual association areas, superior and inferior parietal cortex, as well as other nonvisual cortices such as the dorsolateral prefrontal cortex and angular gyrus" (Miyashita 1995:1719).

Right brain, left brain I. Studies agree that as nonverbal cues are sent and received, they are more strongly influenced by modules of the right-side neocortex (esp. in right-handed individuals) than they are by left-sided modules. Anatomically, this is reflected **a.** in the greater volume of *white matter* (i.e., of myelinated axons which link nerve-cell bodies) in the right neocortical hemisphere, and **b.** in the greater volume of *gray matter* (i.e., of nerve cell bodies or neurons) in the left. The right brain's superior fiber linkages enable its neurons to better communicate with feelings, memories, and senses, thus giving this side its deeper-reaching holistic, nonverbal, and "big picture" skills. The left brain's superior neuronal volume, meanwhile, allows for better communication among the neocortical neurons themselves, which gives this side a greater analytic and intellectually narrower "focus" (see, e.g., Gur et al. 1980). Research by UCLA neuroscientist, Daniel Geschwind and colleagues shows that left-handers have more symmetric brains, due to genetic control; the sides are more equal than those in brains of right-handers (March 11, 2002 article in *Proceedings of the National Academy of Sciences*).

Right brain, left brain II. Communication problems due to deficits in the usually dominant left-brain hemisphere include Broca's aphasia and ideomotor apraxia. Problems in the usually nondominant right-brain include aprosody, inattention to one side of the body (hemi-inattention), visuospatial disorders, and affective agnosia. The dominant hemisphere produces, processes, and stores individual speech sounds. The nondominant hemisphere produces and processes the intonation and melody patterns of speech (i.e., *prosody*; see **TONE OF VOICE**).

Right brain, left brain III. To assist in the production and understanding of nonverbal cues, fiberlinks of white matter connect modules of neocortex within the right-brain hemisphere. Preadapted white-matter fibers link modules within the left-brain hemisphere, as well, to assist in the production and understanding of speech. **1.** Axon cables make up short, U-shaped *association tracts* which link adjacent neocortical gyri. **2.** Longer, thicker association-tract cables link more distant modules and lobes within each hemisphere. Linguistically, the key cable is the *superior longitudinal fasciculus*. It links the temporal lobe's area 22 and the frontal lobe's area triangularis to the angular gyrus and the supramarginal gyrus of the parietal lobe. The best known part of this important communications cable is the left-brain's *arcuate fasciculus* (see **VERBAL CENTER**).

Supplementary motor cortex (SMC). **1.** "Stimulation of the supplementary motor cortex can produce vocalization or complex postural movements, such as a slow movement of the contralateral hand in an outward, backward, and upward direction. This hand movement is accompanied by a movement of the head and eyes toward the hand" (Willis 1998:215). **2.** Imaging studies reveal that merely thinking about a body movement activates the supplementary motor cortex; the subsequent movement itself activates both

the latter area and the primary motor cortex (Willis 1998:216). [**Author's note**: We hypothesize that PET studies of linguistic tasks showing SMC activity that is unrelated to speech may reveal gestural fossils ("ghosts") of movements humans once used to communicate apart from (i.e., before the advent of) words themselves.]

Neuro-notes I. The jump from posture, facial expression, and gesture to sign language and speech was a quantum leap in evolution. And yet, the necessary brain areas (as well as the necessary body movements) were established hundreds of millions of years before our kind arrived in Nonverbal World.

Neuro-notes II. To the primate brain's hand-and-arm gestures, our brain added precision to fingertips by attaching nerve fibers from the *primary motor neocortex* directly to spinal motor neurons in charge of single muscle fibers within each digit. Direct connections were made through the descending *corticospinal tract* to control these more precise movements of the hand and fingers.

Neuro-notes III. With practice we can thread a needle, while our closest animal relative, the chimpanzee, cannot. No amount of practice or reward has yet trained a chimp to succeed in advanced tasks of such precision; the primate brain simply lacks the necessary control.

Neuro-notes IV. As our digits became more precise, so did our lips and tongue. These body parts, too, occupy more than their share of space on the primary motor map (see **HOMUNCULUS**).

Neuro-notes V. Using the mammalian tongue's *food-tossing* ability as a start, our human brain added precision to the tongue tip just as it did to the fingertips. Nerve fibers from the primary motor cortex were linked directly to motor neurons of the *hypoglossal nerve* (cranial XII) in charge of contracting individual muscle fibers within the tongue. Direct connections were made through the descending *corticobulbar tract* to precisely control movements of the tongue tip needed for speech.

Neuro-notes VI. Humans are what they are today because their ancestors followed a *knowledge* path. At every branch in the 500-million-year-old tree of vertebrate evolution, the precursors of humanity opted for brains over brawn, speed, size, or any lesser adaptation. Whenever the option of intelligent response or pre-programmed reaction presented itself, a single choice was made: Be smart.

See also **NONVERBAL BRAIN**.

PALM-UP

An important baton [i.e., speaking gesture] which ties him together with his [TV] viewers occurs when he [Phil Donahue] is seated with his elbows close to the body and his forearms stretch forwards [sic] at a 45° angle, palms wide open. -- Walburga von Raffler-Engel (1984:13)

Gesture. **1.** A speaking or listening gesture made with the fingers extended and the **hand**(s) rotated to an upward (or *supinated*) position. **2.** A gesture made with the opened palm raised to an appealing, imploring, or "begging" position.

Usage: Uplifted palms suggest a vulnerable or nonaggressive pose which appeals to listeners as allies, rather than as rivals or foes. Throughout the world, palm-up cues reflect moods of congeniality, humility, and uncertainty. (Palm-up gestures contrast with **palm-down** cues, which are more domineering and assertive-like in tone.) Accompanied by "*palm shows*," our ideas, opinions, and remarks may seem

patronizing or conciliatory, rather than aggressive or "pointed." Held out to an opponent across a **conference table**, the palm-up cue may, like an olive branch, enlist support as an emblem of peace.

Anatomy. As Darwin (1872) noted, palm-up signs are part of a *shoulder-shrug* posture involving the entire upper body. Lifting a shoulder stretches *trapezius* and *levator scapulae* muscles of our neck, tilting our head toward the shoulders' high side. **Head-tilt-side**, meanwhile, excites muscle-spindle receptors in our neck, stimulating a posture designed to stabilize the head relative to the body and the pull of gravity, released by the *assymetrical tonic neck reflex* or **ATNR**. In the shoulder shrug, the fingers on our neck's tilted side automatically extend as the hand rotates to a raised position, producing the palm-up cue. Rotation is due to contraction of the forearm's *supinator* muscle, stimulated by the 6th cervical nerve through the brachial plexus. Our upper arm's prominent *biceps* muscle flexes the elbow joint, and brings it closer into our body's side (i.e., *adducts* the arm at the elbow). Aiding supinator, biceps assists in rotating our palm to its uplifted position.

Culture. **1.** In North Africa, cradling one hand in the other "with both in the palm-up position" means, "I don't understand" (Morris 1994:105). **2.** In Saudi Arabia, the supinated *palms up* gesture--made with the upper arms held inward against the sides of the body, and the forearms extended and held forward, horizontally-- is a religious sign imploring the deity to witness a user's nonverbal statement, "I swear!" (Morris 1994:197). This Saudi cue incorporates the pancultural humility of the raised, supinated human hand.

Observations. **1.** A sales representative appeals to her boss with a palm-up cue: "Do you really want me to fly out to Cleveland tomorrow?" **2.** A teenager asks to borrow his mother's car, using a *raised palm* to plead: "Please, Mom?" **3.** In Ghana, a tribal woman gestures with *lifted palms* after hearing that her husband favors polygamy: "What can we women do?" she asks hopelessly. **4.** In the boardroom, a CEO appeals to his senior staff with a palm-up gesture and implores, "I need your help."

Psychiatry. In mental patients, "hands up" with "head up," followed by "hands drop," is a two phase gesture which comes from reaching up for help: "Pick me up" (Engel 1978).

U.S. politics. "Indeed, one of the reasons for Ronald Reagan's remarkable popularity in the United States today may well be his very liberal use of palm displays. How could anyone distrust a guy who is so genial, so disarming, so warm, and so comforting?" (Blum 1988:6-10).

RESEARCH REPORTS: **1.** The first scientific study of palm-up gestures was conducted by Charles Darwin (1872), who saw them as signs derived from a larger **shoulder-shrug display**. **2.** The open-palm-up *hand-shrug* is a sign of helpless uncertainty and confusion (Ekman and Friesen 1968; "The hand-shrug rotation . . . is an example of a nonverbal repetition of the verbal content; the rotating hands show a nonverbal inability to use the hands to do something, which parallels the verbal statements of uncertainty" [p. 209; Author's Note: This is a curious interpretation of the palm-up cue]). **3.** In chimpanzees, palm-up signs are used to beg for food, to invite bodily contact, and to seek support during a conflict: "We call the gesture with the extended arm and open palm '*holding out a hand*'. It is the most common hand gesture in the colony" (Waal 1982: 34-36). **4.** Palm-up cues are used to ask "who," "what,"

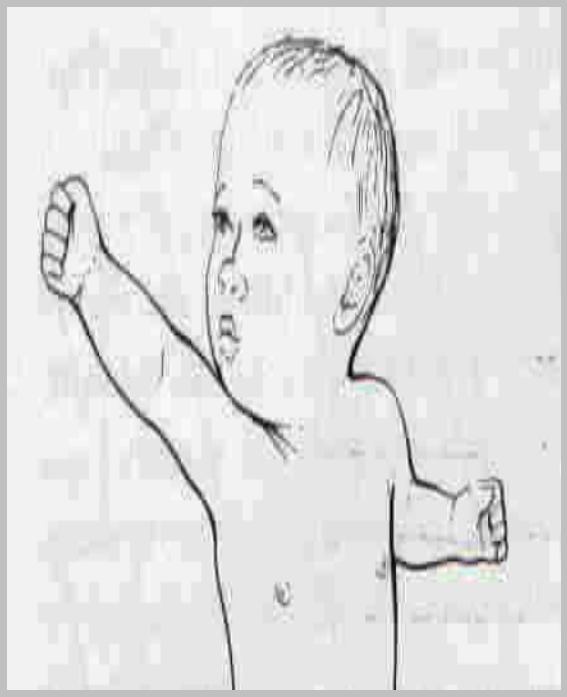
"when," "why," "where," and "how" questions in diverse sign languages of the deaf from Papua New Guinea to Colombia and New York (Givens 1986). **5.** Palm-up cues include: **a.** *hand cradle* ("I don't understand"), **b.** *hands shrug (1)* (a "disclaimer" in response to questions), **c.** *hands shrug (2)* (a "deceptive" speaking gesture), **d.** *palms up (1)* ("I implore you," used when public speakers "beg their audiences to agree with them"), and **e.** *palms up (3)* (widely used in religious prayer; Morris 1994:105, 137-8, 196-7).

Neuro-notes I. Upraised palms are gestural byproducts of an ancestral **crouch** display, a protective vertebrate posture designed to be defensive rather than offensive. Neural roots of palm-up cues thus reach back further in time than palms themselves--at least 500 m.y.a.--to protective **paleocircuits** for **flexion withdrawal** built into the **aquatic brain & spinal cord**. These circuits reflexively bend the ancestral body wall, neck, arms, and legs away from danger, while palms and forearms rotate upward through the action of primeval neck reflexes.

Neuro-notes II. Note that our palm-up rotations tend to be *one-handed* when stimulated by turning our head sideward, and when tilting it left or right--but *two-handed* when our neck is bent forward or backward (Kandel, Schwartz, and Jessell 1991). We do not ordinarily make conscious choices about the gesture, because we are too busy talking to notice or care. The emotions responsible for palms-up are located above the spinal cord in defensive areas of our forebrain's **limbic system** (notably the **amygdala**), passing through **basal ganglia** and *brain-stem* links to the cord below. Thus, our emotional brain unwittingly touches off *flexor-withdrawal gestures* designed to protect us from real and imagined harm, in jungles as well as in corporate boardrooms. That we do not deliberately gesture with palm-up cues places them among our most trustworthy signs.

See also **MIME CUE**, **POINT**.

ATNR



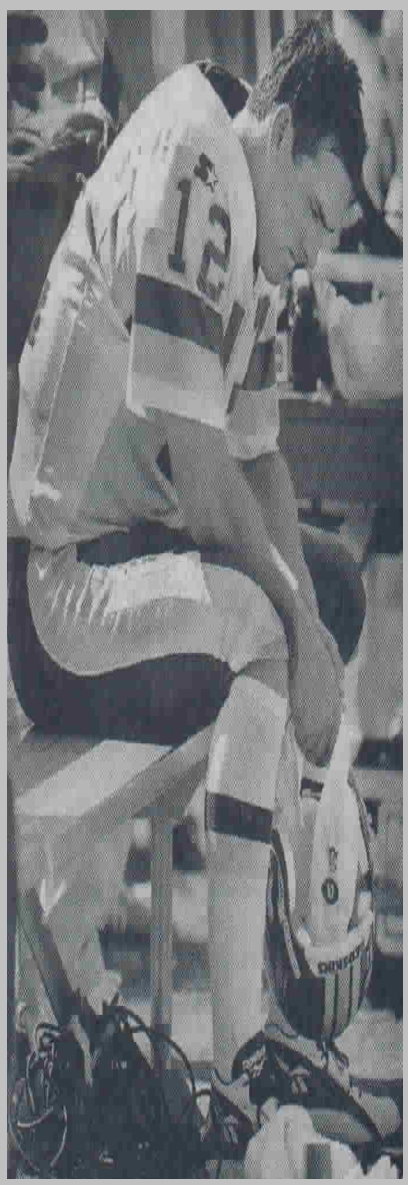
Asymmetrical tonic neck reflex. **1.** A gross motor reflex which provides neural programming for basic postures of the torso and limbs (e.g., in *crawling* and *reaching*). **2.** The anatomical "*fencing posture*," produced by turning an infant's head to one side (e.g., leftward), showing **a.** *arm extension* and *upward palm-rotation* of the "face" or "jaw hand" (i.e., baby's right hand in this case), and **b.** *arm flexion* and *palm pronation* of the "head" or "skull hand" (i.e., baby's left; Peiper 1963:156). **3.** Reflexive in infancy, fragments of ATNR emerge as nonverbal **signs** in stressful, emotional, or physically demanding situations, and in sleep.

Usage: ATNR provides the basic wiring for one of our most telltale mood signs, the **hand-behind-head**. ATNR's reflexive, brain-stem circuitry makes this unconscious gesture a trustworthy indication of disagreement, **uncertainty**, frustration, and **anger**.

Art. Michelangelo's *The Three Labours of Hercules* (c. 1530) and Rodin's *The Age of Bronze* (1875-76) are classic examples of how artists may depict strong **emotion** in tense limb postures **released** by ATNR. One arm stretched fully forward, e.g., with the other flexed and curled behind the head, shows feelings powerful enough to have triggered the reflexive *fencing posture*.

RESEARCH REPORT: In the ATNR position, an infant gorilla's face hand clearly shows the **palm-up** position (Baumgartel 1976:69).

GAZE-DOWN



What ails you that you keep gazing on the ground? --Dante Alighieri (*Purgatorio, Canto XIX*)

Sign. **1.** Rotating the eyeballs in their sockets to a downward position. **2.** Bowing or tilting the head forward so that the eyes face the ground or floor.

Usage: Gaze-down may convey a defeated attitude. It may also reflect guilt, shame, or submissiveness, as when distorting the truth or telling a lie (see **DECEPTION**). Gazing down while--or shortly after--stating "I am innocent," e.g., shows that a speaker may not believe his or her own remarks. True statements are normally given with a confident, *face-to-face* or *level* gaze, which may be held longer than three seconds.

Anatomy. The six muscles that cooperate to move each eyeball are common to all vertebrates. Direct **eye**

contact (or *primary gaze*, i.e., looking straight ahead) involves all six muscles (Nolan 1996:60). Gaze-down occurs as the *inferior rectus* muscle, innervated by the *oculomotor nerve* (cranial III), contracts as the prime mover.

Courtship. The downward gaze is a standard cue used when courting couples speak.

E-Commentary: David, do you have any specific research information on how men tend to lower their eyes when speaking to women--which leads the women to believe men are looking at their chest? I would be curious to learn the reason this type of behavior occurs as I do not believe it is always deliberate on the part of men. --Jane (1/23/02 8:36:40 AM Pacific Standard Time)

RESEARCH REPORTS: **1.** *Look down* (e.g., "Looking down at floor") is included in two checklists of universal human cues (Grant 1969:526, Brannigan and Humphries 1972). **2.** Submissive children *glance down* (McGrew 1972). **3.** In primates an unwavering gaze shows dominance and threat (Blurton Jones 1967, Eibl-Eibesfeldt 1975), while *gaze avoidance* is a submissive cue (Altmann 1967). **4.** *Bowing the head forward* is a component of the protective **STARTLE REFLEX**.

E-Commentary: "Hi, my name is Danielle and I am attending Northern Illinois University. I am currently researching the body language of President Bill Clinton, specifically surrounding the Monica Lewinsky scandal. Any help, advice or guidance you could offer me would be greatly appreciated." (3/23/00 2:20:24 PM Pacific Standard Time)

U.S. politics. In a televised statement, while maintaining there was "no truth" to allegations about a sexual relationship with White House intern, Monica Lewinsky, President William Jefferson Clinton *swallowed* (see **ADAM'S-APPLE-JUMP**), *protruded his tongue* (see **TONGUE-SHOW**), and *gazed down* (*McLaughlin Group*, January 22, 1998). On January 26, 1998, after ***pointing*** *his finger* aggressively at the American people and stating, "I did not have sexual relations with that woman, Miss Lewinsky," President Clinton *gazed down*, *clenched his lips* (see **TENSE-MOUTH**), ***swallowed***, and *tongue-showed* as he left the podium. On September 9, 1998, in Orlando, Florida, President Clinton *shrugged his shoulders* (see **SHOULDER-SHRUG**) and *gazed down* during a nationally televised public apology as he said, "I've done my best to be your friend" (*Washington Post*, September 10, 1998). (***N.B.***: According to Whitewater special prosecutor, Kenneth Starr, "There is no substitute for looking a witness in the eye" [Associated Press, February 6, 1998].)

Neuro-notes. Feelings of guilt, shame, and submissiveness pass from the forebrain's emotional **limbic system** and subcortical motor centers (**basal ganglia**), to the midbrain's oculomotor (cranial III) and other cranial nerves. Acting in concert, our eye muscles pull together in downward or sideward eye movements, depending on the mood. Submissive feelings move our eyes downward through protective

paleocircuits established in lower (i.e., subcortical) vision centers of the midbrain. (*Voluntary* gaze-down involves higher brain centers, i.e., the *prefrontal eye fields*.) Flexing the head forward is controlled by the *nucleus precommisuralis* (separate from the *prestitial nucleus*, which is in charge of raising the head, e.g., in the arrogant **head-tilt-back** posture).

Antonym: **STARE**. See also **BOW**.

DECEPTION CUE

Carly returns to Sonny, who masks his relief over her return. --General Hospital (*Soap Opera Digest*, May 2, 2000, p. 104)

As a child, I never could understand how my mother knew every time I told her a lie. --Marjorie F. Vargas (1986:12)

Gesture. A nonverbal **sign** of verbal deceit, untruth, or lying.

Usage: A long-standing goal of nonverbal research has been to find reliable signs of deception. The quest is fueled by popular and scientific observations that deceit often is accompanied by unconscious signals revealing anxiety, stress, or shame while lying. Studies indicate that certain signs used when speaking (e.g., **a.** **gaze-down** and **b.** the rate of head and hand movements) do accompany lies. (***N.B.***: At the least, deception cues present **probing points** with which to guide inquiry regarding possible lies, much as *galvanic skin resistance* [see **SWEATY PALMS**] in tandem with physiological *breathing* and *heart rates* are used to measure autonomic stress in a polygraph test [see below, *Thermal imaging*].)

Caution. Nonverbal cues may be used as reliable indicators of anxiety and stress (see **BASELINE DEMEANOR**), but the nervousness itself does not necessarily indicate deception or lying (see below, *Media*).

Antigravity signs. FBI special agent Joe Navarro has observed that, from analysis of videotaped interrogations, deceivers are less likely than truth tellers to use "gravity defying" gestures--such as lifting the toes (while seated), **raising upward on the toes** (while standing, at the end of a sentence, e.g., to add emphasis), and **raising the eyebrows**--which demonstrate conviction and faith in one's own spoken words (personal communication, August 8, 2001; see below, *O. J. Simpson's murder trial*).

Brain fingerprinting. An experimental technique called MERMER (Memory and Encoding Related Multifaceted Electroencephalographic Responses) for detecting information related to events subjects have experienced (despite efforts to conceal that knowledge) was detailed in the *Journal of Forensic Sciences* ("Using Brain MERMER Testing to Detect Knowledge Despite Efforts to Conceal," January, 2001, Vol. 46, No. 1, pp. 1-9). Also known as "brain fingerprinting," MERMER is claimed to be 90-99% accurate, with 0 false-positives or false negatives. Subjects need not utter a word in the MERMER test. They are shown photographs of a crime scene, e.g., and those familiar with the scene show different brain-wave patterns than those who are unfamiliar with the scene.

Chimpanzee deception. In the broadest sense of the term, "deception" is rife in the animal kingdom. Nonpoisonous flies and snakes, e.g., may adopt the warning marks and coloration of poisonous species to seem, deceptively, more harmful than they are in fact (see also **LOOM**). The ability to deceive is highly evolved in primates (see below, *Nonhuman primates*). Our close animal relative, the chimpanzee (*Pan troglodytes*), e.g., is gifted in the art of deception: **1.** A young male, Dandy, withheld nonverbal cues of excitement to deceive other chimpanzees as to the location of hidden grapefruit, which Dandy subsequently consumed all by himself (Waal 1982). **2.** A 9-year old male, Figan, withheld nonverbal food calls to conceal a bunch of bananas, which Figan subsequently consumed all by himself (Goodall 1986). **3.** An adult male, Luit, pressed his lips together with his hand in an apparent attempt to hide the submissive fear grin he had given his rival, Nikki (Waal 1982).

Evolution. "If we speculate about the evolution of communication, it is evident that a very important stage in this evolution occurs when the organism gradually ceases to respond quite 'automatically' to the mood signs of another and becomes able to recognize the sign as a **signal**: that is, to recognize that the other individual's and its own signals are only signals, which can be trusted, distrusted, falsified, denied, amplified, corrected, and so forth" (Bateson 1955:40).

Literature. "If you had a hundred masks upon your **face**, your thoughts however slight would not be hidden from me." --Dante Alighieri (*Purgatorio, Canto XV*).

Media. "Another factor that makes it difficult to detect lies is that 'the fear of being disbelieved looks the same as the fear of being caught lying,' he [Dr. Paul Ekman] said" (Goleman, *New York Times*, C9, Sept. 17, 1991).

Nonhuman primates. In primates, "tactical deception" may include concealment, distraction, creating an image, manipulation, and deflection (Quiatt and Reynolds 1993:158-59).

Nonverbal changes. According to Mark Knapp, Judee Burgoon, and G. Miller, ". . . changes in nonverbal

behavior during deception consistently occur in six behavioral categories: (**a**) cues indicating underlying **anxiety** or nervousness, (**b**) cues indicating underlying reticence or withdrawal (including non**immediacy**), (**c**) excessive behaviors that deviate from the liar's **truthful response patterns**, (**d**) cues showing underlying negative affect, (**e**) cues showing underlying vagueness or **uncertainty**, and (**f**) incongruous responses or mixed messages" (Burgoon et al. 1989:270).

O. J. Simpson's murder trial. **1.** Listening to testimony about the location of his knit cap, Mr. Simpson visibly protested what he knew to be false. **2.** Listening to testimony accusing him of the murder of his wife, Mr. Simpson showed no visible protest and remained completely motionless in his seat. **3.** Why the stark contrast in his nonverbal demeanor? (***N.B.***: You be the judge.)

Palm-up. "Pilot studies had suggested that a particular emblem, the hand shrug [a palm-up cue] which has the meaning of helplessness or inability . . . would appear as a clue to the occurrence of deception. . . . . In this instance, we expected that the hand-shrug emblem was occurring as a nonverbal slip of the tongue, with little awareness on the part of the subject, and that it was a deception cue" (Ekman and Friesen 1972:367).

Self-touch. "We think the [hand-to-face] eyecover [of] shame expresses her main affective reaction to the two verbal themes, being hospitalized and having aggressive impulses" (Ekman and Friesen 1968:207; Author's Note: In the figure used to illustrate the eyecover cue, the subject is also gazing downward and touching her forehead with her hand).

Thermal imaging. A preliminary laboratory study by Mayo Clinic researchers (published in the journal *Nature*, January 3, 2002) used heat imaging to detect **facial flushing** around the eyes as a sign of deception. Study results showed the thermal-imaging technique to be about as reliable as the polygraph or "lie detector," which measures physiological arousal related to the fight-or-flight response. More research is planned, with an eye toward possible use in spotting terrorists at airports.

RESEARCH REPORTS: **1.** Deliberate control of body movement and the mental energy required to fabricate a lie have been suggested to explain the general research finding that *fewer body movements* occur with deception (Vrij et al. 1966). **2.** Lower rates of **head nodding** "are associated with deceitful communication" (Mehrabian 1972:102). **3.** Three ". . . extensive reviews of the data . . . showed that several nonverbal cues are, in fact, consistently related to deception" (Burgoon et al. 1989:270). "Deceivers display increased pupil dilation [see **EYES**], blinking rates, and adaptors [i.e., self-touching], more segments of body behavior, and fewer segments of facial behavior" (Burgoon et al. 1989:271). **4.** Paul Ekman suggests that one should ". . . *never reach a final conclusion about whether a suspect is lying or truthful based solely on either the polygraph or behavioral clues to deceit*" (Ekman 1992:238; italics are the author's). **5.** People make "fewer hand movements during deception compared to truth-telling" (Vrij et al. 1997:97).

STUDY ABSTRACT: "Research on the detection of deception, via non-verbal cues, has shown that people's ability to successfully discriminate between truth and deception is only slightly better than chance level. One of the reasons for these disappointing findings possibly lies in people's inappropriate

beliefs regarding lying behaviour. A 64-item questionnaire originally used in Germany, which targets participants beliefs regarding truthful and deceptive behaviour, was used. The present study differed from previous research in three ways: (i) instead of a student population, police officers and lay people were sampled, (ii) both people's beliefs regarding others deceptive behaviour and their beliefs regarding their own deceptive behaviour were examined, and (iii) both non-verbal cues to, and content characteristics of, deceptive statements were examined. Results were consistent with previous studies, which found significant differences between people's beliefs regarding deceptive behaviour and experimental observations of actual deceptive behaviour. Further, police officers held as many false beliefs as did lay people and finally, participants were more accurate in their beliefs regarding their own deceptive behaviour than they were in their beliefs regarding others behaviour" (Akehurst et al. 1996:461; © 1996 John Wiley & Sons, Ltd.).

See also **EYE-BLINK**, **FIGHT-OR-FLIGHT**, **SHOULDER-SHRUG**.

BASELINE DEMEANOR

Standard. **1.** The inventory of **gestures** and **postures** observed in relaxed settings which are free of social anxiety or stress. **2.** Nonverbal behaviors observed in *solitary* subjects, who may be reading, snacking, or watching TV. **3.** Those nonverbal cues presented during the initial "friendly" phase of an interview or interrogation, as opposed to those given off in the subsequent "stress" phase.

Usage: Before assigning a significance or a specific meaning to a body movement (e.g., as a sign of **deception**), it is necessary to make preliminary and follow-up observations of the subject's baseline demeanor. Tense individuals, e.g., may chronically **self-touch**, which makes the latter cue a less likely indicator of acute or situational stress (e.g., in response to a question asked at a **probing point**). Sociocultural background (i.e., ethnicity), gender differences, and neurological factors (see **AKINESIA**, **NLD**) should be noted as items of baseline demeanor as well.

Observation note. Body-motion behaviors not recorded in the baseline phase may carry special weight as signs of hidden attitudes, unvoiced moods, deceit, disagreement, and/or uncertainty.

See also **ANATOMICAL POSITION**, **BLANK FACE**.

AKINESIA

Neuro term. **1.** Difficulty *beginning* or *maintaining* a body motion. **2.** Symptoms include: **a.** slowed voluntary movements; **b.** difficulty in reaching for objects; **c.** inability to perform repetitive, simultaneous, or sequential body movements; **d.** immobile, expressionless, or masked face; **e.** loss of normal "restless" body movements while sitting; **f.** loss of arm swinging while walking; **g.** shuffling gait; and **h.** diminished finger dexterity.

Usage: Akinesia points to a variety of *neurological problems* (including, e.g., Parkinson's disease and brain damage associated with strokes). Akinesic behaviors affect an individual's normal nonverbal response, and may be (especially in older people) misconstrued as mood signs expressing emotions and feelings.

See also **APRAXIA**.

APRAXIA

Neuro term. **1.** Total or partial loss of the ability to carry out *learned body movements* (e.g., whistling, clapping one's hands, and tying shoelaces), despite the presence of a healthy sensory-motor nervous system. **2.** Inability to *plan* body movements, rather than problems carrying them out.

Usage: In a conversation, higher-level **gestures** (e.g., **mime cues**) mark the presence of *conceptual thought*. Seeing a **steeple** gesture in a listener, e.g., indicates a *thoughtful* (rather than an emotional, disagreeing, or uncertain) response to a speaker's remarks. Studies of apraxia suggest the neurological reasons for this view. Mime cues, such as imitating the act of threading a needle (unlike lower-level *emotional* gestures, such as expressing **anger** with a **table-slap**), are controlled by neocortical areas of the *parietal* and *left frontal lobes*--areas also used in **speech**.

RESEARCH REPORT: Higher-level *learned gestures* and spoken words are both mediated (in right-handed individuals) by premotor areas of the left frontal neocortex. Mime and steeple cues are controlled **a.** by a *hand-skills area* (located immediately anterior to the primary motor area for the digits and hands), and **b.** by *Broca's area* (traditionally associated with speech). As in proper grammatical speaking, our most complex hand gestures (e.g., miming the manual process used to make a stone tool) depend on *prefrontal control* to achieve the proper sequence of steps in the manufacturing process. (***N.B.***: Damage to the left frontal lobe not only causes apraxia but also a related speech defect known as *aphasia*.)

E-Commentary: "In my work with dyspraxic kids I have found it useful to think about how their reflexes develop in utero and through the first few years of infancy. Reflexive maturation is manifestly not achieved in dyspraxic children, the more primitive precursors often being readily elicited. For example, several teenagers I have met have not matured their startle response (Strauss reflex) to what you accurately describe and retain an active Moro (primate infant grasping) response as evident in newborn babies. The excellent summary "A Teacher's Window into the Child's Mind," by Sally Goddard, Fern Ridge Press, Oregon, gives an introduction for keen observers as to anomalous and difficult to decipher physical movement in adults. Hope this might help. --M.C., U.K. (8/4/01 3:01:31 PM Pacific Daylight Time)

Neuro-notes. "The most commonly noted error of *IMA* [*ideomotor apraxia*] is using body part as object, for example, using the index finger as if it were the shaft of a screwdriver [rather than using the fingers to 'turn' the imagined shaft]" (Watson et al. 1992:685).

See also **AGNOSIA**, **AKINESIA**.

STEEPLE

The simple act of placing the fingertips of either hand together in front of you to form a steeple is a very effective gesture that is rarely offensive and will establish you as someone [who is] both evaluative and in control. --Susan Bixler (*The Professional Image*, p. 238)

Gesture. A position in which the *tactile pads* of the fingertips of one **hand** gently touch their counterparts on the other.

Usage: The steeple cue, perhaps first identified by Ray L. Birdwhistell (Blum 1988) reflects precise thought patterns. It may be used while listening, speaking, or thinking, to entertain a provocative or novel idea, or to contemplate a creative solution to problems at hand.

Business. Steeple gestures may be used above a **conference table** to show that one is listening thoughtfully to a colleague's ideas and comments.

Media. In a classic black-and-white photo by Alfred Eisenstaedt, physicist Robert Oppenheimer steepled his fingers while conversing with Albert Einstein on December 29, 1947.

Observation. **1.** The condominium president *steepled his fingers* at chest level at his body's midline and replied, "I know what I'm going to do about the board meeting." **2.** The CEO *steepled* and leaned back in his boardroom chair as he asked senior staff, "What shall we do about this problem?" **3.** Steeple gestures may be observed at training lectures, news briefings, and seminars on financial planning, e.g., where precise digital opposition reflects careful reasoning, calculation, scheming, and thought.

Parallel palms. A common variant of the steeple cue is the widespread parallel-palms gesture. In parallel

palms, the open hands are held facing--i.e., parallel to--one another as they are raised and lowered together (i.e., in tandem) in beating or chopping motions to strengthen a verbal point. As demonstrative speaking gestures, parallel palms are often seen in the courtroom as lawyers seek to manifest or prove an oral argument. Parallel palms are used by politicians, as well, to present arguments which they believe to be cogent, sound, and valid. Thus, parallel palms is an "exploded" version of the steeple cue, in which a speaker's opened hands are extended and aggressively shaken at listeners to show **a.** precise thought and **b.** a strong emotional conviction about the thought's validity. (***N.B.***: Note how, because the hands are held midway between the **palm-down** and **palm-up** positions, parallel-palms cues suggest the physical act of grasping, holding, or seizing a concept.)

World politics. Winston Churchill and Mikhail Gorbachev used the steeple gesture to signal self-confidence as they spoke and listened. Regarding Gorbachev, "He steeples in Moscow. He steeples in Washington. He steeples when he listens. He steeples when he talks. He steeples high. He steeples low. He even steeples when he smiles" (Blum 1988:3-14).

RESEARCH NOTES: **1.** *Finger-thumb steeple*: "One hand movement which we filmed in a wide variety of places, is habitually used in speech. This involves placing the tips of the thumb and forefinger together to emphasize a line of argument. Usually, the hand moves agitatedly to and fro, and the speaker often concludes the gesture by abruptly baring his open palm at the other party" (Hass 1970:148). **2.** "When a person in a private session with me displays this behavior and I ask what they are feeling, I can get a range of responses. If, however, I phrase my question in a leading way such as, 'I sense you're feeling pretty confident about what you've just said . . .,' I will invariably get an affirmation. If the person does not verbally confirm confident feelings, the steepling generally stops when I ask the question this way" (Blum 1988:3-13). **3.** *Fingers steeple*, a widespread gesture, means "I am thinking" (Morris 1994:65).

E-Commentary: "One of the areas that has always fascinated me is watching the steepling gestures which I have seen, as you mentioned, during precise thinking. But I have also seen it as a territory marker (wide elbows); where two or more men with big egos were doing it, I have literally seen the senior, more dominant person lift his steepled hands above his head and crown himself as he declared the final and decisive order. For a minute, I thought Napoleon had crowned himself all over again. Everyone in the room I later interviewed had missed it, but I saw it coming and thought it amazing." --Joe Navarro, FBI Special Agent (1/13/00 2:57:34 PM Pacific Standard Time)

Neuro-notes I. Steepling arose from brain modules of the **precision grip**, a position of the hands perhaps first used ca. 2.6 m.y.a., when our ancestors opposed their digits to make stone tools. Controlled in part by highly evolved areas of our neocortex's *parietal lobe* (see **HUMAN BRAIN**), *precision gestures* bear a close relationship to tool-making itself--i.e., to the *sequentially ordered* hand movements once employed to chip flakes from a core of stone. Today, steepling reflects higher-order thought processes, as dexterous brain modules for tool-making shift into gear for problem-solving, planning, and design.

Neuro-notes II. The neocortex's *supplementary motor area* (SMA) helps organize the voluntary finger movements of the steeple cue. Generally, the SMA controls the sequential movements of complex,

bilateral hand gestures (see, e.g., Ghez 1991B). Studies suggest that SMA's involvement is ". . . more reliant upon timing than on spatial cues, indicating its role in the temporal organisation of sequential movements, rather than the programming of spatial movement parameters (Cunnington et al. 1996). The SMA on both sides of the brain activates even when a hand movement on only one side is made (Tanji and Kurata 1982; which explains the odd movements and postures our left hand may assume as we paint a wall with our right).

See also **MIME CUE**, **POINT**.

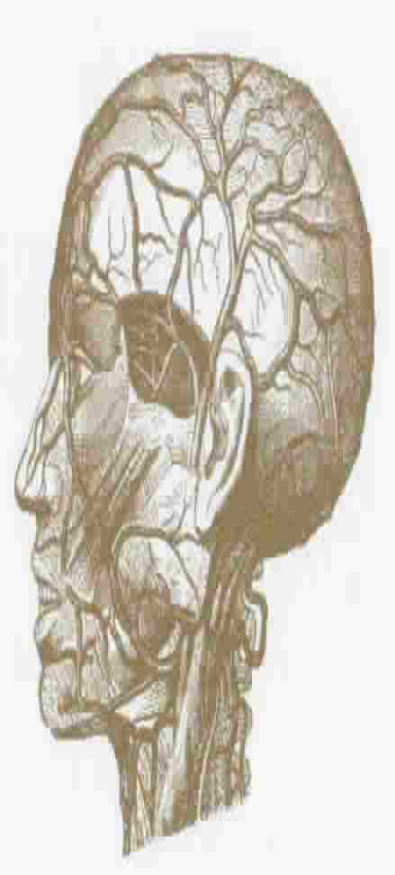
NONVERBAL RELEASE

Principle. The idea that certain **body movements** and **gestures** (e.g., **hand-behind-head**) may be touched off automatically by strong **emotions**, feelings, and moods.

Usage: Nonverbal release is a reminder that much of our body-motion communication is emitted apart from conscious awareness.

See also **NONVERBAL CONSCIOUSNESS**.

NONVERBAL CONSCIOUSNESS



***Author's invitation**: Readers are cordially invited to contribute ideas on the topic of "nonverbal consciousness," CNS's initiative for calendar years 2000 through 2001. Please mail or **e-mail** your insights to David B. Givens or Susan E. Wong at the Center for Nonverbal Studies (address below). Results will be published on this page, and a final report will be presented at the November 2001 Annual Meeting of the American Anthropological Association.*

[**Updated 06-27-2001**.]

For the first time in four billion years a living creature had contemplated himself and heard with a sudden, unaccountable loneliness, the whisper of the wind in the night reeds. Perhaps he knew, there in the grass by the chill waters, that he had before him an immense journey. --Loren Eiseley, *The Immense Journey* (1957)

Concept. The state or condition of being aware--apart from the effects or influence of **words**--of one's own existence, environment, and sensations, i.e., of one's own self and place in **Nonverbal World**.

Usage: Approaching human consciousness from a novel perspective--i.e., from that of the **nonverbal brain**--promises to shed new light on the perennial, philosophic issue of *mind*. Our species's bias for **speech** has to date obscured the preverbal origins and underpinnings of consciousness.

Significance. Ironically, the feeling that something is real, true, and right comes not from the thoughtful speech areas and association modules of our neocortex, but from evolutionary older--and nonverbal--

emotion centers of our limbic cortex (see MacLean 1990:17).

Word origin. The word *conscious* comes from Latin *com-*, com- + *scire*, to know.

CNS staff hypotheses to date: **1.** A working idea is that our (self-) consciousness may have evolved from neural modules and circuits earlier adapted to *childcare* (see, e.g., **CINGULATE GYRUS**). We somehow managed to turn our emotions and feelings for others inward and toward ourselves (see below, *Neuroscience*). **2.** We're betting that consciousness is an ***emotion***, rather than a byproduct of the thinking brain, and that human consciousness surely preceded linguistic expression. **3.** Nonetheless, language does give an ability to talk about and explore this emotion. **4.** The word "consciousness" itself, however, works to reify the concept, and diverts our attention from its nonverbal, emotional roots (see below, *Zen*). **5.** Consciousness may be a "*meta* sense," i.e., an emotional sensation of a sensation (e.g., of an *outer* sense [e.g., smell, taste, sight, hearing, or touch] or of an *inner* sense [e.g., balance, pain, pleasure, digestion, or emotional feeling]).

Word substitution. Here's an exercise in critical thinking about nonverbal consciousness. For the quotes below, substitute the words in ***{braces}*** for the expert's words. Doing so reveals new facets of consciousness.

Altered states. **1.** "The common denominator [of altered states] often seems to be either sensory isolation (e.g., monastic life, an isolation tank, meditation [see below, *Japanese tea ceremony*], dreams) or sensory overload (e.g., repetitive chanting, Holy Roller revival meetings)" (Hooper and Teresi 1986:254). **2.** "What this [the neurological effect of LSD] suggests is that the **limbic system** is stimulated while the cortex, whose function it is to analyze and make fine distinctions, is suppressed" (Cytowic 1993:128). **3.** LSD makes our experience of, e.g., a color or body movement ". . . 'stick' at a detail of the perception, like a stuck phonograph needle, and this is what dominates the subjective experience" (Cytowic 1993:128-29).

Animal consciousness. "I feel that the play of young animals is a convincing criterion of consciousness, as also is curiosity, and the display of emotions, in particular the evidence of devoted attachment" (Eccles 1989:174-75).

Animal images. "Animal images woven into human consciousness form the vocabulary of our dreams and visions, our mythology, our attempts to understand and find . . . our place in the universe" (flyer distributed by the Zoological Society of San Diego, 1999).

Animal psychology. "Finally, the kinds of questions that emerge from the Nagel criterion--What is it like to be a bat, a dog, a dolphin?--are ominously reminiscent of the protracted arguments about the consciousness of ants and amoebas that caused so much trouble in psychology around 1900. Not that such "bat" questions are forever closed to scientific inquiry; but they certainly do not provide us with a modest, workable and consensus-building approach to the problem" (A Thoroughly Empirical Approach to Consciousness," Bernard J. Baars, *Psyche*1(6), August, 1994).

Anthropology. **1.** "We have no idea at present how the modern human brain converts a mass of electrical and chemical discharges into what we experience as consciousness" (Tattersall 2000:62). **2.** "It is impossible to be sure what this innovation [leading toward consciousness] might have been, but the best current bet is that it was the invention of language" (Tattersall 2000:62). **3.** "It was not in the nature of the Comanche to be [consciously] introspective. Nor was it in his nature reflectively to state his motives or ways of acting in formulae" (Wallace and Hoebel 1952:185).

Art. **1.** "For each [Baumgarten and Kant] came to regard aesthetic consciousness as a significant and unitary element of human experience generally" (Flew 1979:6). **2.** "Art is closely tied to metalinguistic awareness; the objects/feelings themselves can be conveyed by these depictions. The discovery of the linguistic self, the locus of intentional action, would lead to personal ornamentation and other indications of individuality . . ." (Foley 1997; for discovery of the nonverbal self, see **WORD**, *Author's note*).

Biology I. Consciousness first appeared in vertebrates ca. 200 m.y.a., in mammals, according to neurophysiologist John Eccles of the Max Planck Institute for Brain Research in Frankfurt [378:234].

Biology II. *By introspection* **{*indigestion*}** *we have access only to a limited amount of what is going on in our brains*. --Francis Crick (*CNS Note*: We are not trying to be cute here, but only to point out that scholars--who are highly verbal creatures--often favor verbal modes of introspection over those available by nonverbal means, despite a possibility that consciousness itself may be nonverbal, i.e., may exist as a state of emotion or as a nonlinguistic feeling [see below, *Philosophy II*].)

Biology III. "We can speak of an animal as conscious when it is moved apparently by feelings and moods

and when it is capable of assessing its present situation in the light of past experience and so is able to arrive at an appropriate course of action that is more than a stereotyped instinctive response" (Eccles 1991:173).

Biology IV. ***NEW***. "I believe that it is the result of an inherited human propensity to pay special attention to the actions of other people" (Young 1978:31). *Author's note*: This is reflected in, and adumbrated by, the worldwide linguistic use of personal pronouns, such as "you," "she," and "me," which open consciousness to ourselves and others.

Biology V. Francis Crick (Salk Institute) and Cristoff Koch (Cal Tech) study consciousness by looking at the neural correlates of vision **{*touch*}**.

Blindness and deafness I. "Once I knew the depth where no hope was, and darkness lay on the face of all things. Then love came and set my soul free. Once I knew only darkness and stillness. Now I know hope and joy. Once I fretted and beat myself against the wall that shut me in. Now I rejoice in the consciousness that I can think, act and attain heaven. My life was without past or future; death, the pessimist would say, 'a consummation devoutly to be wished.' But a little word from the fingers of another fell into my hand that clutched at emptiness, and my heart leaped to the rapture of living. Night fled before the day of thought, and love and joy and hope came up in a passion of obedience to knowledge. Can anyone who escaped such captivity, who has felt the thrill and glory of freedom, be a pessimist?" (Helen Keller, "Optimism," 1903)

Blindness and deafness II. "Intensely imitative and sensitive to all aspects of her environment that she could touch, taste or smell, she [Helen Keller] quickly learned to do household and kitchen chores and delighted in them" (Wills 1993:285).

Blindsight. Cortically blind people can "see" the location of a light flashed on a wall, with an accuracy of 80% (Restak 1994). This ability, which is entirely unconscious, is known as *blindsight*. It is made possible by vision centers of the **midbrain** called the *superior colliculi*. Blindsight has implications for the study of nonverbal consciousness. The feeling that "something or somebody" is present in a room, e.g., may be due to sensations received by similarly unconscious modules of the central nervous system. Another area of the brain known to work in the background, i.e., out of conscious awareness, is the hindbrain's *cerebellum*.

Classical science. *How it is that anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue, is just as unaccountable as the appearance of the Djin, when Aladdin rubbed his lamp*. --Thomas Huxley

Color. "Isolated Neuroscientist in a black-and-white room knows everything about how the brain processes colors but does not know what it is like to see them. This scenario suggests that knowledge of the brain does not yield complete knowledge of conscious experience" (Chalmers 1995:81).

Color red. ***Q*:** "What, for example, could a complete map of the visual pathways ever tell us about the subjective redness of the color red?" (Loosemore 2000:10 [*Scientific American*]). ***A*:** "Loosemore does

not have to accept my proposal, but the aim of my effort is clear: to understand not just how, say, the color red is mapped but also how we have a subjective perspective of redness" (Damasio 2000:10 [*Scientific American*]). [In the act of pointing at a bright red balloon, e.g., an excited young child shows mother his emotional response to the balloon and its color; see *Zen* and *Neuro-notes III* below.]

Coma & death. When does nonverbal consciousness cease? Presumably, when **a.** doll's-head eye movements cease; **b.** pupils do not react to light; **c.** there is no response to corneal stimulation; **d.** there is no eye deviation in response to ice-water irrigation of the tympanic membrane; **e.** there is no gag reflex; **f.** there is no cough reflex; **g.** there are no cranial-nerve-mediated motor responses to strong stimulation of the nail beds or supraorbital area; and **h.** there is no spontaneous breathing (*Gray's Anatomy* 1995, 38th Ed., p. 1011).

Evolution. "And standing thus [while making **eye contact** with a frog] it finally comes to me that this is the most enormous extension of vision of which life is capable: the projection of itself into other lives. This is the lonely, magnificent power of humanity. It is, far more than any spatial adventure, the supreme epitome of the reaching out" (Eiseley 1957:46).

Facial images. "Research shows that right in the delivery room an infant will pay attention to [i.e., become conscious of] a person's face or a picture of a face, and will follow its movement with his eyes" (Chase and Rubin 1979:66).

Hypnosis. **1.** "And proofs are not wanting in hypnotic behaviour itself that the 'subliminal soul' is in reality only the 'animal soul' still present in man's mentality" (*The Soul of the Ape*; Marais 1969:148). **2.** In human beings, ". . . certain characteristic attributes of instinctive mentality at once become clearly recognisable in hypnotic behaviour. The chief of these are: 1. Absence of consciousness. 2. Suggestibility. . . . . 3. Extreme sense-acuteness [see above, *Altered states*]. 4. High perfection of the 'place memory'" (Marais 1969:149). **3.** In 1882, "Viennese physician Joseph Breuer, 40, discovers the value of hypnosis in treating a girl suffering from severe hysteria, pioneering psychoanalysis" (Trager 1992).

Immunology. "'How do you know who you are?' Rodney Langman asks his students. Langman, a staff scientist at The Salk Institute, is not bidding them to ponder existential philosophy. Rather, his inquiry is meant to stir up their minds about the workings of the immune system--the army within that protects each of us from invasion by pathogens" (Clancy 2000:17).

Japanese tea ceremony. Many cultures have devised ways for their members to periodically break the bonds of linguistic consciousness, distraction, and thought. The Japanese tea house, e.g., is designed as a nonverbal **consumer product** whose theme is an approximation of **Nonverbal World**: "Tea houses were a place for [wordless] concentration. The garden was and is not in view so the inhabitants will not be distracted. Guests go from a waiting lodge to a waiting bench both in the outer tea garden. This is where the host meets them. In the meantime they are able to absorb the beauty of the garden and prepare themselves spiritually for the tea ceremony" (Anonymous, N.D.:4).

Language. **1.** "The use of the term 'forced observation' must not be construed to imply that a speaker of a

language is conscious of being compelled to notice certain aspects of his environment. Most often he makes these observations naturally, almost unconsciously, and certainly with no feeling of constraint" (Henle 1958:383). **2.** "In the case of the left [brain] hemisphere, consciousness is linked with language capacity" (Restak1994:127). **2.** "Of all the characteristics that differentiate humans from their nonhuman cousins, the ability to communicate through the use of a sophisticated spoken language is, I believe, the most significant" (Goodall 1990:208).

Levels of consciousness. The five levels of consciousness used in the standard neurologic examination include **a.** *alert*, **b.** *lethargic* (drowsy), **c.** *obtunded* (asleep), **d.** *stupor* (semicoma, can be aroused but returns to unconsciousness without strong stimulation), and **e.** *coma* (deep coma, cannot be aroused; Nolan 1996:24).

Literature. *Not a word he [Captain Ahab] spoke; nor did his officers say aught to him; though by all their minutest gestures and expressions, they plainly showed the uneasy, if not painful, consciousness of being under a troubled master-eye*. --Herman Melville, *Moby Dick* (1980 [1851]:130)

Media. "Kick a dog and you can be pretty sure that the next time it sees you it will associate you with being kicked," said [Gerald] Edelman [Neurosciences Institute, La Jolla]. "As a result, it may run away or bite you. It will not, however, sit there quietly and plot how to destroy your tenure as a professor." The latter ability, Edelman thinks, belongs only to human beings, and is due to a "higher-order consciousness." (*San Diego Union-Tribune*, Jan. 29, 1999, E-5)

Mind-body. "As to the mind-body problem, [Roger] Sperry defines consciousness as 'a holistic or emergent, functional property of high-order brain activity.' And that's about as elegant a definition as one can hope for" (Falk 1992:109). **{**Editorial comment: But where's the beef?**}**

Neanderthals. "We found that the two communities [Neanderthal and early *Homo sapiens sapiens*] were supported by different capacities for communication--verbal, visual and symbolic--and that this in turn affected their organization of campsites, their exploitation of the landscape, and their colonization of new habitats" (Stringer and Gamble 1993:219).

Neurobiology. *There is no working definition of consciousness--or more accurately, there are hundreds of working definitions*. --Terrence J. Sejnowski (Computational Neurobiology Lab, Salk Institute)

Neuropsychology. *But having reached that* [higher level of] *understanding* [of the biology of consciousness], *which we have not, I don't know if it will tell us much about the magic of consciousness, how and why we get something like self-awareness* **{*happiness*}** *out of matter*. --Larry Squires (University of California, La Jolla)

Neuroscience I (prefrontal cortex). *Further, damage to our frontal areas can reduce any of us to an almost subhuman level of functioning, a kind of psychic limbo where we dwell in an eternal present, devoid of what I consider our most evolved mental ability: our capacity to empathize with* **{*care for*}** *others*. --Richard Restak

Neuroscience II (split-brain experiments). **1.** "Our consciousness may be a single stream because it is the consciousness of our dominant hemisphere only" (Carter 1998:51). **2.** "Or it could be that there are many streams of consciousness in each of us . . ." (Carter 1998:53).

Paralysis. "I gradually learned to live day by day, to block from my consciousness any thoughts about the final outcome of the illness, to repress from awareness any vision of the unthinkable" (Murphy 1987:25).

Philosophy I. Suppose that there be a machine, the structure of which produces thinking, feeling, and perceiving; imagine this machine enlarged but preserving the same portions, so that you could enter it as if it were a mill. This being supposed, you might visit it inside; but what would you observe there? Nothing but parts which push and move each other, and never anything that could explain perception. --Leibniz

Philosophy II. Consciousness: "A term with two related philosophical uses: first, as for example, for Locke, in the sense of self-knowledge acquired by virtue of the mind's capacity to reflect upon itself in introspective acts analogous with perception; and second, in a broader modern sense, opposed to anaesthesia, designating what is held to be the general property of mental states" (Flew 1979:72-73). Would the pleasant "full" feeling after a meal count as an introspective act? (See, e.g., **ENTERIC BRAIN**, **REST-AND-DIGEST**.)

Philosophy III. Consciousness is *the ultimate mystery, a mystery that human intelligence will never unravel*. --Colin Tudge (Prof. of Philosophy, Rutgers)

Philosophy IV. "We **laugh**, therefore we are." (CNS staffers)

Physics. "At the atomic level, 'objects' can be understood only in terms of the interaction between the processes of preparation and measurement. The end of this chain of processes lies always in the consciousness of the human observer" (Capra 1977:126).

Primatology. **1.** "Having opened a window onto nonhuman consciousness, we discover a mental landscape resembling our own. We find that other primates, at least, are capable of elementary logic, jokes, banter, deliberate misinformation, cajoling, deep sorrow, [and] rich communication" (Hooper and Teresi 1986:54). **2.** ". . . it was proved, experimentally and beyond a doubt, that chimpanzees could recognize themselves in mirrors--that they had, therefore, some kind of self-concept" (Goodall 1990:21). **3.** "Some chimpanzees love to draw, and especially to paint" (Goodall 1990:22).

Right brain, left brain. Studies agree that as nonverbal cues are sent and received, they are more strongly influenced by modules of the right-side neocortex (esp. in right-handed individuals) than they are by left-sided modules. Anatomically, this is reflected **a.** in the greater volume of *white matter* (i.e., of myelinated axons which link nerve-cell bodies) in the right neocortical hemisphere, and **b.** in the greater volume of *gray matter* (i.e., of nerve cell bodies or neurons) in the left. The right brain's superior fiber linkages enable its neurons to better communicate with feelings, memories, and senses, thus giving this side its deeper-reaching holistic, nonverbal, and "big picture" skills. The left brain's superior neuronal volume, meanwhile, allows for better communication among the neocortical neurons themselves, which gives this

side a greater analytic and intellectually narrower "focus" (see, e.g., Gur et al. 1980).

Robotics. A third generation of robots ". . . will learn very quickly from mental rehearsals in simulations that model physical, cultural and psychological factors. Physical properties include shape, weight, strength, texture and appearance of things, and how to handle them. . . . . The simulation would track external events and tune its models to keep them faithful to reality. It would let a robot learn a skill by imitation and afford a kind of consciousness" (Moravec 1999:135).

Sleep. For early 20th-century psychologist, William James, consciousness is what we lose when we fall into a deep, dreamless sleep.

Space. "A section of the [London taxi] cabbies' brains, called the hippocampus, became enlarged during the two years they spent learning their way around the vast, complicated metropolis" (Boyd 2000; see **PRIMATE BRAIN**, *Climbing cues*).

Synonyms. Nonverbally "known, supraliminal; aware, appreciative, cognizant (KNOWLEDGE); sensible, aesthetic *or* esthetic, passible (SENSITIVENESS); calculated, studied, premeditated (PURPOSE)" (Lewis 1978).

Time. "Mental chronometry can be defined as *the study of the time course of information processing in the human nervous system*" (Posner 1978:7).

Vision. "It can be postulated that in evolution the emergence of conscious mental experiences matched the evolution of the visual processing mechanism (see, e.g., **FACIAL RECOGNITION**, *Neuroanatomy I & II*), and that it was essential in guiding the behaviour of the animal" (Eccles 1989:175).

Zen. "So long as we merely talk about it, so long as we turn over ideas in our minds about 'symbol' and 'reality,' or keep repeating, 'I am not my idea of myself,' this is still mere abstraction. Zen created the method (*upaya*) of 'direct **pointing**' in order to escape from this vicious circle, in order to thrust the real immediately to our notice **{*eyes*}**" (Watts 1957:126-27).

RESEARCH RESULTS: **1.** "Consciousness resists definition partly because it is so familiar" Restak1994:123). **2.** "But the right [brain] hemisphere's abilities (the intuitive apprehension of geometrical properties, copying designs, recognizing faces, and reading facial expressions) clearly imply that some degree of consciousness, albeit a nonverbal one, must exist [alongside the left hemisphere's linguistic consciousness (see above, *Language*)]" (Restak1994:127).

Neuro-notes I. It is within the *thalamus* that a human's central nervous system first experiences a consciousness of incoming sensations, before they are re-examined, upstream, in the neocortex [HB:5-17].

Neuro-notes II. As conscious creatures, we "can and do react with **fear** even though consciously we haven't the slightest idea what it is that is frightening us. Heightened 'startle responses,' sudden onsets of anxiety or even panic, personality characteristics like being 'hyper' or 'edgy'-these are everyday

examples" (Restak1994:147).

Neuro-notes III. "Objective brain processes knit the subjectivity of the conscious mind out of the cloth of sensory mapping [e.g., of a seen object on the visual cortex]. And because the most fundamental sensory mapping pertains to body states and is imaged as **feelings** [the mammalian cingulate cortex is key for Damasio], the sense of self in the act of knowing emerges as a special kind of feeling--the feeling of what happens to an organism caught in the act of interacting with an object" (Damasio 1999:117).

See also **NONVERBAL LEARNING**, **PAPERS ON CONSCIOUSNESS**.

CINGULATE GYRUS

Brain. **1.** The evolutionary new wing of the **mammalian brain**, in charge of grooming, *nuzzling*, and *cuddle* cues. **2.** The newest part of the **limbic system**, responsible for *maternal caring*, *play*, and *audiovocal* signals (Hooper 1986:48).

Usage: As the brain's maternal and childcare center, the cingulate gyrus mediates many of the **nonverbal cues** we give **a.** to babies, **b.** to small children, and **c.** to adults for whom we truly care (see **LOVE SIGNAL**) and care for.

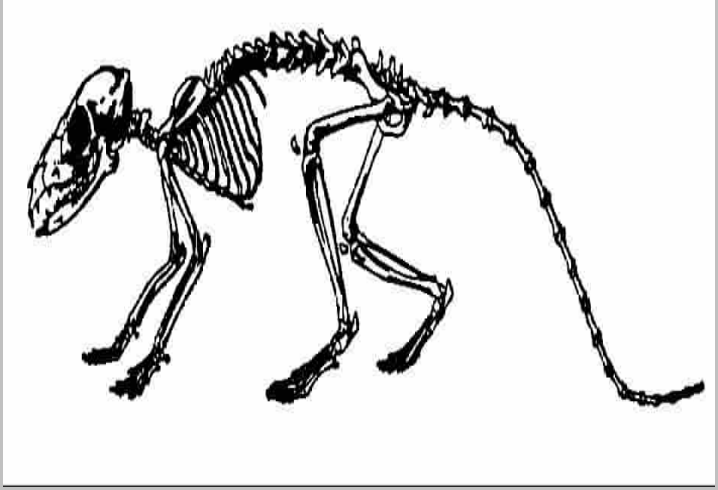
Anatomy. Located on the medial surface of the cerebral cortex (in the frontal and parietal lobes, above the corpus callosum), the cingulate gyrus receives **a.** subcortical signals from the thalamus (anterior nucleus) and **b.** cortical signals from modules of the cerebral cortex as well. It sends signals to the parahippocampal gyrus through a broad-band fiberlink called the *cingulum*.

RESEARCH REPORTS: **1.** "The posterior superior part of the cingulate gyrus is related to sexual behavior" and is also linked to OCD (obsessive-compulsive disorder; Diamond, Scheibel, and Elson 1985:5, 30). **2.** "It is of interest that stimulation and ablation of the cingulate gyrus result in a diverse range of emotional experiences corresponding to those described . . . for the **amygdala** and septum. It can be assumed that the cingulate gyrus acts as an intermediary to the prefrontal cortex and orbital cortices . . ." (Eccles 1989:106). **3.** "Emotion-related movement [see, e.g., **SMILE**], then, is controlled from the anterior cingulate region, from other limbic cortices (in the medial temporal lobe), and from the **basal ganglia** . . ." (Damasio 1994:140-41). **4.** "We cannot mimic easily what the anterior cingulate can achieve effortlessly . . ." (Damasio 1994:141-42). **5.** "Its location makes the cingulate cortex an excellent candidate for the brain's emotional control centre, which is what it seems to be" (Carter 1998:101).

Neuro-notes. **1.** The cingulate gyrus is less tied to smell than is any other part of the limbic system, according to Paul MacLean, and has no counterpart in the **reptilian brain**. **2.** The *anterior* cingulate gyrus communicates between the *prefrontal cortex* and subcortical areas of the limbic system; bilateral destruction ". . . releases the rage centers of the septum and hypothalamus from any prefrontal inhibitory influence" (Guyton 1996:759). **3.** "We suggest that cells in the rostral cingulate motor area, one of the higher order motor areas in the cortex, play a part in processing the reward information for motor selection" ("Role for Cingulate Motor Area Cells in Voluntary Movement Selection Based on Reward," Keisetsu Shima and Jun Tanji, *Science*, Nov. 13, 1998, vol. 282, p. 1335). **4.** "Anatomical studies have revealed prominent afferent input to the CMAs [cingulate motor areas] from the limbic structures and the prefrontal cortex, which can send information about motivation and the internal state of subjects, as well as cognitive evaluation of the environment" (Shima and Tanji1998:1335). **5.** "When a person with a hand-washing compulsion is told to imagine themselves [sic] in some filthy place their caudate nucleus and orbital frontal cortex fire away like mad. An area in the middle of the brain--the cingulate cortex--also responds strongly. This is the part of the brain that registers conscious emotion, and its involvement demonstrates the emotional discomfort generated by OCD" (Carter 1998:61).

See also **CRY**, **HYPOTHALAMUS**.

MAMMALIAN BRAIN



Evolution. **1.** Any of several parts of the human brain to emerge during the mammalian adaptation **a.** to nocturnal (i.e., night) life, and **b.** to competition with reptilian foes. **2.** Specifically, those *forebrain* areas at the heart of the **limbic system** which generate emotions for parental care, playfulness, and vocal calling (MacLean 1990).

Usage I: By ca. 150 m.y.a., our mammalian forbears had entrusted their evolutionary future to a new and powerful form of arousal: **emotion**. In significant measure, the nerve network for emotions, feelings, and moods evolved from neural structures earlier committed to ***smell***.

Usage II: That emotions are like aromas--pleasant or unpleasant--is because they were designed from an *olfactory model*. Nonverbally, this shows, e.g., in the *curled-upper-lip* display, which reveals **a.** *nausea*, should we smell a fowl odor, and **b.** **disgust**, as we listen to a colleague's "rotten" idea. When something looks, sounds, or smells "fishy," the muscles of our **face** telegraph the reaction for all to see.

Usage III: The fourth great epoch of **nonverbal communication** took place during the evolution of the mammalian brain. In earlier brains, body movements appeared as *reflexes*. Neither learning nor memory was required, e.g., to **crouch** from a looming object, **startle** to a sound, or **withdraw** from a painful bite.

Embryology. The mammalian brain is visible by the end of the 5th week of life, as nerve cells project fibers from early nasal tissue to the front end of the rapidly growing cerebral hemispheres (i.e., the *telencephalon*). By week 6, *olfactory bulbs* begin to form, which eventually connect to an interpretive center for smell in the neocortex (in the *neopallium* or "new cloak") of the temporal lobe. The olfactory "smell brain" (i.e., the *paleopallium* or "old cloak") has important links to the limbic system.

RESEARCH REPORTS: *In proportion to brain size, humans have the largest limbic system of any vertebrate, making them the most emotional animals yet to walk the earth*. **1.** The earliest mammals ". . . were 'reptiles' that were active at night" (Jerison 1976:11). **2.** "The evolution of hearing and smell to supplement vision as a distance sense is sufficient reason for the evolution of an enlarged brain in the

earliest mammals" (Jerison 1976:11-12). **3.** "Progressive evolution of encephalization within the mammals came late in their history, in the last 50 million years of a time span of about 200 million years" (Jerison 1976:7).

Consciousness. Consciousness first appeared in vertebrates ca. 200 m.y.a., in mammals, according to neurophysiologist John Eccles of the Max Planck Institute for Brain Research in Frankfurt (Bower 1992:234). To seek primordial self-awareness, we go to great lengths to quiet the verbal dialogue, e.g., through meditation, chanting, or staring into a candle flame, in order to re-enter the original consciousness which lies beneath the chatty stream in a region of the brain stem known as the *thalamus*. We experience a deeper-level, mammalian form of consciousness in the evolutionary older thalamus, which is the central processing station for all the senses (except smell) on their routes to the cerebral cortex. It is within the thalamus that a human's central nervous system first experiences consciousness of incoming sensations, before they are re-examined upstream in the neocortex.

Neuro-notes I. **1.** "The paleomammalian brain is represented by the limbic system . . ." (MacLean 1975:75). **2.** "The neomammalian brain is represented by the rapidly evolving neocortex and structures of the brainstem with which it is primarily connected" (MacLean 1975:75).

Neuro-notes II. "In primitive brains, subcortical and extrathalamic sensory structures were crucial to sensory processing. Comparable structures continue to be important in the advanced brains of modern mammals [such as, e.g., the hindbrain's reticular formation and the midbrain's superior and inferior colliculi], even though the role of the cerebral cortex and thalamus in sensory processing has expanded enormously" (Willis 1998C:109). Studies in cats, e.g., show the superior colliculi to be especially important for perceiving objects in space; the acuity of "collicular vision" in humans is unknown (Willis 1998D; but see **NONVERBAL CONSCIOUSNESS**, *Blindsight*).

See also **PRIMATE BRAIN**, **REPTILIAN BRAIN**.

DISGUST

Emotion. A sickening feeling of revulsion, loathing, or nausea.

Usage: Disgust shows **a.** in a curled upper **lip**; **b.** in digestive vocalizations, e.g., of repugnance; **c.** in narrowed (i.e., partly closed) **eyes**; **d.** in lowered brows of the **frown** face; **e.** in backward head-jerks and side-to-side **head-shakes**; and **f.** in visible protrusions of the **tongue**.

Media. The green "Mr. Yuck" face sticker is a familiar graphic symbol used as a nonverbal poison-warning label for children.

RESEARCH REPORTS: **1.** Signs of disgust include *guttural sounds* (e.g., "ach" or "ugh"), a *retracted upper lip*, and *mouth movements* "preparatory to the act of vomiting" (Darwin 1872:256). **2.** In "disgust-revulsion," the *brows* are slightly narrowed, the *upper lip* is raised, the lip corners are drawn down and back, the *tongue* is moved forward or protruded, the *nose* is drawn up and wrinkled (i.e., the procerus muscle draws down the medial angle of the brows to make transverse wrinkles across the bridge of the nose; Izard 1971:243). **3.** Disgust shows most clearly in the *lower face* (Ekman, Friesen, and Tomkins 1971). **4.** Theoretically, disgust originated as a response to bad tastes, and later evolved as a moral emotion (as reflected, e.g., in college-students who judged the *raised upper lip* as a sign of aversion to body boundary violations, inappropriate sex, poor hygiene, and death; Rozin et al. 1994). **5.** Additional signs include a *wrinkled nose*, *raised nostrils*, and *lowered inner corners of the eyebrows* (Ekman 1998:256).

Evolution. Disgust is a mammalian elaboration of the *pharyngeal gag reflex*. The nerves and muscles used to close the mouth derive from the *1st* **pharyngeal arch**, while those constricting the throat derive from the *3rd* and *4th* arches. From the *2nd* arch, the facial nerve (cranial VII) contracts the *orbital muscles* to narrow the eyes, while *corrugator* and associated muscle groups lower the eyebrows, when we detect an offending **aroma** or **taste cue**.

Neuro-notes. In infants a bitter taste shows in *lowered brows*, *narrowed eyes*, and a *protruded tongue*. The noxious taste causes baby to protectively seal off her throat and oral cavity, as *cranial nerves IX* and *X* activate the pharyngeal gag reflex. Cranial *V* depresses her lower jaw to expel the unpleasant mouthful, then closes the mouth to keep unpalatable food out as cranial *XII* protrudes her tongue. The sickening feeling we associate with disgust is mediated by the **enteric brain**.

See also **EMOTION**, **EMOTION CUE**.

EYEBROW-LOWER

Facial expression. **1.** To frown or scowl, as in **anger**, concentration, displeasure, or thought. **2.** To depress, knit, pucker, or wrinkle the brow by contracting the *corrugator*, *procerus*, and *orbicularis oculi* muscles.

Usage: Lowering the eyebrows is a sensitive indicator of disagreement, doubt, or **uncertainty**.

Observation. Slightly lowered eyebrows may telegraph unvoiced disagreement among colleagues, as comments are presented at a **conference table**.

RESEARCH REPORTS: **1.** ". . .many kinds of monkeys, especially baboons, when angered or in any way excited, rapidly and incessantly move their eyebrows up and down. . ." (Darwin 1872:138). **2.** In nursery school children, attacks "are often preceded and accompanied by fixating the opponent and by what looks like a frown with lowering of the eyebrows and rather little vertical furrowing of the brow ('low frown') and no conspicuous modification of the mouth expression" (Blurton Jones 1967:355). **3.** Blind-and-deaf-born children frown in anger (Eibl-Eibesfeldt 1971:12). **4.** Lowered brows show anger (Ekman and Friesen 1976). **5.** "Puzzlement was displayed by curving the mouth downward, lowering the eyebrows and eyelids, **dropping** the jaw, and constricting the forehead muscles" (Burgoon et al. 1989:352). **6.** "A series of recent studies finds that men and women in a group situation are more likely to respond to female leaders with scowls and frowns, while smiling and nodding at male leaders who say the same thing" [*Manpower Comments*, May 1990:19].

Neuro-notes. A gestural fossil, the lowered-brows cue is innervated by **special visceral nerves**, originally designed for feeding. The expression is emotionally responsive today as it reflects visceral sensations (i.e., "gut feelings") aroused, e.g., by aggression or anger. In effect, we lower our eyebrows to

protect our eye openings, a form of "nonverbal lock-down." Emotional stimuli pass from higher brain centers to brain-stem nuclei below, where the *facial nerve* (cranial VII) arises in a special visceral motor column of the pons.

See also **CRY**, **EYEBROW-RAISE**, **HAT**.

Photo detail of Humphrey Bogart, from Warner Bros. movie, *The Roaring Twenties* (copyright Kobal Collection, London)

JAW-DROOP

Darrell Ehrlich scanned the crowd of airport travelers for the look. The **wide eyes**. *The slightly* drooping jaw. *The* rubbernecking. *That's when Ehrlich knew to make his move. "Can I help you?"* (Lindbergh Field airport ambassador reads cues to help puzzled passengers find their way [Millican 1998:B-1].)

Facial expression. **1.** A sudden and frequently sustained opening of the mouth visible in parted **lips** and dangling jaw, given in excitement, surprise or **uncertainty**. **2.** An open-mouth position often seen in sleep. **3.** A nonverbal **sign** to mock, challenge, or confront a foe. **4.** A chronically open position of the mouth and jaw observed in the mentally challenged.

Usage: The jaw-droop is a reliable sign of *surprise*, *puzzlement*, or *uncertainty*. The expression is often seen in adults and children who **a.** have lost their way (e.g., in airports), or **b.** are entering or walking through unfamiliar, crowded, or potentially threatening places (e.g., darkened restaurants, taverns, and bars).

Observation. A sudden appearance of slightly parted lips signals mild surprise, uncertainty, or unvoiced disagreement.

Media. The jaw-droop is a staple of science-fiction thrillers, as a sign of *disbelief* or *horror* while confronting colossal apes, giant lizards, and alien spacecraft. Classic jaw-droop movies include *King*

Kong (1933), *Godzilla, King of the Monsters* (1956), and *Close Encounters of the Third Kind* (1977).

Literature. "His lower jaw hung down as if lacking strength to assume its normal position." --Stephen Crane (*The Red Badge of Courage*)

Anatomy. In **standard anatomical position** (see **BLANK FACE**), the mouth is closed as muscle tone in *masseter*, *temporalis*, and *medial pterygoid* muscles is stimulated (in the awake state) by brain-stem impulses from the *ascending reticular activating system* to the *trigeminal nerve* (cranial V). In sleep, the chewing muscles relax and the jaw may droop of its own weight.

Muscles. *Platysma*, *lateral pterygoid*, and *digastric* muscles open our mouth as we gasp for air in shock or surprise.

RESEARCH REPORTS: **1.** Darwin (1872) included *opening of the mouth* (along with pupil dilation, **wide-eyes**, and **brow-raise**) as a sign of attention and surprise, attributing it **a.** to muscle relaxation (as amazement "absorbs" bodily energy), and **b.** to drawing in a sudden breath of air (as the body mobilizes for protective exertion). **2.** In "interest-excitement," the brows lift or lower slightly, the eyes open wide and fixate, and the lips may be parted (Izard 1971:242). **3.** The lateral pterygoid muscles "are the prime openers of the mouth" (MacKinnon and Morris 1990:43).

Neuro-notes: Emotional stimuli related to surprise or horror travel downward from the **limbic system** through the brain stem to the trigeminal nerve to contract the lateral pterygoid muscles and open the mouth. Trigeminal is an emotionally responsive (i.e., "gut reactive") **special visceral nerve**.

See also **FLASHBULB-EYES**.

FLASHBULB EYES

Facial expression. **1.** An involuntary and dramatic widening of the **eyes**, performed in situations of intense emotion, such as **anger**, surprise, and **fear**. **2.** A maximal opening of the eyelids (or dilation of the *palpebral fissure*) which shows the roundness and curvature (i.e., protrusion) of the eyeballs.

Usage: When we are truly *surprised*, rather than feigning the emotion for effect, as, e.g., in a conversation, two involuntary *visceral* muscles in our eyelids--the *superior* and *inferior tarsals*--widen our eye slits to make the eyes appear noticeably rounder, larger, and whiter. Like dilated *pupils* (another visceral sign of **emotional arousal**), flashbulb eyes are controlled by impulses from the nervous system's **fight-or-flight** division. As visceral signs, true flashbulb eyes are difficult to produce at will. Thus, they are all the more trustworthy as nonverbal cues, especially of *terror* or *rage*. In angry individuals, flashbulb eyes are a *danger sign* of imminent verbal aggression or physical attack.

Media. In the *Dracula* movies (e.g., of 1931, 1973, and 1979), actors Bela Lugosi, Jack Palance, and Frank Langella consciously *widened their eyes* before biting their victims' necks to draw blood. Had they felt true emotion, their eyes would have opened wider still.

RESEARCH REPORTS: **1.** Exaggerated *wide-eyes* are included as items for *surprise* in the Facial Affect Scoring Technique (FAST; Ekman, Friesen, and Tomkins 1971). **2.** In the *stare*, ". . . the eyelids are held wide open, exposing a greater area of eyeball than in the usual *open* position" (Brannigan and Humphries 1972:59).

Neuro-notes. Though we may consciously widen our eyes, maximal dilation of the eye slit enlists contractions of the tarsal muscles. These involuntary muscles of the upper and lower eyelids are

innervated by the *sympathetic* (i.e., *fight-or-flight*) division of the *autonomic* nervous system, working through the *superior cervical ganglion*. Thus, in staring, e.g., anger is expressed by unwittingly widened eyes.

See also **SWEATY PALMS**.

POINT

Pointing puts an idea into another's mind. (Paraphrasing a comment by Rita Carter [1998:141; see *Usage* below])

Gesture. **1.** Extending an index finger (or less frequently, other body parts such as the lips) to indicate the presence or location of objects, features, or forces. **2.** Stiffening a forefinger to direct attention to people, places, or things. **3.** A stabbing motion of the index finger, as given in **anger**.

Usage: We point with the second digit to turn another person's attention to something we, ourselves, see, hear, or smell. Because it refers to the outside world, the referential point is a high-level, language-like gesture. In babies, the referential point first appears at ca. 12 months of age, in tandem with the first use of **words**. (***N.B.***: Prior to the appearance of speech, pointing is a reassuring indicator of an infant's probable language ability.) While animals such as honeybees, e.g., can refer to environmental features, only humans point them out with fingers. At close quarters, pointing at another human being is almost universally considered an aggressive, hostile, or unfriendly act. Because it focuses so much attention upon the recipient, close-quarters pointing is frowned upon throughout the world (see *Anthropology* **4.** below).

Anatomy. We may extend all four fingers (the thumb has its own extensor muscles) in a coordinated way, by contracting the forearm's *extensor digitorum* muscle. Our index finger, however, has an extra forearm muscle (*extensor indicis*), which enhances the neural control of its muscular ability to point.

Anthropology. **1.** Kiowa Indians point at objects with pursed lips (LaBarre 1947). **2.** The Cuna Indians of San Blas, Panama use a pointed-lip gesture as a means of pointing (deixis) and of greeting others (Sherzer 1973). **3.** Pointing with protruded lips is also found in the Philippines, and in parts of Africa and South America (Morris 1994:156). **4.** Pointing a bone to direct psychic energy is commonly used by sorcerers

when casting a spell.

Evolution. A relatively recent gesture, pointing may trace back ca. 2.4 m.y.a. to neural circuits evident in the brain of our oldest-known human ancestor, *Homo habilis* (see **HUMAN BRAIN**). In tandem with **mime cues**, referential pointing may have helped set the stage for the debut of **speech** in **Nonverbal World**. Today, the point remains an effective means of communication, and has been extended for use in certain **consumer products** (e.g., in the tapered *pointer stick*, the *laser pointer*, and the *computer mouse*).

Observations. **1.** An excited toddler *extends her index finger* toward a chirping bird, as mother watches and smiles. **2.** A Brazilian Indian *points* to show an anthropologist where she forages in the rain forest. **3.** An angry manager frowns, compresses his lips, and *jabs his index finger* at the low sales figures on a flip chart.

Salesmanship. *One signal of a prospect's skepticism*: "The index finger is raised slightly for a second, then lowered" (Delmar 1984:46).

U.S. politics. On January 26, 1998, President William Jefferson Clinton pointed his index finger aggressively at the American people and stated, "I did not have sexual relations with that woman, Miss Lewinsky."

Word origin. *Point* originates from the ancient Indo-European root, peuk- ("to prick"); derivatives include *pugilism*, *punctuate*, and *puncture*.

RESEARCH REPORTS: **1.** Pointing and other *deictic movements* have been called *illustrators* (Ekman and Friesen 1969). **2.** Pointing is part of an infant's repertoire by 15 months of age. Children *point at* objects and gaze at their mothers, but "the mother herself is never pointed at" (Anderson 1972:208). **3.** "Prespeech is frequently combined with more complex and individuated finger movements, including pointing with the index finger" (Trevarthen 1977:252). **4.** The *pure point* follows the *hand-reach*: "Initially it is used like an indicating reach. But like most new forms, pointing [typically with vocalization and gazing back at the mother] explodes in usage soon after the first appearance (Bruner 1978:207). **5.** "Pointing emerges at 9 months but is not integrated with vocal activity until 14 months" (Murphy 1978:371). **6.** According to Vygotsky, the *pointing gesture* originates from infantile attempts to grasp objects in a mother's presence (Gray 1978). **7.** The *forefinger point (1)*, which evolved to aide in cooperative hunting, is used worldwide to indicate direction, "usually in response to a query" (Morris 1994:85). **8.** In the *forefinger point (2)*, "The forefinger points directly at the companion"; the stiffened finger resembles a "symbolic weapon, about to stab the victim" (Morris 1994:85). **9.** Morris (1994) lists 51 *forefinger* gestures, compared with 8 *thumb*, 19 *arm*, and 17 *fist* cues.

Neuro-notes I. The earliest pointing is clearly *emotional*, as babies point to share their excitement with adults nearby (see **EMOTION**). The gesture itself, however, is controlled by newer, more advanced, non-emotional modules of the forebrain's *neocortex*. Nerve fibers from its primary motor areas *link directly to motor neurons*, enabling the index finger to move deliberately and with great precision. The long nerves

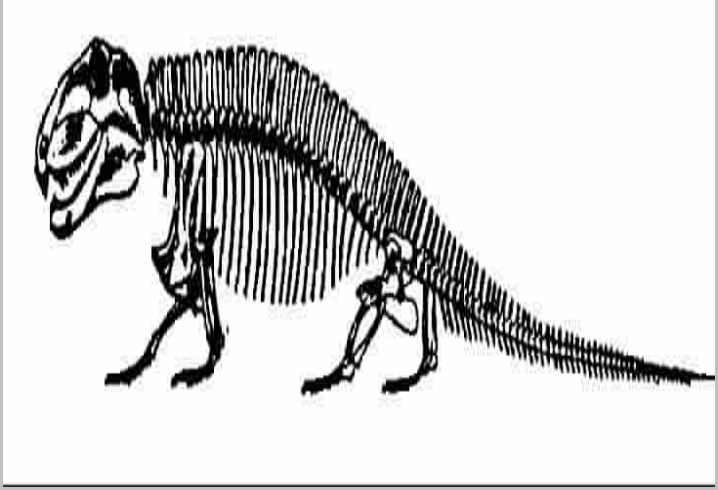
descend in a "mental expressway" which bypasses ancient brain-stem paths and fall *directly onto the digit itself*. Thus, pointing shows *direct cortical control*, as its neural pathway detours around primeval *interneuron* routes of the spinal cord (i.e., the cord's **paleocircuits**, utilized by older hand signs such as the **palm-down**, the **palm-up**, and **self-touch**).

E-Commentary: "Dr. Givens, Prof. Becker came up with a question about a finger-on-finger gesture (both index fingers extended with the others clenched, and one rubbing on the other, in a sort of whittling motion) that is universally (at least in the U.S.) understood to be a "shame on you" gesture used by or with children. The question is: Where did the gesture come from? Does it symbolize something? Related questions are: How universal is it outside the U.S.? Is it primarily a part of children's culture? I enjoyed looking at the Nonverbal Dictionary, but could not find such a gesture. We would appreciate any answers to our questions. We have gotten a number of the Physics faculty here wondering about the gesture (and perhaps wondering how two astronomers came up with such questions)." --Glen W. Erickson, Physics Professor Emeritus, University of California, Davis (6/1/01 8:07:17 PM Pacific Daylight Time)

E-Response: "Hi, Glen--Thanks for your e-mail. Yes, according to Desmond Morris (1994:94-5), the gesture (forefingers rub) means "shame," and is restricted to North America. The rubbing of the two forefingers is thought to symbolize friction. There's a related gesture (forefingers scrape) from Wales, Germany, and Austria, in which one finger "saws" across the pointed other one. The latter is considered an insult, again with the friction message coming though. The origin of both of these gestures is unknown. The closest sign in The Nonverbal Dictionary is the entry for "Point." In the forefinger rub, the scraped digit may be pointed at the guilty party. Okay, I hope this helps!" (6/4/01 3:20:35 PM Pacific Daylight Time)

Neuro-notes II. A pointed finger shows that advanced centers of the neocortex have been engaged. As a skilled gesture, pointing involves **a.** the *supplementary motor area* (which programs the *sequence* of arm, hand, and finger movements), **b.** the *premotor cortex* (which *orients the arm* movements), and **c.** the *primary motor cortex* (which programs the *direction* the gesture takes). In turn, the frontal neocortex receives visual information about persons, places, and things from the *posterior parietal lobes*. While the *left lobe* is involved in *language processing*, the *right lobe* processes *spatial information* to guide our pointed finger in the proper direction. (Like *aphasia* [the inability to speak], **apraxia** includes an inability to point. That both disorders may be brought on by injuries to the *left side* of the neocortex demonstrates the similarity between voluntary pointing and speech.) (***N.B.***: Despite severe damage to the brain's neocortex, we are still able to utter obscene words and make angry gestures, such as the *middle-finger jerk* [*digitus impudicus*, i.e., "give the finger"]. Gestured and verbalized expletives are motivated by the **limbic system** working through motor patterns stored in **basal ganglia** of the primitive **reptilian brain**.)

REPTILIAN BRAIN



. . . *'She was full of reptiles.'* --Joseph Conrad (*Lord Jim*)

Evolution. **1.** Collectively, those early parts of the human brain which developed during the reptilian adaptation to life on land. **2.** Of particular interest are modules of the *forebrain* which evolved to enable reptilian body movements, mating rituals, and signature displays.

Usage I: Many common gestures, postures, and nonverbal routines (expressive, e.g., of **dominance**, **submission**, and territoriality) elaborated ca. 280 m.y.a. in modules of the reptilian brain. The latter itself evolved from modules and **paleocircuits** of the **amphibian brain**.

Usage II: In the house of the reptile, it makes a difference whether one *crouches* or *stands tall*. Flexing the limbs to look small and **submissive**, or extending them to push-up and seem **dominant**, is a reptilian ploy used by human beings today. Size displays as encoded, e.g., in **boots**, **business suits**, and **hands-on-hips** postures, have deep, neural roots in the *reptilian forebrain*, specifically, in rounded masses of grey matter called **basal ganglia**.

Literature: "Of these the vigilance I dread, and to elude, thus wrapt in mist of midnight vapor, glide obscure, and pry in every bush and brake, where hap may find the serpent sleeping, in whose mazy folds to hide me, and the dark intent I bring." --John Milton (*Paradise Lost, Book IX*; 1667)

Reptilian ritual. In **Nonverbal World**, the meaning of *persistence* (e.g., repeated attempts to dominate) and *repetition* (e.g., of aggressive **head-nods** or shakes of a **fist**) are found in underlying, reptilian-inspired rituals controlled by the habit-prone basal ganglia (a motor control area identified as the *protoreptilian* brain or *R-complex* by Paul D. MacLean [1990]).

Reptilian routine. According to MacLean (1990), our nonverbal ruts start in the R-complex, which accounts for many unquestioned, ritualistic, and recurring patterns in our *daily master routine*. Like a

fence lizard's day--which starts with a cautious commute from its rock shelter, and ends with a bask in the sun--our workday unfolds in a series of repetitive, nonverbal acts. Countless office rituals (from morning's *coffee huddle*, e.g., to the sacred *lunch break*) are performed in a set manner throughout the working days of our lives.

Prehistory. As reptiles adapted entirely to life on land, terrestrial legs grew longer and stronger than those of aquatic-buoyed amphibian ancestors. In the reptilian spinal cord and brain stem, *antigravity reflexes* worked to straighten limbs through *extensor* muscle contractions which lifted the body higher off the ground. Advances in the forebrain's basal ganglia enabled reptiles to walk more confidently than amphibians--and to raise and lower their bodies and broadsides in *status displays*. The reptile's **high-stand display**, e.g., presages our own pronated **palm-down** cues of emphasis while speaking.

Neuro-notes I. **1.** The *protoreptilian brain*, as defined by MacLean, consists of systems **a.** in the upper spinal cord, **b.** in the midbrain, and **c.** in the forebrain's *diencephalon* and basal ganglia (Isaacson 1974). **2.** "The major counterpart of the reptilian forebrain in mammals includes the *corpus striatum* (*caudate* plus *putamen*), *globus pallidus*, and peripallidal structures [including the *substantia innominata*, *basal nucleus of Meynert*, nucleus of the *ansa peduncularis*, and *entopeduncular nucleus*]" (MacLean 1975:75).

Neuro-notes II. **1.** As a footnote, the relatively high nonverbal IQ of the reptilian basal ganglia was recruited for the development of intelligence in birds, specifically, in the *hyperstriatum* and *neostriatum* (rather than, as with mammals, in the cerebral cortex). **2.** "Within the avian telencephalon, the dorsal ventricular ridge (DVR) contains higher order and multimodal integration areas. Using multiple regressions on 17 avian taxa, we show that an operational estimate of behavioral flexibility, the frequency of feeding innovation reports in ornithology journals, is most closely predicted by relative size of one of these DVR areas, the hyperstriatum ventrale (Timmermansa et al. 2000:196).

See also **ISOPRAXISM**, **MAMMALIAN BRAIN**.

FREEZE REACTION

Posture. A sudden involuntary cessation of **body movement**, usually in response to a novel stimulus or to **fear**.

Usage: The freeze reaction is a protective reflex. The body may automatically tense up as the nervous system mobilizes for action (see **FIGHT-OR-FLIGHT**) as in, e.g., **a.** when we hear a rattlesnake, or **b.** when we hear the boss call out our name.

RESEARCH REPORTS: **1.** *Immobility* is an avoidance cue in nursery-school children (McGrew 1972:138). **2.** *Foot activity* "decreased to a near zero level" in conditions of severe crowding (Baxter and Rozelle 1975:50). **3.** *Muscle tension* is "a vestige of freezing" (LeDoux 1996:201).

Neuro-notes. The **amygdala** contains a "fear center" which **a.** activates the body's freeze reaction, and **b.** may stretch our **lips** into a *fear grin*.

See also **ORIENTING REFLEX**, **STARTLE REFLEX**.

AMYGDALA

Brain. **1.** An almond-shaped neuro structure involved in producing and responding to nonverbal signs of **anger**, avoidance, defensiveness, and **fear**. **2.** A small mass of gray matter that inspires aversive cues, such as the **freeze** reaction, sweaty palms, and the **tense-mouth** display. **3.** A primeval *arousal center*, originating in early fishes, which is central to the expression of negative emotions in man.

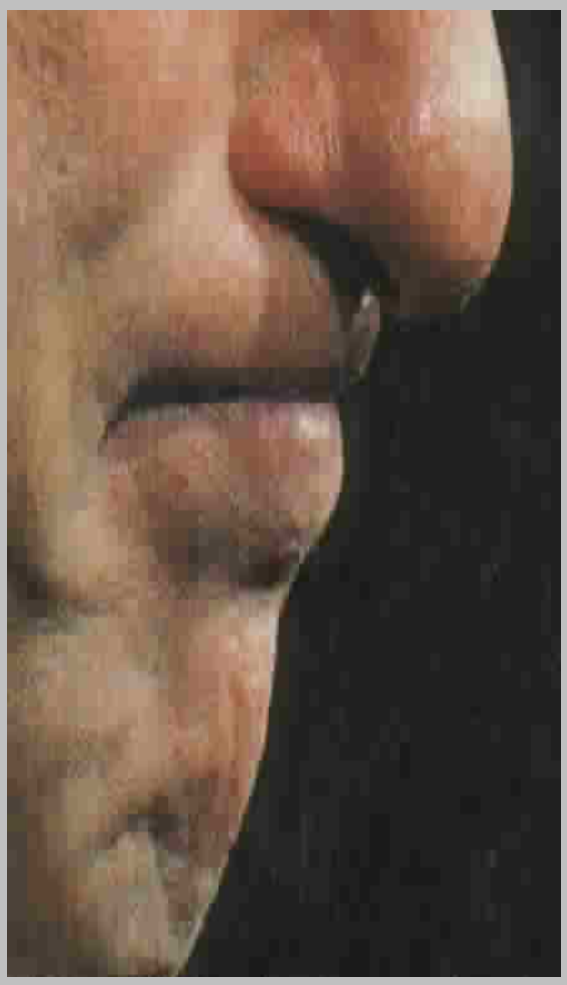
Usage: Many gestures reflect the amygdala's turmoil. In an anxious meeting, e.g., we may unconsciously *flex our arms*, *lean away*, or *angle away* from colleagues who upset us. **Lip**, neck, and **shoulder** muscles may *tense* as the amygdala activates brain-stem circuits designed to produce protective facial expressions (see, e.g., **TENSE-MOUTH**) and protective postures (see, e.g., **BOW** and **CROUCH**). The amygdala also prompts releases of adrenaline and other hormones into the blood stream, thus stepping-up an *avoider's response* and disrupting the control of rational thought.

RESEARCH REPORTS: **1.** "The amygdala coordinates the actions of the autonomic and endocrine systems and is involved in emotions" (Kelly and Dodd 1991:277). **2.** The amygdala may be part of a "general-purpose defense response control network" (LeDoux 1996:158). **3.** "Unpleasant odours . . . activate the amygdala and the cortex in the temporal lobe (insula)" (Carter 1998:114; see **BIG MAC**®).

Neuro notes. In addition to its other duties, the amygdala's gray matter evolved to mediate the evolutionary ancient *chemical nervous system*, represented today by our bloodstream. Working through the **hypothalamus**, the amygdala releases excitatory hormones into circulating blood. After surgical removal of the amygdala, growls, screams, *angry voices*, and other negative signs may lose their meaning and become incomprehensible as **afferent cues**.

See also **AQUATIC BRAIN & SPINAL CORD**, **CINGULATE GYRUS**.

TENSE-MOUTH



Facial expression. **1.** A gesture produced by compressing, in-rolling, and narrowing the lips to a thin line. **2.** A position of the mouth in which the lips are visibly tightened and pressed together through contraction of the lip and jaw muscles.

Usage: The **lips** are our most emotionally expressive bodily features. Lip and jaw tension clearly reflects anxious feelings, nervousness, and emotional concerns. Thus a tense-mouth precisely marks the onset of a mood shift, a novel thought, or a sudden change of heart.

Meaning. The tense-mouth has been observed as a sign **a.** of **anger**, frustration, and threat; **b.** of determination; **c.** of sympathy; and **d.** of cognitive processing (e.g., while pondering, thinking, or feeling uncertain). The face may show obvious muscular tension (i.e., with the lips held tightly together) or less noticeable tension (i.e., with the lips parted and slightly tightened).

Observations. **1.** Subliminal (i.e., barely noticeable) tension in a wife's lips prompts her husband to ask, "What's wrong?" **2.** A CEO's tense-mouth face greets staff as they enter the conference room, creating a guarded atmosphere in which nobody speaks. **3.** "Nothing's the matter," a boyfriend says. But his mouth's unusually thin line belies the point. His girlfriend asks, "Is there something we should talk about?"

U.S. politics. **1.** The lips of a chronically angry, anxious, or intense individual may "freeze" in a permanently tight-lipped expression, as shown, e.g., in 1960s photos of FBI director, J. Edgar Hoover. **2.** The tense-mouth is visible in AP photos of President William Jefferson Clinton, sitting in the Map Room of the White House on August 17, 1998, minutes before making a televised statement to the American people: "Indeed, I did have a relationship with Ms. Lewinsky that was not appropriate."

RESEARCH REPORTS: **1.** In Old World monkeys and apes, tense-mouth expressions convey *threat* and *dominance* (Van Hooff 1967). **2.** *Rolling the lips in* is a socially avoidant cue in children (McGrew 1972). **3.** In children, smiles in threatening situations are combined with *tightening* and *compressing* the lips (Stern and Bender 1974). **4.** Monkeys and apes perform the tense-mouth with lips closed or nearly closed, *mouth narrowed* to a slit, and *jaws tightly closed* prior to an attack (Givens 1976). **5.** In babies, lip-compression and brow-lowering (combined in the *pucker face*) appear when mothers persist in playing or feeding beyond an infant's tolerance (Givens 1978C). **6.** *Lip-compression* (lips pressed tightly together and rolled inward) often appears in the company of strangers, where it correlates with gaze avoidance, non-contact, and distancing between individuals (Givens 1978D). **7.** "You glance toward Mom at the other end of the table. You notice that her eyes are focused on Dad, and her *lips are pressed tightly together*. You brace yourself. You are about to get it. That look always means 'you're in hot water now!'"(Richmond et al. 1991:75). **8.** The *lip bite* means "I am angry." The angry gesturer "bites his own lower lip with his teeth, shaking his head from side to side vigorously as he does so" (Morris 1994:154). **9.** The tense-mouth is an aggressive sign in our nearest primate relative, the pygmy chimpanzee or *bonobo* (Waal 1997).

Anatomy. In the tense-mouth, our lips' *orbicularis oris* muscles contract. Their rubber-band-like fibers tighten to produce visible compression, in-rolling, and narrowing. Tension may be accented by contracting the *masseter* and *temporalis* muscles used in **biting**.

Neuro-notes. A gestural fossil, the tense-mouth is innervated by **special visceral nerves** originally designed for feeding. The expression is emotionally responsive today as it reflects visceral sensations (i.e., "gut feelings") aroused, e.g., by aggression and anger. In effect, we tighten our lips to seal off our mouth opening--a form of "nonverbal lock-down." Emotional stimuli pass from higher brain centers to brain-stem nuclei below, where the *trigeminal* (cranial V) and *facial nerves* (VII) arise in a special visceral motor column of the pons. From deep within the brain stem, the facial nerve travels out of the skull, branches, and links to the sphincter-like orbicularis oris muscles which tighten, compress, and in-roll our lips.

See also **LIP-COMPRESSION**, **LIP-POUT**, **LIP-PURSE**.

Detail of a cover photo of President Clinton (copyright *U.S. News & World Report*, Sept. 21, 1998)

BLANK FACE

Facial ***sign***. **1.** A neutral, relaxed, seemingly "expressionless" **face**. **2.** The face in repose, with the **eyes** open and the **lips** closed. **3.** A condition in which the neck, jaw, and facial muscles are neither stretched nor contracted. **4.** A baseline "emotionless" face, the muscle tone of which reflects a mood of calmness. **5.** The deadpan face we adopt at home alone while resting, reading, and watching TV.

Usage: Though "expressionless," the blank face sends a strong emotional **message**: "Do Not Disturb." In shopping malls, elevators, or subways, e.g., we adopt neutral faces to distance ourselves from strangers. The blank face is a subtle sign used to keep others a polite distance away. (***N.B.***: A blank face with naturally downturned lips and creased **frown** lines may appear "angry" as well.)

Psychiatry. In schizophrenia, "affective flattening" (i.e., an unchanging facial expression) may be seen as a core negative Type II symptom (Andreasen, 1984).

Symmetry. In most people, the right and left sides of the blank face basically mirror each other. In people with neurological problems involving the facial nerve (cranial VII, which links to the muscles of expression), however, there may be a slight drooping of the eyelid and of the mouth corner, and a flattening of the nasolabial skin fold (which runs from the nostril bulb to the side of the mouth), on the side of the face affected by the problem. This reflects the underlying background level of muscle tone required to animate the blank face (see below, *Neuro-notes*).

RESEARCH REPORTS: **1.** "Regardless of whether a person intends to take a line [verbally or nonverbally], he will find that he has come to do so in effect. The other participants will assume that he has more or less willfully taken a stand . . ." (Goffman 1967:5). **2.** Infants 7-to-12 weeks old interacting with mothers whose faces were voluntarily *immobilized* became unhappy and puzzled, grimaced, stared at their own fisted hands, avoided mother's eyes, and made quick glances at the mother (Trevarthen 1977:267). **3.** The *normal face*: "No special expression present but face not slack as in sleep" (Brannigan and Humphries 1972:59). **4.** Infants 4-and-6 months old looked significantly more at joyful faces than at angry or *neutral-expression* faces; the latter two received equal attention (LaBarbera et al. 1976). **5.** A review of research on the *neutral face* shows that, even though faces at rest emote no clear emotions, people respond as if they do. Neutral faces "seem to have a perceptual status comparable to a prototypical expression of basic emotion" (Carrera-Levillain and Fernandez-Dols 1994:282).

E-Commentary: "I was doing a search for the words 'deadpan' and 'expressionless' and I found your web site. I have had a deadpan and expressionless look most of my life. I am now coming to terms with how much it has impacted my life. I believe that it has kept me from being in meaningful relationships. I also have been quiet much of my life. I have a 10 year old son who had a traumatic birth and has a brain injury as a result. He has some of the same expressionless features. It occurred to me that much of what you are talking about is the result of brain injury. There are many people with undiagnosed brain injury. I believe that I am one of them. I think that I have motor problems with my facial muscles, which are not working properly. As a matter of fact, there has been great improvement because of dietary and nutritional changes, but I have never gotten to the point where someone might say that I have charisma. I still want to help my son so desperately." --F.N., USA (5/17/00 11:08:24 PM Pacific Daylight Time)

Neuro-notes. The unconscious background level of muscle tone in our face is set by the brain stem's *reticular activating system*. In the blank face, muscle tone is neither aroused nor sedated, but "normal." Studies show that, as in monkeys, for whom the face sends important emotional signs, neurons in our forebrain's **amygdala** "respond briskly" to the sight of another person's blank face (LaDoux 1996:254). Blank faces are considered pleasant or unpleasant, and rarely ever neutral. Imaging studies suggest that while encoding pictures of neutral and expressive faces, three brain areas--the *temporal cortex*, *hippocampus*, and *left prefrontal cortex*--show high levels of activity.

See also **FACIAL EXPRESSION**.

Detail from photo (copyright 1951 [Stephen Peck/Oxford])

CRY

*Heavy the sorrow that **bows the head***
When love is alive and hope is dead. --W. S. Gilbert, *H.M.S. Pinafore*

Morgan finally broke down and admitted the truth: She'd been pregnant with his baby. Shell-shocked, Ridge asked where their child was now. You could hear a pin drop as Morgan finally confessed amid broken sobs, "I had an abortion." --Bold and Beautiful (*Soap Opera Digest*, May 2, 2000, p. 25)

Rhythmic vocalization. **1.** A sobbing vocal exhalation, ranging from soft-to-loud, given as a visceral response to grief, **happiness**, **sadness**, or **pain**. **2.** An involuntary tightening of the voice box (or **larynx**) and **pharyngeal muscles**, usually accompanied by a quivering chin, depressed lip corners, puckered brows, flared nostrils, tearing eyes, **facial flushing**, **shoulder-shrugs**, and forward **bowing** motions of the head and torso (note the similarities to **laughing**).

Usage I: To cry is human (but see below, *Animals*). Fragments of the cry face--esp. it's **a.** quivering chin (*mentalis* muscle) and **b.** depressed lip corners (*depressor anguli oris*)--suggest sadness or disappointment. (***N.B.***: The above muscles, which are difficult to contract at will, are exceptionally accurate indicators of mood; the slightest disappointment, e.g., shows in slightly down-turned lips. Electromyographic studies show "fairly continuous activity" in mentalis [*Gray's Anatomy* (1995:795],

reflecting the link between the mentalis and **emotion**.) The first felt (i.e., **afferent**) sign of crying is contraction of the throat muscles.

Usage II: A happy cry averages two minutes; a sad cry, seven (Ralston 1998:99).

Animals. Trumpeting, shrill cries, and tears were exhibited by a herd of elephants as they apparently mourned the death of seven of their fellows who had been killed by a train. The accident occurred on November 15, 2001 in India's state of Assam. "'About a hundred elephants were circling the pachyderms that lay dead near the railway tracks, with tears rolling down their eyes,' said Khagen Sangmai, a top official of the Digboi police station" (Newman 2001).

Infancy. Use of the vocal cords comes shortly after birth in the act of crying. (***N.B.***: Crying signals that a newborn's lungs are functional, and that its umbilical cord may be severed with a knife.) A baby's rhythmic *attention cry* and shrieking *pain cry* are easily distinguished. (***N.B.***: The typical rising-then-falling pitch of the former resembles an ancient mammalian pattern of maintaining contact with mother by means of a *separation call*.)

Media. "'Thousands of songs have been composed about tears; almost every movie worth remembering stimulates their flow,' says Jeffrey Cottler, Ph.D., professor of counseling at Texas Tech University, and author of *The Language of Tears* (Jossey-Bass, 1996)" (Ralston 1998:96).

Observations. Women cry five times more frequently than men (and average five crying spells a month). Women's tears also flow more than men's (which usually well up in the eyes rather than stream down the face like women's tears). The average length of a crying spell is one to two minutes. Sadness, followed by **anger**, sympathy, and **fear** are the reasons most adults give for crying.

Tears. Humans are the only animals positively known to cry emotional tears of sadness and joy, though the vocal cries, whines, and whimpers of young mammals are similarly used to solicit aid from mothers. People report feeling better after a cry, according to a study by University of Minnesota biochemist, William Frey. Frey discovered the neurotransmitters *leucine-enkephalin* (an endorphin or natural opiate-like substance for pain relief) and *prolactin* (released from the pituitary in response to emotional stress) in emotional tears; the substances were not found in tears shed in response to sliced onions. (***N.B.***: Tears may help the body alleviate stress and cleanse itself of toxins, as do other exocrine processes such as sweat, urine, and exhaled air.)

RESEARCH REPORTS: **1.** The most exhaustive nonverbal research on crying is by Charles Darwin (1872; see also the comments by Paul Ekman in Darwin's volume). **2.** The crying complex is present in newborns as the *birth cry* (McGraw 1943:16). **3.** In nursery school children (after attack by classmates) *weeping* is "usually preceded by puckering the brows and reddening of the face," followed by immobility, **thumb-sucking**, and rocking back and forth (Blurton Jones 1967:355-56). **4.** Blind-and-deaf-born children weep in anger (Eibl-Eibesfeldt 1971:12). **5.** The child's *cry face* resembles the ape's "frustration-sadness," "whimper," and "cry" face (Chevalier-Skolnikoff 1973:80). **6.** "The results [of

studies of 46 !Kung San Bushman infants] support the concept that the early peak pattern [of crying] is not specific to infants in western industrialized societies, and may represent a behavior universal to the human species" (Barr 1990:608). **7.** "The reflexlike links between perceiving and producing calls, and the emotional states associated with them, are made evident by the 'infectiousness' of some of our own species' innate calls, specifically laughter and crying" (Deacon 1997:236).

Neuro-notes. **1.** Babies born without brain structures above the **amphibian midbrain** (i.e., *anencephalic* infants) can still cry. **2.** A lonely infant's separation call cries deeply from the ***thalamocingulate division*** of the **mammalian brain**. (***N.B.***: The call's rising-then-falling pitch may form the basic intonation pattern of all human sentences, which normally begin on an ascending, and end on a descending, note.) **3.** In the tearing (i.e., *lacrimation*) reflex, irritating tactile or chemical stimuli carried by the opthalmic division of the trigeminal nerve (cranial V) spread via interneuronal **paleocircuits** **a.** to parasympathetic cells (see **REST-AND-DIGEST**) of the *superior salivatory center* of the facial nerve (cranial VII), and **b.** to the spinal cord's *superior cervical sympathetic ganglion* (see **FIGHT-OR-FLIGHT**). Nonverbally, as an **efferent cue**, tearing impulses pass through parasympathetic and sympathetic fibers to stimulate secretions of the lacrimal glands. **4.** In emotional tearing, feelings from higher, limbic-brain centers reach the parasympathetic nucleus of the trigeminal nerve and stimulate the lacrimal glands to release their viscous fluids.

See also **FLASHBULB EYES**, **TONE OF VOICE**, **YAWN**.

Detail of photo by Bob Jakobsen (copyright *Los Angeles Times*)

PHARYNGEAL ARCH

Evolution. **1.** A column of tissue in the throat (or *pharynx*) of the human embryo which separates the primitive *visceral pouches* or "gill" slits. **2.** Originally, tissues used by the Silurian jawless fishes as part of their feeding and breathing apparatus.

Usage: Many **facial expressions** derive from muscles and nerves of the pharyngeal arches. Early in **Nonverbal World**, pharyngeal arches were programmed to *constrict* in response to potentially harmful chemical **signs** detected in seawater. Today, **paleocircuits** (consisting of **special visceral nerves**) mediate displays of **emotion** by causing our branchiomeric muscles to contract.

Embryology. Pharyngeal arches are visible as swellings in the throat of the human fetus. Radical changes take place as these tissues grow into our maturing neck and **face**, but the underlying principles of movement established in the jawless fishes remains much the same: *Unpleasant cues cause cranial nerves to* constrict *our eye, nose, mouth, and throat openings, while more pleasant sensations* dilate *our facial orifices to incoming cues*.

Anatomy. Seawater was pumped in and out of the early pharynx through a series of gill slits at the fish's head end. Each pharyngeal arch contained **a.** a *visceral nerve* and **b.** a *somatic muscle* to open or close the gill opening (should, e.g., positive or negative signs, respectively, be sensed). In human beings, the nerves and muscles used to close the mouth derive from the *1st* pharyngeal arch, while those which constrict the throat derive from the *3rd* and *4th* arches. From the *2nd* pharyngeal arch, the facial nerve (cranial VII) contracts **a.** *orbital muscles* to narrow the eyes, **b.** *corrugator* and associated muscle groups to lower the eyebrows, and **c.** *orbicularis oris* muscles to seal the lips, should we detect, e.g., a noxious or disgusting smell.

RESEARCH REPORT: "It is evident that the primitive vertebrate pharynx was a device for filtering food out of a respiratory water stream and that in lower vertebrates it still is" (Kent 1969:10).

See also **AROMA CUE**, **TASTE CUE**.

AFFERENT CUE

Neuro term. **1.** A **nonverbal sign** *received*, as opposed to one sent (see **EFFERENT CUE**). **2.** An *incoming* sign received by receptors in our eyes, ears, nose, mouth, skin, hair follicles, muscles, tendons, joints, vestibular apparatus, or viscera, relayed to centers in the spinal cord and brain for processing. **3.** Our bones and teeth conduct incoming signs of *vibration* and *temperature*; otolith organs and semicircular canals process signs of *motion*, *balance*, and *gravitational force*. **4.** Additionally, **pleasure areas** of the brain respond to the afferent cues of *sex*, *drugs*, and *rock-and-roll*.

Usage: As concepts, *afferent* and *efferent* reflect the two sides of every nonverbal cue: (1) *ingress* (i.e., as an in-bound sign to be processed) and (2) *egress* (i.e., as an out-bound sign to be produced).

See also **ENTERIC BRAIN**, **NICOTINE**.

EFFERENT CUE

Attendez! Por ejemplo!! Place the fingers of your right hand extended. Distend the thumb of your right hand until it touches your nose. The little finger of your right hand is stretched venomously towards the world. You say nothing but you think much, and that is that. The gesture is made; and an ugly world is scoffed. --John D. Williams (1926:8; see below, *The Shanghai gesture*)

Neuro term. **1.** A nonverbal sign *sent*, as opposed to one *received* (see **AFFERENT CUE**). **2.** An outgoing sign produced, e.g., by a **body movement**, **clothing cue**, **consumer product**, glandular secretion (e.g., **apocrine odor**, **sweaty palms**, **tears**), **hair style**, **nonverbal vocalization** (e.g., **cry**, **laugh**, whine), **posture**, recipe (e.g., **Big Mac®**, **Coca-Cola®**, **shrimp cocktail**), or **speech error**.

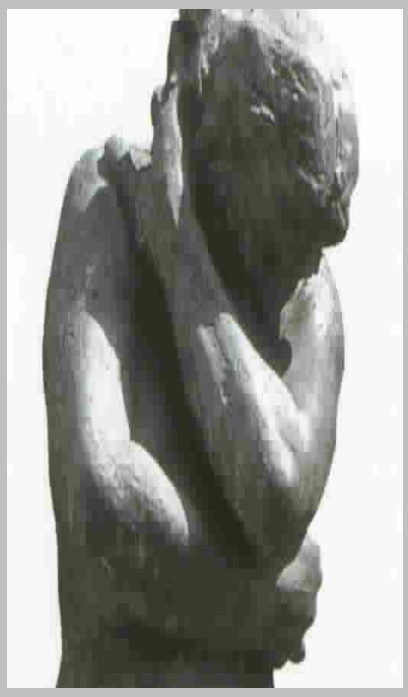
Usage: Conceptually, *efferent* and *afferent* reflect the two sides of every nonverbal sign: (1) *egress* (i.e., as an out-bound cue to be produced) and (2) *ingress* (i.e., as an in-bound cue to be processed).

The Shanghai gesture. "The gesture [see epigraph above] is useful. It is comforting. It does something for you and to you, because the world cannot answer--in kind--if you make the gesture first" (Williams 1926:8).

Neuro-note: Efferent cues reflect **a.** inner thoughts (produced, e.g., in tandem with the speech areas), and **b.** inner workings of the **nonverbal brain**.

See also **CUE**, **INFORMATION**, **MESSAGING FEATURE**.

FLEXION WITHDRAWAL



Reflexive ***body movement***. An automatic escape motion designed to remove a body part or parts from danger (e.g., flexing the neck to lower and protect the head).

Usage: Flexion withdrawal underlies many *negative* and ***submissive*** nonverbal signs (e.g., cues of disagreement, disliking, and **fear**; see **BODY-BEND**, **BOW**, **CROUCH**, **GAZE-DOWN**, **HEAD-TILT-SIDE**, and **SHOULDER-SHRUG**).

Business. Around a **conference table**, colleagues may reveal unvoiced negative feelings in postures influenced by flexion withdrawal, e.g., pulling the hands and arms backward, away from disliked speakers.

Biology. In mammals, the most primitive protective response is a *flexion withdrawal*, which "takes the head and neck away from the stimulus" (Salzen 1979:130).

Embryology. The crouch posture is "a protective pattern characteristic of the early embryonic flexion response" (Salzen 1979:136). By eight weeks, e.g., the human fetus already "knows" to withdraw its head and neck when its mouth is touched. Defensive, coordinated flexing and withdrawing movements have been seen in immature fish larvae, in marine snails, and in human embryos at eight weeks of age. ln four-legged animals whose brains have been surgically disconnected from their spinal cords, almost any tactile stimulus will cause flexor muscles to contract and withdraw a limb from whatever touched it (Guyton 1996).

Anatomy. Human arms and legs have highly developed flexor reflexes. Automatic escape movements,

coordinated by the spinal cord, can be triggered, e.g., by scalding pot handles--or by strong emotions from the **amygdala**. Visceral pain may trigger withdrawal reflexes in muscle groups of the chest and abdomen (Willis 1998E).

Neuro-notes. **1.** Jumping to sound involves body-flexion movements configured in **paleocircuits** of our **amphibian brain**. Through their nerve fibers, auditory-lobe impulses reach down to excite spinal networks of interneurons and motor neurons in charge of muscles that *flex* our shoulders and arms, and *bow* our heads into the protective crouch posture. **2.** "The most powerful flexion response is the flexor withdrawal reflex. This takes precedence over other reflexes, including those associated with locomotion, presumably because flexor withdrawal protects the limb from further damage" (Willis 1998E:195).

See also **NONVERBAL RELEASE**.

Detail of Auguste Rodin's *Eve* (photo copyright Descharnes & Descharnes)

HEAD-SHAKE

Gesture. **1.** Rotating the head horizontally from side-to-side **a.** to disagree, or **b.** to show misunderstanding of a speaker's words. **2.** In an emotional conversation, a rhythmic, side-to-side rotation of the head to express disbelief, sympathy, or grief.

Usage: The head-shake is used to demonstrate **a.** cognitive dissonance, or **b.** emotional empathy.

Anatomy. *Longus colli* and *splenius* rotate the head from side-to-side, in tandem with *sternocleidomastoid*. The latter's prehistory as a branchiomeric muscle (originally used for *respiration* and *feeding*) makes it responsive as a "gut-reactive" sign of refusal (see below; see also **SPECIAL VISCERAL NERVE**).

RESEARCH REPORTS: **1.** The head-shake is a universal sign of disapproval, disbelief, and negation (Darwin 1872; according to Morris [1994:144] it is "widespread"). **2.** The first nonverbal nay-saying may occur when babies head-shake to *refuse* food and drink. Rhesus monkeys, baboons, bonnet macaques, and gorillas similarly *turn their faces sideward* in aversion (Altmann 1967). **3.** Children born deaf and blind head-shake to refuse objects and to disapprove when being touched by an adult (Eibl-Eibesfeldt 1973). **4.** Evasive action shows in *sideward* head movements of young children to avoid the gaze of adults (Stern and Bender 1974). **5.** A *single sharp turn* to one side (e.g., the Ethiopian *head side-turn*) can express negation as well (Morris 1994).

See also **CUT-OFF**, **HEAD-NOD**.

OBJECT FANCY

Among three to five-year-old children in nursery schools, fights occur over property and little else. --N.G. Blurton Jones (1967:355)

In more severe forms [of the grasping reflex], any visual target will elicit manual reaching followed by tight grasping. --M. Marsel Mesulam (1992:696)

Emotion. **1.** The desire to pick up, handle, and hold a material object, especially a **consumer product** of elegant design. **2.** The urge to touch, own, arrange, collect, display, or talk about a manufactured human artifact. **3.** The motivation for compulsive **shopping**.

Usage: Products "speak" to us nonverbally as tangible, material gestures. Their *design features* (e.g., the *shine*, *shape*, and *smoothness* of a platinum bracelet) send compelling messages to capture our attention. That we respond to their appeal shows in the sheer number of artifacts we possess. Our personality may be caricatured by the object(s) we desire, e.g., jewelry, boats, **shoes**, and so on. We may hold treasured artifacts with two hands, in a gentle, caressing embrace between the tactile pads of our thumbs and forefingers. Forever beckoning from TV monitors, mail-order catalogues, and shelves, products gesture until we answer their call.

Psychology. Our aversion to the seizure by another of an object we are using may be innate (Thorndike 1940).

RESEARCH REPORTS: **1.** Communication about material objects begins in infancy, after the age of six months (Trevarthen 1977:254). **2.** The average U.S. household stockpiles a greater supply of consumer goods than its members want, need, or use. **3.** By the age of five, the average American child has owned 250 toys.

Neuro-notes. The "magnetic effect triggered by objects" originates with the innate grasping reflex. Subsequently, it involves a balance **a.** between the *parietal lobe's* control of object fancy, and **b.** the *frontal lobe's* "thoughtful detachment" from the material world of goods (Mesulam 1992:697). In patients with frontal lobe lesions, the mere sight of an artifact is "likely to elicit the automatic compulsion to use it," while lesions in the parietal network "promote an avoidance of the extrapersonal world" (Mesulam 1992:697).

See also **BARBIE DOLL**.

SHOPPING

*Plastic shopping bags lower the wow-factor of whatever you're **wearing***. --Véronique Vienne (1997:156)

Hunting & gathering. The usually pleasurable act of wandering through stores in search of **consumer products**, services, and bargains.

Usage: Shopping is a uniquely human activity with **a.** prehistoric roots in *hunting and gathering*, **b.** primate roots in *foraging*, and **c.** neonatal roots in the *grasping reflex* (see **OBJECT FANCY**, *Neuro-notes*). U.S. adults spend ca. six percent of their waking time (i.e., six hours a week) shopping (Sun et al. 1989). (***N.B.***: American women shop 40% more than American men [Sun et al. 1989].)

Evolution. As a nonverbal activity, the joys, challenges, and routines of shopping are partly innate. Wild primates, e.g., make daily foraging trips in search of food to consume and, seemingly, to enjoy. Chimpanzees, our closest living relatives, use color vision to browse for nuts, fruits, and berries. By ca. two m.y.a., our earliest human ancestors (*Homo habilis*) spent less time hunting than foraging, gathering, and scavenging--in family groups--for whatever they could find (Blumenschine and Cavallo 1992). The landscape was their mall.

Today I. We spend a great deal of our social time collectively browsing for apparel, colorful objects, and

edibles in *shopping malls*. In the U.S., e.g., nine out of ten (i.e., 94% of) adults report having visited a shopping center "last month" (Conn and Silverman 1991:127).

Today II. The shopping quest is rewarding--whether we actually buy or not. In the U.S., men buy an average 35 articles of clothing a year, while women purchase 54 (Conn and Silverman 1991:32). For American women, the favored item is clothing, while for men it is automobiles (Conn and Silverman 1991:128). Most American men (two-thirds) do not shop alone for their own clothes, but instead are accompanied by women (Conn and Silverman 1991:128).

Media. **1.** The modern shopping mall, which borrows heavily from **messaging features** designed for Disneyland, has, like the theme park itself, become a form of "media in the round." "'In a business that is as dependent as film or theater on appearances,' the magazine [*Chain Store Age Executive* (winter 1992)] concluded, 'the illusion of safety [in a shopping mall] is as vital or even more so, than its reality'" (Glaberson 1992:B4). **2.** In a survey of *Self* women's magazine readers, **a.** 49% shop "whenever the mood strikes"; **b.** 69% prefer shopping by "Myself"; **c.** 74% spend the most time shopping for "Myself"; **d.** 72% shop most often in "Malls"; and **e.** 72% "find shopping helps if you're depressed" (Anonymous (1992E).

Pediatrics. Babies are pre-adapted for shopping. They arrive on earth ready to explore--i.e., to actively look, listen, and reach out to touch and handle colorful objects in their world. (***N.B.***: Forty square feet of shopping-center space has been constructed in the U.S. for every baby born since 1986 [Conn and Silverman 1991:128].)

Psychology. In the U.S., 96,738 acres of land are occupied by shopping centers and malls (Conn and Silverman 1991:89). A patron entering a store usually turns right (perhaps due to the right eye's dominance). According to marketing psychologists, shoppers look around the front section directly inside a store's entrance, but are less likely to buy goods displayed there than items located in areas to their right. (***N.B.***: Whether right or left-handed, we do more impulse buying on a shop's right-hand side [Kyriakos1992].)

Psychiatry. The uncontrollable urge to buy things is called *oniomania*.

See also ***WWW.Mallofamerica.com***.

BARBIE DOLL®

MODESTO--A 6-year-old girl stabbed a 7-year-old playmate in the back with a steak knife in a fight over Barbie dolls, police said yesterday. --Associated Press (1995; see **OBJECT FANCY**)

Barbie is an icon because she triggers this worshipful attitude and *a desire to smash what she represents*. --Valerie Steele, Contributing Curator, "Art, Design and Barbie: The Evolution of a Cultural Icon," Liberty Street Gallery, New York City (Span 1995:G1)

Sexual icon. **1.** A hand-held **consumer product** displaying exaggerated **signs** of feminine **beauty**. **2.** A portable, 11-inch plastic symbol of Americana whose **messaging features** (e.g., **high heels**, hourglass figure, and infantile schema) appeal to millions of young girls. **3.** A thematic plaything (e.g., *Totally Hair* Barbie, *Shopping Spree* Barbie, *Wet and Wild* Barbie) idolized by children and adults in more than 140 countries throughout the world.

Usage: "I don't think anyone feels neutral about Barbie," said *Forever Barbie* author, M. G. Lord (Jones 1994:D8; see **EMOTION**). According to Mattel Inc., the typical U.S. girl between three and 10 years old owns eight Barbie dolls (Jones 1994). Extreme Barbie fans may dress like--or undergo surgery to look like--the doll itself (Lord 1994).

Anatomy. Barbie's permanently pointed feet assume a *high-heel* stance. (***N.B.***: Though plumper, rounder, and older [i.e., Upper Paleolithic], the Venus of Willendorf figurine has pronged legs, as well.) To look like Barbie, a woman would have to stand 7 feet 2 inches tall and add 5 inches to her bust size.

Evolution. The Barbie concept originated in 1951 when the doll's creator, Ruth Handler, observed her daughter's pleasure in dressing adult-shaped paper dolls. In 1956, Handler discovered "Lilli," a humorous, full-figured German plastic doll designed to entertain men. Using Lilli as a prototype, Mattel began selling Barbie dolls in 1959.

Face. **1.** 1959: "Barbie's first face has a fashion-model aloofness, a sideways glance, and a seductive pout" (Hoffman 1996:16). **2.** 1971: Barbie's face is restructured: "She now smiles" (Hoffman 1996:16). **3.** 1977: Barbie's smile is widened to its current toothy grin (Hoffman 1996).

Semiotics. Some see in Barbie's lean and lanky *slimness* an unrealistic (and even dangerous, i.e., anorexic) standard for the female body (see **LOVE SIGN**). Others see Barbie as a shallow sign of consumer materialism. (***N.B.***: One of Barbie's voice chips asks, e.g., "Will we ever have enough clothes?" [Jones 1994:D8].)

Neuro-notes I. Our **primate brain** dedicates distinct modules of *visual cortex* to the recognition of **faces** and **facial expressions**. The same dedicated nerve cells of the lower *temporal lobe*, which respond to human faces, respond--with equal feeling--to Barbie doll faces, rendering them psychologically "real."

Neuro-notes II. "'She can conjure up images of a perfect childhood, a safe nostalgic world. But others see

her as a cruel dominatrix, a wimp and a victim, a bimbo. The responses are really visceral'" (Valerie Steele [see above, second epigraph] quoted in Span 1995:G5; see **ENTERIC BRAIN**).

See also **LOVE SIGNAL**.

HIGH HEEL

Footwear. A **woman's shoe** with a thin, elevated heel designed to **a.** enhance the derrière, **b.** firm the leg, and **c.** showcase the feminine ankle.

Usage I: Visually, high heels suggest **a.** that a woman's **feet** are delicate, **submissive**, and ethereal, i.e., destabilized--not planted firmly on the ground (cf. **ANTIGRAVITY SIGN**, **BOOT**)--and **b.** that her body weight defies earth's gravitational pull.

Usage II: Nonverbally, high heels stand wearers precariously up on their tiptoes, thus shifting the body's center of gravity forward, and causing a compensatory *forward lean*. The derrière--already prominent by primate standards--protrudes an additional 25% (see **LOVE SIGN**).

Usage III: Aesthetically, heels make feminine legs seem longer in proportion to body size and--through the zoological principle of *mimicry*--more like the slim legs of teenage girls. (***N.B.***: Anthropologists have determined that female bodies attain their peak of allure in the late-teen years.)

Media. **1.** In the 1990s *Spike* magazine featured images of women's feet in high heels for the entertainment of men. **2.** Reported in *The New Yorker* magazine's "The Talk of the Town": "It was three years ago when Ms. Maples [Mrs. Donald Trump] began filing reports with the police that her shoes were disappearing. She had a hidden video camera installed in her closet. On July 13, 1992, a shadowy figure was captured on camera rummaging among her footwear. This figure turned out to be none other than her trusted public-relations representative, Mr. [Chuck] Jones--or Chuckers, as she liked to call him" ("Time Wounds All Heels").

Evolution. Women's (and men's) elevated heels evolved from a 16th century Italian, high-platform shoe

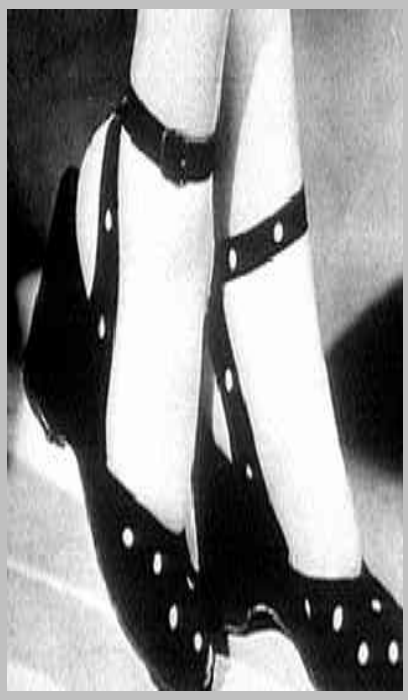
called the *chopine*. (The original, stilt-like design came to Italy from the far East.) Practical versions of the chopine, called *pattens*, made it easier to walk on muddy pathways before the advent of sidewalks and curbs. Because chopines raised both the heel and the toes above the ground, walking was difficult, and so, after two centuries on stilts, the sole was lowered while the heel was left standing. Thus the high-heel was born, an evolutionary hybrid.

Anatomy. Heels beget shapely legs **a.** as both heads of the calf (or *gastrocnemius*) muscle contract to slim and firm the back of the lower leg, and **b.** the ankle rides prominently high in the shoe itself. So powerful are their **messaging features** that, despite health warnings and the specter of bunions, high heels are not likely to appear on the endangered-shoes list. (***N.B.***: The American Podiatric Medical Association has determined that two out of five women who wear heels higher than 3 inches for up to eight hours a day do so "in spite of the pain.")

See also **LEG WEAR**.

WOMEN'S SHOES

That I am part of the earth my feet know perfectly . . . --D.H. Lawrence



I do not buy shoes. I covet them. --Elizabeth Kastor (1994:28)

Besides, one look at the shoes, he [George Masters, "Stylist to the Stars"] said, told him all he needed to know about a woman. --Robert McG. Thomas, Jr. (1998:A6)

Clothing cue. A feminine style of **footwear** marked with **messaging features** designed to contrast with those of **men's shoes** (see, e.g., **HIGH HEEL**).

Usage: In expressive style, women's shoes **a.** *reveal*, **b.** *conceal*, or **c.** *mask* the feminine **foot**.

Bare. Women's revealing shoes bare the toes, heel, ankle, and (or) top of the foot (i.e., the *instep*). Revealing shoes call attention to a woman's thinner bones, smaller joints, and delicate achilles tendons. Examples include **a.** 1920s low-cut *pumps*, with straps buttoned or buckled across the instep; **b.** 1930s *high heels* with ankle straps and peep-toes; and **c.** pointed, *stiletto heels* of the 1950s and 60s (which may reveal *toe cleavage*, i.e., the hollow between the big toe and 2nd digit).

Bind. Concealing shoes cover, yet do not hide, the feet. Rather, they enhance the foot's feminine silhouette, contour, and shape. A concealing shoe's laces and close, binding fit transmit a suggestive, erotic message of tight containment. Types of concealing shoes include **a.** ankle-high buttoned boots of the 1900s; **b.** 1970s mid-calf boots, cut close to the leg; and **c.** tight, patent-leather, ankle-high shoes worn by pop singers of the 1980s (e.g., Madonna).

Mask. Revealing and concealing shoes proclaim femininity, individuality, and sexual allure. The lady's

masking shoe, in contrast, covers the foot but suggests little about sexuality, individuality, or mood. Indeed, because they are visually quiet, masking shoes downplay personality by discouraging its notice. Often worn with socks, "sensible" shoes tend to be boxy, sturdy, and squared-off (i.e., masculine).

Media. **1.** In the *Washington Post Magazine*, Elizabeth Kastor poetically describes the expressive force of women's shoes: "Ahhhhh, shoes. Such potent symbols of sexuality and fertility. Think of Cinderella. Think of the old woman who lived in a shoe and her numerous children. Think of the dancer in the movie 'The Red Shoes' whose feet--and conflicted desires--danced her to death. Think of tying shoes to the back of the wedding car. Think of shoes as a narrow space in which something is inserted . . ." (Kastor 1994:29). **2.** "[Sonja] Bata [founder of the Bata Shoe Museum in Toronto] says [Edward] Maeder [museum director] is absolutely right [about his statement, 'Skinny shoes survived *because* people couldn't wear them'], adding that women always have saved shoes of their childhood and youth and marriage, when their feet were at their daintiest" (Trueheart 1995:C10).

Observations. **1.** 2,600 years ago, Greek women favored white and red, snug-fitting leather shoes, and owned as many as 20 pairs at a time. **2.** Forty to 60 new styles of women's shoes appear each year in U.S. shopping malls (Fleishman 1994). **3.** "In the marriage rituals of the Middle Ages, the father passed the bride's shoe to the groom . . ." (Kastor 1994:30). **4.** Today, American women buy an average five pairs of shoes a year (American men average two).

Personality. Women's shoes display more "personality" than do men's. Many styles, e.g., are given personal names, such as the Nordstrom line's "Angelique," "Gretta," and "Bree." "So, how does it work? 'Well, say there's a tailored-type boot, and it looks like the kind of shoe a woman might wear to a concert,' he [Richard Leeker, a vice president and "senior line builder" at Brown Group] says, 'Well, we call it "Concert"'" (Fleishman 1994:F4).

Evolution I. The slimness of women's footwear evolved from a narrow shoe known as the *poulaine* (originally from Poland), popular with men in the 12th and 15th centuries. So long was the tip of its tapering toe--and so suggestive when wagged back and forth--that in 1468, the Pope condemned the poulaine as "a scoffing against God." Near the end of the 15th century, the masculine version of the poulaine was driven to extinction by a wider, broad-toed shoe, shaped like the bill of a duck, which completely replaced it.

Evolution II. While the poulaine died out, its **message** lived on, and the **submissive** meaning of slim, pointed toes ("I am harmless--you may approach"; see, e.g., **BARBIE DOLL**) is still fashionable today. Narrow pumps and high heels, e.g., which incorporate the poulaine's timid taper, are among the most popular and attractive of women's shoes.

See also **ARM WEAR**, **LEG WEAR**.

MEN'S SHOES

Three out of four women said their fellow has an old pair of shoes he should throw out, but won't. --A Johnson & Murphy footwear poll of U.S. women aged 25 to 44 (Bonino 1994:B1)

Everyone *has a shoe fetish*. --Sonja Bata, founder of the Bata Shoe Museum in Toronto (Trueheart 1995:C10)

Clothing cue. A masculine style of **footwear** marked with **messaging features** designed to contrast with those of **women's shoes** (see **CONSUMER PRODUCT**).

Usage: In expressive style, men's leather shoes are **a.** **dominant**, **b.** **submissive**, or **c.** *neutral*.

Stomping I. Dominant shoes are typified **a.** by thick, crepe-soled "beetle crushers" worn by English Teddy boys of the 1950s; **b.** by middle-class Desert Boots® of the 1950s and 1960s; **c.** by urbane Timberland® boots of the 1970s; and **d.** by aggressive Doc Marten® boots worn by alienated young men and women of the 1990s. Dominant styles are *robust*--wide, thick, and heavy--to accent the size of the foot and its ability to stomp (see **GOOSE-STEP**).

Stomping II. The oldest stomping shoes are *sandals* from ancient Egypt with pictures of enemies painted on the soles. More recently, by popularizing thick, buckled motorcycle boots in the **media**, Marlon Brando (*The Wild One*, 1954) and Peter Fonda (*Easy Rider*, 1969) furthered the role of footwear as a fashion statement (i.e., with which to figuratively "stomp" the powers-that-be).

Mincing. Men's submissive shoes are narrow, with lightweight uppers, thin soles, and tapering toes. Styles include **a.** pointed "winkle-pickers" worn by British Mods of the 1950s; **b.** pointed-toed Beatle boots of the 1960s; and **c.** Gucci® loafers, the late-20th century's premier power slipper. Submissive styles are *gracile* to suggest vulnerability, and to downplay the foot's size and bluntness. Moreover, they

stand wearers precariously on their metatarsal bones in a tip-toed position. Unstable, high-heeled styles (e.g., the Beatle boot) make it harder for wearers to stomp.

Hushing. The third prototype in men's footwear is the neutral shoe, which is neither dominant nor submissive, but fashionably bland and introverted. It is neither wide nor narrow, neither pointed nor blunt; the sole is neither thick nor thin, nor is the shoe obviously masculine or feminine. The neutral shoe is personified by dark-gray, brushed-pigskin Hush Puppies® (1950s-to-1990s [see below, *Media*]), and by Ivy League saddle shoes and penny loafers (1950s-to-1990s), worn by men and women alike.

Media. "When those techni**color** [e.g., bubble gum pink, lemon yellow] Hush Puppies appeared on the New York runway, fashion wags went berserk. The shoes began appearing in GQ magazine. Stylists snapped them up to dress musicians for videos. They were used to accessorize pricey clothes with puffed-up designer labels. Forrest Gump wore them. Fashion insiders began publicly proclaiming their love for Hush Puppies" (Givhan 1995:C2).

Observation. Neutral shoes are a successful family of footwear, specialized neither for stomping, mincing, or showing attitude--but for comfort. The casual, low-profile, laid-back style makes neutral shoes unsuitable for fast-track careers, but convenient for projecting a non-rebellious, non-dominant, anti-corporate mood on campus or in the workplace.

See also **BOOT** .

GOOSE-STEP

Display. An energetically marched or paraded version of the masculine stomp, in which the legs make sharp *kicking* movements from the hip, with the knees *locked*, as the soles and heels of military **boots** aggressively *strike the ground*.

History: The 1940s-era goose-step of Nazi soldiers was visible a half-century later when, e.g., North Korean soldiers marched on the 50th anniversary of the founding of the Workers Party in 1995. A powerful, physical demonstration of negative human energy, the goose-step is a military version of the reptilian **high-stand display** used to figuratively stomp an enemy to death. After WWII, the goose-step was outlawed in West Germany, making it the only human gesture to be officially banned by a state.

Military. Soldiers in every army of the world step off on the left foot when starting to march.

See also **PALM-DOWN**, **REPTILIAN BRAIN**.

LOVE SIGNALS II

"In short, my son, note her every action and movement. If you report to me faithfully all these things, I shall be able to make out the hidden secret of her heart and discover how she feels with regard to my love; for I may tell you, Sancho, if you do not know it already, that among lovers exterior signs of this sort are the most reliable couriers that there are, bringing news of what goes on inside the heart." --Miguel de Cervantes (*Don Quixote*, 1605:566)

Courtship. Any of several nonverbal **signs** exchanged during the second or *recognition phase* of courtship.

Usage: In courtship's second stage, men and women seek nonverbal responses to signs beamed out during the earlier *attention phase* (see **LOVE SIGNALS I**). E.g., a man's bid for attention ("I am here!"--"I am male!") is followed by efforts to determine, *"Do you see me?"* Recognition cues thus provide **information** about having been seen. They are the **afferent** (incoming) body signals received in response to the **efferent** (outgoing) cues already sent.

Body response. *Positive* recognition signs include **a.** **body alignment** (e.g., *aiming* or *squaring* the upper body with a partner), **b.** rapid **eye-blink**, **c.** **facial flushing** (***N.B.***: *blush* applied to a woman's cheeks simulates the red, rosy glow of sexual attraction as well), **d.** gaze-crossing (i.e., sweeping the eyes back and forth across a partner's view field--without actually looking or seeming to notice his or her presence--to test a willingness to be looked at), **e.** submissive **gaze-down**, **f.** head-toss, **g.** **isopraxism** (e.g., *mirroring*, *postural echo*, *synchrony*), **h.** anxious **self-touching**, **i.** **shoulder-shrugging**, **j.** **smiling**, and **k.** nervous **yawning**. Negative recognition cues include **a.** **cut-off** (i.e., sideward gaze-aversion or angling the upper body away ["*cold shoulder*"], and **b.** *no reaction* (i.e., the most cutting cue of all: no response [see **BLANK FACE**]).

Responsive eyes. As primates, we respond to changes in gaze direction, and in courtship, concern with **eyes** and **eye contact** is extreme. At a singles bar, e.g., eyes dart about and make rapid *saccadic* movements as they bounce from face to face in the crowd. Even a fleeting glance may suffice to answer the question: "I am female!" . . . *Did you notice?*.

Responsive pupils. One of our tiniest cues, pupil size, is measured with a *pupillometer*. The device detects *dilation* when we view attractive men and women, but *constriction* when we view threatening or disliked people. Studies show that, while pupil size itself is out of awareness, dilation can be a tell-tale recognition cue (Hess 1975). (***N.B.***: That enlarged pupils unconsciously telegraph sexual interest was appreciated by European women, who once dilated their eyes artificially with *belladonna*, a cosmetic extract of the nightshade family.)

RESEARCH REPORTS: **1.** A study summarizing research on North American college students found **a.** that women and men aligned upper bodies *midway* between direct (i.e., frontal) and indirect (i.e., turned 90 degrees away) with liked partners; and **b.** that women assumed *open arm positions* with men they liked and *crossed arms* with disliked men (men did not show these signs; Vrugt and Kerkstra 1984). **2.** "The next stage is *recognition* [Givens 1978], or what Scheflen (1965) calls *courtship readiness*. If the response of one party . . . is a stare, blank face, negative facial expression, or orienting away, that ends it" (Burgoon et al. 1989:325).

E-Commentary: "You omitted the sexual cue a woman gives to a man when she fluffs her hair while looking at him. It's a phenomenon noted in all the body language books. Gets me going every time." --P.W. (6/13/01 2:52:44 PM Pacific Daylight Time)

Neuro-notes. As with many recognition signs, the **hypothalamus** plays a role in pupil size. The hypothalamus coordinates our *sympathetic nervous system's* **fight-or-flight** response, over which we have little conscious control. Eye contact with an attractive woman or man thus registers as emotional stimuli pass from the *posterior* hypothalamus (Guyton 1996) downward to sympathetic nerves in the spinal cord (T1-2), which control our pupil's dilator muscle. Mutual gaze brings people together quickly and powerfully, as the physical distance separating them seems to close. As we lock eyes with a lovely face, information flows from visual areas of the cerebral cortex to the hypothalamus, which influences our sexual behavior as a "prime node" (LeVay 1993:60, 81). (***N.B.***: Mutual eye-contact is important in the courtship of our primate relatives, as well. In marmosets, e.g., males must meet a female's attention-phase *stare* with several seconds of *returned gaze* before mating can occur [LeVay 1993:60].)

See also **LOVE SIGNALS III**.

EYE-BLINK

*"My God," he whispered. He blinked rapidly and **turned his face away**. "I . . . don't understand. It never occurred to me that I might be stealing someone else's idea." --Shadow of a Broken Man* (Chesbro 1977:30)

Sign. A rapid closing and opening of the **eyes**.

Usage: Our blink rate reflects psychological arousal in the manner of a polygraph test. The normal, resting blink rate of a human is 20 closures per minute, with the average blink lasting one quarter of a second (Karson 1992). Significantly faster rates may reflect emotional stress, as aroused, e.g., in the **fight-or-flight** response.

E-Commentary: "Today on NBC's *Today Show* Matt Lauer talked about how Madonna had lied to him about her announced pregnancy just the other day. He showed the video and her response, but he missed something to ponder about. She did what I call the *eyelash flutter* (different, under high speed camera, from the eye-blink: we can see that it does not close completely and the speed is amazing) when asked, 'Are you pregnant?' I first observed this eyelid behavior in 1985, and find that people who are troubled by a question or an event do this, especially if they have to answer and are about to lie. I tell attorneys to look for the eyelash flutter when they have people on the stand; it means they really do not like the question at all. I even had a case where the individual picked out the route of escape for me when I went through several routes with him; I just waited for the flutter to pick out the way." --Joe Navarro, Special Agent, FBI (3/21/00 7:02:26 PM Pacific Standard Time, and subsequent)

Primatology."Eye-blinking is another well-known primate movement. The moment you have the least little bit of stress, the eyelids blink, bang! bang! bang!" (Niko Tinbergen, in a 1974 *Psychology Today* interview)

U.S. Politics. In the 1996 presidential debates, candidate Bob Dole averaged 147 blinks--seven times above normal. President Bill Clinton averaged 99 blinks a minute, reaching 117 when asked about increases in teen drug use, a sensitive issue of the day (Tecce 1996).

RESEARCH REPORTS: **1.** In mental patients, eye-blink rates rise with anxious or tense topics, and with changes to a new topic (Kanfer 1960). **2.** "The eye blink has been found to occur during vocalizations at the beginning of words and utterances, usually with the initial vowel of the word . . ." (Condon and Ogston 1967:229). **3.** The average rate for someone speaking on TV is 31 to 50 blinks a minute--twice the relaxed rate (Tecce 1996).

Neuroanatomy. The *blink reflex* originates in **paleocircuits** of the **amphibian brain**. Nervous impulses travel from vision centers of the *superior colliculi* to the facial nerve's motor nucleus, causing involuntary contractions in the eyelid portion of *orbicularis oculi* muscles.

Neuro-notes. We blink faster when excited because eyelid movements reflect bodily arousal levels established by our brain stem's *reticular activating system* (*RAS*). Emotion from the **limbic system** stimulates the RAS to act on our midbrain's *substantia nigra*, which releases the excitatory chemical, *dopamine*, to the superior colliculi (Karson 1992:417). Thus, we bat our eyelids faster in courtship (see **LOVE SIGNALS III**), when speaking in public (see **STRANGER ANXIETY**), and when lying (see **DECEPTION**).

See also **FACIAL FLUSHING**.

PRIMATE BRAIN

Evolution. **1.** Collectively, those specialized areas of the human brain which evolved during the primate adaptation **a.** to diurnal (i.e., daylight) living, and **b.** to a life in **trees**. **2.** Specifically, those modules of the *forebrain* which process color, eye-hand coordination, facial recognition, grasping, and 3D **navigation** by sight.

Usage: With the primate brain, nonverbal communication takes a dizzying turn toward complexity. Many **signs** (see, e.g., **COLOR CUE**, **EYE CONTACT**, **EYEBROW-RAISE**, **FACIAL EXPRESSION**, and **PRECISION GRIP**) depend on its neural circuitry. The primate brain, which developed from modules and **paleocircuits** of the **mammalian brain**, began its arboreal evolution ca. 65 m.y.a. in the Paleocene.

Hand signals I. With agile digits designed for climbing, our primate ancestors extended their forelimbs to reach for and to grasp insects, fruits, and berries. Manual dexterity (through advances in *motor*, *premotor*, *supplementary*, and *association* areas of the *neocortex*) led to the use of leaves, sticks, bones, and stones as *tools* (see **ARTIFACT**). (***N.B.***: These modular areas of neocortex managed the hand-and-arm movements our species turned **a.** to the manufacture of chipped-stone hand-axes, and **b.** to the use of conceptual hand-signals called **mime cues**.)

Hand signals II. The primate brain enabled voluntary movements of the hands and arms, to achieve goals beyond *locomotion* (see **WALKING**) and *standing* on all fours. Sophisticated motor-control centers permitted new movements, such as *reaching*, *grasping*, and *grooming* with the fingertips (which also could be used as **gestures**, i.e., as body movements to convey **information** about *intentions* and *moods*).

Eye signs. By ca. 35-to-40 m.y.a. in the earliest apes, the primate brain dedicated distinct modules of *visual cortex* **a.** to the precise coordination of hand-and-eye movements, and **b.** to the recognition of **faces**. (In the living apes, dedicated nerve cells of the *lower temporal lobe* respond to **hands** and faces exclusively [see, e.g., Kandel et al. 1991:458-59].) "Marler [1965] and Van Hoof [1963] agreed that in most species of primates the face . . . is the most important part of the animal" [Izard 1971:38]).

Climbing cues. Visual learning is the hallmark of the primate brain. Foraging in trees (and using sight rather than scent) to find colorful fruits and berries went hand-in-hand with remembering where and what to pick. Unlike birds which fly directly to food spotted in trees, primates must chart a clever route through labyrinthine vines, limbs, and leaves. Mentally, they must navigate from point *A* to point *B* by decoding the branchways from many angles. (***N.B.***: In their 3D world, primates became skilled arboreal navigators. Today's monkeys, e.g., have sharp color vision, depth perception, and enhanced memory to recall the location of edibles scattered among forking branches and twisting vines.)

RESEARCH REPORTS: **1.** "Over half of the neocortex in [living] nonhuman primates is occupied by visual areas ['At least 25 visual areas beyond the primary visual cortex . . . ']" (Sereno et al. 1995:889). **2.** The primate's *inferotemporal cortex* is thought to be essential for *object recognition* (Wang et al. 1996:1665).

Neuro-notes I. Primates have *prehensile* hands with which to grab tree branches, fruits, and insects. Deliberate grasping is mediated by a region of the frontal neocortex called the *supplementary motor area*. This module programs complex muscle contractions to open and close the hand on purpose. The supplementary area also helps coordinate arm postures required to support the hand movement itself. At the same time, the *primary motor cortex* regulates the force with which moves are exerted. Instructions from these areas descend through the *corticospinal tract* directly to spinal-cord circuits below, which instruct muscles in the forearm to open and close the hand (deliberately: see *Neuro-notes IV*).

Neuro-notes II. The primate brain's *premotor cortex* controls the proximal movements which project an arm to its target. The premotor cortex, which receives visual input from the *posterior parietal cortex*, sends fibers to the brain stem's medial descending systems, as well, notably, to the (not-so-deliberate, i.e., reflexive) *reticulospinal* tract, which links to spinal circuits which control our proximal and axial muscles.

Neuro-notes III. The decision to grasp comes from a variety of areas in the primate brain. *Sensory circuits*, e.g., may advise a slipping hand to tighten around a branch. The **basal ganglia** may influence hand-over-hand movements of the climbing sequence itself. The **limbic system** may excitedly close a hand over a plump red berry. In such cases, the decision routes through reflexive circuits standing by in the brain stem: these instruct the spinal cord to close the hand.

Neuro-notes IV. A novel feature of the primate brain is its ability to grasp *deliberately*--i.e., to grasp on purpose--through the corticospinal tract (thus bypassing older brain-stem circuits altogether). This more advanced nerve tract, which began its evolution in the mammalian brain, elaborated in the primate brain.

(***N.B.***: The corticospinal tract adds precision and voluntary control to our grasping gestures.)

Neuro-notes V. A region of the primate brain's *posterior parietal cortex* (Brodmann's area 5) processes information received from the primary sensory cortex (Brodmann's areas 1, 2, and 3), relating it to the position of the reaching arm. (***N.B.***: Special *arm projection neurons* fire when a monkey reaches for a nearby food item, e.g., but not if the arm reaches out merely for the sake of reaching.)

Neuro-notes VI. Area 5 receives input from the inner ear's *vestibular sense*, as well, regarding the head's orientation in space. It also hears from premotor areas of the frontal neocortex, which govern the motor plans for reaching, and from the mammalian brain's limbic system (the latter's **cingulate gyrus**, e.g., keeps area 5 updated on the primate's **emotional** state of mind).

Neuro-notes VII. ". . . using a dedicated monkey PET scanner at Hamamatsu Photonics in Hamakita, Japan, Hirotaka Onoe's team at the Tokyo Metropolitan Institute for Neuroscience last year discovered a new site of color processing in the monkey visual system" (Barinaga 1998:1397).

Neuro-notes VIII. **1.** Studies show that the cerebellum of apes and human beings is proportionately larger than that of monkeys, perhaps due to adaptations, in the former primates, for bipedal walking and brachiation, as well as for monkey-like climbing (Rillinga and Inselb 1998). **2.** "Hence it is interesting that a species with one of the largest positive cerebellar residuals in our study (Hylobates lar) is among the most versatile, with climbing, bipedal walking and running, leaping, bridging, and brachiating all in its repertoire (Hollihn, 1984). The cerebellum has also been implicated in motor planning (Ghez, 1991). In contrast to humans and chimpanzees, baboons apparently lack 'presyntactical motor planning', the ability to modify current movements based on awareness of movements to follow (Ott et al., 1994). Thus, the larger relative cerebellar volume of apes compared with monkeys might reflect an increased cognitive representation in the cerebellum of hominoids" (Rillinga and Inselb 1998).

See also **HUMAN BRAIN**, **NONVERBAL BRAIN**.

TREE SIGN

I wonder about the trees:
Why do we wish to bear
Forever the noise of these
More than another noise
So close to our dwelling-place? --Robert Frost (*The Sound of Trees*)

Signal. A message emitted by the bark, branches, crown, leaves, or trunk of a perennial woody plant (see **EFFERENT CUE**).

Usage: People of all ages find something elementary and comforting in trees, which have long been symbols of transcendental beliefs among traditional folk such as the Druids. Taking the world as a whole, the custom of climbing trees is still widespread, especially among those young enough to mend after a fall. (***N.B.***: The phone number of Tree Climbers International, a voluntary association of human beings dedicated to arboreal climbing, is 404/659-TREE.)

Word *origin*. The word *tree* comes from the ancient Indo-European root *deru-*, derivatives of which include *endure*, *trust*, and *truth*.

Anthropology. An arboreal theme is rooted in human perception, language, and thought. Trees and tree-climbing have become psychic planks in the mind's evolutionary platform, not only of Druids but of modern folk as well. Bark and limbs still appeal to **hands**, and even now a human's primate eyes seek shelter and safety overhead in branches and boughs. Thus influenced and inspired, Claude Monet painted willows, while poets have celebrated oaks, and municipal governments have lined their city streets with sycamores, maples, and elms.

Archaeology. Included in the 5,300 year-old Copper Age "Iceman's" equipment were **a.** an arrow quiver reinforced by a *hazel wood* spine, **b.** 14 arrows made of *viburnum wood*, **c.** a backpack made of an arch of hazel wood and two slats of *larch*, **d.** a copper-bladed ax with a handle made of *yew*, and **e.** two eight-inch tall canisters made of *birch bark* (Rensberger 1992; see **CONSUMER PRODUCT**).

Culture. In the British Isles, *knuckle touch-wood*--rapping the knuckles on a wooden surface (e.g., on top of a **conference table**)--offers "protection." "This is an ancient superstitious practice dating back to the days of tree-worship, when it was the custom to touch the sacred oak to placate the powerful Tree Spirits. The roots of the mighty oak were thought to descend into the underworld" (Morris 1994:151).

Evolution I. The earliest tree yet discovered by humans is a 40-foot-high, fossilized *Eospermatopteris*, unearthed in Gilboa, New York, near Manhattan. Now on display at the Smithsonian, the oldest tree dates back ca. 365 million years to the Middle Devonian Period of the Paleozoic Era, ca. 363 million years before the arrival on earth of the first fossil human, *Homo*.

Evolution II. Trees have a very special meaning. Human beings, along with lemurs, monkeys and apes, evolved from a long line of tree climbing *primates*, a biological order of agile mammals with grasping hands, which originated ca. 65 m.y.a. in the Paleocene Epoch of the Cenozoic Era.

Media. To focus world attention on the plight of redwood trees, activist Julia Hill lived in an ancient redwood named "Luna" for 738 days, beginning on December 10, 1997. Explaining the significance of her bold gesture and months of survival on a wooden platform 180' above terra firma in northern California's Humboldt County, Hill invoked the nonverbal medium of **touch**: "'They [the redwoods] touched me unlike any malls, cars, make-up and [sic] magazines,' said Hill, who brought the audience to laughter by simulating the first time she hugged a redwood. 'It was a spiritual level that no cathedral, church or money could touch in me'" (Tran 2000).

Oregon Heritage Tree. **1.** "BROOKINGS, Ore.--A sequoia tree planted on the spot where a Japanese bomb fell in the southern Oregon forest in 1942 will be named an Oregon Heritage Tree" (Anonymous 2001D). **2.** "Nubou Fujita, who dropped firebombs on Oregon forests during WWII, returned in 1992 to plant a sequoia tree in a peace ceremony" (Anonymous 2001D). **3.** "He [Fujita] died in 1997 and his daughter scattered some of his ashes near the tree" (Anonymous 2001D).

Sacred trees. **1.** Nonverbally, the great size of trees is a factor in their worship (see **LOOM**). **2.** Important in the sacredness of trees, as well, is a spatial concept, i.e., of being at the *center* (see **PROXEMICS**): "The tree cult is most clearly present in Ireland where there was a special term for the sacred tree, *bile*. Each tribe had a sacred tree, or grove of trees, probably at an inauguration site near the centre of the tribal territory . . ." (Eliade 1959).

See also **BRANCH SUBSTITUTE**, **GREEN**, **HERBS & SPICES**, **POWER GRIP**.

LAWN DISPLAY

The poetry of earth is ceasing never. --Keats, *On the Grasshopper and Cricket*

Damn, I poured my whole life into this lawn, my heart, my soul, the tender feelings I've held back from my family . . . . Look, some people hoist a flag to show they love their country. Well, my lawn is my flag. --Hank Hill, *King of the Hill* (quoted in The *Spokesman-Review*, May 28, 2000, F1)

Spatial cue. A plot of carefully groomed grass, and any of several decorative artifacts (e.g., white pickets or plastic pink flamingos) placed upon its surface.

Usage: Lawns mark territory and betoken status. Each year, Americans buy an estimated 500,000 plastic pink flamingo ornaments to mark their yard space--and to provide tangible evidence that, "This land is mine."

Evolution. Two m.y.a. the first humans lived in eastern Africa on hot, flat, open countryside with scattered trees and bushes and little shade, known as *savannah grasslands*. (***N.B.***: At this time, the human brain was expanding faster than any brain ever had in animal history, and in the growing process seemingly locked in a fondness for level grassland spaces.)

Verbal prehistory. The word *lawn* itself may be traced to the ancient Indo-European root, lendh-, "open land."

Today I. To make earth more to our liking, we flatten and smooth its surface to resemble the original rolling plains our ancestors walked upon during the critical Pleistocene epoch two m.y.a. *Neo-Savannah Grassland*--with its scattered bushes, trees, and lawns--is the dominant theme of housing tracts,

campuses, cemeteries, entertainment parks, and shopping malls in almost every city today.

Today II. So important are lawns as **consumer products** that, at the University of Florida, a $700,000 campus laboratory--known as the **TurfGrass** Envirotron--was fabricated so horticulturalists could watch grass grow.

Today III. "Despite the view in some circles that lawns are a symbol of suburban conformity and repressed individualism, Americans traditionally have equated a green space around the home with freedom and power, said Washington State University horticulturalist Ken Struckmeyer" (Turner 2000:F8).

Flatland, China. In 1999, Chinese leaders planted a few hundred square yards of grass from seed (shipped from USA's Inland Northwest) on Tiananmen Square. "Across China, cities are planting thousands of acres of lawns, parks and golf courses ['to reverse decades of environmental ruin and make drab cities more livable'] . . ." (McDonald 1999). (***N.B.***: On Tiananmen square, knee-high metal signs warn visitors: "Please don't enter the grass.")

Flatland, USA. Taking the U.S. as a whole, 40 square feet of perfectly level shopping-center space has been constructed for every child born since 1986. Due to our prehistory on grasslands, we prefer to conduct our lives on plane-paved surfaces. In Los Angeles, ". . . 70 percent of the land area is devoted to the use of cars . . ." (Mathews 1974). Some 100,000 acres of land are now occupied, e.g., by vast, table-terraced superstores. (***N.B.***: Inside air temperatures average 72 degrees F., the warmth of the primeval savannah.) And spreading in front of houses and apartment buildings are closely cropped *micro-savannahs*, occupying an estimated 7.7 million acres of level, home-lawn plots.

Interior design. "Grass **green** [in the home environment] is not particularly popular in rural areas, where presumably people see a lot of it. But for those from inner city areas, green ranks high on their list of favorites" (Vargas 1986:142).

Media. "Like the interstate highway system, fast food chains, telephones, televisions, and malls, the lawn occupies a central, and often unconsidered, place in America's cultural landscape." --Georges Teyssot ("The American Lawn," quoted in *Spokesman-Review*, May 28, 2000:F1)

Neuro-notes. Like the cylindrical, filamentous projections covering our scalp, we respond to grass blades as we do to our own hair. The compulsion to feed, clip, and groom our yard space is prompted by the same preadapted modules of the **mammalian brain** which motivate personal grooming and **hair care** (see **CINGULATE GYRUS**). Like thick, healthy locks, well-groomed lawns bespeak health, vigor, and high status.

See also **GOLF**.

SIT

Posture. To rest with the torso in an upright position and the body supported largely on the buttocks.

Usage: The manner of sitting at a **conference table**, e.g., transmits **information** about one's *status* (mental, physical, and social), *feelings*, and unvoiced *opinions*, *attitudes*, and *moods*.

Primatology. Sitting is the usually favored position of primates.

Salesmanship. "Do not wait to be asked to be seated" (Delmar 1984:42).

RESEARCH REPORTS: **1.** The most detailed research on sitting positions is by the anthropologist Gordon W. Hewes (1957). **2.** Male, North-American college students express uneasiness with changes in sitting posture (e.g., by assuming a more **direct** body orientation; Vrugt, Anneke, and Kerkstra 1984). **3.** Female, North-American college students show uneasiness by sitting **still** and **arm-crossing** (Vrugt, Anneke, and Kerkstra 1984). **4.** In chairs and couches, **a.** *ankle-ankle legs cross* ("I am politely relaxed"; worldwide), **b.** *knee-knee legs cross* ("I am very relaxed"; worldwide), **c.** *ankle-knee legs cross* ("I am assertively relaxed"; widespread), and **d.** *legs twine* ("I am slinkily relaxed"; widespread) have been identified as typical human sitting postures (Morris 1994:152-54).

Neuro-notes: As **consumer products**, couches are designed to recall the primate lap's protopathic softness, and to stimulate pleasure areas for grooming, childcare, and sexuality in the mammalian brain's **cingulate gyrus**.

See also **LOVE SIGNALS III** (***E-Commentary***).

ARM-CROSS

Posture. **1.** Folding the arms over the lower chest or upper abdomen, with one or both hands touching the *biceps* muscles. **2.** A common resting position of the arms upon and across the torso. **3.** A *self-comforting*, *self-stimulating* posture, unconsciously used to alleviate anxiety and social stress.

Usage: Though often decoded as a *defensive* barrier sign, the arm-cross represents a comfortable position for relaxing the arms, e.g., while **speaking**, as well. With arms and elbows pulled tightly into the body (i.e., *flexed* and *adducted*), the gesture may reveal *acute nervousness* or *chronic anxiety*. Held less tightly against the chest, with elbows elevated and projecting outward (away from the body, i.e., *abducted*), the arm-cross presents a guard-like stance, suggestive of arrogance, disliking, or disagreement.

U.S. politics. Arm-crossing has been analyzed as a "classic defensive stance" in the April 11, 1988 *Time* magazine cover picture of Democratic presidential nomination hopeful Jesse Jackson (Blum 1988; see also Blum's analysis of the gesture as used in world politics).

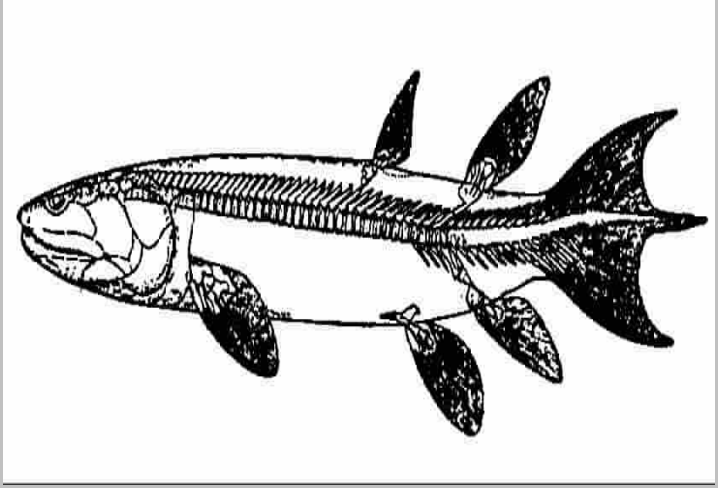
RESEARCH REPORTS: **1.** In conditions of severe crowding, the frequency of *arms crossed in front of the body touching at the crotch* "greatly increased" (Baxter and Rozelle 1975:48). **2.** A report summarizing studies of North American college students found **a.** that women use *open arm* positions with men they like, but *cross-arms* with men they dislike (men, on the other hand, show no difference);

and **b.** that women show uneasiness by crossing their arms (while men do not; Vrugt and Kerkstra 1984). **3.** "Folding arms may indicate protection against some sort of verbal or nonverbal attack" (Richmond et al. 1991:62). **4.** *Arm-cross* is a worldwide posture that means, "I feel defensive" (Morris 1994:5).

Neuro-notes. For the neurology of arm-crossing, see **SELF-TOUCH**.

Synonyms--Fold arms (Grant 1969), *fold* (Brannigan and Humphries 1972). See also **HANDS-ON-HIPS**, **STRANGER ANXIETY**.

AQUATIC BRAIN & SPINAL CORD



Evolution. **1.** The original design of our central nervous system, established ca. 500 m.y.a. in the sea. **2.** Collectively, those primeval parts of our brain and spinal cord which arose in the *jawless fishes*. **3.** Specifically, those circuits, nuclei, and modules of the *spinal cord*, *hindbrain*, *midbrain*, and *forebrain* which evolved in ancient oceans.

Usage: Many of our most basic gestures, postures, and bodily responses originated in **paleocircuits** of the aquatic brain and spinal cord. Though our nervous system has greatly evolved, paleocircuits for *smell-related* cues (see **DISGUST**), *touch* (see **TACTILE WITHDRAWAL**), *locomotion* (e.g., for the rhythmic, alternating movements of **walking**), and *chemical arousal* (as evident, e.g., in the **FIGHT-OR-FLIGHT** response) remain functionally the same today.

Sea view. Like life itself, **nonverbal communication** evolved in the sea. The first Ordovician **cues** given and received 500 m.y.a. targeted receptors for touch and smell in our remote oceanic ancestors. Deep in the aquatic brain and spinal cord of the jawless fishes, neural circuits evolved which process many of the wordless **signs** we send and receive today. *Spinal* and *cranial nerves*, e.g., continue to link *sensory input* with *motor response* in programming the outflow of nonverbal cues:

I. Spinal cord. The oldest proto-gestures can be traced to tactile-withdrawal spinal reflexes of the earliest known vertebrates. Based on studies of newly hatched fishes, e.g., it is likely that touching the skin of these extinct animals would have elicited the same alternating, *side-to-side flexion movements* designed to remove swimmers from predators and to deliver them from harm's way (see **CROUCH**).

II. Hindbrain. The aquatic hindbrain sent signals to the spinal cord **a.** to maintain *muscle tone*, **b.** to control the *excitability* of cord reflexes, and **c.** to select cord paleocircuits for *reflexive* body movements and postures. A chemical storage area (comparable to our brain's *locus ceruleus* or "blue spot") was a primary source of the neurotransmitter, *norepinephrine*. Fiber-linked to the spinal cord below and to the forebrain above, this chemical was (and still is) important in regulating arousal. Today in humans, highly aroused spinal reflexes show, e.g., in *faster* and *stronger* body movements.

SUPPLEMENTARY NOTE: Another early chemical reservoir (comparable to our brain's *raphe* nuclei) was for *serotonin*. As old as vertebrates themselves--or even older--serotonin has been found in living crabs and lobsters. Injected into the bloodstream of a lobster, e.g., serotonin leads to an *elevated body posture* which expresses **dominance**. In our own nervous system, serotonin promotes the expression of *confident* body signs, such as *squaring-up* with a partner (see **ANGULAR DISTANCE**), *returning* **eye contact**, and **smiling**. (***N.B.***: By increasing serotonin levels, Prozac and similar drugs may decrease *aversive* [i.e., unfriendly, negative] signs, and increase *affiliative* [i.e., friendly, positive] cues.)

III. Midbrain. The aquatic midbrain had a chemical storage area for the neurotransmitter *dopamine*. Comparable to our own midbrain's *substantia nigra* (or "black spot"), it supplied dopamine to primitive motor centers of the *striatal complex* (still present in our **basal ganglia**), which influenced body movements for locomotion and for keeping upright in gravity's downward pull (see **ANTIGRAVITY SIGN**). Lowered dopamine levels in humans (caused, e.g., by *Parkinson's disease*) may show in an awkward *shuffling gait*, an *expressionless face*, and *rotary trembling movements* of the arms and hands (see **AKINESIA**).

IV. Forebrain. Incoming (or **afferent**) **taste** and **aroma** cues dominated the aquatic forebrain via fiberlinks from the **amygdala** to chemical-control areas of the **hypothalamus**. On the former's command, nuclei of the latter released neurohormones into the bloodstream, arousing body movements and postures of the fight-or-flight response.

See also **AMPHIBIAN BRAIN**.

HYPOTHALAMUS

Brain. **1.** A subcortical group of nuclei in the *forebrain* which serves **a.** the **limbic system**, **b.** the autonomic nervous system (see **FIGHT-OR-FLIGHT**), and **c.** the endocrine system. **2.** A thumbnail-sized neuro structure which organizes basic nonverbal responses, such as *aggression*, ***anger***, *sexuality*, and ***fear***.

Usage: Giving input to--and receiving output from--the limbic system, the hypothalamus mediates diverse **nonverbal signs** associated with **emotion**.

Evolution I. The hypothalamus has deep evolutionary roots in the chemical sense of smell (see **AROMA CUE**).

Evolution II. As the forebrain's main chemical-control area, the hypothalamus regulates piscine *adrenal medullae*, chemical-releasing glands which, in living fish, consist of two lines of cells near the kidneys. The adrenal medullae pump *adrenaline* into the bloodstream, from where it effects every cell in the fish's body. (***N.B.***: In humans, adrenaline *speeds up* body movements, *strengthens* muscle contractions, and *energizes* the activity of spinal-cord **paleocircuits**.)

RESEARCH REPORTS: **1.** Pathways involved in oral and genital functions "converge in that part of the hypothalamus in which electrical stimulation results in *angry* and *defensive* behaviour" (MacLean 1973:44). **2.** In higher vertebrates, the olfactory system and the hypophysis [i.e., the pituitary gland (which is linked to the hypothalamus)] "are derived from a single patch of embryonic [neuro]ectoderm" (Stoddart 1990:13). **3.** The hypothalamus mediates many nonverbal behaviors through reticular nuclei in the brain stem (Guyton 1996).

Neuro-notes. Regarding hypothalamic nuclei and nonverbal signs, **a.** the dorsomedial nucleus stimulates *savage* behavior; **b.** the posterior nucleus stimulates the sympathetic nervous system; **c.** the preoptic area houses the sexual dimorphic nucleus; and **d.** the anterior nucleus stimulates the parasympathetic nervous system (Fix 1995; see **REST-AND-DIGEST**).

REST-AND-DIGEST

Other men live to eat, while I eat to live. --Socrates

Relaxation response. **1.** A pleasant feeling of calmness and well-being experienced as **a.** heart rate slows, **b.** smooth muscles contract, and **c.** glands secrete while the body digests food. **2.** Physiologically, a rudimentary model for the sensation of **happiness**.

Usage: Many involuntary **nonverbal signs** (e.g., *contracted pupils*, *moistened eyes* (i.e., glistening, brought on by stimulation of the lacrimal glands), *slowed breathing rate*, and *mouth-watering* (due to watery secretions of the salivary glands [accompanied by increased swallowing])--along with signs of relaxation (e.g., *warm, dry palms*; *lean-forward*; *lean-back*) and satiation (e.g., *supinated fists*) are visible in the visceral feelings and involuntary movements of our rest-and-digest response.

U.S. politics. "He [Frank Meeks, owner of 59 Domino's pizza franchises in the Washington, D.C. area] recalls that Nov. 17, 1995, during the government shutdown, was 'pizza night' for Monica L. Lewinsky and President Bill Clinton, according to Lewinsky's day book" (Schafer 1998:A5; see **BIG MAC**).

Observations. **1.** Rest-and-digest-related cues (such positive signals as **body alignment**, **eye contact**, vocal satisfaction [e.g., "hmm," "ooh," and "um"], **head-nods**, and **smiling**) are often visible in luncheon meetings around a **conference table**. **2.** In **courtship**, couples eat together to relax, to relate, and to respond in the rest-and-digest mode to offset feelings of **stranger anxiety**. (***N.B.***: Genital swelling is a rest-and-digest [i.e., a parasympathetic, response; see **LOVE SIGNALS V**].) **3.** In a restaurant, rest-and-digest **paleocircuits** contract the urinary bladder, thus prompting visits to the restroom.

Evolution. Rest-and-digest is an ancient *parasympathetic* response pattern which, in the **aquatic brain**, slowed heart beat rate (and ventricular force) to conserve bodily energy, e.g., to prepare a fish to digest its meal.

Neuro-notes. **1.** The **hypothalamus** controls our rest-and-digest response. **2.** "The actions of the sympathetic and parasympathetic divisions are mediated by different neurotransmitters and are largely antagonic, e.g., where one promotes contraction of smooth muscle, the other promotes dilation" (Damasio 1994:206).

Antonym: **FIGHT-OR-FLIGHT**.

LOVE SIGNALS V

She hath done wondrous naughty! --King Francois, on Katherine Howard, 5th wife of Henry VIII

Far from having a mind of its own, the penis is now known to be under the complete control of the central nervous system--the brain and spinal cord. --Irwin Goldstein (*Scientific American*, 2000:70)

Courtship. Any of several **signs** exchanged during the *love-making phase* of courtship.

Usage: From signals exchanged in the *touch phase* (see **LOVE SIGNALS IV**), men and women progress to the final (i.e., resolution) stage: sexual intercourse. In every society, men and women attain the extreme physical closeness of coitus through courtship, usually a slow negotiation based on verbal and nonverbal cues. Communication continues in the fifth phase of courtship, to orgasm and beyond.

Waning signs. After physically bonding in love, there is less need to renegotiate the closeness achieved in previous courting phases. Loving couples thus give fewer love signals. Because they take the distance between them comfortably for granted they give off fewer "come-hither" cues.

Neuro-notes. The joy of romance is rewarded by a short-lived spasm of pleasure known as *orgasm*. Triggered by nerve impulses from the clitoris and penis (through dorsal aspects of the spinal cord's *pudendal nerve*), orgasm is accompanied by vaginal contractions in the female, and in males by the ejaculation of semen into the female's body.

Anatomy I. Humans are primates, and the sexual skin (or *perineum*) of primates is replete with ancient receptors known as *Meissner's corpuscles* and *Merkel's disks*. The penis and clitoris (which are evolutionary equivalents), the perineal skin of the surrounding "saddle" area (i.e., buttocks and inner thighs), and the forehead, nipples, soles of the feet, palms of the hand, and fingertips, all contain dense

concentrations of these encapsulated nerve endings, and are important in the tactile-arousal phase of making love.

Anatomy II. Before orgasm couples stimulate each other with tactile cues during *foreplay*. Known as the light or *protopathic* **touch**, caressing a partner's hairless thighs, e.g., registers in Meissner's and Merkel's receptors, from whence impulses travel an evolutionary-old pathway (the anterior spinothalamic tract) to pleasure areas where the sensations are consciously enjoyed. Protopathic cues draw the body into a relaxed, *parasympathetic* mode (see **REST-AND-DIGEST**) in which sexual tissues lubricate and enlarge. (***N.B.***: Fearful feelings latent in the *sympathetic* nervous system [see **FIGHT-OR-FLIGHT**] may be calmed through kissing, nuzzling, and gentle massage.)

Anatomy III. In stage five, the most effective touch zones (apart from genitalia) are **a.** the outer and inner thighs, **b.** the derrière, and **c.** the saddle area of the perineal skin. Touching these areas stimulates the *pudendal nerve*, which innervates the penis and clitoris directly. In tandem with the pudendal, *gluteal* and *perineal* branches of the *posterior femoral cutaneous nerve* (from the *sacral plexus*) may be pleasurably strummed in preparation for intercourse. (Branches of the latter are numerous in the inner thighs, backs of the legs, and gluteal area.)

Voice cues. While laying on hands, couples may use soft voice tones as well. Early in vertebrates, sound perception evolved from the sense of touch. (The first amphibians, e.g., "heard" vibrations conducted through the lower jaw.) Love talk, therefore, is an intimate form of "touching."

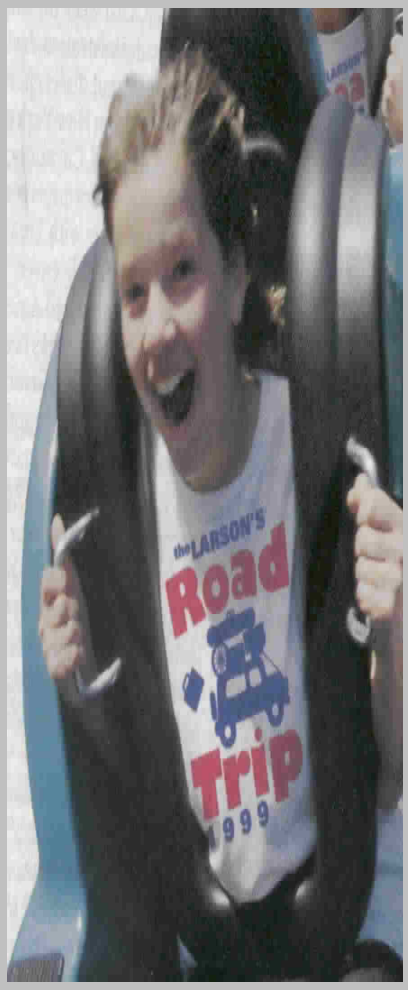
Eye signs. In the rush of excitement as couples align pelvises for sexual intercourse (and make thrusting motions stimulated by circuits of the **reptilian brain**), an optimal form of **eye contact** called *en face* enhances the pair bond. For men and women, sex is highly personalized as facial planes and eyes square up and align for maximum impact (the same eye-to-eye gaze is used to strengthen the mother-infant tie). Eye contact in sex gives the human touch, and copulation most often is performed front-to-front rather than front-to-rear, as in other mammals and primates.

RESEARCH REPORTS: **1.** "Nuzzling behaviors, such as nose-rubbing among the Copper Eskimo and face-rubbing among the Gahuku Gama of New Guinea, can be regarded as cultural embellishments of infantile behaviors" (Givens 1978:352-53). **2.** "The final stage is *resolution*. In true courtship, the culminating act is copulation" (Burgoon et al. 1989:328). **3.** "Ejaculation and orgasm-the climax of sexual excitement-are brought on by a complex interaction of neuronal and hormonal processes, which are still incompletely understood" (LeVay 1993:51).

Sex in outer space. "While NASA officials don't categorically state that there has never been any sexual activity in space, they have consistently drawn a veil over public discussion of such questions." According to NASA spokesman, John Ira Petty, "We consider all aspects of long-duration space flight. Obviously there are various psychological stresses (that crews would have to face), but in terms of experiments in sex in space, that's just not on the agenda" (reported by MSNBC TV, February 24, 2000).

(***N.B.***: At or about age 12, girls all over the world begin applying makeup to their faces, while boys roll up their sleeves to reveal the *biceps brachii* of masculine arms. Generation after generation of adolescents dance to the heartbeat of courtship's primal routine. With little regard for logic or reason, they fumble toward a realization that the meaning of life in **Nonverbal World** is none other than life itself.)

BALANCE CUE



Equilibrium ***signal***. An **incoming sign** received when the body's head is suddenly accelerated, decelerated, or tilted.

Usage: Though we instinctively keep our head stabilized, we enjoy accelerating, dropping, and spinning it as well, e.g., in such sports as auto racing, skiing, sky diving, and surfing. Stimulation of motion sensors in our inner ear is not only pleasurable, but diverts attention away from today's concerns, and tomorrow's fretful worries. In part, this is because older centers of the brain's **basal ganglia** and cerebellum are engaged, centers in which there is no tomorrow, but only the present moment in time.

Anatomy. Stimulating *accelerometers* of the inner ear diverts our attention from anxiety and apprehension about the future. The inner ear's utricle and saccule are sensitive to *linear acceleration* and to *gravity*, while its three semicircular canals are sensitive to *angular* and *rotational acceleration*. Rotation upsets the normal circulation of fluid in the ear's balance loops to make us feel dizzy (Pool 1987:69).

Consumer products *I.* **1.** We consider the illusion of speed thrilling, and find roller coasters (which only kill one or two people a year in the U.S. [Poundstone 1990:124]) scarier than automobiles (which kill 50,000 a year [Wright 1990:263]). The fastest roller coaster in the world (in Gurnee, Illinois) averages

only one mile faster than 65 mph, the speed limit of some interstate highways. (***N.B.***: The average adult coaster has a top speed of only 38 mph [Poundstone 1990:126].) **2.** We scream loudest during the initial plunge, which triggers our innate fear-of-falling reflex, as we grasp the bar in front of us tightly with a **power grip**. We enjoy Magic Mountain's Viper, in Santa Clarita, California, which, from its highest point 188 feet above the earth, carries our head upside-down seven times at speeds up to 70 mph (McFarlan 1990:92).

Consumer products II. To maximize the fear of falling, many take their heads aboard Magic Mountain's FreeFall ride. After **waiting** in line for up to 45 minutes, their heads drop for 2.5 seconds 90 feet straight down a steel track (Poundstone 1990:131-32).

Consumer products III. After rocking for 70 minutes in rocking chairs, nursing home patients diagnosed with dementia showed up to a one-third reduction in signs of anxiety and depression. According to University of Rochester geriatric nursing researcher, Nancy Watson, "You could see immediately by their faces that they were enjoying themselves."

Courtship. Not only do we rock babies from side to side, but also the adults whom we love as well (see **LOVE SIGNALS IV**, *Hugging*).

Freewheeling. Our enjoyment of free body movements through space may be innate (Thorndike 1940).

Neuro-notes. The inner ear's vestibular system, innervated by cranial nerve VIII (vestibulocochlear) senses positions and movements of the head in space.

See also **AROMA CUE**, **COLOR CUE**, **EMOTION CUE**, **HEARING CUE**, **TASTE CUE**.

Detail of photo in *U.S. News & World Report* (August 23, 1999, p. 16; copyright by Hewlet Packard)

WAITING TIME

Time talks. --Edward T. Hall (*The Silent Language*)

Until the early 1300s, the length of an hour in London could vary from 38 minutes to 82 minutes. It wasn't because they had lousy clocks in the Middle Ages. They just had a different attitude toward the passage of that mysterious thing called time. --Curt Suplee (1994:H1)

Never check your watch at a party, unless it's time to go. --Véronique Vienne (1997:156)

Chronemic ***cue***. The number of minutes, hours, days, or weeks spent between a scheduled appointment and a meeting with a business associate, medical professional, program administrator, or friend.

Usage: Waiting time varies across cultures. Appointments with business executives or government officials in Latin America, e.g., may require longer waiting times than are customary for U.S. workers. The different cultural norms for time spent waiting may trigger **anger** and strain **rapport**. (***N.B.***: Waiting time is usually less with attractive, liked, and high-status individuals.)

Cultural differences. **1.** "In northern Europe, the people are exact and precise about time, much like Americans on the East Coast. The northern Germans and Swiss are particularly punctual" (Vargas 1986:127). **2.** "In South America, most people know no other way of living and never explain or apologize [for being late]. To my upper Midwest sensitivity, their lack of respect for clock time is almost unbelievable" (Vargas 1986:127).

Media. "In Italy . . . television stations make no effort to begin their programs on the hour or half hour. One program is run until finished, and a new one begins with no concern for clock times or schedules" (Vargas 1986:127).

Salesmanship. "It is vitally important that you do not hesitate or pause in your entrance" (Delmar 1984:31).

Time sense. Along with balance, hearing, sight, smell, taste, and touch, human beings have a highly developed sense of time. So time oriented has our species become that we define distance in chronometric terms. By international agreement, ". . . the meter is defined as the distance light travels in 1/299,792,458 of a second" (Itano and Ramsey 1993:64).

RESEARCH REPORTS. As a nonverbal sign, waiting time (in the U.S.) has eight levels of duration: *immediate*, *very short*, *short*, *neutral*, *long*, *very long*, *terribly long*, and *forever* (Hall 1959).

AUDITORY CUE

The voice of him that crieth in the wilderness. --Old Testament, *Isaiah*, XL, 3

Sound ***signal***. **1.** An *incoming* **sign** received through the ears, causing the brain to hear. **2.** An *outgoing* sign produced by the vibration of physical objects (e.g., drum heads, reeds, and strings) or body parts (e.g., the hands in *clapping*, and the larynx in ***speaking***).

Usage I: Like **touch cues**, auditory cues are psychologically "real" (i.e., *tangible*) to human beings. Because hearing evolved as a specialized form of touch, sounds share some properties of tactile signals. (***N.B.***: The telephone company's commercial jingle, "Reach out and touch someone," carries more than a figurative ring of truth.)

Usage II: Auditory cues may be used **a.** linguistically (in speech), as well as **b.** **emotionally** (to transmit **information** about attitudes, feelings, and moods; see **TONE OF VOICE**).

Courtship. In the speaking phase of courtship, auditory cues play a tactile role as they pave the way toward touching itself (see **LOVE SIGNALS III**).

Biology. *Big-seeming* auditory cues (e.g., deep or loud cries) suggest--and may substitute for--physical size itself (see **LOOM**). Like the bullfrog's croaking, a man's deep voice may suggest greater size, authority, and strength.

Anatomy. Auditory cues are received, as vibrations, by specialized hair cells in the inner ear's *cochlea*. There, the vibrations are transformed (as electrical signals) in the auditory nerve, which links to auditory modules of the midbrain (i.e., the inferior colliculi) and the forebrain (e.g., the primary auditory cortex).

Evolution I. **1.** "The visceral skeleton (splanchnocranium) of vertebrates consists of a series of cartilages or bones arising in the embryonic visceral (**pharyngeal**) arches" (Kent 1969:155). **2.** "In lung-breathing tetrapods the visceral skeleton has been modified for transmission of sound (malleus, incus, and stapes), for attachment of the muscles of the modified tongue, and for support of the larynx (cricoid, thyroid, and arytenoid cartilages)" (Kent 1969:162).

Evolution II. "When the first amphibia left the Silurian seas two or three hundred million years ago, with their heads resting on the ground, they relied entirely on bone conduction of vibration for hearing. The vibrations in the earth were transmitted from the bones of their lower jaws to the bone surrounding the inner ear. In order to hear, they probably kept their lower jaws touching the ground" (Nathan 1988:34).

Psychology. Our aversion to sudden loud noises may be innate (Thorndike 1940).

Right brain, left brain I. Regarding auditory signals, the right-brain hemisphere is superior to the left when dealing with music, metaphorical and figurative speech, sequences of verbalized events, verbal stress and intonation patterns, and human non-speech sounds. The left-brain hemisphere is superior in processing spoken words, numbers, and nonsense syllables. (See **HUMAN BRAIN**, *Right brain, left brain*.)

Right brain, left brain II. As reported by Reuters Health (July 4, 2001), "If you want to tell someone you love them you should tell them through their left ear, research suggests. People are more likely to remember emotional words, such as 'love,' if they are spoken into their left ear, according to a study by psychologists at Sam Houston State University in Huntsville, Texas." Words heard through the right ear are more likely to be forgotten, according to Dr. Teow-Chong Sim and his colleagues who presented the study at the European Congress of Psychology in London. Accuracy of recall of emotional words through the left ear measured 64.43%, and measured 58.15% through the right.

Neuro-notes I. The **amphibian brain's** inferior colliculi receive auditory cues from the lateral lemniscus and control such auditory reflexes as flinching in response, e.g., to a karate master's yell (see **STARTLE REFLEX**). Postural reflexes to loud sounds are triggered by the inferior and superior colliculi, through brain-stem-cervical cord interneurons to anterior horn motor neurons that are linked to spinal nerves in

charge of muscle spindles.

Neuro-notes II. As in the visual neocortex, modules of auditory neocortex in the temporal lobe have specialized functions, e.g., to decode information about the frequency, intensity, and timing of sounds.

Neuro-notes III. Movement of sounds is detected **a.** by dorsal premotor regions of the frontal eye fields, **b.** ventral premotor regions of primate areas for multimodal spatial analysis and motor planning, and **c.** right superior and inferior parietal cortex (Griffiths et al. 2000).

See also **CRY**, **LAUGH**.

INTENTION CUE

Body movement. A **gesture**, motion, or **posture** of the fingers, hands, arms, feet, legs, face, head, neck, shoulders, or torso which is preparatory to a nonverbal action, such as leaving a room, rising from a table, or attacking an enemy.

Usage: An intention cue--such as angling the **feet** away from someone we dislike--is an unconscious signal of how we truly feel about another person. Intention cues may also reflect inner attitudes, unvoiced opinions, and emotions as aroused, e.g., in **deception**.

Animal behavior. **1.** "These are the incomplete or preparatory movements which often appear at the beginning of an activity" (Hinde 1970:668). **2.** "Intention movements of biting or striking are a common source of the components of threat movements: the upright threat posture of the herring gull provides several examples. In other cases intention movements of preening, nesting, self-protection, copulation, and many other types of behaviour have given rise to display movements" (Hinde 1970:668).

Animal ethology. Two animals may fight over a food item, but usually they bluff each other with aggressive displays to force a bloodless retreat (see below, *Snarl*). In ethology, early researchers such as N. Tinbergen and K. Lorenz suggested that bluffing and threat displays were *intention movements* which evolved through a process of "ritualization." As incoming or **afferent cues**, intention movements are reliable signs with which to predict subsequent behaviors.

Arm-reach. Sitting across a table from an attractive stranger, we may unwittingly extend our arms toward that person in preparation to touch (see **LOVE SIGNALS IV**). As with many intention cues, the

preparatory action is not completed (i.e., we stop short of making physical contact).

Feet-pointing. Jurors may unwittingly point their feet away from attorneys with whom they disagree, in an unconscious preparation to walk away.

Knees clasp. In the seated position, leaning forward and clasping "both knees with the hands" means, "I am about to leave" (Morris 1994:149).

Ritualization. "Since the behavior patterns of social care of skin and fur already expresses contact willingness, it is understandable that they sometimes become ritualized into expressive movements. The lemur (*Lemur mongoz*) greets others with a movement that is used to comb the fur, a behavior that is common to this group. This combing movement with the lower mandible is made into space, accompanied by rhythmic calls and even licking the air at high intensity" (Eibl-Eibesfeldt 1970:95).

Snarl. "When your dog lifts his lips and shows you his teeth because you reached for the bone between his paws, you've witnessed an intention display. Rather than bite you there on the spot, your dog shows the beginning phase of the biting sequence to bluff you away" (Givens 1983:43).

See also **ANGULAR DISTANCE**.

LOVE SIGNAL

"The reason of the unreason that afflicts my reason, in such a manner weakens my reason that I with reason lament me of your comeliness."--Miguel de Cervantes (*Don Quixote*; 1605:26)

Courtship. **1.** A nonverbal **sign** exchanged in the process of *courtship*, *flirtation*, and *seduction*. **2.** A nonverbal **message** designed to attract sexual partners. **3.** In modified form (i.e., presented less seductively), a sign to help establish **rapport**.

Usage I: A great deal of our **nonverbal communication** bespeaks *sexuality*. Despite **speech**, courtship is best transacted in an unspoken medium, e.g., through **lip-pouts**, **head-tilts**, and **shoulder-shrugs**. (Saying "I love you," before showing love in gesture and deed, is apt to scare a partner away.)

Usage II: Loving feelings are powerful, yet *intangible* **emotions** housed in the **mammalian brain**. Love signals themselves, however--from a shy head-toss to a subtle display of toe cleavage--are *tangible* cues which can be seen and identified. Love is an intangible, but courtship runs on physical mood signs.

Usage III: Love signals are **messages** about physical proximity and psychological closeness. We trade gestures to tell each other (apart from words) to come nearer and nearer until we touch (see **TOUCH CUE**). *Facial nuzzles*, *kissing* with the lips, and *caressing* smooth, hairless terrains of skin with the fingertips (used as *tactile antennae*; see **FINGERTIP CUE**), are necessary if men and women are to achieve sexual intercourse.

Blindness. "'You're just like most guys, but you look for different things,' Erik [Weihenmayer, 33, the first blind climber to scale Mount Everest] says. 'Smooth skin, nice body, muscles--that stuff becomes more important.' And the voice becomes paramount. 'My wife has the most beautiful voice in the world,' Erik says" (Greenfeld 2001:60).

Courtship. In all cultures human beings attain the closeness of sexual intimacy through courtship, a slow negotiation based on nonverbal cues. All vertebrates from reptiles to primates reproduce through mating, i.e., via *internal fertilization* of the female's body. Through its five *phases* (see **LOVE SIGNALS I**, **II**, **III**, **IV** & **V**), courtship is the means by which individuals close the gap and become loving pairs.

Media. Social psychologist Timothy Perper and anthropologist David Givens ". . . spent months in dimly lit lounges documenting these flirtation rituals. Like the ear wiggles, nose flicks and back arches that signal 'come hither' in rodents, the women smiled, gazed, swayed, giggled, licked their lips, and aided and abetted by the wearing of high heels, they swayed their backs, forcing their buttocks to tilt out and up and their chests to thrust forward." --*Psychology Today* (Rodgers 1999)

E-Commentary: "Dear Dr. Givens--I read your book on love signals when it was first published and I still love it. The concept of reptilian. mammalian, and human brain has fascinated me all these years. This may sound funny but, in 1983 I was a fresh college graduate and an unconfident, socially awkward geek with zero courting skills. By using your book as a reference guide I SCORED! In fact, I found my wife (who I have been with for 16 years) by monitoring her 'love signals.' Thank you." --Wes (5/8/01 11:13:43 AM Pacific Daylight Time)

RESEARCH REPORTS. **1.** "Flirtation, courtship, and seduction are labels for an exaggeratedly affiliative and submissive-like social orientation [signaled chiefly by covert nonlinguistic cues] that may, in many instances, culminate in sexual intercourse" (Givens 1978:357). **2.** "Two of the most detailed analyses of the courtship process come from Givens (1978) and Scheflen (1965, 1974). Givens's conclusions come from an examination of commonalities between humans and other species in the basic courtship sequence and signals" (Burgoon et al. 1989:325).

See also **ARM-SHOW**, **ARPEGE®**, **LOVE SIGNALS I**.

LIP-POUT

Facial expression. To push the lower **lip** against the upper in a protruded look of disappointment, displeasure, **sadness**, or **uncertainty**.

Usage: **1.** Children throughout the world pout in sadness, frustration, and uncertainty. **2.** Adults unthinkingly pout--or show fragments of the pouting cue (esp., contractions of the chin muscle [or *mentalis*])--when disagreeing with comments presented face-to-face, e.g., at a **conference table**. **3.** In courtship, men and women may unwittingly evert their lips in a pouty look to signal harmlessness and availability (see **LOVE SIGNAL**).

Anatomy. We pout by contracting our chin's *mentalis* muscle, in tandem with direct labial tractor muscles of the lower lip (*depressor labii inferioris* and *platysma pars labialis*). Pouting closes off the lower face **a.** by pressing the lips together, **b.** by pressing the tongue against the palate, and **c.** by constricting the pharynx in preparation to swallow (see **ADAM'S-APPLE-JUMP**) or **cry**.

Evolution. The lower lip everts and pushes upward in a familiar movement used first in nursing, and later in drinking from cups, glasses, and straws. As a feeding-related **sign**, pouting has roots in the mammalian *sucking reflex*. The lip-pout is often a component of the **shoulder-shrug display**.

U.S. politics. Photos of President Bill Clinton taken during the Monica Lewinsky scandal often exhibit tense-mouth pouting and contraction of his chin's mentalis muscle (see **TENSE-MOUTH**).

RESEARCH REPORTS: **1.** ". . .protrusion of the lips, especially with young children, is characteristic of sulkiness throughout the greater part of the world" (Darwin 1872:237). **2.** The lip-pout has been observed as a mood sign in old world monkeys and apes (van Hooff 1967). **3.** Pouted lips are used as *submissive signals* in Bushman and deaf-and-blind-born children (Eibl-Eibesfeldt 1973, 1975), and in adults expressing *shameful moods* (Izard 1971). **4.** A brief pout or *mouth shrug* (Morris 1994) reveals doubt or uncertainty (even as one says, e.g., "I am absolutely sure").

Neuro-notes. The lip-pout's feeding connection suggests control by diverse areas of the hindbrain (medulla and pons), midbrain, and forebrain (**amygdala** and **hypothalamus**). Electromyographic studies show "fairly continuous activity" in the chin's mentalis (*Gray's Anatomy*, 38th edition, 1995:795), reflecting a close link between this muscle and **emotions** of the **mammalian brain**.

See also **LIP-COMPRESSION**, **LIP-PURSE**.

LIP-COMPRESSION

Facial expression. A usually negative cue produced by pressing the **lips** together into a thin line.

Usage: Lip-compression is a specific version of the **TENSE-MOUTH** display. A sudden lip-compression may signal the onset of **anger**, disliking, grief, **sadness**, or **uncertainty**.

Observation. Barely noticeable lip-clenching may signal unvoiced opposition or disagreement. Like other lip cues, in-rolling is controlled by "gut reactive" **special visceral nerves**.

Anatomy. At rest, the lips make gentle contact, and the teeth are slightly separated (see **BLANK FACE**). In lip-compression, the prime mover is *orbicularis oris* (both *pars peripheralis* and *marginalis* contract); the teeth may or may not occlude.

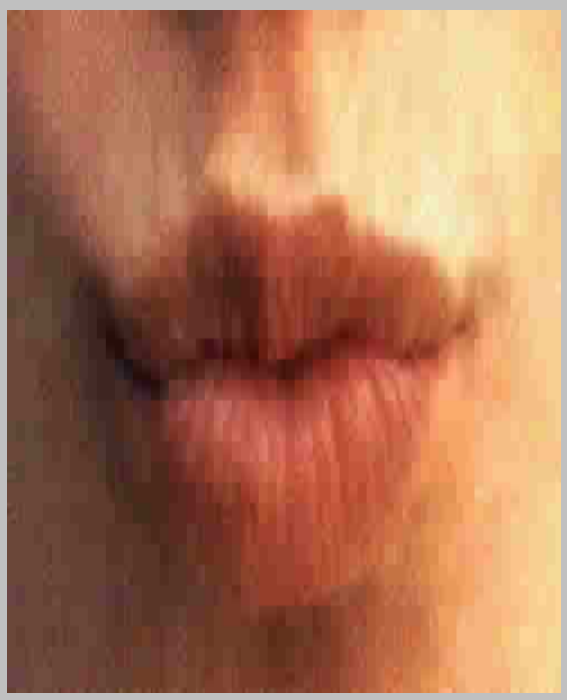
RESEARCH REPORTS: **1.** In rage, "The mouth is generally closed with firmness . . ." (Darwin 1872:236). **2.** Apes express anger by staring, clenching the jaws, and *compressing the lips* (Chevalier-Skolnikoff 1973:80). **3.** In chimpanzees, a *compressed-lips face* "typically accompanies aggression" (Goodall 1986:123). **4**. "In an aggressive mood, the [bonobo chimpanzee's] lips are compressed in a tense face with frowning eyebrows and piercing eyes" (Waal and Lanting 1997:33). **5.** In the Highlands of

Papua New Guinea, when men were asked to show what they would do when angry and were about to attack, "They pressed their lips together" (Ekman 1998:238).

Neuro-notes. Lip-compression is an unconscious sign controlled by the **limbic system** acting through emotionally responsive **paleocircuits** of the *facial nerve* (cranial VII).

See also **LIP-POUT**, **LIP-PURSE**.

LIP-PURSE



Still gazing at his hands, he pursed his lips a little, but this time made no hissing sound. --Joseph Conrad (*Lord Jim*; 1899)

Facial expression. To evert, pucker, and round the **lips** in a look of disagreement, scheming, or calculated thought.

Usage: The paramount **message** of lip-pursing is "thoughtful dissentience"--i.e., "I disagree." The tightly screwed-out lips of the *pig snout* show that a listener has gone beyond the **pout** of **uncertainty** to a more dissenting frame of mind. As a mood sign, the lip-purse reflects formation of *an alternative verbal reply* in the brain's primary speech center, Broca's area.

Anatomy. In the lip-purse, *orbicularis oris*, *buccinator*, and direct *labial tractor* muscles of the lips contract. The principal muscle, orbicularis oris, is a sphincter consisting **a.** of *pars marginalis* (located beneath the margin of the lips themselves), and **b.** *pars peripheralis* (located around the lips' periphery, from the nostril bulbs to the chin). Pars marginalis is uniquely developed in human beings for **speech**.

Observation. Because the lip-purse signals mental resistance, speakers should immediately ask if listeners disagree before continuing a verbal argument. Clearing unvoiced resistance facilitates understanding. (***N.B.***: Moreover, listeners will appreciate your intuitive grasp of their thought processes.)

Primatology. In the brain of our closest living relative, the chimpanzee, a motor area analogous to Broca's controls the rounded, pursed-lip movements used to make facial grimaces and emotional calls (Lieberman 1991). The *pant-hoot* cry of excitement is a case in point (Goodall 1990).

RESEARCH REPORT: "Apprehension, scheming, or mere disinclination to speak may be betrayed by

tightly screwed [i.e., 'pursing of the'] lips" (Peck 1982:254).

Neuroanatomy. Pursed-lips is a *gestural fossil* (from the **PRIMATE BRAIN**) which unwittingly appears when we disagree. As quarrelsome words form in Broca's area, a call goes out through **limbic** (i.e., **emotional**) circuits to the brain stem's facial nerve (cranial VII). Forwarding the call, motor branches of the facial nerve instruct our lips to round and purse in preparation to disagree.

Neuro-notes. Pursed-lips is an orofacial gesture controlled, in part, by Broca's area, a finger-sized patch of neocortex involved in the production of **words**. It is often the first sign of disagreement.

See also **TENSE-MOUTH**.

FINGERTIP CUE

His hands were resting on the edge of my desk. The giant fingers of the right hand found the fingers of the left, interlocked, and squeezed; a knuckle popped. I was glad I wasn't in the middle. --George C. Chesbro (*Shadow of a Broken Man,* 1977:10)

Sign. **1.** A movement, gesture, or posture involving the end(s) of the finger(s). **2.** Specifically, **a.** the position of the fingertips in space, or **b.** the points of physical contact made by the *tactile pads* with material objects, clothing, or body parts (esp. with the **lips** and **hands**; see **HOMUNCULUS**).

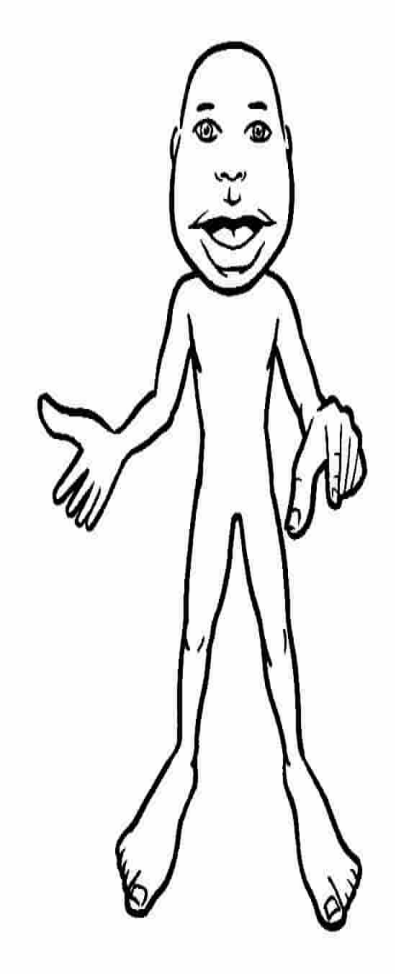
Usage: Isolating on the hand reveals an incredibly high level of activity in our fingertips: *they rarely keep still*. Due to dense concentrations of nerve endings, fingertips have evolved as *tactile antennae* with which to explore the material world. When we feel anxious or upset, our hypersensitive pads unthinkingly reach out to stimulate, caress, and console tender areas of the body (see **SELF-TOUCH**). Because our fingers are nerve-linked to **speech areas** of the brain, their movements often reflect unvoiced thoughts and concealed opinions as well (see **DECISION GRIP**, **MIME CUE**, and **STEEPLE**).

Salesmanship. "You shake hands; you hand the prospect your card; you hand him brochures, pictures, samples, things that have to be unfolded, unrolled, opened" (Delmar 1984:44).

OBSERVATION: Though they provide reliable clues about what we think, how we feel, and where our attention lies, we take fingertip movements largely for granted. At a critical meeting, interview, or interrogation, however, they deserve special notice. *"Depend upon it,"* Sherlock Holmes told Watson, *"there is nothing so unnatural as the commonplace"* (*A Case of Identity*).

See also **OBJECT FANCY**, **TOUCH CUE**.

HOMUNCULUS



Brain. **1.** A distorted human figure drawn to reflect the space our body parts occupy on the sensory and motor cortex. **2.** A misshapen "little man" whose swollen lips, **hands**, and feet reflect the disproportionately large cortical areas they occupy.

Usage: The comically enlarged tongue, lips, and fingertips of the human homunculus explain why these body parts play key roles in **nonverbal communication**. The meaning of *lip-touch*, e.g. (as a hypersensitive, ***self-stimulating* gesture** to relieve anxiety)--is easily grasped from the "brain's-eye" view of the homunculus. **Boots**, french fries, **high heels**, **self-touch** gestures, and the **tongue-show**, e.g., may be decoded from its viewpoint as cortically meaningful **signs**.

Neuro-notes. **1.** "Almost every region of the body is represented by a corresponding region in both the primary motor cortex and the somatic sensory cortex" (Geschwind 1979:106). **2.** "These cortical maps of the body surface and parallel motor maps are important and explain why neurology has always been a precise diagnostic discipline . . ." (Kandel and Jessell 1991:372). **3.** "The finger tips of humans have the highest density of receptors: about 2500 per square centimeter!" (Kandel and Jessell 1991:374).

See also **HUMAN BRAIN**.

Drawing by Aaron M. Huffman, Harvey Danger bass guitarist

LOVE SIGN

Sexual icon. A male or female sexual trait as depicted in a drawing, photograph, or sculpted figurine.

Usage: Easily aroused by visual cues, men enjoy erotic pictures, images, and movies more than women do. *Playboy* (a magazine that pictures idealized features of the female form), e.g., outsells *Playgirl* (which features the male anatomy)--and both are read predominantly by men.

Prehistory I. The earliest sexual illustrations were realistic and abstract renderings of female and male sex organs, painted on Upper Paleolithic cave walls in western Europe between 34,000 and 12,000 years ago. (***N.B.***: The most common themes depicted on Paleolithic cave walls were *food* and *sex*, in that order.)

Prehistory II. Dating to ca. 25,000 years ago, female *Venus figurines* with exaggerated breasts, buttocks, and tummies have been found across Europe from Spain to Russia. The figurines had less to do with beauty than with *fertility*.

Media I. In U.S. college bookstores of the 1990s, the number one, two and three best-selling magazines, respectively, were *Cosmopolitan*, *Glamour*, and *Vogue*, read by young women seeking to enhance their sex appeal and **love signals**.

Media II. From 13 years of *Playboy* emerges a composite centerfold who likes a man to **a.** pick her up in his car, **b.** accompanied by his dog, **c.** with his stereo turned on, and **d.** offer her flowers before **e.** driving her to the beach where **f.** they watch the sunset and **g.** dance in the rain. (***N.B.***: From 1959 to 1995, the *average weight* of playmate centerfolds ranged from 82%-to-91% of the average weights of American women of the same height and age. [Below 85% is considered medically too thin.])

Media III. Americans view an average of 9,230 sexually suggestive scenes a year on TV.

RESEARCH REPORT: A study in the *Journal of Public Policy and Marketing* found that "[U.S.] Women think men prefer bigger-bosomed women than men said they preferred. Similarly, men are convinced that women want chestier guys than women said they liked" (Morin 1995:C5).

See also **BARBIE DOLL**.

ENTERIC BRAIN

*Ever since you gave me that order to be **silent**, a number of things in my stomach have gone to rot . . . .* --Sancho Panza (Miguel de Cervantes, *Don Quixote* [1605:161])

Chomsky's linguistics was beginning to strike many people as "a theory of the stomach which ignored digestion." --David Berreby (1994)

I don't like shopping, especially in a mall. I get dizzy and it makes me want to toss my cookies. --Nancy Lee Grahn, "Alexis," *General Hospital* (*Soap Opera Digest*, May 2, 2000:57)

Neuro term. A vast collection of nerve cells and **paleocircuits** in the bowel area, of such complexity that it has recently been called the "second brain."

Usage: In many ways independent of the brain proper--i.e., having a mind of its own--the enteric brain expresses itself nonverbally in visible "gut reactions." The "full" feeling of satisfaction, the "sick" feeling of nausea, the urge to vomit, and abdominal pain, e.g., are telegraphed through familiar **facial expressions** and **body movements**.

Culture. In the Japanese art of *shinyo*, one supposedly may cultivate the nonverbal skills of an awareness center called the *hara*, a region of the abdomen, diaphram, and stomach, which may be trained to process "gut feelings" about another person's unvoiced motivations and moods. "It is the primary way in which senior level Japanese officials and executives conduct business, and takes precedence over almost all other forms of decision-making. It does not consist of ‘winging it' based on generally ill-defined intuition; rather it is a skill and art which sets some people apart from all others in Japanese society and consists of learning and skills which are in some ways closely guarded secrets even today" (Drake 2000).

Goethe's biology. "Much of the ungulate's soul life--despite its undoubted intensity and power--does not appear at the surface, because it is too much involved in the processes of digestion and growth to establish any close relationship with the outside world" (Schadt, p. 226).

Neuro-notes I. **1.** In terms of its structures, functions, and neurochemicals, the enteric nervous system (ENS) is now regarded as "a brain unto itself." According to Gershon (1998), "Within those yards of tubing lies a complex web of microcircuitry driven by more neurotransmitters and neuromodulators than can be found anywhere else in the peripheral nervous system. These allow the ENS to perform many of its tasks in the absence of central nervous system (CNS) control . . . ." **2.** Located in the walls of the gastrointestinal tract, the enteric nervous system contains ca. 100 million neurons (Willis 1998D:238).

Neuro-notes II. Though the vagus nerve controls much of the ENS, the latter itself dictates how to perform most of its diverse functions.

See also **DISGUST**, **NONVERBAL BRAIN**, **REST-AND-DIGEST**, **SPECIAL VISCERAL NERVE**.

SILENCE

In quietness and in confidence shall be your strength. --Isaiah 15

And, as if satisfied, he was silent. --Dante Alighieri (*Purgatorio, Canto XXIV*)

Not heard. **1.** Nonverbally, the condition or quality of being difficult or impossible to hear, as in **walking** stealthily, swallowing a **cry**, curtailing bodily noises, and refraining from **speech**. **2.** Synonyms include *secretive* (see **DECEPTION CUE**), reserved (see **SUBMISSION**), and **tightlipped** (which, in English, implies a conscious decision to withhold information).

Usage: Animals from reptiles to human beings have devised ingenious means to be silent in order to avoid detection.

Media I. *Dead air*: "An unintended interruption in a broadcast during which there is no sound" (Soukhanov 1992:478).

Media II. "Silence Speaks Volumes"--Title of August 27, 2001 editorial in *USA Today* (14A) criticizing Rep. Gary Condit's tight-lipped refusal to discuss his relationship with Washington, D.C. intern, Chandra Levy, in connection with her mysterious disappearance. "Asked why Condit shouldn't step down from his seat on the House Intelligence Committee because of the risk of blackmail, [his attorney] Abbe Lowel argued that Condit has 'shown his ability to hold information'."

Pregnant pause. While giving a brief report at a conference table, important speaking points may be dramatized by inserting a brief pause immediately after their delivery. In a lengthier report, pauses may be used to separate main sections of the presentation; listeners feel refreshed by silence and pay renewed attention to vocalizations delivered after a pause (see **ORIENTING REFLEX**).

RESEARCH REPORT: "*Silences* also function to mark episode and position boundaries [in conversations, e.g., when closing a topic]" (Burgoon et al. 1989:409).

See also **INVISIBILITY**.

ORIENTING REFLEX

Neuro term. An unlearned response in which animals alert to new features of their environment, e.g., to novel sights, sounds, and smells in the speechless sense-surround of **Nonverbal World**.

Usage I: The orienting reflex (OR) is an innate, protective response designed to answer the question, "What's that?" The automatic OR provokes both a cognitive and an emotional concern, and also triggers immobility (i.e., the ***freeze*** reaction), when we are suddenly faced with a novel, unusual, or potentially dangerous person, place, or thing.

Usage II: The **messaging features** of **consumer products** may be designed to provoke the OR. Attention-grabbing signals from commercial messages broadcast in the **media** trigger the OR as well.

Reptiles. In reptiles, orienting involves **a.** refocusing of the sense organs, and **b.** freezing of the body's gross-motor movements. A slowed heart rate (*bradycardia*) has been observed, as well, e.g., in iguanas and in the death-feigning of hognose snakes (see **BROADSIDE DISPLAY**, *Saurian size*).

Mammals. The reptilian orienting pattern is present in mammals, where it is usually followed by **c.** a more active (i.e., a non-reflexive or voluntary) attention phase, and by **d.** an arousal of **emotion**. That is, after the reptilian orienting reflex itself occurs, a mammal may voluntarily attend (i.e., look, listen, and sniff the air), produce **facial expressions**, and emit **vocal** mood signs.

Anatomy I. In mammals and primates, a diagnostic set of nonverbal signs associated with OR is mediated by the five cranial nerves that arise from the **pharyngeal arches** (i.e., from the primitive gill arches; see, e.g., **EYEBROW-RAISE**, **FLASHBULB EYES**, **JAW DROOP**). The trigeminal (cranial V, for

chewing) and facial (cranial VII, for *facial expressions*) nerves link (i.e., communicate) with the the glossopharyngeal (cranial IX, for *swallowing*), vagus (cranial X, for *vocalizing* and *communicating with the viscera*), and accessory (cranial XI, for *turning the head* and ***shoulder-shrugging***) nerves, but the source nuclei for the special visceral efferents of the latter three cranial nerves all originate in the medulla oblongata's nucleus ambiguus (NA).

Anatomy II. In mammals and primates, NA mediates control of the pharynx, soft palate, larynx, and esophagus (see **ADAM'S-APPLE-JUMP**, **THROAT-CLEAR**). Chemoreceptors enable the third pharyngeal arch's carotid body to sense CO2 and O2 levels. The accessory nerve (cranial XI) positions the neck, assisted by the vagus nerve (cranial X). (Source: Porges 1995 [Stephen W., *Psychophysiology*, 32 (1995), 301-318. Cambridge University Press. Printed in the USA, *Orienting in a defensive world: Mammalian modifications of our evolutionary heritage. A Polyvagal Theory*])

Anatomy III. NA medites control of the heart and vocal **intonation**. Its efferent fibers mediate **feeding and breathing**, as well as some **body movements**, emotions, and forms of communication (e.g., *growling*; see **SPECIAL VISCERAL NERVE**). "The NA-vagus provides the vagal brake that mammals remove instantaneously to increase metabolic output to foster **fight or flight** behaviors. The NA-vagus provides the motor pathways to shift the intonation of vocalizations (e.g., **cry** patterns) to express emotion and to communicate internal states in a social context." (Porges 1995)

Anatomy IV. The NA mediates control of the heartbeat rate, the lung's bronchial tubes, and other **visceral organs** (Porges 1995).

Evolution. In orienting reptiles and mammals, according to Porges (1995), the control of bradycardia (i.e., of slowed hearbeat rate) by the dorsal motor nucleus of the vagus nerve (cranial X) may have evolved from an ancient vertebrate *gustatory response*. "Gustation is the primary method for identifying prey (including other appropriate food sources) and predators in aquatic environments" (Porges 1995; see **AROMA CUE**, **TASTE CUE**).

Neuro-notes I. The separation of the vagus nerve (cranial X) into a dorsal motor nucleus (DMNX, causing bradycardia) and ventrolateral motor nucleus (nucleus ambiguus or NA, which suppresses heart-rate variability) began with reptiles and continues into mammals (Porges 1995). (***N.B.***: In turtles, however, the nuclei are still connected.)

Neuro-notes II. In mammals, the slowed heart-rate of the OR is of short duration due to their high oxygen needs. The ventrolateral motor nucleus of the vagus nerve brakes the bradycardia (Porges 1995).

Neuro-notes III. "With phylogenetic development, the viscerotropic organization of the vagal system has become more complex, and incorporates pathways from other cranial nerves including trigeminal, facial, accessory and glossopharyngeal. Thus, more specialized functions such as head rotation to orient sensory receptors toward the source of stimulation, mastication to ingest food, and salivation to initiate gustatory

and digestive processes are integrated into the vagal system" (Porges 1995).

See also **OBJECT FANCY**, **STARTLE REFLEX**.

INVISIBILITY

Come, my son, let us go look for a place where I may hide . . . . --Cervantes (*Don Quixote*, 1605:565)

Keeping reflections to a minimum is necessary but not sufficient for invisibility. Light must also pass unimpeded through the body . . . . --Sönke Johnsen (2000:88)

Not seen. Nonverbally, the condition of being difficult or impossible to see, as in the use of camouflage, concealment, flatness, thinness, hiding, or transparency.

Usage: Animals from jellyfish to humans have devised ingenious ways to be stealthy and to avoid detection.

Jellyfish. In the featureless ocean depths which make up ca. 99 percent of Earth's living space, jellyfish have no place to hide, and thus rely upon transparency to become "invisible." Their clear, gelatinous bodies (the interior as well as the exterior surfaces) allow from 20 to 90 percent of light to pass through, thus enabling these simple creatures to sneak up on prey while avoiding detection by sighted enemies (Johnsen 2000:88).

Human beings. **1.** In the corporate world, humans may become functionally invisible by keeping a low profile (e.g., by remaining **silent**), and by covering their bodily exteriors with the uniform of the day (see, e.g., **BUSINESS SUIT**, **ISOPRAXISM**). **2.** In private life, human beings spend a great deal of time in seclusion behind closed doors (e.g., in bathrooms and bedrooms) and other partitions designed to shield their bodies from prying eyes. Scientists have determined that too much visual monitoring can be harmful to human health.

Hunter's camouflage. According to Konrad Spindler (1994:147), the 5,000-year-old grass cloak of the

Copper Age Iceman would have provided "excellent camouflage" for a hunter.

Sighting distance. "At some distance, depending on the animal's original contrast and how the water affects the light, the contrast drops below what the observer can see. This distance is known as the sighting distance, and beyond it the animal is invisible (and safe)" (Johnsen 2000:87).

Spy Museum. So cryptic is Keith Melton's Florida-based Spy Museum--which houses some 7,000 espionage artifacts (including concealed cameras and listening devices, dead drops, and an Enigma decoder)--that its exact location is kept secret. "'Dead drops are a way of separating the spy and the handler, by time but not space,' he [Melton] explains" (Schlesinger 2001:53).

Underground. "Throughout history, tunnels hidden below the earth were far from public gaze and thought" (Langrall 1994:4).

LEG WEAR

Although skirt hemlines are no longer much of a concern, form and structure between your waist and your feet is always a critical issue. --Véronique Vienne (1997:149)

Fashion statement. **1.** Clothing worn **a.** to cover, and **b.** to modify the color, thickness, length, shape, and texture of the legs (see, e.g., **BLUE JEANS**). **2.** Ornaments (e.g., anklets and cuffs) worn **a.** to attract notice, and **b.** to accent the leg's masculine or feminine traits.

Usage: What we place upon our legs accents their thickness or taper. *Trousers* widen the legs, e.g., while *dresses* bare the turn of an ankle. *Skirts* reveal, while *pants* conceal, vulnerable landscapes of skin.

Media. While fleeing from gorillas, giant lizards, and Martians, e.g., leading men (in pants and **boots**) must help leading women (in skirts and **heels**) as the latter twist their ankles, stumble, and fall to the ground.

Skirts, women. Though the earliest skirts may have been made of thong-tied animal hides, the oldest-known skirts were more provocative and revealing than leather. Evidence for the ancient *string skirt* consists of detailed carvings on Upper Paleolithic *Venus figurines* from Lespugue, France, estimated to be ca. 23,000 to 25,000 years old (Troeng 1993). The string skirt (not unlike the filamentous grass skirts of old Hawaii) revealed the legs and ankles, and when a woman **walked**, made sexually suggestive movements of its own as well (Barber 1991, 1994).

Skirts, men. Japanese men wear kimonos, Samoan men wear sarongs, and bedouin men wear flowing

robes. Men from Amazonia, Bali, Egypt, Fiji, Ghana, Greece, Hawaii, India, Kenya, Korea, Samoa, Scotland, and Tibet also wear skirts.

Stance. Leg wear suggests how solidly--or how lightly--we trod upon the earth. In tandem with heavy shoes, e.g., masculine *cuffs* define a solid connection with terra firma, as if a man "had both feet on the ground." In thinner shoes and higher heels, feminine bare legs seem to lift a woman above the earthly plain. (***N.B.***: From 9 a.m. to 5 p.m. in the corporate world, a woman must balance her femininity against the stability of her stance.)

Trousers I. The oldest-known pants were discovered on a glacier between Austria and Italy. The crotchless leggings, made from animal hide whipstitched with sinew, were worn fur side out with a leather loincloth. They belonged to a late-Neolithic wanderer known as the "Ice Man," who died ca. 5,300 years ago. The deerskin pants covering his thighs and calves did not cling, but had a loose fit to enable bending at the knees. Though he may have died in a fall, an artist's rendering of his leather cuffs and shoes suggests that, unlike the Venus figurine, the Ice Man's leg wear provided a stable platform upon which to stand (Spindler 1994).

Trousers II. As consumer products, pants show an Indo-European design of equestrian origin: "To judge from their first distribution, trousers were invented about 1000 B.C. in response to the chafing of tender parts incurred in the new art of horesback riding. The man's chemise was then shortened (*shirt* means 'cut short') to allow the straddling position" (Barber 1994:142).

See also **ARM WEAR**, **BUSINESS SUIT**, **FOOTWEAR**.

LOVE SIGNALS I

Her loveliness I never knew
*Until she **smiled** on me*. --Hartley Coleridge, *Song*

*And then it will come to pass that she will rest her eyes on the knight and he will rest his on her, and each will appear to the other as something that is nearer divine than human; and, without knowing how or why it comes about, they will find themselves caught and entangled in **love's** inextricable net, with a deep pain in their hearts at not being able to put into words their longings and desires*. --Miguel de Cervantes (*Don Quixote*, 1605:162)

Courtship. Any of several nonverbal **signs** exchanged during the initial or *attention phase* of courtship.

Usage: In courtship's first stage, signals go out to announce **a.** "I am here," **b.** "I am female" (or "I am male"), and **c.** "I mean you no harm--you may approach." These are the generic courting cues animals send to notify potential mates of **a.** their *physical presence*, **b.** their *sex*, and **c.** their *good will* (i.e., "I won't attack"). Crickets, e.g., chirp, peacocks display, and lions nuzzle like kittens.

Presence I. Bright colors, floral prints, bold lines, and geometric shapes attract the eye (see **BODY ADORNMENT**), as do necklaces, bracelets, and watches that gleam in evening's dim (i.e., *crepuscular*) lights. Designed to spot colorful fruits and berries from a distance, our primate eyes notice feminine necks decorated with strings of round, pigmented beads (which catch eyes and whet a desire to reach out and touch what seems to be "edible"). Worn as corsages, flowers designed to lure pollinating insects attract the eye, as well, and tempt our nose with their sweet fragrance.

Presence II. Our mammalian nose detects the warm, musky aroma of animal steroids, such as the male hormone, *testosterone* (see **AROMA CUE**). From the beginning of life, sexual communication in plants and animals has relied on the chemical sense. And courtship today is no less reliant on smell, e.g., at a singles' bar, where a man's best cologne alerts a woman to his physical nearness, yet without overpowering her. (***N.B.***: Should his ordinary aftershave come on too strongly, he violates the "good intentions" rule. "'Seduction doesn't have to be dangerous,' says Michael A. Perelman, Ph.D., a clinical assistant professor of psychiatry specializing in sex and marital therapy at Cornell Medical Center in New York. 'And excitement is likeliest to come when people feel safe'" [Dyett 1992:95].)

Presence III. At parties men claim mini-territories, marking the immediate area around them with personal possessions (e.g., newspapers, cell phones, and car keys) set in the *reach-space* beside their drink glasses, finger food, and napkins. His *artifact scatter* is a sign of presence: "I am here," and from fixed courting stations (like those of the bowerbird [family Ptilonorhynchidae]), he and his colleagues sit and stand noticeably erect, puff out their chests, tell jokes, posture, and laugh loudly, as if to say, collectively, "We are here."

Presence IV. Meanwhile, women stay on walkabout through the party space--moving from table to couch to kitchen, to the restroom and back--skirting and brushing past the stationary men. A woman may seem to ignore them, but actually reads nonverbal reactions to her movements and gaze. She preens, sweeps her eyes from side to side across a man's line of sight, glances back and forth, and circulates. Her restless to-and-fro bespeaks presence: "I am here."

Gender I. We exaggerate sexual identity to make our gender messages absolutely clear. Grooming signals (e.g., makeup, **hair cues**, facial hair) and apparel (e.g., **high heels**, baseball caps, scarves) embellish natural signs to make our sexual preference obvious at a glance.

Gender II. Makeup conceals blemishes and highlights youthful features for men to see. To mimic the ideal courting face of an 18-year-old, women cover wrinkles with flesh-colored powders and creams. Smooth skin seems "youthful" to men, who are very visual creatures in courtship (and for whom seeing is usually believing). Feminine eyes, cheekbones, and lips are marked with pigments to be more visible, expressive, and striking at close quarters and from across a room. The nose is downplayed with makeup, so as not to interfere with the **infantile schema** (i.e., wide-set eyes and full lips set upon soft, smooth, unblemished skin; see below, *Intentions II* and ***RESEARCH REPORTS***). (***N.B.***: Beauty's essential template is the "baby face," with taut cheeks and prominent cheekbones, as pictured on magazine covers

throughout the world.)

Gender III. A man's wrinkles need not be covered because facial lines work in his favor. *Horizontal folds* on the forehead, *vertical creases* between the eyes above the nasal bridge, and slanted *naso-labio grooves* (running from the nostril bulbs to the lip corners) give his face strength-connoting "character." Additional strength comes with a moustache (bestowing a "fierce" expression) or a beard (to "widen" the lower jaw). Nonverbally, a man's face plays two roles in courtship: **a.** attracting women, and **b.** intimidating rivals. The ideal face (as, e.g., seen in the "sexiest men" profiled annually in women's magazines) combines "rugged" good looks (square jaw, prominent cheek bones, medium brow ridges) with boyish (i.e., disarming) qualities (wide-set, large eyes; medium nose; suede-smooth skin).

Gender IV. "Women prefer men whose torso has an 'inverted triangle' shape (i.e., a narrow waist and a broad chest and shoulders). This is a shape consistent with physical strength and muscle development in the upper body" (Maisey 1999).

Gender V. Numerous studies have found that both men and women rate as being "more attractive" those women whose waists are visibly narrower than their hips; however, ". . . compared with face research, research on the human figure is in a poor state" (Henss 2000:501).

Gender VI. "Like water, bare skin reflects light at night. Nothing under the moon, not even satin or diamonds, lights up your face and brightens your eyes like a deep décolletage"(Vienne 1997:154).

Intentions I. In courtship, coming-on too strongly or too soon is apt to scare a partner away. Men and women need visible signs to be reassured that moving closer is alright. Because **stranger anxiety** incites mistrust, we need *welcome signs* to draw us near (See, e.g., **HEAD-TILT-SIDE**, **PALM-UP**, **SHOULDER-SHRUG**, **SMILE**).

Intentions II. "It [i.e., regarding *infantilisms*] is a widespread phenomenon among mammals and birds that the male activates the female's brood-tending instinct in order to approach her and break down her individual barrier. In practice, this means that the male goes through various behavior patterns peculiar to the young of the species, thereby eliciting suitably friendly reactions from the female and facilitating sexual advances" (Hass 1970:75).

Media. According to an Oregon State University study conducted by Elaine Pedersen, and reported in the *Washington Post* (Morin 1995), **a.** women college students ranked "buttocks" seventh in importance out of 17 attractive male bodily traits; **b.** men students ranked breasts ninth out of 18 attractive female traits (women ranked breasts 13th); and **c.** women ranked male eyes second, while men ranked female eyes fifth, in physical attractiveness.

RESEARCH REPORTS: **1.** "Behavior patterns from the realm of parental care are particularly suited for group cohesion because cherishing behavior is primarily understood by the child as friendly. Conversely the mother is adjusted to the signals emitted by the young animal and reacts to them by looking after it" (Eibl-Eibesfeldt 1971:119). **2.** "We are left with the more realistic view that the plumage [of the

peacock's tail] is for intimidating other males . . ." (Turner 1984:37).

E-Commentary: "I am making a documentary here in England about attraction, relationships and blindness, and am very interested in your views on the exact relevance of 'the visual' in attraction, and what might happen when this is removed. How might you expect flirting to operate, and how much is physical appearance of genuine importance when choosing a mate?" H.B., Producer/Director, Channel Four Television, U.K. (99-02-01 10:36:38 EST)

See also **LOVE SIGNALS II**, **SHOULDER WEAR**.

FACIAL BEAUTY

There is no excellent beauty that hath not some strangeness in the proportion. --Francis Bacon, *Essays: Of Beauty*

Look at me, I'm handsome like anything and I haven't got anybody to marry me yet. --Gary, age 7

*Tracy's wearing: Nude lipliner, Crystal **Pink** and Cine Beige lipsticks; Seamless stick makeup in Champagne; Peach **Spice** satin powder blush; transluscent loose powder; Nude Scene eyeshadow and 2000 Calorie mascara in Rich Black. All made by Max Factor*. --Elizabeth Gaynor (describing Max Factor consultant, Tracy Warbin's face; 2000:13; see below, *Makeup*)

Perception. Qualities or features of the human **face** which excite aesthetic admiration, attraction, desire, or love.

Usage: Though facial beauty is "in the eye of the beholder," some qualities, features, and proportions are universally esteemed:

Cuteness I. In the 1930s, researchers isolated specific "cute" features in the resting face, seemingly favored by human beings in every society. A set of youthful features and proportions (e.g., wide-set eyes and full lips set upon soft, smooth, unblemished skin) appears to be attractive both in male and female faces. Existence of an *infantile schema* was originally identified in mammals (including *Homo sapiens*)

by Konrad Lorenz (1939).

Cuteness II. "The infantile/diminution response could have evolved from the responses of adults to infants. It is a fact that youngsters are cared for and protected in virtually all mammalian and bird species, some amphibian, reptilian, and fish species, and among the social, and possibly nonsocial, insect species" (Omark 1980:56).

Eyes *and cheekbones*. Across cultures (based on a study of Japanese and U.S. observers' judgements of female attractiveness), high cheekbones, a thin lower jaw, large eyes, and a shorter distance between the mouth and chin (and between the nose and mouth) are preferred as "cute" qualities in men's and women's faces alike (Perrett, May, and Yoshikawa 1994).

Jaws. The size (**a.** normal, **b.** vertically excessive [i.e., "too long"], or **c.** vertically deficient [i.e., "too short"]) and placement (**a.** normal, **b.** prognathic [i.e., protruding], or **c.** retrusion) of the upper and/or lower jaws affect our perceptions of facial beauty as well. Cross-culturally, e.g., bimaxillary prognathism (protruding upper and lower jaws) is less attractive than either normal or bimaxillary retrusion. Vertical deficiency is more attractive than vertical excess; and normal jaw occlusion is more attractive than either retrograde or protruded lower jaws (Kiyak N.D.).

Literature. *We have spoken of Pearl's rich and luxuriant beauty; a beauty that shone with deep and vivid tints; a bright complexion, eyes possessing intensity both of depth and glow, and hair already of a deep, glossy brown, and which, in after years, would be nearly akin to black.* --Nathaniel Hawthorne (*The Scarlet Letter*)

Love at first sight. A research team led by Knut Kampe of the Institute of Cognitive Neuroscience at University College, London, has determined that eye contact with a pretty face (one judged to be attractive by the viewer [on variables such as radiance, empathy, cheerfulness, motherliness, and conventional beauty]) activates a **pleasure center** of the brain called the ventral striatum. Kampe's research, published in the journal *Nature* (2001), found that the brain-imaged pleasure response (which appears in a matter of seconds after viewing the face) only shows when mutual **eye-contact** is established, and does not show when looking into an attractive face whose eyes are averted or turned away.

Lower face. Anthropologist Donald Symons has suggested that in women, a thin, pointed jaw and a small lower face are products of high levels of estrogen (i.e., the qualities suggest, "I am full of [feminine] estrogen and free of [masculine] testosterone: I am fertile"). Symons proposed that essential beauty is *averageness* (in a test of his hypothesis the composite images of averaged photos were rated as "most attractive" by college-student observers; Langlois and Roggman 1990).

Masculine fierceness. Compared to the powerful, wide jaws and broad dental arch of our ancestor *Homo habilis* (who lived in what is now northern Ethiopia ca. 2.3 m.y.a.), our own face has relatively shrunken, infantile features crouched beneath an immense and bulbous forehead. Yet "fierce" traits--larger eyebrow ridges, lower-set eyebrows, and bigger jaws (i.e., than those of women)--are still attractive in men (esp.

in tandem with cute features).

Makeup. To cover blemishes and wrinkles--to highlight the infantile schema (see above, *Cuteness I*), men and especially women have used facial cosmetics for millennia. **1.** "'Lead has been eroding European women's skin for at least 3,000 years,' claims a team of archaeologists who recently discovered 50 grams of toxic face powder in a 3000-year-old tomb in a Mycenean cemetery in Greece" (Anonymous 1994B:1655). **2.** Its composition " . . . --80% calcium carbonate and 20% lead sulfate hydrate--is similar to that of preparations used as cosmetics throughout history" (Anonymous 1994B:1655). **3.** "Finely ground green malachite, a particular favorite [in Ancient Egypt] from 4000 B.C. on, consists of oxide of copper--lethal both to bacteria and fly eggs. The exaggerated eye makeup that we associate with Queen Cleopatra in Hollywood spectaculars was originally of this nature" (Barber 1994:201).

Medicine. "About four years ago cosmetic surgeons began injecting Botulinum toxin (Botox) into people's faces to reduce frown lines, forehead lines and crow's feet. It works by paralyzing tiny facial muscles" (Hamilton and Weingarden 1998:14).

Philosophy. Beauty: "The sensible condition of aesthetic excellence considered to arouse the keenest **pleasure**" (Flew 1979:39).

Symmetry. **1.** Another preferred trait may be facial symmetry between the right and left sides. In a review of symmetry in mate selection, researchers found that animals from scorpion flies to zebra finches showed a preference for symmetrical patterns and shapes (perhaps because asymmetry is a sign of weakness or disease; Watson and Thornhill 1994). College-student ratings of young adult faces reveal that vertical and horizontal symmetry are attractive features (at least in photographs). **2.** In another study based on the subjective ratings of judges: "The more symmetric twin of a pair was consistently rated as more attractive, and the magnitude of the difference between twins in perceived attractiveness was directly related to the magnitude of the difference in symmetry" (Mealey, Bridgstock, and Townsend 1999:151).

RESEARCH REPORT: In a study utilizing Asian, Hispanic, and White judges, the most attractive female faces had larger, wider-set eyes, smaller noses, narrower facial breadths, smaller chins, higher eyebrows, larger lower lips, larger smiles, dilated pupils, and well-groomed, fuller hair (Cunningham et al. 1995).

Neuro-notes. Research by Dan Ariely (MIT Sloan School of Management) and Hans Breiter (Massachusetts General Hospital, Boston), published in the November 2001 issue of the journal *Neuron*, indicates that in men, female beauty stimulates the same pleasure centers of the brain as those stimulated by food and cocaine.

See also **HAIR CUE**, **LOVE SIGNAL**.

PLEASURE CUE

Pleasure's a sin, and sometimes sin's a pleasure. --Byron (*Don Juan I*)

He said the idea, in fact, had come to him over bourbon and water in a roadhouse in Illinois in 1937. --Claudia Levy (1995), on John V. Atanasoff, inventer of the world's first electronic computer

After a near-fatal car crash and an incident just like A[s] T[he] W[orld] T[urn]'s Andy (he passed out in the garage with the motor running), A..J. [Quartermaine] was sent to rehab in 1992. --*General Hospital* (*Soap Opera Digest*, May 2, 2000, p. 44)

Afferent signal. **1.** An incoming auditory, chemical, tactile, vestibular, visual, or other sign that produces enjoyment or delight. **2.** A message addressed to pleasure pathways in the brain.

Usage: Many nonverbal cues (see, e.g., **BIG MAC**, **LOVE SIGNALS V**, and **NICOTINE**) target pleasure areas of the brain.

Cognitive pleasure. Human beings experience pleasure in discovery, ideation, and knowledge. According to Cambridge University cosmologist Stephen Hawking, "There's nothing like the Eureka moment, of discovering something that no one knew before. I won't compare it to sex, but it lasts longer" (quoted in

Glauber 2002).

Consumer products. **1.** According to trivia expert David Feldman, "'There is a certain sensual thrill to throwing **shoes** out of moving cars'" (Oldenberg 1989:C5; see **BALANCE CUE**, *Consumer products I*; and **FEET**, *Neuro-notes*). **2.** "Police say a man stole a snowplow from a Hastings [Nebraska] city storage shed and drove it 20 miles after a major snowstorm to buy a case of beer" (Anonymous 2001B:A8).

Media. The secretive, pleasure-seeking habits of media icons are media worthy throughout the world. **1.** "In addition to the photos that have conferred such enduring icon status upon Jackie [Jacqueline Kennedy Onassis], [James] Spada includes more surprising shots--of her being thrown from a horse and smoking cigarettes [in his May 2000 book, *Jackie: Her Life in Pictures*]. (Her three-pack-a-day habit was a well-kept secret.)" (Craig 2000:42). **2.** As reported in *People Weekly*, "'He was knocking back tequilas, and the last thing I remember was [*Indiana Jones* leading man] Harrison [Ford] did one shot and he was on the floor of the bar,' she [Melanie Griffith] recalls" (O'Neill and Cunneff 2000:96).

RESEARCH REPORTS. **1.** "The results of animal behavior studies suggest some interchangeability between eating food, engaging in sexual behavior and self-administering drugs . . ." ("Food, Sex and Drugs Vie for Brain's Attention," *Reuters Health*, Jan. 28, 2000). **2.** "'Common neurochemicals mediate food and drug response,' Dr. Marilyn Carroll of the University of Minnesota pointed out. 'In animal studies, sweet and fat preferences predict alcohol self-administration. Giving preferred foods blocks drug self-administration. In humans, cigarette abstinence results in weight gain, and ethanol abstinence is associated with eating more **sweets**'" (*Reuters Health*, Jan. 28, 2000). **3.** Functional MRI studies by researchers at the Medical University of South Carolina have found that the prefrontal cortex and the anterior thalamus are activated in alcoholics, but not in moderate drinkers, when viewing pictures of alcoholic beverages (Flapan 2001).

Neuro-notes. The pleasure pathway ". . . begins at the ventral tegmental area in the midbrain, which sits on top of the brainstem. In evolutionary terms, this region is very old; it began with the vertebrates, which appeared 500 million years or so ago. The pathway extends to the nucleus accumbens, toward the front of the brain. This area is a traffic hub for signals to and from the addiction pathway and other parts of the brain. The nucleus accumbens is centrally located at the intersection of the striatum (where motion is begun and controlled) and the limbic system" (Powledge 1999:513).

Detail of *As the World Turns* photo (copyright by CBS-TV)

NICOTINE

With men in the Army, the Navy, the Marine Corps, and the Coast Guard, the favorite cigarette is Camel. (Based on actual sales records.) --Camel advertisement on back cover page of *Life* magazine (July 10, 1944)

Afferent cue. **1.** A potent alkaloid drug ($C_{10}H_{14}N_2$) of the tobacco plant, ingested by hundreds of millions of men, women, and children in **consumer products** such as cigars, cigarettes, and snuff. **2.** The most addictive chemical substance ever used by *Homo sapiens*.

Usage I: Nicotine "speaks" directly to the brain as an incoming nonverbal cue. Currently, there is a worldwide epidemic of nicotine use.

Usage II: According to a 1999 World Health Organization estimate, there are four million deaths a year from tobacco. Based on present smoking trends, tobacco is predicted to be the leading cause of disease in the world, causing ca. one in eight deaths.

Usage III: **1.** Nine out of 10 human beings who smoke a cigarette for the first time become addicted, according to statistics of the U.S. National Institutes on Drug Administration. **2.** According to a trade publication, *Tobacco Reporter*, the average American cigarette smoker buys ten packs of 20 cigarettes per

week. **3.** Worldwide, a third of all adults (36%) smoke cigarettes--and are hopelessly addicted to nicotine.

Usage IV. According to a March, 2001 study published in *Preventive Medicine* (Vol. 32, pp. 262-67), the use of smokeless (i.e., chewing) tobacco is a predictor of later cigarette-smoking initiation in young U.S. adult males.

Usage V. Cigarettes may be used as antidepressive drugs. It has been proposed that chronic smoking has an antidepressant-like effect on the brain, which could explain why so many depressed people smoke--and are unable to quit (see research by University of Mississippi Medical Center [Jackson] psychiatrist, Gregory A. Ordway and colleagues in *Archives of General Psychiatry* , Vol. 58, 2001, pp. 821-27).

Evolution. Nicotine evolved as a communicative sign, i.e., as an insect-repelling **secondary product**.

Early history. 1492: "Almost from the day of first landfall, on October 12, 1492, the inhabitants of Guanahani (San Salvador, Bahamas) regaled the newcomers with such herbs [i.e., tobacco plants]. And upon encountering near Fernandia Island a man in a small canoe carrying the same plant material among his meager essentials, Christopher Columbus surmised that the Indians held the leaves in high esteem" (Wilbert 1987:9).

Later history. 1797: Cigarettes appear when Cuban cigar makers roll little cigars in paper wrappers (Trager 1992:354). 1883: Gold Flake cigarettes appear in London (Trager 1992:567). 1885: Thomas Edison, a tobacco chewer, refuses to hire tobacco smokers (Trager 1992:585). 1925: Old Gold cigarettes appear, with the slogan, "Not a cough in a carload" (Trager 1992:773). 1955: U.S. cigarette consumption increases as media ads promote filter-tipped Winstons, king-size Tareytons with "activated charcoal" filters, and Marlboro filters (Trager 1992:953).

Literature. *For, like his nose, his [the Pequod's second mate, Stubb's] short, black little pipe was one of the regular features of his face*. --Herman Melville, *Moby Dick* (1980 [1851]:125)

Media. In the U.S. the advertising of cigarettes on television was banned in 1971, "abruptly removing one of the major categories of broadcast income" (Jankowski and Fuchs 1995:106).

Mr. Potato Head®. In 1987, Hasbro's Mr. Potato Head quit smoking (after 35 years) and handed over his signature plastic pipe to then U.S. Surgeon General, C. Everett Coop at a press conference for the Great American Smokeout (Hoffman 1996). (***N.B.***: Both tobacco and potato plants belong to the nightshade family [see **SHELLFISH TASTE**, *Prehistory*].)

E-Commentary: "Just spent a pleasant couple of hours with *The Nonverbal Dictionary*. I especially like how you've used media examples. However, I feel that smoking has a much richer communicative value than you've documented. Bogie was the premier artist at communicating with his stogie." --K. G. (10/1/01 12:20:24 PM Pacific Daylight Time)

Neuro-notes. **1.** Nicotine ". . . mimics the neurotransmitter acetylcholine by acting at the acetylcholine site and stimulating the nerve cell dendrite" (Restak 1995:116). Nicotine leads to the release of pleasure-enhancing dopamine and morphine-like endorphins. **2.** "In both mice and humans, they [Joseph R. DiFranza, University of Massachusetts Medical School in Worcester, and others] say, the number of high-affinity nicotinic cholinergic receptors has been seen to increase in the brain after only the second dose of nicotine" (Cooke 2000).

CANDY

Fruit substitute. **1.** A rich confection, such as a strawberry sucker or a chocolate mint, designed to communicate with our taste buds for sweetness and, secondarily, with our receptors for sour, bitter, or salty tastes. **2.** A food product designed to mimic the usually sweet taste of ripe fruit.

Usage: In U.S. supermarkets, the three best-selling candy bars--*M&M's*®, *Snickers*®, and *Reese's Peanut Butter Cup*® (Krantz 1991)--contain nuts, and are crunchy rather than merely soft. The top three successfully combine sweetness and nuttiness in a proven evolutionary formula for primates. So tasty are these and other candy bars that, according to the Hershey company, two-thirds are eaten immediately upon purchase.

M&M's. Colorful, nut-sized M&M's® are among the most popular fruit substitutes of all time. Their crisp, candy coatings encase milk chocolate mixed with finely ground peanut powder. On average, U.S. citizens swallow 11,000 M&M's in a lifetime (Heyman 1992), liking the orange ones least. (***N.B.***: The **primate brain** decodes orange as a *warning* (or *aposematic*) *coloration sign*, often associated with poisonous snakes, insects, and berries.)

See also **COCA-COLA®**, **EXISTENTIAL CRUNCH**, **NUT SUBSTITUTE**.

SHOULDER WEAR

Clothing cue. Items of clothing, jewelry, or other decorations worn to showcase the appeal, gestures, and shape of the **shoulders**.

Usage: Human shoulders are so expressive that, in every society, **consumer products** have evolved to accent their masculine, feminine, **dominant**, or **submissive** messages.

Fashion statement I. Like the round head atop our upright body, flat-lying shoulders stand out as conspicuous shapes, set high and wide upon our frame. How we clothe them affects what they have to "say." Clothing worn across the shoulders accents natural signs, signals, and cues of, e.g., the ancestral **high-stand** and **crouch** displays. Military epaulets *square*, while décolleté dresses *bare*, the shoulders to show, respectively, the strength of a **broadside** or the softness of a **shrug**.

Fashion statement II. Unless heavily muscled, bare shoulders cannot compete with shoulders artificially squared in a **business suit**. But they need not, for the messages are opposed. Like the shirtless collars and bow ties of the Chippendale dancers, *tee-shirts*, *camisoles*, and *tube-tops* advertise submissive movements of the crouch display.

Fashion statement III. *Puffy sleeves* keep shoulders "lifted," permanently "shrugged" in a frozen gesture which seems to say, "I am harmless--you may approach" (see **LOVE SIGNAL**). *V-neck*, *cowlneck*, *boatneck*, and *scoop-neck sweaters* reveal the collarbones and the submissive **throat dimple**. *Sleeveless sweaters* and *blouses* display the curvilinear deltoids. The *surplice wrap* dress forms a deep V over the

clavicles and breastbone, and a *camisole top's* straps draw viewers' eyes outward and across the shoulders' soft skin. Fabrics such as *taffeta*, *velvet*, *velour*, *silk*, and *Ultrasuede*® may be worn to mimic the skin's softness itself.

Anatomy I. The **a.** soft skin, **b.** rounded shape (of our upper arm's deltoid area), and **c.** extreme flexibility of our shoulders have made this body region sexually appealing in men and women alike. Clothing may be designed **a.** to bare one or both shoulders, **b.** to accentuate their roundness, and **c.** to allow them greater freedom of movement.

Anatomy II. Historically, women's clothing has drawn attention to every part--the flesh, muscle definition, and boney projections--of the feminine shoulder: **a.** the *epidermal* skin, **b.** the rounded *deltoid muscles* of the upper arm, **c.** the *trapezius muscles* of the back and neck, **d.** the *collarbones* (or clavicles), and **e.** the *shoulder blades* (or scapulas).

Prehistory. The world's oldest preserved textile garment is a 5,000-year-old *linen shirt* from an Egyptian tomb at Tarkhan (Barber 1994). The man's shirt was intentionally V-necked, perhaps to expose the throat and clavicle bones. Ancient Egyptian women wore tubular, ankle-length *jumpers* with shoulder straps. While their breasts were sometimes hidden and sometimes exposed, the splendor of their upper arms, clavicles, and shoulders was left to show through the ages (Barber 1994).

See also **ARM WEAR**, **FOOTWEAR**, **NECKWEAR**.

Photo detail of Bette Davis in *Bad Sister* (originally *The Flirt* [Universal 1924]; copyright Kobal Collection, London)

ARM WEAR

The fit of a sleeve defines the way you bend over and reach. --Véronique Vienne (1997:160)

Fashion statement. **1.** Clothing worn **a.** to cover, and **b.** to modify the color, thickness, length, shape, and texture of the arms. **2.** Ornaments (e.g., bracelets and wristbands) worn **a.** to attract notice, and **b.** to accent the arm's masculine or feminine traits.

Usage: What we place upon our arms accents their *thickness* or *taper*. *Flannel shirts*, e.g., add bulk, while *short sleeves* reveal the slimness and accent the length of thin arms. *Watches* and starched *shirt cuffs* add visibility and authority to hand gestures delivered above a **conference table**.

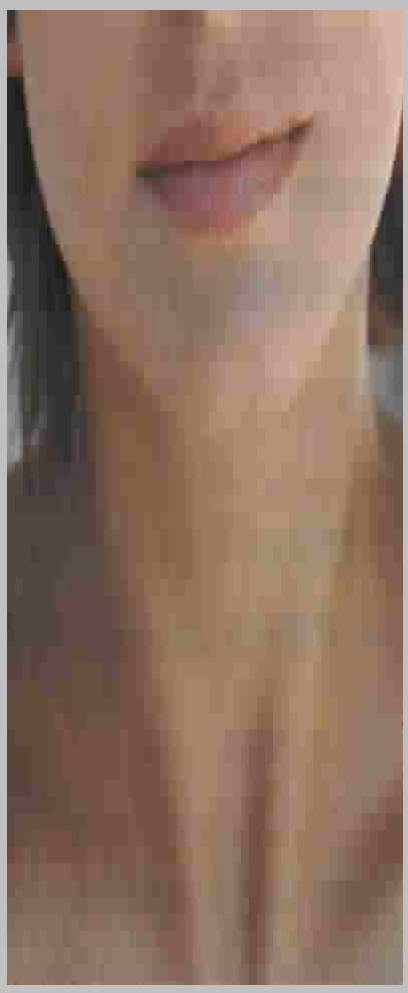
Corporate Skin. Deprived of primate fur, the exposed human arm is visibly vulnerable. Thus, it is not surprising that men and women keep their arms covered (just as they keep from baring their throats [see **NECK WEAR**]) in the corporate realm.

Power arms. Shirt sleeves covered by the thicker sleeves of a *Brooks Brothers*®**suit**, e.g., exaggerate the authority of masculine biceps and forearms. With its slimmer sleeves, the *Chanel*® suit boosts power, yet bows to femininity as elegantly today as it did in the 1930s.

Media. In the 1960s, after Jacqueline Kennedy appeared on the cover of *Life* magazine in a *safari jacket*, women's corporate wear turned toward visually thicker, and more competitive, feminine arms.

Antonym--**ARM-SHOW**. See also **LEG WEAR**, **NECK DIMPLE**.

NECK DIMPLE



Body part. **1.** A visible indentation at the front of the neck, below the Adam's apple (or *laryngeal prominence*) and above the collar bones. **2.** A fleshy hollow area of skin in the neck through which the windpipe's *tracheal cartilages* may show.

Usage: The neck dimple is a frail part of our anatomy, revealed by upright posture and hairless skin. An expressive body part, its fragility is either left uncovered for display, or concealed by **neckwear**. In courtship, e.g., the neck dimple is revealed to suggest harmlessness and vulnerability, as if to say, "You may approach" (see **LOVE SIGNAL**). In business, government, and military affairs, the neck dimple is masked by button-up collars, scarves, and knotted ties which suggest formality, strength, and reserve, as if to say, "Step back."

Media. "The idea that body language taps into non-conscious thought is not a new one. It has spawned generations of self-help books on how to succeed in interviews, or read the signs that your boss fancies you. Consider the indentation at the base of the neck, says David Givens, director of the Center for Nonverbal Studies in Spokane, Washington. Revealing it is a universal sign of submission and approachability in all mammals and a courtship cue in humans. So a man who loosens his tie in the presence of a potential mate may unwittingly be expressing his attraction" (*New Scientist*, [Spinney 2000]).

E-Commentary: "I have enjoyed your website immensely and would like to mention that the 'neck dimple' is commonly known (surgically) as the suprasternal notch. Thank you for placing your compilation online." S., USA (7/9/00 5:53:48 PM Pacific Daylight Time)

RESEARCH REPORT: *Throat-baring*, a visible sign of **submission**, has been studied in mammals (e.g., dogs and wolves) and in reptiles (e.g., crocodilians). The prominence of our neck dimple as we face each other and speak has led to diverse cultural fashions for exhibiting, adorning, or covering the throat.

See also **ADAM'S-APPLE-JUMP**.

TONGUE-SHOW

Don't bother me now! --"Recent research at the University of Western Australia identified the [slightly] protruded tongue as a particularly effective cue for this message" (Burgoon et al. 1989:411).

Facial expression. **1.** A momentary protrusion of the tongue between the lips. **2.** A gesture of the tongue found in gorillas and other primates, in children, and in all ethnic groups studied.

Usage: The tongue-show is a universal mood sign of unspoken disagreement, disbelief, disliking, displeasure, or **uncertainty**. It may modify, counteract, or contradict a verbal remark. Following the statement, "Yes, I agree," e.g., a protruded tongue may suggest, "I don't agree." Tongue-shows can reveal misleading, ambiguous, or uncertain areas in dialogue, public statements, and oral testimony, and thus may signal **probing points** (i.e., unresolved verbal issues to be further analyzed and explored).

Culture. In Tibet and southern China, a brief *tongue-tip show* is used to show, "I didn't mean it" (Morris 1994:224).

Pediatrics. Infants ranging in age from 0.7 to 72 hours old can imitate adult displays of tongue protrusion (Meltzoff and Moore 1983).

RESEARCH REPORTS: **1.** The *tongue-show* has been studied in both gorillas and human beings as a negative sign of *aversiveness* and *social stress* (Smith et al. 1974). A gorilla pushed from its favorite sitting place, e.g., or a man entering a roomful of strangers, will unwittingly *show the tongue* in "displeasure." **2.** Staring, striking, or scolding another primate may release a tongue protrusion, which may be a fragment of the emotion cue for **disgust** (Smith et al. 1974). **3.** *Tongue between lips* is a defensive sign children use when approaching strange adults (Stern and Bender 1974).

E-Commentary I: "About body language acts, in police interrogations I have many times observed the tongue-showing cue just before the defendant would confess." --Marco Pacori (12/17/00 9:53:16 AM Pacific Standard Time)

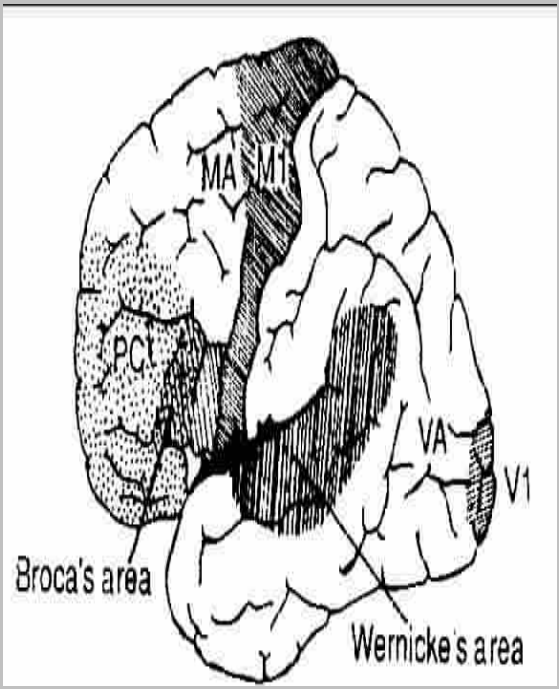
E-Commentary II: "I was trying to discover what a tongue meant if it was curled, poked determinedly towards the lips so an observer could see a tube or hollow. The mouth being rounded. This was at the same time as the person concerned was saying something that I felt was 'beaten you at this one' or 'I know best'. It seemed to be a gargoyle facial expression. Very worrying. Should I be concerned? Last time he did that was shortly (days) before beating me up. I am not expecting diagnosis nor counseling but seek data on such an event in order to come to my own conclusion. Do you have any reference or studies that I can view?" --Gillian (5/25/01 11:19:17 AM Pacific Daylight Time)

E-Commentary III: "During my stay in Thailand on the island of Koh Samui, I bought many handmade articles. There, when one wants to buy something one bargains over the price. So I adapted myself to that custom. Though many behaviors are different from ours [Marco Pacori is Italian], nonverbal behavior stays the same. On one occasion, I haggled about the price of a pair of pants. I asked the merchant how much, and she quoted an outrageous price. So I began to bargain. I proposed a very low price and she retorted with a very high price still. So, we went on negotiating. At a given time I proposed a certain sum, and she made a curious behavior. She looked away from me, her eyes appeared vacant, and she made a tongue protrusion (her tongue appeared for a moment quickly out of her mouth). I have seen this act in police interrogations moments before the suspect was going to yield [see above, ***E-Commentary I***]. Remembering the meaning of this observation, I put ‘psychological' pressure on her and she agreed to my price." --Marco Pacori (9/6/01 2:49:11 AM Pacific Daylight Time)

Neuro-notes. **1.** *Subcortical*: The tongue-show reflects negative emotions of the **amygdala** acting through brain-stem **paleocircuits** of the *hypoglossal nerve* (cranial XII). Stimulation of the amygdala can produce unwitting tongue movements associated with eating and the sense of smell (Guyton 1996:758-59). **2.** *Cortical*: That we often tongue-show while performing tasks which involve precise manual dexterity, such as, e.g., while threading a needle, may reflect the neural linkage between human tool-making and speech (see **WORD**, *Neuro-notes I*).

See also **LIPS**.

VERBAL CENTER



"The question is," said Alice, "whether you can *make words mean so many different things."*
"The question is," said Humpty Dumpty, "which is to be the master--that's all." --Lewis Carroll (*Through the Looking-Glass*)

Neurologists have found a tiny area of tissue--about 1 centimetre square--near to Wernicke's area that lights up only when consonants are heard. --Rita Carter (1998:150)

Neuro term. A component of the brain, such as *Broca's* or *Wernicke's area*, which governs the use of manually articulated (i.e., signed) or vocally articulated (i.e., **spoken**) language. Also, an association (arcuate) fiber link, such as the *arcuate fasciculus*, connecting verbal components.

Usage: Verbal centers are used to control the production and/or comprehension of linguistic communication and **words**.

Hypothesis. Speech seems to have evolved its own specialized sensorimotor production-and-decoding system (see below, *Embryology* and *Neuro-notes*)--above and beyond that which is used for nonverbal expression (see below, *Nonverbal speech areas*). However, speech has not evolved its own semantic information content. The latter is housed in brain modules (e.g., of the parietal association areas and the frontal lobes) which are shared by verbal and nonverbal media alike. Thus, speech is special but not that special.

KNOWN VERBAL CENTERS

Angular gyrus. A visible bulge on the cerebral cortex marking regions of the occipital, parietal, and temporal lobes (behind Wernicke's area) which link visual word recognition with other linguistic abilities.

Arcuate fasciculus. A tract of association fibers connecting Broca's and Wernicke's areas. In a less robust form, the arcuate fasciculus may predate--and thus may be a preadaptation for--speech. Similar tracts of association fibers (the superior longitudinal fasciculus, inferior longitudinal fasciculus, and uncinate fasciculus) found in the right-brain hemisphere connect nonverbal centers of the cerebral cortex.

Basal ganglia. "It is likely that the enlargement of the prefrontal cortex reflects, in part, its role in speech production. The rewiring appears to involve the **basal ganglia**; data from recent comparative studies suggest that basal ganglia circuits may be the key to the unique brain bases of human speech and syntax" (Lieberman 1991:106-07).

Broca's area. A premotor module of the neocortex (in the lower lateral frontal lobe; specifically, Brodmann's areas 44 and 45) identified in 1861 by Paul Broca as essentially involved in the production and control of human speech. Damage to this area (called Broca's aphasia) produces problems in speaking (while comprehension of another's speech is left unimpaired). According to Philip Lieberman, Broca's area ". . . has no functional equivalent in nonhumans" (Lieberman 1991:24; but see below, *Evolution I* and *II*). Recently, a language module immediately anterior to Broca's area has been identified, which suggests that the Broca module may be involved in sequencing complex articulations which are not just limited to speech. Broca's area does not seem to control syntax (i.e., the combinatorial or grammatical arrangement of speech elements; see below, *Neuro-notes II)*.

Insula. Some regard the insula as a verbal center (see, e.g., Ardila 1999). Damage to the left insula may result in language disturbances, including Broca's aphasia, conduction aphasia, speech apraxia, mutism, and the word-deafness of Wernicke's aphasia (Ardila 1999). ("Then on the other hand, recent studies of anatomical connections of the insula point to an important viscero-limbic role and it has been suggested that the insula may influence verbal motivation and verbal affect" [Ardila 1999].)

Planum temporale. "The planum temporale (PT) is a key site within Wernicke's posterior receptive language area in the left hemisphere of the human brain and is thought to be an epicenter within a dispersed mosaic of language-related regions in the cerebral cortex. The left hemisphere predominance of the PT is more pronounced than any other human brain asymmetry" (Gannon 1998:220). (See below, *Neuro-notes*.)

Wernicke's area. A supplementary-auditory module of the neocortex (in the left temporal lobe; specifically, Brodmann's areas 39, 40, posterior 21 and 22, and part of 37) identified as involved in the understanding of auditory words. Damage to this area (called Wernicke's aphasia) produces problems in deciphering the meanings of the speech sounds one hears (even of one's own speech sounds). According to a recent study, Wernicke's area is not unique to *Homo* (see below, *Neuro-notes*).

Apes. Magnetic resonance imaging (MRI) scans of chimpanzees, bonobos, and gorillas suggest that, like humans, these great apes also have an enlarged Brodmann's area 44 (part of Broca's area in the human brain). Writing in the journal *Nature* (2001), Claudio Cantalupo and William Hopkins (Emory University and Georgia State University) suggest the brain homologue may be due to a link between primate vocalization and gesture. Captive apes, the researchers note, usually gesture with the right hand as they vocalize.

Embryology. **1.** "It is important to recognize that the speech areas of the human brain are already formed before birth . . ." (Eccles 1989:87). **2.** The temporale plane is larger in the left fetal brain hemisphere than in the right (Stromswold 1995). **3.** "Development of the cortical regions that subserve language in the left hemisphere consistently lags behind the development of the homologous regions in the right hemisphere [to await speech development]" (Stromswold 1995:860).

Evolution I. **1.** "The evolutionary origin of human language may have been founded on this basal anatomic substrate, which was already lateralized to the left hemisphere in the common ancestor of chimpanzees and humans 8 million years ago" (Gannon 1998:220). **2.** Regarding endocasts of *Homo habilis* skulls: "There was a further development of the inferior frontal lobule in the Broca area, but most remarkable was the rounded fullness of the inferior parietal lobule [corresponding to part of Wernicke's area]" (Eccles 1989:23).

Evolution II. In non-human primates, Broca's area controls muscles of the face and vocal tract. **1.** "The homologue of Broca's area in nonhuman primates is the part of the lower precentral cortex that is the primary motor area for facial musculature" (Lieberman 1991:106). **2.** In monkeys, the link between Broca-like and Wernicke-like areas is not as massively connected as it is in humans (Aboitiz and Garcia 1997).

Nonverbal speech areas. With regard to language, relationships between the right (nonverbal) and left (verbal) hemispheres are still poorly understood, with more deference being paid by researchers to the left-hand (i.e., dominant) side. **1.** In the right cerebral hemisphere, modules control the production and interpretation of the nonverbal communication that accompanies words, e.g., **facial expressions**, **voice tones**, and **gestures** of the arms and hands. (Some of the latter, hand gestures are actually more verbal than nonverbal [see, e.g., **MIME CUE**].) **2.** *Prosody*--the emotional content of speech--is right hemispheric in human beings with left-hemisphere verbal centers. **3.** The right (or non-dominant) hemisphere is less involved in literal meanings of a speech element than it is with interpreting the figurative meanings conveyed by, e.g., hesitations, humor, metaphor, poetry, and voice tone. **4.** Damage to the right parietal lobe's angular gyrus and supra-marginal gyrus results in **a.** problems using spatial concepts, **b.** difficulties dressing one's own body, **c.** feeling spatially disoriented, **d.** inability to draw simple 3D pictures, and **e.** neglect of left-handed body parts and objects to the left.

Stuttering. "But the stutterers were far less left-dominant; activation in their brains was shifted toward the right in both the motor and auditory language areas, revealing an inherent difference in the way the two groups [normal and stutterers] process language" (Barinaga 1995:1438).

E-Commentary: "I have two questions about the arcuate fasciculus, the fiber bundle from Wernicke's area to Broca's area. Can anyone help me? **1.** Are there also fibers going in the opposite direction, from Broca's area to Wernicke's (we know that many cortico-cortical connections are bidirectional--what about this one?)? **2.** How many fibers are we talking about? **3.** A third question: What can anyone tell me about connections between Wernicke's area and the angular gyrus? (Bidirectional? How many fibers?) Thanx loads." --Syd Lamb, Linguistics and Cognitive Science, Rice University Houston TX 77251-1892 USA; smlamb@OWLNET.RICE.EDU (Sydney M Lamb) (Tue Jan 30 14:02:03 1996)

Neuro-notes I. In most humans, Wernicke's area is significantly larger in the left hemisphere than it is in the right. Its asymmetry dwarfs that of most other cerebral-cortex modules. And yet, though specialized for language, Wernicke's area is not unique to *Homo*. Recently, e.g., Patrick Gannon and his colleagues measured the corresponding area of chimpanzee brains. After spreading apart 15 chimp brains at the temporal lobe (i.e., at the sylvian fissure), they measured the planum temporale, and found it to be larger on the left than on the right in 14 cases (Gannon et al. 1998).

Neuro-notes II. "Lesions to Broca's area and its vicinity do not affect semantic abilities, nor do they disrupt basic syntactic abilities. Most notably, Broca's aphasics combine lexical meaning into propositions, create and analyze sentences of considerably complex structure, and are also able to synthesize and analyze words morphophonologically. It thus follows that most human linguistic abilities, including most syntax, are not localized in the anterior language areas--Broca's area and deeper white matter, operculum, and anterior insula" (Grodzinsky2000).

Neuro-notes III. **1.** "We can assert unequivocally: no combinatorial language abilities reside in the non-dominant cerebral hemisphere" (Grodzinsky2000). **2.** "Thus the evidence is that this side of the brain has an important an role in communication, but makes no syntactic contribution to language use" (Grodzinsky2000).

Neuro-notes IV. "However, it should be kept in mind that neither of the classical language areas, Broca's area and Wernicke's area, are cortical areas in the strict sense in which the term area is used by an [sic] neuroanatomist. For example, they are not defined according to the same strict and multiple criteria that are employed in defining primary visual cortex (area 17), and each includes more than one architectonically distinct area" (Killackey 1995:1248).

DECISION GRIP

Hand position. **1.** A manner of grasping an object securely between the inner surfaces of the fingers (i.e., the tactile pads) and the palm. **2.** A "proprietary" clasp usually intermediate between the **precision grip** and the **power grip**. **3.** A clear indication that a customer has decided to purchase (i.e., to take ownership of) a hand-held **consumer product** such as a book, magazine, or greeting card.

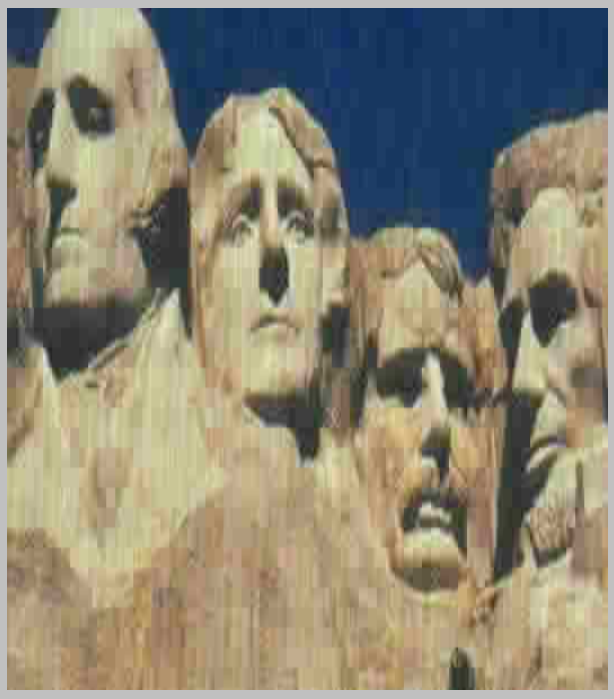
Usage I: The decision grip is a nonverbal **sign** showing that one's mind has decided to take possession of an artifact or object. After an exploratory waiting period (reflected by holding a consumer product, e.g., in the tentative *precision grip*), we unwittingly grasp the item in a decision grip--which maximizes contact between the item itself and the sensitive tactile pads--as if it were already a personal possession or a *belonging*.

Usage II: When a larger consumer product, such as a computer scanner or a table lamp, is placed in a shopping cart, the prospective owner may grasp the cart's handrail in a decision (rather than in the usual power) grip. Holding the cart in this manner reflects the emotional power exerted by consumer products.

Neuro-notes. Using our sensitive fingertips as *tactile antennae*, we initially probe an objects with the precision grip, keeping it "at a distance" (because, psychologically, it is not yet "ours"). But as the mind takes ownership, we clutch the product between our fingers and palm in a *proprietary clasp* before taking full acquisition at the checkstand. Handling objects in the decision grip stimulates tactile sensors (e.g., for pleasurable "soft," or *protopathic*, touch) and pleasure areas linked to grooming centers of the mammalian brain's **cingulate gyrus**.

See also **HANDS**, **OBJECT FANCY**.

NOSE



Cleopatra's nose: had it been shorter, the whole aspect of the world would have been altered. --Pascal, *Pensees, II*

Just need a nose job! --Kramer (*Seinfeld*, rerun of May 2, 2000)

Pepys had a temper, too, unfortunately, and more than once was driven to twist her nose . . . --Charles Elliott (2001:105; on Samuel Pepys' quarrels with his wife, Elizabeth, over beauties he had charmed)

Body part. That projecting part of the human **face** which contains the nostrils and organs of **smell**.

Usage: The nose is one of the most defining features of human identity and **facial recognition**.

Anatomy. Located at the center of our face, the nose is a rounded prominence of bone, gristle, fatty tissue, and flesh. Unlike animal noses, its freestanding shape reinforces the vertical height of our face and accents the stability of its features.

Culture. In the Trobriand Islands, couples may gently bite noses while making love. Among Eskimos, Maoris, and Polynesians, touching another's face or head with the tip of the nose is used as a friendly greeting.

Emotion. When we breathe deeply, or are emotionally aroused, our nostrils visibly *flare*. They may uncontrollably widen in anger, as well, when we listen to disagreeable comments made by colleagues around a **conference table**.

Evolution. Our triangular nose evolved in tandem with shrinkage of the primate's bony muzzle. Because early primates depended more on sight than smell, their snouts gradually shortened. Because we have no

muzzle at all, our proboscis was left standing high and dry on the fleshy plain.

Gender. The generally larger noses of men give an appearance of "strength." Women's generally smaller noses--which may be further reduced with makeup to keep from upstaging the **lips** and **eyes**--give an appearance of "youth." (See **LOVE SIGNAL**.)

Media. In magazine ads, the feminine nose "disappears" into the flatness of the face to accent the lips, eyes, and baby-smooth skin (Givens 1983).

Respiration. Though our face is flatter today than that of our remote primate ancestors, we still require the air we breathe to be cleaned, warmed, and moistened before it enters our lungs. Thus, our nose projects like an air duct, prominently and for all to see.

See also **FACIAL I.D.**

FACIAL RECOGNITION

I should never have known him by his appearance, but in his voice was plain to me that which his countenance had suppressed in itself: this spark rekindled in me all my knowledge of the changed features, and I recognized the face of Forese. --Dante Alighieri (*Purgatorio, Canto XXIII*)

Ability. **1.** The act of identifying a **face** that has been seen before. **2.** The awareness of having seen, met, known (or known of) other people by recalling distinctive features of their faces.

Usage: Our facial I.D. shows personality and defines "who we are." The ability to recognize and recall thousands of faces easily and at a glance is a unique talent possessed by human beings alone. Facial recognition is an active process, leading us to see "faces" in clouds, in rock formations, on screen doors, in shrouds, and on the surface of the Moon. Much of the ability to recognize faces lies in our brain's *inferior temporal cortex* (see below).

Art. In a most unusual art form for depicting the human face, Bill Gardner of Calgary, Canada attaches a portrait stencil to the lint screen of his dryer to create lint-laden likenesses of such celebrities as O.J. Simpson and Wayne Gretzky ("Fluff Pieces," *Life* Magazine, June, 1999, p. 44).

Evolution. Our higher-primate (or *anthropoid*) ancestors (ca. 35-40 m.y.a.) had an enlarged *visual cortex*

at the back of the head, on the *occipital lobe*, with which to process color vision and depth. Today, the anthropoid's is the most complex visual cortex on earth, with anatomically separate areas for **a.** analyzing form, **b.** coordinating hand-and-eye movements, and **c.** recognizing faces. (***N.B.***: A few nerve cells in the lower temporal lobe are so narrowly specialized that they respond only to **hands** and faces.)

Medicine. Patients with *prosopagnosia* have damage to the visual system outlined below (see *Neuroanatomy I & II*). Though able to name individual features and identify **emotion cues**, they cannot recognize a once familiar face. (***N.B.***: Sometimes even their own image appears as a stranger in the mirror.)

E-Commentary: "Kindly note my thesis, that: 'Many people, between us, acting or reacting with violence, are in some measure prosopagnostics, i.e., they have some degree of faceblindness. Therefore, they can't receive, they don't have the ability to feel at all, the very emotions expressed through the face of the victim.'" --Panos Axiomakaros, Olympian University, Athens, Greece (3/27/00 12:36:07 PM Pacific Standard Time)

Neuroanatomy I. Light reflected from facial features (see, e.g., **EYES** and **LIPS**) casts tiny images on the eye's nerve-sensitive retina. From here, electrochemical impulses cable through the optic nerve to a visual area at the back of the neocortex called *V1*. V1 neurons respond **a.** to linear details, and **b.** to wavelengths of color.

Neuroanatomy II. A second visual area, *V2* (in front of V1), enhances our image of linear and color aspects of the face. Additional processing also takes place in *V3* (recognition of form and movement), *V4* (additional color recognition), and *V5* (movement; Restak 1994:27-8). Apart from our awareness, these modular areas of neocortex unify and give meaning to our vision of the face and its diverse expressions.

Viewpoints. Studies show that as our eyes scan faces, they make repeated rest stops at the *lips* and *eyes*. Viewed from the side, our eyes hover about the *profiled nose*, *eye*, *ear*, and *lips*. As early as 12 weeks of age an unborn baby's face is recognizable in the womb (parents may claim to see a family resemblance). Our face changes size and shape throughout the life cycle, but is nearly always recognizable to friends and family.

Neuro-notes I. The inferior temporal cortex receives information fed forward through a series of sensory and association areas, beginning with the retina's relay in the occipital lobe at the back of our skull. Regarding the temporal cortex itself, it has become a remarkably specialized part of the **nonverbal brain**. Some of its cells respond, e.g., only to frontal or profile views of the face, while others fire only when **facial expressions** appear (Kandel et al. 1991:459). Familiarity registers in the *superior temporal polysensory area* (Young and Yamane 1992:1327).

Neuro-notes II. **1.** PET data suggest that facial recognition activates the right lingual and fusiform gyrus, the right parahippocampal gyrus, and the right and left anterior temporal cortex (Sergent et al. 1992). **2.**

Subsequent PET data suggest that activated regions for face recognition are lateralized to large aggregations of the right hemisphere, specifically in the right lingual and fusiform gyri (Kim et al. 1999).

Neuro-notes III. Mappings of the macaque monkey prefrontal cortex show that prefrontal neurons **a.** process information related to the identity of faces, and **b.** are functionally compartmentalized in "a remarkably restricted area" (Scalaidhe et al. 1997:1135).

Neuro-notes IV. **1.** "Greater **amygdala** activation occurs when individuals view faces of a racial group different from their own (outgroup), compared with activation while viewing faces from their own racial group (ingroup) . . ." (Anonymous 2000B). **2.** "Dr. Allen J. Hart, from Massachusetts General Hospital and Harvard Medical School, in Boston, and colleagues used functional magnetic resonance imaging to measure blood-oxygen-level-dependent (BOLD) signals in the amygdala as black and white subjects viewed photographs of black and white individuals' faces. A second scan was done after a 2-minute rest period" (Anonymous 2000B). **3.** "During the first fMRI scan, there were no significant differences in amygdala activation when subjects viewed outgroup versus ingroup faces, the report indicates. In contrast, during the second scan, there was a significant increase in the BOLD signal in the amygdala during viewings of outgroup faces" (Anonymous 2000B).

See also **FACIAL I.D.**

FACIAL I.D.

Identification. Those definitive features of a **face** with which to establish its age, sex, attractiveness, and identity.

Usage: Despite an advanced ability to recognize and recall thousands of faces (see **FACIAL RECOGNITION**), we are unable to describe individual faces adequately in **words**. Witnesses at crime scenes, e.g., offer police few verbal clues of facial I.D.

Identity clues. Our brain's innate ability to recognize faces far exceeds that of any spoken language to describe them. Identity clues used by the Chicago Police, e.g., consist of general, all-purpose words such as **a.** *high*, *low*, *wide*, and *narrow* foreheads; **b.** *smooth*, *creased*, and *wrinkled* skin; **c.** *long*, *wide*, *flat*, *pug*, and *Roman* noses; **d.** *wide*, *narrow*, and *flared* nostrils; **e.** *sunken*, *filled-out*, *dried*, *oily*, and *wrinkled* cheeks; **f.** *prominent*, *high*, *low*, *wide*, and *fleshy* cheek bones; **g.** *corners-turned-up*, *down*, and *level* for the mouth; **h.** *thin*, *medium*, and *full* upper and lower lips; **i.** *double chin*, *protruding Adam's apple*, and *hanging jowls* for necks; and **j.** *round*, *oval*, *pointed*, *square*, *small*, and *double* chins.

Prehistory. That linguistic labels for the face pale in comparison to those for **consumer products** (see, e.g., **FOOTWEAR**) is because our primate face "speaks for itself" and has done so for millions of years. The need to describe faces in words is a recent development dating back only a few thousand years to adaptations for city life, i.e., for urban crime and increasing numbers of strangers. (***N.B.***: Recognizing and remembering faces involves **emotion** centers of the brain, which are addressed only indirectly by speech centers.)

RESEARCH REPORTS: **1.** Researchers have isolated facial traits preferred, perhaps, by all human beings. Facial "cuteness," e.g.--a set of immature features and youthful proportions--is found to be generally attractive in the male and female face. Cuteness (i.e., the *infantile schema*) was originally identified in mammals (including human beings) by Konrad Lorenz (1939). **2.** Japanese and Caucasian men and women prefer *high cheekbones* and such infantile traits as **a.** *thin jaws*, **b.** *large eyes*, **c.** a *short distance* between the mouth and chin, and **d.** a *short distance* between the nose and mouth (Perrett, May and Yoshikawa 1994). **3.** Another preferred trait is *symmetry* between a face's right- and left-hand sides. In a review of symmetry in mate selection, Paul Watson and Randy Thornhill concluded, e.g., that animals from scorpion flies to zebra finches show a preference for symmetrical patterns and shapes (perhaps because *asymmetry* is a sign of weakness or disease; Watson and Thornhill 1994). Thornhill applied the findings to human beings by studying college student ratings of young adult faces (through photos showing a range of vertical and horizontal symmetry or its lack): subjects rated symmetrical faces most attractive.

Evolution. Our face has become more baby-like (and less intimidating) through time. The wide jaws and broad dental arch of our ancestor, *Homo habilis* (ca. 2.3 m.y.a.), e.g., belonged to a fearsome-looking face with great biting power. Our own lower face's comparatively smaller features are crouched beneath an immense, bulbous--i.e., infantile--forehead.

See also **FACIAL BEAUTY**, **FACIAL EXPRESSION**, **LOVE SIGNAL**.

ARM-SWING

Like she's carrying invisible suitcases. --Elaine (describing a woman who walked without swinging her arms; *Seinfeld*, April 14, 1999)

Body movement. To move the upper limbs back and forth rhythmically with the legs while **walking**.

Usage: As a *counterweight*, the arm-swing helps balance our upright body while walking, jogging, and running. In ***dances***, such as the locomotion, swim, and twist, vigorous arm-swinging gyrations express inner feelings and moods in time to music's rock-'n-roll beat.

Observation. Restless, back-and-forth motions of the arms above a **conference table**, e.g., may reveal an unconscious wish to "walk away" from meetings or discussion groups.

Evolution. Spinal-cord **paleocircuits** which govern the rhythmic, alternating movements of arm-swinging evolved (in tandem with those of the legs) for *locomotion*. The act of swinging the arms while walking--and of pumping them while running--is an evolutionary holdover from earlier days, when the arms (used as forelimbs) participated with the legs in *quadrupedal* locomotion.

Infancy. At three months of age, we use our forearms and hands to raise our bodies off the floor in preparation for *crawling*. As babies, we find moving pleasurable for its own sake (Chase and Rubin 1979:153), and begin advancing one limb at a time--*on all fours*--between the 6th and 9th months of life. In a gait typical of quadrupeds, *our arms reach alternately forward* as the opposite hind limb crawls forward on the knee. (***N.B.***: Adults make surprisingly good quadrupeds, as well. In 1988, e.g., a man crawled 28.5 miles around a level track without stopping, to prove it could be done [McFarlan 1991:199]. From 1984-85, a man crawled 870 miles to please a Hindu goddess [McFarlan 1991:199].)

Neuro-notes. Paleocircuits for arm-swinging originated in the **aquatic brain**. Today, arm-swinging is still mediated by the **basal ganglia**. Like walking itself, our vestigial arm movements are unconscious and out of awareness. Motionless arms (and a shuffling gait), meanwhile, are symptomatic of shortages of the neurotransmitter, *dopamine*, in the basal ganglia (as in *Parkinson's disease*).

See also **HANDS-ON-HIPS**, **REPTILIAN BRAIN**.

SWAGGER-WALK

I don't mean military courage, or civil courage, or any special kind of courage. I mean just that inborn ability to look temptations straight in the face--a readiness unintellectual enough, goodness knows, but without pose--a power of resistance, don't you see, ungracious if you like, but priceless--an unthinking and blessed stiffness before the outward and inward terrors, before the might of nature, and the seductive corruption of men--backed by a faith invulnerable to the strength of facts, to the ***contagion of example****, to the solicitation of ideas. Hang ideas!* --Joseph Conrad (*Lord Jim,* 1899)

Broadside display. **1.** A slight or moderate exaggeration in the side-to-side movements of **walking**. **2.** A usually masculine style of upper-body strutting. **3.** A visual means of filling-up space or occupying a greater expanse of **personal territory**.

Usage: In greetings, a man may use the swagger-walk while approaching another man to demonstrate power, strength, and **dominance**. (***N.B.***: The swagger-walk is not generally used to greet a woman.) In a culturally elaborated version, African-American men may drag one foot and limp from side-to-side in a *pimp strut*. The swagger-walk may be seen as men enter taverns or bars, to show "attitude" before engaging in rituals of **courtship**.

Primatology. Our closest relatives, the great apes, show dominance by straightening and holding their arms away from the body as they swagger-walk from side to side.

Transexuality. "I never mind the swagger of young men. It is their right to swank, and I know the sensation!" (Morris 1974:83).

Media. The best-known human swagger-walker was John Wayne, in such movie classics as *Rio Bravo* (1959), *The Alamo* (1960), and *The Green Berets* (1968).

See also **GOOSE-STEP**, **STOMP**.

STEINZOR EFFECT

Group dynamic. The finding that **a.** with minimal leadership, members of a discussion group address most remarks to colleagues sitting *across* a **conference table**; **b.** with a strong leader, members address colleagues seated *beside* them; and **c.** where leadership is shared, *no spatial effect* is seen (Sommer 1967).

Usage: The Steinzor effect reveals a telling link between **eye contact** and **dominance**. We may find it difficult, e.g., to gaze directly at, or even to cross lines of sight with, a dominant individual seated nearby at the same table.

RESEARCH REPORT: "In task discussions, people direct more comments to those seated across from them in a circle or at a table, whereas in social discussions, they are more likely to talk to the person seated next to them. The presence of a directive leader may also encourage more talking to those in adjacent seats" (Burgoon et. al 1989:389).

See also **ANGULAR DISTANCE**, **PROXEMICS**.

YAWN

Sign. **1.** A sudden, deep *inhalation of air* accompanied by an open mouth, tightened cheek muscles, eye closure, and tearing. **2.** An involuntary *deep breath* due to sleepiness, fatigue, boredom, or emotional conflict. **3.** A socially contagious *gaping* behavior, often difficult to suppress.

Usage: Usually a sign of drowsiness, yawning also occurs, e.g., in tense business meetings as a sign of *mild anxiety*, *disagreement*, or **uncertainty**. When alert listeners yawn in response to controversial suggestions or ideas, the yawn signals a **probing point**, i.e., an opportunity to explore unverbalized objections or clarify unvoiced concerns.

RESEARCH REPORTS: **1.** "I have also noticed that under slight fear there is a strong tendency to yawn" (Darwin 1872:291). **2.** Yawning is a *displacement* sign of *mild conflict* (Tinbergen 1951). **3.** In primates, yawning appears in *stress or conflict* situations (Altmann 1967). **4.** Yawning is seen in *uneasy* or *aggressive* chimpanzees, gorillas, gibbons, baboons, rhesus monkeys, patas monkeys, and (rarely) vervet monkeys (Lawick-Goodall 1968). **5.** Yawning is a sign of *stress or apathy* in bonnet macaques (Rahaman and Parthasarathy 1968). **6.** In humans, the yawn includes "closing of the eyes and lowering of the brows" (Brannigan and Humphries 1972:58). **7.** In a tense setting, *adrenaline* lowers the blood's oxygen level and yawning speeds reoxygenation (Hill 1977).

Neuro-notes. Yawning is a reflexive, highly contagious act. Babies born without a brain above the midbrain (i.e., *anencephalic* infants) can still yawn (and *stretch*). Stimuli associated, e.g., with tiredness, the sight of others yawning, or social stress pass **a.** from higher brain centers, **b.** to respiratory centers in the brain-stem's medulla, and then **c.** to somatic motor nuclei of the *trigeminal* (cranial V) and *facial* (cranial VII) nerves. Excitement of motor fibers in the facial nerve and in the trigeminal's mandibular branch opens the mouth widely and stimulates activity in the *phrenic* (cervical 3, 4, and 5) nerves to the

diaphragm, and *intercostal* (thoracic 1-12) nerves to the external intercostal muscles, causing a deep inspiration followed by deep exhalation.

See also **CRY**, **FEAR**.

ANIMAL SIGN

Animals are . . . the visible phantoms of our souls. --Victor Hugo

Cats and monkeys, monkeys and cats--all human life is there. --Henry James (*The Madonna of the Future*)

Many primatologists have experienced a profound change in their attitude towards anthropoid apes after making ***eye contact*** *with one for the first time. The spark across the species barrier is never forgotten*. --Frans De Waal (Waal and Lanting 1997:1)

Signal. A message emitted by the nonverbal behavior, cries, markings, body movements, or shapes of an organism of the kingdom Animalia (see **EFFERENT CUE**).

Usage: Animals provide an endless source of inspiration for artists, philosophers, photographers, and cinematographers. They are a major source of companionship, entertainment, symbolism, and food for all human beings.

Word origin. The word *animal* comes from the ancient Indo-European root *ane-*, derivatives of which

include *anima*, *equanimity*, and *unanimous*.

Animal crackers. Our fascination with animals is reflected in the 53 different caged animal species which have occupied Barnum's Animal Cracker boxes for the past 100 years (Frey 2001). "Looking for a special Christmas promotion, National Biscuit executives came up with the idea of specially designed red and green boxes with a circus theme. And thinking that the boxes would make fine Christmas tree ornaments, they added the little string--to make it easier to hang the box on a tree limb, of course" (Frey 2001).

Anthropology I. There is a curious ambivalence between *Homo sapiens* and all other species. On the one hand, we find compelling similarities between ourselves and beasts. Yet on the other, a cultural universal of human thought is the postulate that people and animals are fundamentally un-alike. Between the human and the animal lies an immense chasm.

Anthropology II. We find animals spiritually, intellectually, and morally inferior to ourselves. Greek philosophers despised beasts for their lack of reason. Today's Christians deny animals a soul, yet portray the Holy Ghost as a winged member of the Columbidae family (i.e., as a dove). Hindus believe all creatures are divine, but see hoofed animals of the Bovidae family (i.e., sacred cattle) as more divine than others. Muslims picture all animals as being lower than humans. Buddhists think animals, as well as humans, are ultimately unreal.

Anthropology III. We attribute animal characteristics to ourselves. Zoomorphism is a popular theme of greeting cards, e.g., which liken friends and family members to cuddly kittens, bunnies, and bears. The Zuni Indians of New Mexico compare strong-willed men to black bears (Cushing 1883).

Anthropology IV. The earliest animal art--naturalistic renderings of deer, horses, and bulls--appears in the archaeological record ca. 30,000 years ago in western Europe. The Upper Paleolithic cave paintings of Cro Magnon man reveal that hunter-gatherers incorporated animals into their thought processes and rituals at least 30 millennia ago.

Anthropology V. We purchase an estimated 500,000 plastic pink flamingo ornaments for our lawns each year (Conn and Silverman 1991:42).

Beauty. While we overestimate the number of useful and attractive birds, butterflies, and mammals on earth, we underestimate the much larger population of unlovely insects, spiders, bats, bacteria, and worms (May 1992:42).

Cats. The first commercial software designed for nonhuman animals may be a video game called "CyberPounce." In Cyberpounce, virtual flies, fish, and mice entice the paw-batting instincts of house cats, who "hunt" for the video images on a screen. "He [CyberPounce creator, Matt Wolf] learned that cats can recognize activity on a television screen or computer monitor, but most programming designed for humans doesn't titillate them. Cats fixate on an object's color and movement patterns rather than its shape, he said" (Krane2001:A6).

Courtship. Courting couples of the 17th century carried flea boxes, in which they collected the bodies of the dead arthropods they had picked off each other's skin (Dean 1982).

Dislike. According to the Nature Conservancy, our least-liked mammal is the rat (Anonymous 1990).

Dogs. We design exotic **consumer products** for *Canis familiaris*. A 25-ounce bottle of Mon Chien, e.g., contains water and ground-beef flavoring (for dogs who may turn up their noses at drinking from *Homo sapiens's* toilet). At Fido's Fast Food, a converted Fotomat drive-through in Toledo, Ohio, dogs may dine on **crunchy** "cheeseburgers" and peanut-butter bagels (Anonymous (1992C).

Fear. We fear wild animals more than "safer" domestic breeds. Yet while millions are afraid of sharks, e.g., only six people in the U.S. have been killed by sharks since 1988 (Conn and Silverman 1991:197). We fear dogs less, even though half of all U.S. children will be bitten by a dog by age 12 (Rovner 1992). (***N.B.***: Each year shying horses kill and wound more humans than all wild animals combined.)

Gorillas. We are fascinated by "humanlike" mannerisms of gorillas (*Gorilla gorilla*). Gorilla groupies, e.g., sit for hours patiently watching lowland gorillas (*G. g. berengei*) at the National Zoo in Washington, D.C. As one man remarked, watching gorillas "is the happiest thing I've done with my spare time" (Mundy 1992). The peak experience of a gorilla groupie is sharing **eye contact** with the apes.

Media. **1.** The first TV star was not a human being but a doll-sized replica of Felix the Cat, used in the 1920s as a test pattern (Marschall 1986:13). **2.** "Body hair is a remnant of our primeval animal self and, in evolutionary history, our human bodies are slowly losing their hair as we move away from the animal realm where we were open to nature" (Camille Paglia quoted in the *Washington Post* [Folliard 1995:E5]).

Size. **1.** As large-bodied animals ourselves (i.e., as *megafauna*), we consider much smaller creatures unworthy of humane treatment. The U.S. Animal Welfare Act of 1971, e.g., does not apply to laboratory rats, mice, or birds (Anonymous 1992D). **2.** As animals with backbones, we discriminate against much smaller invertebrates. Few high-school teams, e.g., choose insects as mascots, despite the fact that insects outweigh all of earth's vertebrates combined, nine-to-one (Holden 1989:754). **3.** The smallest animal sculpture (of "Tiny" the Bull) is a plastic rendering by scientists in Japan which measures ca. 10 microns from horns to tail (about the size of a red blood cell; Anonymous 2001M).

Space. Nearing completion of her five-month mission in orbit (from March to August 2001), international-space-station resident Susan Helms "misses animals almost more than anything" (Anonymous 2001J:A7). "'It's really strange not to see animals for such a long period of time, [I] hadn't realized what an important part of our lives animals are,' she said in an interview" (Anonymous 2001J:A7).

Speech. In the U.S., 90% of pet owners speak to their dogs, cats, and birds (Wolkomir 1984). (***N.B.***: According a study at Utah State University, 73% think their pets talk back [Wolkomir 1984].)

Neuro-notes. According to PET imaging studies, animal picture identification activates both the right and left occipital region (specifically, right and left lingual gyrus and left fusiform gyrus [Perani et al. 1999]). (**Artifact** picture identification, on the other hand, activates only the left brain hemisphere [Perani et al. 1999].)

See also **TREE SIGN**, ***WWW.Petsmart.com***.

ART CUE

*I have always tried to render inner feelings through the **mobility** of the muscles . . . --Auguste Rodin*

*More often than not, [people] expect a painting to speak to them in terms other than visual, preferably in **words**, whereas when a painting or a sculpture needs to be supplemented and explained by words it means either that it has not fulfilled its function or that the public is deprived of vision.* --Naum Gabo

Aesthetic signal. **1.** An aromatic, auditory, tactile, taste, vestibular, or visual sign designed by human beings to affect the sense of beauty. **2.** Arrangements, combinations, contrasts, rhythms, or sequences of signs, designed as an **emotional** language with which to bespeak elegance, grace, intensity, refinement, and truth.

Usage: "I shall thus define the general function of art as a search for the constant, lasting, essential, and enduring features of objects, surfaces, **faces**, situations, and so on, which allows us not only to acquire knowledge about the particular object, or face, or condition represented on the canvas but to generalize, based on that, about many other objects and thus acquire knowledge about a wide category of objects or faces" (Zeki 1998:71).

Anthropology I. "All art then is utilitarian: the scepter, symbol of royal power, the bishop's crook, the

love song, the patriotic anthem, the statue in which the power of the gods is cast in material form, the fresco that reminds churchgoers of the horrors of Hell, all undeniably meet a practical necessity" (Leroi-Gourhan 1964:364).

Anthropology II. In Upper Paleolithic sculpture and cave art: "Women, **bisons, aurochs, horses**, are all executed according to the same convention whereby identifying attributes are attached to a central nucleus of the body. The result is that the head and limbs are often merely hinted at and, at best, are out of scale with the mass of the body" (Leroi-Gourhan 1993 [1964]:376).

Aromatic *art*. "On the deck [of Cleopatra's barge] would have stood a huge incense burner piled high with kyphi--the most expensive scented offering known to the Egyptians compounded from the roots of *Acorus* and *Andropogon* together with oils of cassia, cinnamon, peppermint, pistacia and *Convolvulus*, juniper, acacia, henna and cyprus; the whole mixture macerated in wine and added to honey, resins and myrrh. According to Plutarch it was made of 'those things which delight most in the night' adding that it also lulled one to sleep and brightened the dreams" (Stoddart 1990:142).

Cuisine. *A dessert course without cheese is like a beautiful woman with only one eye*. --Jean Anthelme Brillat-Savarin (quoted in McGee 1990:271)

Form constants. **1.** "What [Heinrich] Klüver [i.e., his hallucenogenic 'form constants'] showed was that there are a limited number of perceptual frameworks that appear to be built into the nervous system and that are probably part of our genetic endowment" (Cytowic 1993:125). **2.** "Klüver . . . identified four types of constant hallucinogenic images: (1) gratings and honeycombs, (2) cobwebs, (3) tunnels and cones, and (4) spirals" (Cytowic 1993:125). **3.** "In addition to form, there are also color and movement constants, such as pulsation, flicker, drift, rotation, and perspectives of advance-recede relative to the viewer" (Cytowic 1993:125). **4.** "Form constants can be found in many natural phenomena, from subjective experiences to works of art, including craft work and cave paintings of primitive cultures" (Cytowic 1993:125).

Golden section. Human beings are most aesthetically pleased when a straight line is divided not in half (i.e., not in two equal segments), but rather, when the right-hand segment measures 62% of the left-hand segment (Young 1978).

Likes. **1.** As human beings, we may be genetically predisposed to like bright **colors**, glitter, and sunshine; soft, tinkling, and rhythmic **sounds**; sweet, fruity, and nutty **tastes**; and **touching** what is soft, smooth, and dry (Thorndike 1940). **2.** We like star-shaped better than blocky, rectangular-shaped polygons (Young 1978). **3.** Visually, we prefer "unified variety" in a picture, rather than seeing too much or too little variety (Young 1978).

Mobiles. "Until Calder invented his mobiles, the generation of motion depended upon machines, and machines did not seem beautiful or desirable works of art to everyone, not even to the cynical Duchamp" (Zeki 1998:71).

Neanderthal art. Among the few artistic **artifacts** fabricated by *Homo sapiens neanderthalensis* are **a.** an

engraved fossil from Tata, Hungary, with lines scratched in the shape of a cross; and **b.** a carved and polished mammoth's molar tooth, also from Tata (Scarre 1993:48).

Plato. The Greek philosopher Plato reasoned that, as a medium of communication, art was removed from reality and therefore could not communicate knowledge or truth (Flew 1979:6).

Prehistory I. **1.** The oldest human rock engravings, consisting of designs etched into stones in southern Australia, date back ca. 45,000 years ago (Scarre 1993). Known as *Panaramitee petroglyphs*, the engravings depict ". . . mazes, circles, dots, and arcs" (Scarre 1993:47; see above, *Form constants*). **2.** One of the oldest human decorations, consisting of zigzag "V" markings engraved in a bone from a cave at Bacho Kiro in central Bulgaria, appear to be deliberately incised rather than merely accidental (Scarre 1993:47).

Prehistory II. "Picturing by drawing or painting on flat-surfaced sign vehicles (walls, ceilings, animal skins, sides of containers, clay tablets, etc. [see **SIGN**, *Usage II*]) increased in quantity and sophistication with the arrival of urbanism and the full-time artist and scribe (ca. 6,000 B.P. [before present]). The painted signs themselves not only improved but became increasingly prolific, standardized, and **information**-laden, and began to carry more of a narrative force than the pre-urban decorations. Egyptian funerary art (from 3,000 B.P.), for example, details complex social, political, and agricultural activities in graphic picturing sequences--scenes easily understood by the modern viewer. Another example is the Minoan fresco from Akrotiri (ca. 3,500 B.P.), 16 inches high and more than 20 feet long, which depicts an intricate naval battle sequenced horizontally in a flowing narrative order" (Givens 1982:162).

Neuro-notes I: "Artists, without their being aware of it, have accurately described the function of the brain through their definition of art. Just as artists select from varied visual information for their representation of reality, so does the brain discriminate from varied stimuli to produce insight" (Zeki 1998:71).

Neuro-notes II: "To be able to activate a cell in the visual brain, one must not only stimulate in the correct place (i.e., stimulate the receptive field) but also stimulate the receptive field with the correct visual stimulus, because cells in the visual brain are remarkably fussy about the kind of visual stimulus to which they will respond" (Zeki 1998:71).

See also **MUSIC**.

Detail of photograph of the 1884-86 sculpture, *The Burghers of Calais*, by Auguste Rodin (copyright 1994 by Benedikt Taschen Verlag GmbH)

MUSIC

Music hath charms to soothe a savage beast,
To soften rocks, or bend a knotted oak. --Congreve (*The Mourning Bride, I, 1*)

Auditory signals. A usually pleasing, sequential arrangement of vocal or instrumental sounds.

Usage: Music produces a highly evocative, **emotional** message through harmony, melody, rhythm, and timbre.

Amusia. "Cases of amusia, i.e., loss of ability to produce or comprehend music--an abnormality as regards music analogous to aphasia as regards the faculty of **speech**--conclusively demonstrate that the musical faculties do not depend on the speech faculty [i.e., one may suffer from amusia without aphasia, and vice versa, though some may suffer from both]" (Reiling 1999:218).

Anthropology. So diverse are the world's musical "languages" that some sociocultural anthropologists specialize entirely in *ethnomusicology*.

Head bangers. **1.** In a study of early-childhood head bangers, mothers described their children as ". . .

prone to rhythmic activity in response to musical stimuli" (De Lissovoy 1962:56; see **SELF-TOUCH**, *Neuro-notes*). **2.** ". . . all of the [33] subjects had a history of other rhythmic activities, such as head or body rolling, prior to the head banging" (De Lissovoy 1962:56). **3.** Girls head banged 19-to-52, while boys head banged 26-to-121, times per minute (De Lissovoy 1962).

Lullaby. "A Chinese lullaby is just as soothing to a child as a German song or any other. When listening to lullabyes, breathing becomes shallow and regular like that of a sleeping person. The characteristics of this form of breathing are also in the structure of the lullaby" (Eibl-Eibesfeldt 1970:439).

Prehistory. "During the last two decades many investigators--Kussmaul, Stumpf, Preyer, Oppenheim, Knoblouch, Charcot, etc.--have conclusively demonstrated that the musical faculty is older than that of speech; that music is a primary and simple phenomenon, while speech is secondary and complex" (Reiling 1999:218).

Symphony. "The highs and lows of emotional experiences are touched in an ever-changing pattern that cannot be experienced in everyday life" (Eibl-Eibesfeldt 1970:440).

FIELD NOTES: To study the special role music plays in human **courtship**, CNS conducted field observations at a large outdoor rock concert–*Endfest 2000*–held on Saturday, August 5, 2000, on the Kitsap Peninsula, west of Seattle, Washington, USA.

The question: "*Why is the sound of music so important in human courting rituals?*"

Ethnographic background. Thousands of Endfesters arrived, who were 17-to-30 years old, mostly unmarried, urban, white, heterosexual fans of alternative rock music. Showing up in groups of 2, 3, and 4--all-male, all-female, or mixed female-and-male--they were visibly excited and definitely ready to rock.

Adornment. Endfesters dressed to show off their essential male or female gender cues, and to display individuality, personality, and allegiance to the alternative lifestyle. Fans wore identity-proclaiming belts, **boots**, bracelets, caps and hats, cut-through **jeans**, dark glasses, earrings, necklaces, foot-revealing sandals, conspicuously displayed underwear, idiosyncratic watches, and screaming tatoos. Band members dressed mostly in black (see **COLOR CUE**, **BLACK**).

Hair. Endfesters went to great lengths to display head hair (see **HAIR CUE**). The most outstanding display was that of a young man's very well-groomed, magenta topknot, projecting stiffly above his close-cropped hair's jet-black sidewalls. Clearly visible from a distance of over 100 yards, his nonverbal message was aposematic, like the coloration of a stinging insect: "Danger, danger, danger!" (see **HAT**, *Cap III*).

Media. In poster photographs published in the August 5, 2000 Bremerton *Sun* newspaper, unsmiling, **blank-faced** band members of Third Eye Blind **lean away** to the side to show a defiant attitude. Unsmiling, blank-faced members of 3 Doors Down stare menacingly straight ahead (see **EYE CONTACT**, *Usage*). Unsmiling, blank-faced members of Papa Roach pose with their heads **tilted sideward** in a posture popularized by the method actor, James Dean (see **SHOULDER-SHRUG**, *Media*).

Motion I. Because both our auditory and vestibular senses involve sensors housed within the ears, music powerfully

suggests movement. The phrase "rock and roll," e.g., is a vestibular metaphor for the sound of music. The loud rock music at Endfest joined listeners as psychic "fellow travelers," and thus enhanced the **rapport** of strangers in the crowd.

Motion II. Set to music, Endfester body movements took on a more palpable, emotional appeal. Submerged in the loud electronic beat, group **isopraxism** bourgeoned and enhanced as well.

Emotion I. Not only were the rock-music lyrics spoken in heightened emotional voice tones, but the guitar and organ sounds, which mimic the sound-range of the human voice itself, also "spoke" to the crowd's feelings and moods.

Emotion II. Singers used aggressive, angry voice tones to scream and shout--in order to target negative emotion centers of the brain's **amygdala**. Threatening sounds, venomous shrieks, and harmful, biting words put into the summer air, very amplified, from tensed throats, touched off feelings of group belonging and "togetherness" via the biological principle of *aggression-out*. Just as monkeys mob outsiders, by sharing dislike for and distrust of mainstream (i.e., non-alternative) values, Endfesters became a close-knit group in which courtship could take place.

Speech. Amplified (16 coaxial cables fed into the main stage), the words of the rock musicians fully engaged listeners' brains. Addressed to the crowd through eye contact, listeners felt emotionally and personally connected--not only to the singers but to each other as well.

Sound. In mating rituals throughout the world, auditory cues play a tactile role as they pave the way for physical touching itself (see **AUDITORY CUE**, *Courtship*).

Touch. In the crowds surrounding Stage A, men formed ad hoc combat circles and pushed each other to and fro, with their hands held in aggressively pronated (i.e., **palm-down**) positions, as Harvey Danger played its hit song, "Flagpole Sitta." Surrounded by women, the pushing and shoving was not unlike the ritual clash of elk antlers in the season of the rut.

Neuro-notes I. Research on amusia suggests ". . . that there is only one musical center in the cerebrum, and that it is situated in the anterior two-thirds of the first temporal convolution and in the anterior half of the second temporal convolution of the left lobe, i.e., in front of the [speech-comprehension] center of Wernicke" (Reiling 1999:218).

Neuro-notes II. "Larionoff has made numerous ingenious experiments on dogs, with a view of defining the localization of the auditory centers, and has come to the following conclusions: There are several sensory musical centers situated in the posterior halves of the hemispheres, and several motor centers situated in the anterior halves of the hemispheres of the cerebrum. Of the sensory, two tone centers are situated in the temporal lobes, and one optic center, for the reading of notes, situated alongside of the center for ordinary reading, in the gyrus angularis. The motor center of notewriting probably develops alongside of the center for ordinary writing, in the second frontal convolution. The singing center is situated a little behind the motor center of speech of Broca, in the third frontal convolution, and is otherwise known as the center of Krause. The motor center presiding over the functions of performing on various instruments develops on exercising, in the anterior part of the central convolution alongside of the motor center of note writing. The center for playing wind instruments is developed in the region governing the movements of the lips, a little above the center of Krause . . ." (Reiling 1999:218).

Neuro-notes III. PET studies of listening to familiar melodies show involvement of the right superior

temporal cortex, the right inferior temporal cortex, and the supplementary motor area (Halpern and Zatorre 1999). Retrieval of a familiar melody activates the right frontal area and right superior temporal gyrus (Halpern and Zatorre 1999). No significant activity was observed in the left temporal lobe (Halpern and Zatorre 1999). "It is concluded that areas of right auditory association cortex, together with right and left frontal cortices, are implicated in imagery for familiar melodies" (Halpern and Zatorre 1999). "Retrieval from musical semantic memory is mediated by structures in the right frontal lobe" (Halpern and Zatorre 1999).

See also **DANCE**, **TONE OF VOICE**.

Photo of The Youngbloods in a tree in Marin County, California, by Linda McCartney (copyright 1992 by MPL Communications Limited; McCartney: "There were huge fungi growing around, and I remember we were breaking pieces off and carving **faces** in them.")

BEND-AWAY

Posture. To contract the muscles of the primitive **body wall**, causing the spinal column to curve or rotate sideward, away from standard **anatomical position** (see **BODY-BEND**).

Usage: Psychiatrists and anthropologists have long known that the postures of our upper body reflect social attitudes and key emotional states (Bateson and Mead 1942, Richmond et al. 1991). *Bending away* and other gross postural shifts often reveal negative feelings (Mehrabian 1974).

Anatomy. Flexing the spinal column sideward to increase the physical distance between two people can be seen at meetings around a **conference table**. Lateral flexion (bending) and rotation (twisting) movements of the spine are made by contracting the deep muscles of the back (e.g.,the *erector spinae* and *transversospinalis*), which influence our most basic body postures.

Evolution. Among the oldest body movements were those for *locomotion*. Muscles of the body wall contracted to produce rhythmic *sideward bending* motions. The earliest, oscillatory swimming movements, which took animals toward food and mates, and away from harm, were wired into **paleocircuits** of the **aquatic brain & spinal cord**. Thus, bending away from a disliked person at a table is not unlike swimming away in the sea.

See also **ANGULAR DISTANCE**, **BODY-SHIFT**.

NONVERBAL LEARNING

Most of my [design] work really involves geometry--simple geometric structures to perform a function. So I'll start with a geometric pattern in my mind . . . . --Lyndon Burch, inventor (Petroski 1992:178)

Process. **1.** The act of gaining knowledge or skills apart from language, **speech**, or **words**. **2.** The extralinguistic transmission of cultural knowledge, practices, and lore.

Usage: A great deal of knowledge--from using computers to sailing a boat--is gained by watching, imitating, or practicing the body movements of someone who knows. In diverse "nonverbal apprenticeships" the only vocal input may be, "Watch me."

Fundamental knowledge. Through a panoply of voiceless messages from **Nonverbal World**, we gain fundamental knowledge and experience about the business of life and living. Today, even the most technical knowledge may be transmitted through nonverbal apprenticeships, in which students watch and do rather than read a manual.

Nonverbal directions. In airports, shopping malls, and theme parks, and on the highway systems linking them, international graphic symbols--nonverbally, and in a pictorial format--are used to show people where they are and where they need to go (see **ISOTYPE**).

Nonverbal narratives. **1.** "*Early pictorial narratives*. With Spanish Levantine rock art (dating to 11,000 B.P. [before present]), ancient sign **artifacts** begin to show a quantum leap both in complexity and information content in scenes representing hunters, singly and in groups, associated weapons, clothing, gender signals, social behaviors, and complicated juxtapositionings of human beings with one another and with prey animals. Thus begins pictographic *narration*--story telling, dramatization--showing consequences of actions, portraying life-and-death encounters" (Givens 1982:162). **2.** "Semiotic principles of the narrative, the use of signs to chronicle events from beginning to end, and to relate causes with outcomes, become a strong theme in human recordings from this period forward" (Givens 1982:162).

Practice I. **1.** Some nonverbal learning involves the *practice-makes-perfect* principle of repetition, e.g., of repeating a golf swing, a baseball pitch, or a balance-beam routine. Repeated swinging, throwing, and jumping target the *cerebellum* rather than speech areas of the cortex. **2.** "The process that improves motor performance through practice is called motor learning" (Lisberger 1988:242). **3.** "The vestibulo-ocular reflex (VOR) is a simple movement that has been used to investigate the neural basis for motor learning [hypothetically guided by output from the cerebellar cortex of the flocculus, through VOR brain-stem pathways] in monkeys" (Lisberger 1988:242).

Practice II. **1.** "Motor learning can be defined as a set of neural processes associated with practice that lead to changes in performance and capabilities" (Flash 1997:1612). **2.** "The picture of motor learning that emerges from the book [Bloedel, Ebner, and Wise 1996] is one of a highly distributed system, comprising several brain structures and interconnected neural networks" [including "cortical regions, the

cerebellum, the basal ganglia, and various brainstem nuclei"] (Flash 1997:1612).

Shape. In Bali, dance teachers grasp and physically mold a student's fingers to choreograph the proper hand shape (Bateson and Mead 1942).

Show. Learning to sail a boat by reading a manual is far less efficient than watching an experienced sailor pilot his or her craft. Knowledge is most efficiently transmitted through a combination of verbal and nonverbal means.

Neuro-notes I. Nonverbal learning takes place both cortically and subcortically. In the latter case, the **basal ganglia's** new wing, known as the *neostriatum* (caudate nucleus and putamen), may be used for *motor learning* by an Olympic athlete to master complex body movements on the balance beam.

Neuro-notes II. A December 1999 study by Johns Hopkins researchers, published in the journal *Cerebral Cortex*, found differences between men and women in a nonverbal part of the brain thought to be responsible for our abilities to **a.** estimate time and speed, **b.** visualize objects in 3-D, and **c.** solve math problems. The scientists report that the *inferior parietal lobule* (*IPL*; part of the cerebral cortex [on both sides of the brain, above ear-level]) is significantly larger in scientists. (***N.B.***: The IPL is known to have been particularly impressive in Albert Einstein's brain.)

Neuro-notes III. Researchers have recently found a role for the cerebellum in multi-joint body movements; the cerebellum ". . . predicts and adjusts for the multiple forces on a limb during a complex movement, including those propagating from one joint to another. If a person picks up a hammer, say, the cerebellum will activate the extra muscle force needed to operate the arm under the new physical conditions. It also controls the relative timing of various muscle contractions to ensure the speed and accuracy of a maneuver, so that when a person performs an act such as eating, the fork enters the mouth and not the eye" (Wickelgren 1998:1588).

See also **NONVERBAL BRAIN**, **NONVERBAL LEARNING DISORDER**.

ISOTYPE

*Pictorial **sign***. **1.** Isotype (International System of Typographic Picture Education) was introduced in 1936 by Otto Neurath. **2.** Isotype is a set of pictographic characters used "to create narrative visual material, avoiding details which do not improve the narrative character" (Neurath 1936:240). **3.** Isotype was designed to be an alternative to written script ("adapted to the child's mind"), as a pictorial means for communicating **information** about **a.** directions, events, and objects, and **b.** complex relationships in space and time.

Usage: Though isotype ultimately failed as a means of communication (in part because educators favored written **words** over pictures), Neurath's "international picture language" laid the foundation for *international graphic symbols*, i.e., for the pictographic signals of airport, train-station, and highway signs. Today, the use of graphics at the human-computer interface further demonstrates the power of pictographic communication. (***N.B.***: Words are unlikely ever to replace images in **Nonverbal World**.)

RESEARCH REPORTS: **1.** "The first step in Isotype is the development of easily understood and easily remembered symbols. The next step is to combine these symbolic elements" (Neurath 1936:224-25). **2.** ". . . simple [pictographic] elements can be made to show the most complicated facts and relationships. The visual method, fully developed, becomes the basis for a common cultural life and a common cultural relationship" (Neurath 1936:226).

Prehistory. "With Spanish Levantine rock art (dating to 11,500 B.P. ["before present"]), ancient sign artifacts begin to show a quantum leap both in complexity and information content in scenes representing hunters, singly and in groups, associated weapons, clothing, gender signals, social behaviors, and complicated juxtapositionings of human beings with one another and with prey animals. Thus begins pictographic *narration*--story telling, dramatization--showing consequences of actions, portraying life-

and-death encounters" (Givens 1982:162).

Future. Semiotic principles of isotype are included in a U.S. Department of Energy warning system, designed to send a cautionary message to human beings 10,000 years in the future about the dangers of nuclear waste (see **WIPP MARKER**).

Neuro-notes. "Pictographic traditions--both protowritings and true pictographic scripts--rest on semiotic principles which seem to have deep roots in human perception and cognition" (Givens 1982:162-63).

See also **NONVERBAL LEARNING**.

NONVERBAL LEARNING DISORDER

NLD. **1.** A frequently misdiagnosed state of anxiety, confusion, and social withdrawal caused by inabilities to **send** and **receive** common **gestures**, **facial expressions**, and **body-language** cues. **2.** NLD persons may **a.** misread everyday nonverbal signals, **b.** display awkward body movements, and **c.** have difficulty associating visual signs in space and time.

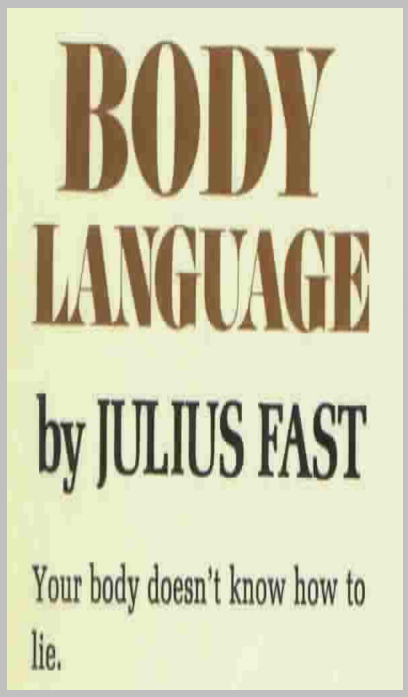
Usage: NLD children rely on the concreteness of verbal **speech** and written **words**, and may be unable to process the subtleties of nonverbal expression.

E-Commentary: "My learning disabled son's biggest problem, now that he is pushing 16, is lack of good social skills. He just isn't responding appropriately to cues. I am unsure whether it's a lack of perception or a lack of ability to properly respond that is the difficulty." --R.M., USA (4/11/00 11:19:00 AM Pacific Daylight Time)

Neuro-notes. "A 120-base pair duplication polymorphism in the dopamine D4 receptor gene (DRD4) shows preferential transmission with attention deficit hyperactivity disorder (ADHD) . . ." Anonymous (2000C).

See also **AUTISM**, **BODY DYSMORPHIC DISORDER**, **NONVERBAL LEARNING**. Principal web link: ***NLD on the Web!***

BODY LANGUAGE



*Does his body say that he's an easy man **to beat**? Does her body say that she's a **phoney**?* --Book jacket of *Body Language* (1970)

*Anatomical **signs***. **1.** "The bodily gestures, postures, and facial expressions by which a person communicates **nonverbally** with others" (Soukhanov 1992:211). **2.** "Body language and **kinesics** are based on the behavioral patterns of nonverbal communication, but kinesics is still so new as a science that its authorities can be counted on the fingers of one hand" (Fast 1970:9).

Usage: "Body language," the lay term for "nonverbal communication," was popularized in 1970 with the publication of *Body Language* by Julius Fast. Though college textbooks (e.g., Burgoon et al. 1989) omit references to the book and its author, Julius Fast--more than any academic--brought public attention to the expressive force of gestures and body-motion cues.

The negative. On the downside, Fast oversold body language to the public by suggesting (on the book's dust cover) that kinesic cues could be used to tell if one was "loose" (i.e., too sexually receptive), "hung-up," "lonely," or "a manipulator." And, despite Fast's repeated warnings to use caution when interpreting body-language, **arm-crossing**, leg-crossing, and other nonverbal signs came to be overly meaningful signals in popular magazine and newspaper articles (i.e., as negative, defensive "barriers" to rapport).

The positive. On the upside, body language has entered the lexicon as a phrase with which to label a key channel of human communication apart from spoken and printed words. *Body Language* has gone through dozens of printings, and is still available in bookstores today. Moreover, thanks to research completed during the 1990-2000 Decade of the Brain, many of the nonverbal signs and cues Fast wrote about in 1970 now have meanings backed by neuroscience (see, e.g., **NONVERBAL BRAIN**).

The promise. "The science of kinesics has added a new dimension to human understanding. BODY LANGUAGE can make you a more perceptive human being, and it may influence your approach to every relationship in which you are involved" (dust jacket of *Body Language*, by Julius Fast).

Media. "The dynamic personality [i.e., the body language] of Humphrey Bogart dominates the whole picture, and his playing in the leading role is a fine example of the value of dramatic under-emphasis and intelligent modulations in voice and expression" (*Today's Cinema* review of 1947 movie, *Dead Reckoning* [Columbia; cited in Frank 1982:49]).

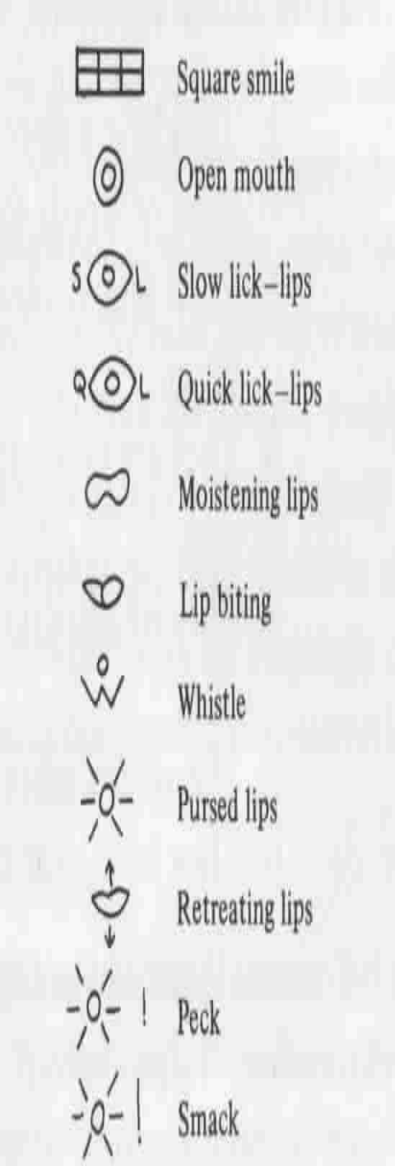
E-Commentary: "I am writing to you from the British Broadcasting Corporation, in England. We are developing an idea for a television documentary on body language--how to read it, and how to modify your own body language in order to control the impression you give other people. We are particularly interested in how public figures and celebrities are increasingly aware of the importance of their own body language in preserving a positive public image.

"Our proposed documentary will be for Discovery Channel USA, and will feature a well known British zoologist-turned-presenter with an expertise in body language. We are looking for contributors with an expertise in reading body language. I would very much like to know more about your research and the Center for Nonverbal Studies." Susie Painter (4/2/01 9:59:44 AM Pacific Daylight Time)

See also **BODY MOVEMENT**.

Illustration detail from *Body Language* (1970; 4th printing)

KINESICS



A man stands inside of a closed glass phone booth. You cannot hear a word he says, but you see his postures, gestures, and facial expressions. You *see* his *kinesics*. --Marjorie F. Vargas (*Louder Than Words*, p. 67)

Linguistic analogy. **1.** Founded by anthropologist Ray Birdwhistell (1952, 1970), kinesics is the study of **nonverbal communication** using the methods and concepts of American descriptive linguistics of the late 1940s. **2.** The anthropological term for **body language**.

Usage: Students of kinesics searched for a *grammar* of **body movements**, **facial expressions**, and **gestures**, much as descriptive linguists formulated a grammatical structure of **words**.

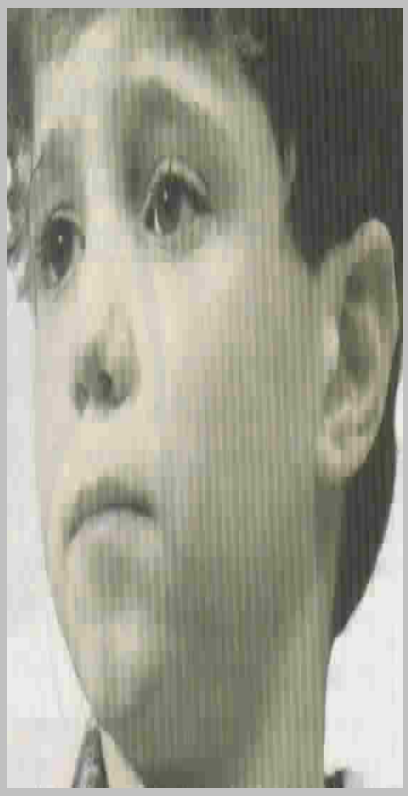
Birdwhistell-isms: **1.** "Social personality is a tempero-spacial system. All behaviors evinced by any such system are components of the system except as related to different levels of abstractions" (Birdwhistell 1952:5). **2.** "Even if no participant of an interaction field can recall, or repeat in a dramatized context, a given series or sequence of [body] motions, the appearance of a motion is of significance to the general

study of the particular kinesic system even if the given problem can be rationalized without reference to it" (Birdwhistell 1952:5). **3.** ". . . all meaningful [body] motion patterns are to be regarded as socially learned until empirical investigation reveals otherwise" (Birdwhistell 1952:6). **4.** "No kine ever stands alone" (Birdwhistell 1952:15).

RESEARCH REPORTS: **1.** "I suggest that this separate burgeoning evolution of kinesics and paralanguage alongside the evolution of verbal language indicates that our iconic communication serves functions totally different from those of language and, indeed, performs functions which verbal language is unsuited to perform" (Bateson 1968:615). **2.** "The first premise in developing this type of notational system for body language, Dr. Birdwhistell says, is to assume that all movements of the body have meaning. None are accidental" (Fast 1970:157). **3.** "A *kineme* is similar to a phoneme because it consists of a group of movements which are not identical, but which may be used interchangeably without affecting social meaning" (Knapp 1972:94-95). **4.** "Not everyone agrees with Birdwhistell that kinesics forms a communication system which is the same as spoken language" (Knapp 1972:96). **5.** The linguistic analogy was popular in the 1970s, e.g.: "This [the authors'] model draws its components from several social sciences, especially linguistics. Its basic idea is that face-to-face interaction can be construed as having a definite organization or structure, just as language is understood in terms of its grammar" (Duncan and Fiske 1977:xi). **6.** "The system developed by Birdwhistell (1970) is by far the most elaborate and famous example of a structural approach" (Burgoon et al. 1989:42). **7.** "So as you can see, Birdwhistell based his category system of behaviors on a model taken from the categories of verbal communication (allophone, phone, phoneme, morpheme)" (Richmond et al. 1991:55). **8.** "Her [Margaret Mead's] dilemma was how to acknowledge universals in facial expression [discovered by Paul Ekman] and not disavow [her student] Ray Birdwhistell's conclusion that there were no universals" (Ekman 1998:388).

See also **PARALANGUAGE**, **PROXEMICS**.

AUTISM



People talk to each other with their eyes, don't they? What are they saying? --Asperger's syndrome subject (quoted in Carter 1998:141)

Communications disorder. **1.** A related family of conditions, from producing repetitive body movements to showing a special gift for drawing, music, or math, marked by a lack of empathy and an extreme inability to send and receive normal **nonverbal** cues. **2.** An autistic person may fail to use socially normal patterns of **eye contact**, **facial expressions**, and **gestures**, and may be unable to use normal **speech**. **3.** An autistic individual may also display an intense interest in arranging, organizing, or hoarding a restricted range of physical **objects**.

Usage: When kept from handling a favored object, an autistic person may yell, become aggressive, or engage in property destruction. ". . . more than anything, autism is a defect of communication--an inability to share feelings, beliefs and knowledge with other people" (Carter 1998:141).

Asperger's Syndrome. Like autism, AS includes problems in social behavior, along with abnormal responses to the environment. Unlike autism, however, cognitive and communicative skills may be relatively normal, and verbal skills are strong. AS individuals show an unusually restricted interest in specific artifacts, objects, or life forms, such as bus schedules, videotape cassettes, and frogs.

Behavior. "Their language skills are often limited, and they find it difficult to initiate or sustain conversations. They also frequently exhibit an intense preoccupation with a single subject, activity or gesture" (Rodier 2000:56).

Embryology. In the first 20 to 24 days of gestation, a defect in the gene *HOXA1* may be responsible **a.** for the physical appearance of the mouth, lower jaw, and ears, and **b.** for the brain stem anomalies (see below, *Neuro-note*) of autism (Rodier 2000:59).

Facial recognition. According to UCSD neuroscientist Eric Courchesne and colleagues, deep-brain scans show that the fusiform gyrus, which mediates facial recognition in non-autistic children, fails to activate when autistic children view pictures of faces (LaFee 2002).

Genetics. Regions of four chromosomes--2, 7, 16, and 17 (7 is known to be implicated in many language disorders) may be linked to autism, according to recent findings of a National Institutes of Health (NIH)-funded study (Anonymous (2001K).

Physical appearance. **1.** Autistic children produce few facial expressions, though they may exhibit **jaw-droop**. **2.** People with autism ". . . have often been described not only as normal in appearance but as unusually attractive [perhaps due to a diminutive lower jaw and chin; see **Facial Beauty**]. They are certainly normal in stature, with normal-to-large heads" (Rodier 2000:60). **3.** "The corners of his mouth are low compared with the center of his upper lip, and the top of his ears flop over [and are 'lower than normal' with 'an almost square shape'] . . ." (Rodier 2000:59).

Psychiatry. "a) marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction" (diagnostic criteria for 299.00 AUTISTIC DISORDER, *DSM IV*).

E-Commentary I: "Some muscles in my face are permanently atrophied because I never used them for nonverbal communication in the 28 first years of my life; this is the only 'nonverbal scar' that is left [after diet/vitamin treatment]." --An anonymous ex-Asperger's syndrome (7/20/01 4:27:34 PM Pacific Daylight Time)

E-Commentary II: "One thing most sorely missing from your *Nonverbal Dictionary* is the concept of exaggeration. If I exaggerate an expression, it often becomes 'fake' or 'you're laughing at my nonverbal' to normal people! This is why autism-related teaching tools fail; the autist or Asperger is taught to **smile** too much, which is counter-productive in any environment that is not used to autistic people. Even Aspergers with an IQ of 170, a wife, two kids, and a job leading a team of engineers can get caught regularly in this type of error!!! There is a great need to know what force should be given to the expression, and what timing is useful. I remember making those smiles that were perfect when I was younger, but I would stop smiling suddenly so the people around me would think that it was a fake smile all along. Just looking happy when I am happy is something that has taken me 1000 hours to master. I do not have the "instinct package," so as a complete outsider to instinctual mammalian behavior, I notice key factors of nonverbal that are so obvious to you . . . you won't even notice! --Asperger syndrome, moebius syndrome, tone deaf, and totally flat tone of voice (8/1/01 7:13:39 PM Pacific Daylight Time)

Neuro-note. In an autistic person, the brain stem is shorter, the facial nucleus is smaller, and the superior olive (an auditory relay station) may be missing entirely (Rodier 2000:58). The **amygdala**, hippocampus,

and cerebellum are smaller, as well (LaFee 2002).

See also **ANGELMAN SYNDROME**, **NONVERBAL LEARNING DISORDER**.

BODY DYSMORPHIC DISORDER

Nonverbal *disability*. **1.** An obsessive preoccupation with perceived bodily defects. **2.** Repetitive behaviors in response to this preoccupation.

Rate. "The rate of body dysmorphic disorder (BDD) in inpatient psychiatric settings and the nature of the presenting complaints are unknown. Because of the shame and humiliation that BDD patients suffer, we hypothesized that, unless specifically screened for at the time of admission, BDD would be underdiagnosed in psychiatric inpatients. . . . . Sixteen (13.1%) of the 122 subjects were diagnosed with BDD. None of the subjects with BDD had been diagnosed with BDD by their treating physician during hospitalization. All 16 subjects reported that they would not raise the issue with their physician unless specifically asked due to feelings of shame" (Grant et al. 2001:517).

Neuro-notes. Clomipramine, a serotonin reuptake inhibitor, may better reduce symptoms of body dysmorphic disorder (which is likely related to obsessive-compulsive disorder) than might desipramine, a selective norepinephrine reuptake inhibitor, according to a report in the November 1999 issue of the *Archives of General Psychiatry*.

See also **NONVERBAL LEARNING DISORDER**.

SPEECH ERRORS

Vocal cues. **1.** Mistakes in verbal fluency, including repetition, stuttering, mispronounced words, incomplete clauses, and **throat-clearing**.

Usage: Increased frequency in speech errors may indicate **anger**, anxiety, or stress (Mehrabian 1974:89).

Hem and haw. **1.** *Hem*: "A short cough or clearing of the throat made especially to gain attention, warn another, hide embarrassment, or fill a pause in speech" (Soukhanov 1992:841). **2.** *Haw*: "An utterance used by a speaker who is fumbling for words" (Soukhanov 1992:829).

RESEARCH REPORTS: **1.** Speech hesitations tend to occur at the beginnings of clauses, usually after the first word (Boomer 1965). **2.** "George Mahl of Yale University has found that errors become more frequent as the speaker's discomfort or anxiety increases" (Mehrabian 1974:89).

Neuro-notes. **Emotion** from the **limbic system** carries to the *larynx* and *pharynx* through **special visceral** (i.e., "gut reactive") **nerves**. Anxiety may also divert mental concentration.

See also **ADAM'S-APPLE-JUMP**, **DECEPTION CUE**, **TONE OF VOICE**.

TABLE-SLAP

Gesture. A **palm-down** cue in which a tabletop or level surface is struck by a percussive clap with the open **hand**.

Usage: The table-slap is used **a.** to accent a key speaking point; **b.** to object to another speaker's statement; **c.** to demonstrate an emotion, e.g., anger or mirth; and **d.** to call attention to one's own presence.

Observations. In the workplace, table-slaps are visible at meetings around a **conference table**. In offices with cubicles, senior staff may table-slap the dividers of junior staff members at will, but the latter may not slap a supervisor's partition, railing, or office door. On a subordinate's cubicle partition, the table-slap signals **a.** "I am here," **b.** "I have something to say," and **c.** "I am more important than you." Example: Hearing his boss slap, a senior executive in range establishes **eye-contact** and slaps a nearby surface to answer the call. Each subsequently *averts gaze*, approaches the other with a **swagger-walk**, and *leans* on a junior staff member's partition to chat, before returning to private offices a short distance away.

Primatology. Slapping the ground with an open hand is a gesture directed by adult or young adult baboons at other baboons in the wild (Hall and DeVore 1972).

RESEARCH REPORTS: **1.** *Slamming an open hand on a tabletop* is called a *baton*, a nonverbal sign used to emphasize a speaking point (Ekman and Friesen 1969). **2.** The *pound* gesture is "A sharp blow by one hand against the other immobile hand or against an object such as a table" (Brannigan and Humphries 1972:61). **3.** *Slap ground* is an aggressive gesture in langurs (Dolhinow 1972) and savannah baboons (Hall and DeVore 1972). **4.** "The animal [a chimpanzee] raises one or both hands forward or to the sides and hits the ground or an inanimate object with a flat palm" (Berdecio and Nash 1981:30). "In this study the gesture always appeared to function as an attention getting device. In general, instances performed with the alert face served as play invitations" (Berdecio and Nash 1981:30). **5.** Palm-down *ground-slapping* is a *threat gesture* in chimpanzees (*Pan troglodytes*; Goodall 1990) and in bonobos (*P. paniscus*; Waal 1997).

AGNOSIA

Neuro term. **1.** The inability to recognize a coin, key, or other object merely by its feel, e.g., when held in the hand. **2.** The inability to recognize a door, e.g., by the sound of its slamming or from its photograph alone. **3.** In agnosia, while perception itself (i.e., feeling a coin's shape or hearing a door slam) is normal, recognition of objects is not.

Usage: Studies of agnosia reveal how the brain processes nonverbal gestures, objects, and sensations apart from **speech** or **words**. Though very vocal, human beings still spend a great deal of their lives in **Nonverbal World**.

Stereognosis: The tactile ability to recognize objects placed in the hand. (*Graphesthesia* is the tactile ability to recognize figures drawn on the skin.)

Neuro-notes. **1.** Inability to recognize a coin by the sound of its dropping suggests problems with the *auditory association areas* of the temporal lobe. **2.** Inability to recognize a coin held in the hand suggests problems with the *tactile association areas* of the parietal lobe. **3.** Inability to recognize a coin by its photograph suggests problems with the *visual association areas* of the occipital lobe. These nonverbal brain modules exist independently of the cortical modules used to recognize and produce speech sounds.

See also **APRAXIA**.

BLANK FACE

Facial sign. **1.** A neutral, relaxed, seemingly "expressionless" **FACE**. **2.** The face in repose, with **eyes** open and **lips** closed. **3.** A condition in which the neck, jaw, and facial muscles are neither stretched nor contracted. **4.** An "emotionless" face, whose muscle tone reflects a mood of calmness. **5.** The deadpan face we adopt alone when, e.g., at home while resting, reading, or watching TV.

Usage: Though "expressionless," the blank face sends a strong emotional **MESSAGE**: "Do Not Disturb." In shopping malls, elevators, or subways, e.g., we adopt neutral faces to distance ourselves from strangers. The blank face is a subtle sign used to keep others a polite distance away. (**N.B.**: A blank face with naturally downturned lips and creased **FROWN** lines may appear "angry" as well.)

RESEARCH REPORTS: **1.** "Regardless of whether a person intends to take a line [verbally or nonverbally], he will find that he has come to do so in effect. The other participants will assume that he has more or less willfully taken a stand . . ." (Goffman 1967:5). **2.** Infants 7-to-12 weeks old interacting with mothers whose faces were voluntarily *immobilized* became unhappy and puzzled, grimaced, stared at their own fisted hands, avoided mother's eyes, and made quick glances at the mother (Trevarthen 1977:267). **3.** The *normal face*: "No special expression present but face not slack as in sleep" (Brannigan and Humphries 1972:59). **4.** Infants 4-and-6 months old looked significantly more at joyful faces than at angry or *neutral-expression* faces; the latter two received equal attention (LaBarbera et al. 1976). **5.** A review of research on the *neutral face* shows that, even though faces at rest emote no clear emotions,

people respond as though they do. Neutral faces "seem to have a perceptual status comparable to a prototypical expression of basic emotion" (Carrera-Levillain and Fernandez-Dols 1994:282).

Neuro-notes. The unconscious, background level of muscle tone in our face is set by the brain stem's *reticular activating system*. In the blank face, muscle tone is neither aroused nor sedated, but "normal." Studies show that, as in monkeys, for whom the face sends important emotional signs, neurons in our forebrain's **AMYGDALA** "respond briskly" to the sight of another person's face (LaDoux 1996:254). Faces, like emotions themselves, are considered pleasant or unpleasant, rarely ever neutral. Imaging studies suggest that while encoding a picture of a face, three brain areas--the *temporal cortex*, *hippocampus*, and *left prefrontal cortex*--show high levels of activity.

See also **FACIAL EXPRESSION**.

HEAD-TILT-BACK

Gesture. Lifting the chin and leaning the head backward (dorsally, i.e., toward the shoulder blades or scapula bones).

Usage: Lifting the chin and looking down the nose are used throughout the world as nonverbal signs of superiority, arrogance, and disdain (Eibl-Eibesfeldt 1970, Hass 1970).

Anatomy. The prime mover of head-tilt-back (i.e., of extending the spine) is the *erector spinae* muscle group, components of which reach to the skull's occipital bone to produce extension movements of the head as well. These deep muscles of the back and neck are basic **postural** muscles which are innervated by the spinal nerves directly, without relay through the cervical plexus or brachial plexus. Thus, we have less voluntary control of our haughty head-and-trunk postures than we have, e.g., of our hand-and-arm gestures. (***N.B.***: Gross postural shifts which involve *back-extension* and *head-raising* may express unconscious attitudes of power and **dominance**.)

Culture. **1.** In Greece and Saudi Arabia, a sudden head-tilt-back movement means "No," and may originate from the infantile head-tilt-back used to refuse food (Morris 1994:145; see also **HEAD-SHAKE**). **2.** In Ethiopia, the same gesture means "Yes," and may originate from the backward head movment used as a greeting (Morris 1994:146).

Origin. In its "superior" sense, head-tilt-back is a constituent of the primeval **high-stand display**.

Politics. Political leaders who used the head-tilt-back gesture in public speeches include Al Gore, Benito

Mussolini, Franklin D. Roosevelt, and George Corley Wallace.

RESEARCH REPORT: Head-tilt-back may be accompanied by "contempt-scorn" cues: one eyebrow lifts higher than the other, the eye openings narrow, the mouth corners depress, the lower lip raises and slightly protrudes, and one side of the upper lip may curl up in a sneer (Izard 1971:245).

E-Commentary: "I was reading through the online *Nonverbal Dictionary* and I believe they've left out an entry on 'chin thrusts.' I don't know how you all get the entries for the Dictionary but I figured I would comment on that one. I am finding the *Dictionary* to be very informative and one of the best web resources on kinesics so far in my searches." --J.P., USA (4/16/00 12:12:54 AM Pacific Daylight Time)

Chin jut. A derivative gesture of head-tilt-back is the "chin jut," described by Desmond Morris (1994:30 ["The chin is thrust towards the companion"]) as an "'intention movement' of forward attack," which has become a worldwide sign of threat. The world's most exaggerated chin jut was that of the Italian dictator, Benito Mussolini

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E-Commentary: "Have you come across any research regarding a rapid multiple **eye blink** that looks almost as if the person is rolling their eyes back in their head? It often is accompanied by a *head tilt back*. I have a client who does this, and have encountered others who do this, and am not sure the source of such a gesture, or what it might suggest nonverbally. My gut tells me it makes the guy look arrogant and a bit supercilious. Am I totally off base in thinking this may be a problem. Any suggestions? I'd be glad to send you a copy of videotape showing what I'm talking about." --L.G., Senior Communications Consultant, USA (9/30/99 12:24:16 PM Pacific Daylight Time)

See also **EYEBROW-RAISE**.

LUNCH

Ritual. The usually friendly patterns of **eye contact**, **gestures**, and words exchanged at midday while consuming food products.

Usage: We "do lunch," schedule luncheon meetings, and conduct business over lunch because eating together **a.** reduces anxiety as the parasympathetic nervous system switches to **rest-and-digest**, and **b.** promotes sociability through the reptilian principle of "acting alike" and "doing the same thing" (see **ISOPRAXISM**).

Courtship. Because lunch is conducted in the light of day, it is an effective venue for the early exchange of **love signals**. As in the more serious dinnertime rite (usually conducted after dark; see below, *Media*), couples find eating together less stressful than conversing without the shared focus of utensiles, food, and drink.

Media. "The next day, Vicki offers to cook Gary dinner at his apartment. Thinking quickly, Gary says his place is too messy; they decide to have dinner at the ranch instead." --*Young and Restless* (*Soap Opera Digest* synopsis, May 2, 2000:114)

Corporate culture. Office rituals inevitably involve eating and drinking together. Nonverbally, food consumption allies staff and draws employer and employees closer together. (But note that food is rarely

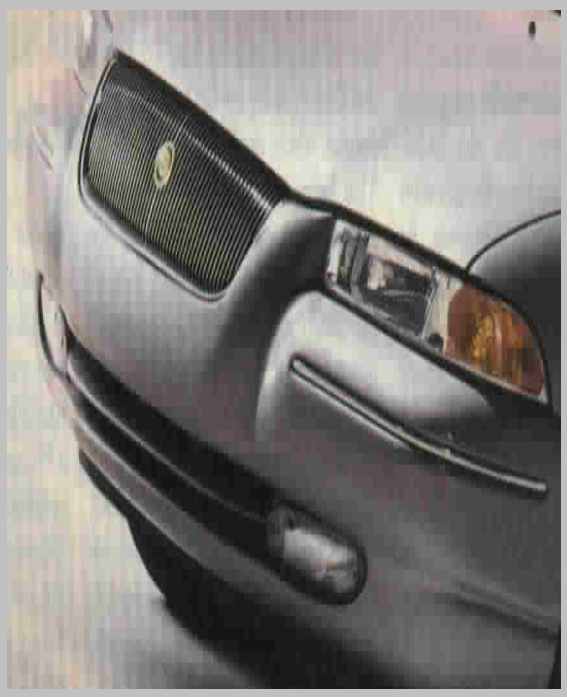
served during the performance review.) To win friends and influence people in the firm, chocolates work better than **words**.

Ancient history. Food is a powerful symbol, as the Egyptian artists who drew ritual offerings of food and drink on tomb walls understood 2,500 years ago.

Prehistory. Unlike other primates, human beings have been *sharing edibles* for at least two million years, as evidenced by arrangements of cut and broken big-game bones found in sites at Olduvai Gorge, Tanzania. The earliest-known ritual involving food is found in Upper Paleolithic cave paintings dating to between 34,000 and 12,000 years ago. The cave walls show big-game animals speared or caught in what may have been "magical" traps (Wenke 1990).

See also **CONFERENCE TABLE**, **DANCE**.

VEHICULAR GRILLE



Not long ago I started detecting what seemed like facial expressions while looking at cars and I thought I was going nuts. -- G.L.-C (see below, ***E-Commentary***)

Consumer product. **1.** A nose- or mouth-shaped grating of metal or **vinyl**, used as a decoration at the front of an automobile, truck, or bus. **2.** The "face" of a motor vehicle, unwittingly designed to show attitude.

Usage: The modern grille expresses a vehicle's personality by mimicking features of the **face**, esp. the lips, nose, and teeth. (Note: windshields and headlights may participate as illusory "**eyes**.") Grilles suggest a variety of facial mood signs--from the friendly **smile** to the emotional **tense-mouth**--as they beckon for deference, demeanor, and respect on the road.

Evolution. Through a process of consumer product selection, automobile front-ends today resemble faces. Originally, in the Ford family, e.g., the 1903 Model A had neither a grille nor a vertical front-end, but from 1908-1927, the Model T had a vertical front end with a framed radiator as a "proto-grille." In 1928, the Model A had a shapely, contoured radiator, like that of the early Lincoln, which suggested a vertically ascending nose. In 1932, the high-brow Lincoln's V-type radiator was clearly nose-like from the frontal view.

Recent history. In the 1940s, grille design shifted from noses to mouths. A case in point is Mercury's aggressive, tooth-showing grille of 1946, which resembled an angry bulldog poised to bite. After 1946, mouth motifs predominated, and subsequent nose shapes inadvertently damaged sales of less expensive cars. Edsel's ill-fated "horse-collar" grille of 1958, e.g. (modeled after Packard's vertical center grille), doomed it to extinction. (And yet, nasal illusions helped sales of "aristocratic" vehicles, such as the

Jaguar and Mercedes-Benz, which "looked down their noses" at lesser automobiles (see **HEAD-TILT-BACK**). In 1955, the Mercury Montclair featured a redesigned bumper grille housing what looked like free-standing teeth, and thick, horizontal projections that resembled tusks. From 1955-57, the Ford Thunderbird featured "tusks," as well, and a mouth-like grille poised, seemingly, to shout, "Hey!" In 1963, the Mercury Breezeway added tusk-like dual headlights to its grille configuration. In 1966, the Mercury Comet Cyclone's tense-mouth grille appeared toothless and without tusks, but non-functional hood scoops compensated for its defanged look by adding "muscle" (i.e., engine power) to the car. In the same year, the Mercury Cougar's front end featured a bumper that curled up on the outer extremities, and an insouciant grille resembling the *silent-bared teeth* face of monkeys and apes (Van Hooff 1967).

E-Commentary: "I saw your website and the first thing that caught my attention was the topic of car grille faces, because not long ago I started detecting what seemed like facial expressions while looking at cars and I thought I was going nuts. I'm so glad to know that someone has information regarding this topic, and it's for real." --G.L.-C., CPNet.com (3/15/00 8:50:48 AM Pacific Standard Time)

Student observations. In a class measurement project for my spring 2001 communication research methods course at Gonzaga University, students contributed the following comments on vehicular-grille shapes:

1. Hello Dr. David. Here's the assignment on the smile ratio for the grille. I have noticed that, to me, the vehicles look more interesting as the angular edges were smoothed out. The newer vehicles all share smooth, curvilinear contours instead of the harshness of the edges. Brings a softness to the rough steel confines of the automobile.

2. The grille on the Taurus was very hard to measure, because it was a perfectly oval shape. So, at any point of the circle I could have measured, it would not have accurately reflected the shape of the grille. The shape really does not make me feel really one way or another about it. It is, honestly, a little bland. Some might say it

reminds them of an "oh" surprised look--but, to me, it is much more mild, and really doesn't show a lot of personality. It's not quite as boring as some might say a full-on rectangle is, because it doesn't have any blunt angles or edges. It is rather smooth--possibly calming--and yet still doesn't evoke really strong emotions.

3. The Toyota Four Runner's grille is straight-up a rectangle. It's much like the nondescript style of Chevrolets given as an example in class. This is an older model of the Four Runner, so I would be interested in how the grille has changed--because even with the nondescript grille on this car, I know it was fairly popular for that year's model. The style of this car is very nice--but I do agree that the grille is somewhat boring--and it's sort of a let-down to see all the work that was put into making such a nice car--yet not much imagination was put into the grille.

4. The Nissan Maxima gives the shape of the smile that is becoming more and more apparent on cars these days. However, it is not a round, smooth smile, but rather choppy with a lot of angles. Almost like a robotic smile, so it doesn't feel quite as warm or genuine as some of the newer cars that have worked the lines to be smoother. Although it does possess more attitude than the Toyota Four Runner (however, in my opinion, not much more), I don't know that, if I were shopping, that it has enough of a "smile" to subconsciously influence me.

5. The 1999-2000 Ford Ranger XLT gives a big, warm, hearty smile. It's not a huge grin that would light up the face of a child, but something big and boisterous you might possibly see from the driver of such a vehicle. It is not outright a smile, but there is some angle to it similar to the Nissan Maxima. Yet, because it's a bigger car than the Maxima, it gives a different illusion to the grille. I think this car can pull it off and still look fairly attractive, because it's very wide-open, a sort of grin where you would see all of the person's teeth--so it seems very genuine, almost innocent, in a sense.

6. The 1989 Honda CRX is very different from the Honda Accord. But, of course, it's a few years more recent. The stern, narrow grille is gone--but is replaced by another of the nondescript, no-emotion type grilles. For a smaller car, this does not work well, in my opinion. Possibly on a truck it would work okay, because the owner might want to look like "I don't care" or give that illusion through a grille that shows no feeling or mood. However, with a smaller car, where the mere structure of the vehicle doesn't hold that power, the grille doesn't work, and this makes the front more boring than need be.

7. The Mercury Topaz GS has a very interesting grille. It's reminiscent of the Ford Taurus in its oval shape, yet it's also very oblong. Also, the middle strip of metal that passes through the grille gives it a very interesting shape. I am unsure how to classify this, or how to describe the feelings it gives me. The easiest way would be to say that this grille reminds me of clown lips. A clown's lips are really big and poofy, and overdone. It doesn't mean people don't like this grille. People like clowns because they're different, look a little funny, and make you laugh. I think this car seems a little more humorous to me, as well, and conveys a relaxed feeling--kind of like "it's okay to take a cruise for the heck of it with no destination." That's the best way to describe this grille.

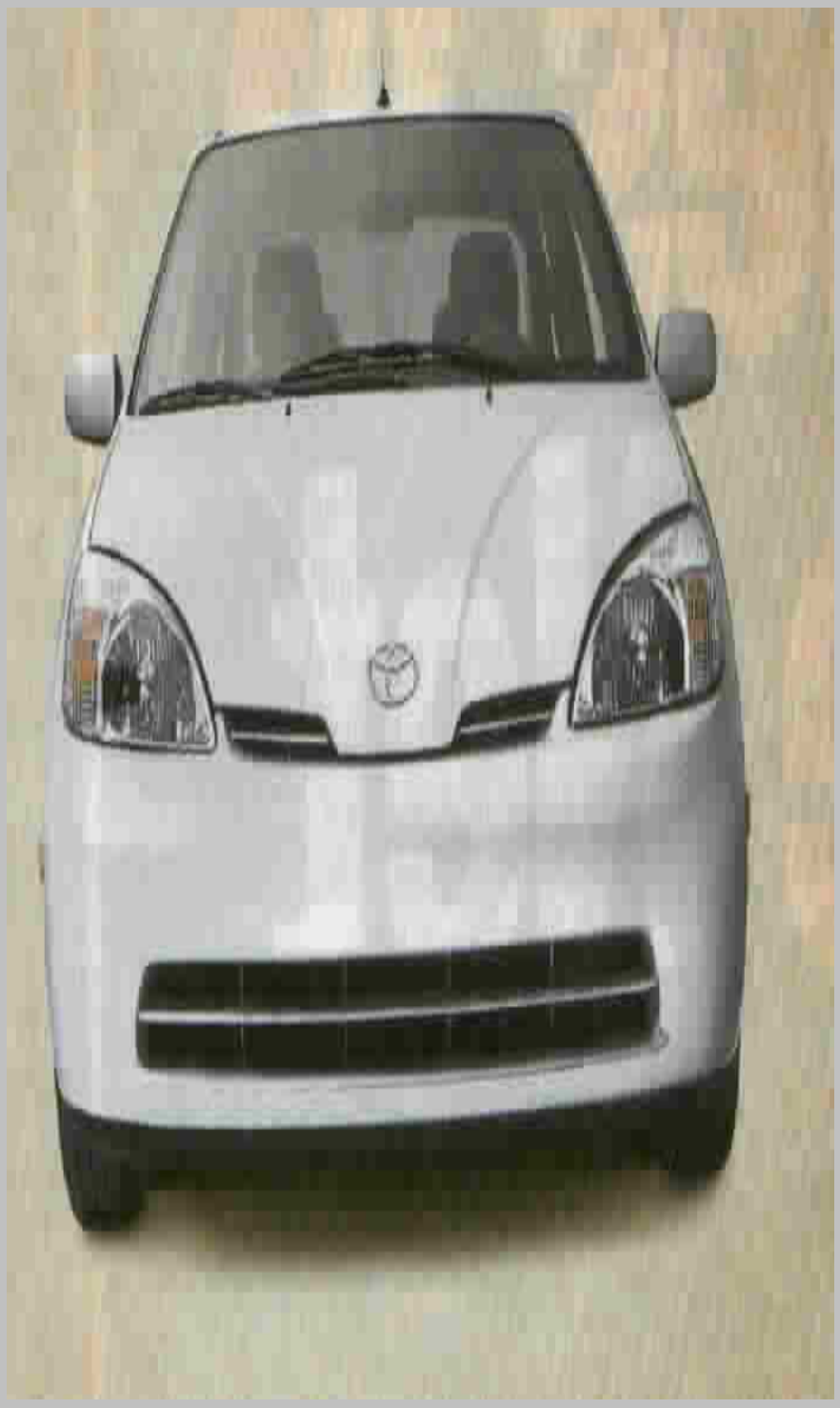
8.The 1999 Isuzu Trooper has a smaller, angular smiley face. It has more of a cute demeanor than the other smiley faces, because the grille shows a little more softness around it's edges, and the angles are not so harsh. I believe this has more to do with a mirroring of the new aerodynamic shapes of most vehicles lately. It gives a very friendly, happy appearance to the car. Out of all the cars, this looks most like the grille you'd actually want to hug.

Neuro-notes. **1.** Links between biting, chewing, showing fangs, genital erections, **anger**, and **fear** have been found in the anterior **hypothalamus** "in a region of converging nerve fibres involved in angry and defensive behaviour" (MacLean 1973:16). **2.** Like faces, grilles are decoded in the anterior inferotemporal cortex, while their familiarity registers in the *superior temporal polysensory area* (Young and Yamane

1992:1327). **3.** The emotional impact of grilles registers in the **amygdala**.

See also **MESSAGING FEATURE**, ***WWW2.Ford.com***. To see the ultimately cute automobile face, click on ***Toyota Prius***.

THE 2000 TOYOTA PRIUS



Back to[VEHICULAR GRILLE](#).

[Center for Nonverbal Studies](#)

NUTTY TASTE

Flavor sign. **1.** The usually pleasant flavor of hard-shelled seeds (e.g., *filberts* and *mongongo* nuts) perceived by the sense of taste. **2.** A **taste cue**, much esteemed by primates, emanating from the kernels of any of these.

Usage. We remind ourselves that we are **primates** when we add *pecans* to stuffing (e.g., in roast chicken), sliced *almonds* to chocolate-cake frosting, and chopped *walnuts* to raisin bread. *Peanuts* **a.** are staples of Chinese, Thai, and many other cuisines around the world; and **b.** are hidden ingredients (in powder form) in myriad processed foods available worldwide.

Chemical signs. Food researchers have cracked the code of nutty taste, which is signaled (in part) by *2,3-dimethylpyrazine*, a flavor molecule found in roast beef (see **MEATY TASTE**) and coffee (see **COOKING**). Peanuts have a green note, as well, *2-propylpyrazine*, present in some roasted coffee beans (McGee 1990).

See also **EXISTENTIAL CRUNCH**, **GLUTAMATE**.

INTERIOR DESIGN

Here, then, was a wide and reasonably lofty hall, extending through the whole depth of the house and forming a medium of general communication, more or less directly, with all the other apartments. --Nathaniel Hawthorne (*The Scarlet Letter*)

[Hollywood, California's Linoleum City manager Susan] Mannes said sales of all of the store's natural products (linoleum [invented in 1863 from linseed oil, rosin, limestone, and wood or cork ingredients, with jute backing], cork, sissal) have increased since the early 1990s. --Candace Wedlan (2000:D1)

Humane Habitat. **1.** The practice of decorating an indoor space with lights, **colors**, landscapes, textures, **animals**, **plants**, and other natural objects found in the great outdoors. **2.** The unconscious or deliberate act of bringing in the outside cues of **Nonverbal World**.

Usage: Nothing in our evolutionary past prepared us for a life lived almost entirely indoors, so we bring the outdoors in. Through ingeniously designed **consumer products**, we make home and office spaces look and feel more like the outside world our forebears knew. (***N.B.***: Adding the nonverbal signs of nature to the workplace makes it a more humane environment, and a more efficient habitat as well.)

Color I. "An East Coast factory gave its cafeteria a face-lift by painting its previously peach-colored walls a light blue. Patrons responded with complaints of being cold . . . . When the room was painted peach again, complaints stopped" (Vargas 1986:151).

Color II. "Think about the colors used by the fast-food chains in your area. There's not a cool color to be

seen. In the Midwest, Wendy's, Colonel Sanders, McDonald's, Hardee's, A & W, Burger King--all keep people moving with reds, oranges, and rich browns" (Vargas 1986:151).

Cover. Our preference for having something behind our back when eating or resting (e.g., a partition or a wall) may be innate (Thorndike 1940).

Nonverbal reminders. People are happy when their work and play spaces duplicate features of the ancestral African plain. The best offices, e.g., provide obvious replicas as well as more subtle reminders of the original *savannah habitat*, including its *warmth*, *lighting*, *colors*, *vistas*, *textures*, and *plants*. Flowers, cacti, palms, ivy vines, leafy shrubs, and fig trees are cultivated indoors today--for the outdoor look of yesterday.

Sky & sun signs. We keep our homes heated (or cooled) to 72 F.--the savannah average--and decorated with travel posters of oceans, mountains, and trees. We paint our ceilings in light colors to suggest the sky, leaving them unadorned to seem "bigger," "higher," and less enclosing.

Sunshine I. We crave the natural brightness of sunlight. From isolation experiments NASA found that we miss sunshine nearly as much as we miss the company of human beings. In offices without direct sunlight, pictures and drawings of the sun may be added as reminders of its heat, glow, and brilliance.

Sunshine II. The sun's power has been acknowledged in prehistoric pictographs and rock art throughout the world (Mallery 1972). Drawings of *Ra*, the Egyptian god of the sun and skies, still decorate the dark walls of ancient tombs. Set on a pair of wings, or upon the head of Ra himself, the round *solar disk* emblem works on the principle of a cubicle poster's tropical sun: to warm the traveler and cheer the dead.

Windows I. After sunlight itself comes the wish for a window, to see outside. Without reference to landscapes or the far horizon, workers in windowless offices may feel disoriented and disheartened. Industry studies suggest that staff members without scenic vistas are more apt to display *art prints* (depicting natural *earth scenes*) and to feel lower in status than colleagues with vistas and views.

Windows II. Hospital studies show that patients get well sooner, have shorter stays, require less painkiller, and receive fewer complaints from nurses when their rooms have pleasant landscape views (Bell et al. 1990).

Touch cue I. Too much *smoothness* may create a peculiar feeling of unreality. Foreign visitors to the U.S., e.g., have been advised to carry unfinished stones or pieces of natural wood to satisfy their primate cravings for *texture*, which urban America often seems to lack (Baldwin and Levine 1992). (***N.B.***: With so many man-made, smooth artifacts--from desktops to copy machines--an office environment may be the most unreal place of all.)

Touch cue II. Because large areas of our brain receive signals from nerves in the fingertips (see **HOMUNCULUS**), office spaces may stave off boredom and restore sensory awareness by adding an

assortment of tactile signs, signals, and cues. Linen-embossed wallpaper, terra-cotta pots, natural stone facings, and walls of weathered brick, e.g., can add refreshing contrast to otherwise flat, featureless corporate surfaces. (***N.B.***: In 1973-74, Skylab 4 astronaut Gerald Carr spent 84 days in space. So boring was his drab workplace that Carr advised designers of the NASA space station, Freedom, to make future cabins as "natural" as possible with interesting colors, textures, and lighting.)

Touch cue III. Because they replicate the softness of *mammalian fur*, carpets seem "friendlier" than bare floors. A carpet's fuzzy nap stimulates sensations of "light" or *protopathic* touch. Protopathic cues travel in spinal-cord pathways that evolved earlier than the pathways for heat and pain. Thus, walking on carpets is more inviting to primate souls and feet than concrete, hardwood, or linoleum floors.

See also **LAWN DISPLAY**

TICKLE

Touch cue. Tickle is a tingling, tactile sensation, considered both pleasant and unpleasant, which results in **laughter**, smiling, and involuntary twitching movements of the head, limbs, and torso.

Usage I: Tickling, a playful cue, is often seen in child-child, parent-child, and male-female (i.e., **courting**) pairs. Its harmless-seeming, "unserious" nature has made tickling an ideal form of communication in courtship's fourth (or **touch**) phase. The two tickle types are **a.** *knismesis* (a light tickle which may or may not produce laughter), and **b.** *gargalesis* (a heavy tickle which usually produces the laugh response). Examples of light tickle include touching the sole of the foot with a feather, and feeling a fly walk about on one's knee. An example of heavy tickling is indenting the skin of another's ribs or waist with one's poking fingertips. (***N.B.***: In the Middle Ages prolonged tickling was used as a form of torture.)

Usage II: Tickling produces laughter, which releases euphoria-promoting brain chemicals, such as endorphin, enkephalin, dopamine, noradrenaline, and adrenaline. Mutual laughter stimulated by tickling can promote bonding and strengthen emotional ties. Tickling reinforces psychological closeness through the physical medium of touch. Tickling the neck, armpits, and sides of the abdomen may also arouse sexual feelings, as it stimulates nonspecific erogenous areas of the skin.

Word *origin*. "Tickle" comes from Middle English *tikelen*, "to touch lightly."

Consumer product. Tickle Me Elmo® ". . . laughs and shakes when tickled. Tickle Elmo once to make him giggle. Tickle him a second time to make him laugh longer. Tickle Elmo a third time to make him shake and laugh uncontrollably. There is an auto shut-off for longer battery life (batteries included)" (Plush Elmo ad by Fisher Price).

RESEARCH REPORTS. While the philosophers Plato and Aristotle speculated about tickling, the first scientific study was published in1872 by Charles Darwin.**1.** "Everyone knows how immoderately children laugh, and how their whole bodies are convulsed, when they are tickled" (Darwin 1872:197). **2.** "The anthropoid apes . . . likewise utter a reiterated sound, corresponding with our own laughter, when they are tickled, especially under the armpits" (Darwin 1872:197-98). **3.** "Such movements [i.e., **jerking away**], as well as laughter from being tickled, are manifestly reflex actions . . . ." (Darwin 1872:198). **4.** A study in *Nature Neuroscience* (Nov. 1998) by University College London researchers determined **a.** that during self-tickling, areas of the cerebellum are active (causing the anticipation of tickle cues), but **b.** that cerebellar areas are not active when subjects are tickled by experimenters (thus causing an emotional, *surprise* response).

Innateness. Recent studies suggest that, like laughter, which first appears in infants between 23 days and four months, the tickle response is innate. Studies of deaf-and-blind-born children, for example, show normal bodily responses to being tickled. Because tickle sensations travel through the same nerves as tactile impulses for pain and itch, they stimulate similar movements of tactile-withdrawal and scratching, both of which are innate as well.

Anatomy. The most ticklish areas of the body for light-tickle sensations (based on the duration of laughing and **smiling**) are, in order, **a.** underarms, **b.** waist, **c.** ribs, **d.** feet, **e.** knees, **f.** throat, **g.** neck, and **h.** palms. Though heavy tickling usually produces laughter, most people say they dislike being tickled.

Evolution. Tickling and breathy, laugh-like panting exhalations appear in the human being's closest primate relatives, the great apes. The primate tickle response may have evolved, in part, from the mammalian scratch reflex, which utilizes ancient vertebrate pathways for pain. The scratch reflex produces rhythmic movements of the limbs, designed to remove the irritating sources of itch stimulated, for instance, by mosquitoes and flies. Tickling a dog's abdomen produces repeated movements of the hind limb to rid the body of imagined fleas. The withdrawal response, an innate escape motion designed to remove a body part from danger, produces an involuntary movement away from a tickler's annoying fingertips.

Erogenous tickle. Like other forms of touching, tickling may stimulate sexuality as an erotic stimulus to the skin (see **feet**). Touching *nonspecific* erogenous areas of the neck, armpits, and sides of the abdomen, e.g., may produce pleasurable tickling sensations. Touching *specific* erogenous zones (i.e., the mucocutaneous skin of the genital regions; see **LOVE SIGNALS V**) may stimulate acute sexual sensations. (***N.B.***: Specialized mucocutaneous end-organs appear to be involved in experiencing tactile

pleasure from erogenous zones.)

Neuro-notes. Tickle (and *itch*) sensations are produced through mild stimulation of the nerve endings (group C unmyelinated fibers) for **pain** (i.e., group C unmyelinated fibers). As noted above, heavy tickling by oneself of one's own body does not lead to laughter. Imaging studies suggest that the brain's cerebellum anticipates the tickling movements, and thus unconsciously nullifies the required element of surprise. The reason human beings laugh while being tickled is still unknown. Tickle's laughter may be prompted by a neural link between vocalizing and grooming in the **cingulate gyrus** of the **mammalian brain**.

SNEAKER

Sneakers that promise movement of athletic perfection. --Elizabeth Kastor (1994:30)

When dressing casually, let sneakers determine the look of the clothes you're going to wear [--not the other way around]. --Véronique Vienne (1997:156)

Footwear. A casual sports shoe made with a usually colorful canvas or nylon upper, and a soft, thick sole of rubber, latex, or **vinyl**.

Usage I: Because they cover our very expressive **feet**, we are choosy about the brands, insignia, and styles of the sneakers we wear (see **MESSAGING FEATURE**). (***N.B.***: As a nonverbal **sign** of gender, presence, and personality, sneakers communicate "who we are" much as do **hair cues** and **hats**).

Usage II: The large size, bold contrasts, and loud colors of running, training, and basketball shoes (all of which evolved from sneakers) suggest **a.** *youth* and *physical fitness* (often more theatrical than real); **b.** identification with *team sports* (esp., e.g., with star players); and **c.** a preference for *informality and comfort*.

Usage III. Sneakers are rarely worn beneath **conference tables** because **a.** they do not support the **business suit's** power metaphor, and **b.** their thick, cushioning soles suggest "awkwardness." (***N.B.***: Soles greater than one-eighth inch give a clumsy appearance, suggestive less of coordination, grace, and savoir-faire than are communicated by, e.g., thinner, more elegant leather soles, esp. those of Italian or British design. Visually, sole thickness is equivalent to the contrast between mittens and kid gloves.)

Anatomy. Running shoes may be the most comfortable footwear yet designed by humans. Perhaps better than any shoe, Nikes cushion the estimated five million pounds of impact born each day by the modern

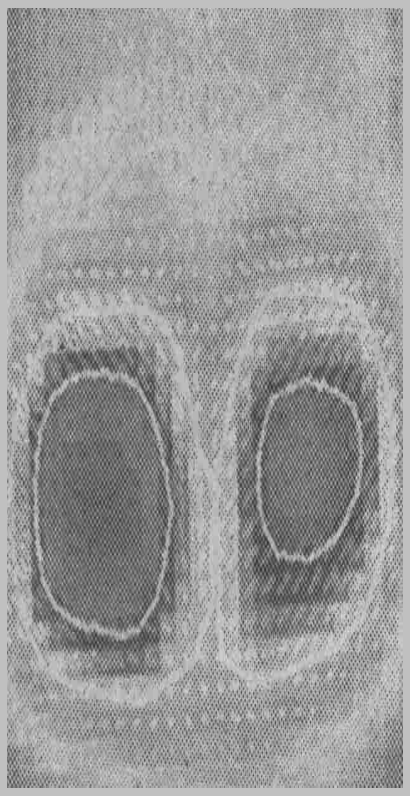
foot. (***N.B.***: The typical American, who walks seven and one-half miles a day, owns two and one-half pairs of athletic shoes.)

Evolution. On humanity's shoe tree, the sneaker (or *tennis shoe*) is a recent offshoot. The word "sneaker" crept into English around 1875 as a label for a croquet shoe made in the U.S., whose vulcanized rubber sole had been attached to white canvas uppers (magically, it seemed) without stitches or thongs. The 1910-era American rubber-sole design known as *Keds*® paved the way for a more modern species of footwear, the *Nikes*® *ultralight running shoe* of the 1970s. (***N.B.***: In the mid-1990s, Americans spent ca. $12 billion a year on running shoes--yet nine out of ten who owned them never ran.)

Media. **1.** Sneakers were popularized by James Dean in *Guys and Dolls* (1955), and by Elvis Presley's teen cohort in *Jailhouse Rock* (1957). In the 1950s sneakers broke the formality of corporate leather shoes to express a kinder, gentler world for feet and the lifestyle for which they stand. **2.** "Nike Air shoes with pressurized air soles helped more than double sales from $1.7 billion in 1989 to $3.8 billion just five years later, with the help of a determined marketing effort led by NBA star Michael Jordan" (McCall 2000:A14).

See also **BLUE JEANS**, **BOOT**, **MEN'S SHOES**, **WOMEN'S SHOES**.

MOTION ENERGY MAP



Observation tool. **1.** A computerized rendering of facial energy patterns used to read **emotions**, feelings, and moods. **2.** A digitalized camera image with which to display the facial-muscle contractions of specific emotions (e.g., of **sadness**, **anger**, and **fear**).

Usage: Motion energy maps show which areas of the face move to express given emotions. They may someday enable computers to recognize and respond to **emotion cues** of the face.

RESEARCH REPORTS: **1.** "In pilot tests with people making deliberate expressions of emotions, the computer read the emotions with up to 98 percent accuracy" (Goleman 1997:C1). **2.** "What we've done so far," said Georgia Tech computer scientist Irfan Essa, "is just the very first step in building a machine that can read emotions" (Goleman 1997:C9). **3.** "Dr [Roz] Picard and her associates at M.I.T.'s Media Lab are developing prototypes of . . . [emotionally] sensitive machines that are not just portable, but wearable. 'A computer that monitors your emotions might be worn on your shoulders, waist, in your shoes, anywhere,' Dr. Picard said" (Goleman 1997:C9).

See also **FACE**.

Grin and Bare it

By **Mary Ann French**

Boston Globe Magazine (Monday, September 11, 2000)

The farthest that a human can throw a javelin today - or perhaps could let fly a spear on the plains when we were a new species struggling to survive - just happens to equal the distance at which we can recognize a **smile** on the **face** of an approaching stranger. About 300 feet.

"That would have been critical when we were evolving on the savannah in Africa," says science writer Daniel McNeill, author of the book *The Face*. "Smiles essentially bind us together. If we were out there alone, we were going to get killed. If we were together, we survived and prospered. The smile is a critical device of cohesion that we tend to take for granted. If somebody smiles at you, you tend to smile back, you feel better toward them. It's an innate response."

As the schmaltzy song says: "Smile, and the world smiles with you."

It's "nature's peace symbol," according to Nancy Etcoff, a a professor of psychology at Harvard University who studies ways that the brain triggers and recognizes emotions. It signals that we come not as foes, even if not as friends. It's the most basic of our social lubricants, learned by infants in the first few months of life. It's our most frequently used facial expression. It signals that we're ready and willing to play ball.

So what does it mean when a city - the "hub of the universe," no less - proudly makes a point of not smiling?

Boston long has been known for its dry and crusty demeanor. It's an old legacy. "Customs but no manners," as a biographer of the Cabot family put it some time back. "If you smile at a Bostonian," says Thomas O'Connor, a noted Boston College historian, "his general reaction is, 'What do you want?' " To get the tone of that response just right, O'Connor turns his normally genial voice into a sneer.

"When I first arrived in Boston for graduate school, I couldn't believe how people seemed so incredibly surly and dour and grim," says psychologist Marianne LaFrance, who was raised in Toronto but was a longtime Boston-area resident before becoming a professor at Yale University two years ago, where she is studying gender-related aspects of the smile.

Each fall, Boston's storied aversion to bonhomie sparks similar reactions among thousands of new college students and their parents as they arrive here and get their first exposure to the local culture. What's amazing is how quickly these newcomers learn to fit in, says Northeastern University's Wilfred Holton, who has taught a class on the sociology of Boston for 25 years. "Just seeing what the rules of behavior are, nobody wants to be different," he says. "Maybe people get ugly stares if they're pleasant."

Now, granted, there are different kinds of smiles. They are not all genuine, frank, warm, open, or even benign. As Hamlet says, "One may smile and smile and be a villain." There is the social smile of the receiving line and the beseeching smile of the beauty queen contestant. There are studies of college yearbook photos that identify a particularly Southern smile. And there is Georgia State University psychologist James Dabbs's recent research finding that American men with high testosterone levels may smile least of all.

"On the average, men smile less than women," Dabbs says in his book *Heroes, Rogues, and Lovers: Testosterone and Behavior*. "Smiling is not just a sign of good feeling. It is polite, disarming, and nonthreatening. It is a strategy that people with less power use more often than people with greater power. The sex difference is part of an ancient pattern in which women maintain community by smiling, and men maintain dominance by not smiling."

There are also certain pockets of our population where people of all kinds simply seem to smile too much, mechanically substituting saccharine for sweetness. We have enshrined the smiley face on a postage stamp, and the "Have a nice day" era just won't die. That's another story, however.

"Boston is too busy to smile," says Jack Levin, a sociology professor at Northeastern University. "We have the fastest pace of life of any city in the US. This is measured by the accuracy of clocks and watches and the speed at which people walk. In our city, time is money, and if you waste time, you're wasting money, so we don't have a lot of time for the social amenities."

They smile in your face
All the time they want to take your place
The back stabbers. ...
-THE O'JAYS

If a dog comes toward us with canines bared, we are instantly alarmed. Unsheathed teeth tend to trigger that kind of reaction throughout the animal kingdom. So how did we come to consider a show of pearlies to be a sign of politesse?

Some researchers believe that the human smile grew out of the primate's grimace, which apes use when they feel threatened or they want to show submission, and by males when they want sex.

Could it be that our smile is simply a civilizing mask for our own craven or conniving behavior? And would that somehow make Bostonians more noble because they don't disguise their true feelings and

intentions?

It might also be that people here are acting more realistically by not grinning at every Tom, Dick, and Harry. "In any big town, you're surrounded by strangers," says McNeill. "It can become suspicious if you are showing signs of cohesion with people you may not see ever again in life."

Regional habits of facial expression evolve in curious ways that haven't been studied extensively. Perhaps it's like truisms, those cultural cliches supported by so much anecdotal evidence that we don't see the need to examine their roots and causes or current meanings and effects. Instead, we use them to characterize and judge one another.

"When New Englanders go south, Southerners want to know why they are so glum, and when Southerners go north, New Englanders want to know what's so funny," says LaFrance. And everyone knows that Southern Californians often seem as sunny as their weather. But overseas, LaFrance says, the French are convinced that "Americans are dopey because of their incessant smiling."

Body language and facial expression are age-old elements of human communication, but our understanding of them is just beginning to form. "Words haven't really evolved to replace the signs and signals and cues, only a few of which even make it to consciousness, like the smile," says David Givens, director of the **Center for Nonverbal Studies** in Spokane, Washington.

Charles Darwin laid out many of the fundamentals of nonverbal communication in his 1872 book, *The Expression of the Emotions in Man and Animals*, after which the field was left largely fallow for a century. His work was ignored for a couple of reasons, says Paul Ekman, a professor of psychology at the University of California at San Francisco, who devised a system of measuring and coding facial expressions that helped launch a renaissance in the field.

"Darwin said emotions are not unique to humans, that we share them with animals, which many people thought was extreme and wrong," Ekman says. "The animal rights people today would love Darwin, but even most pet lovers don't believe that the chickens and cows they eat have emotions."

The other reason why Darwin's ideas were rejected was that he was proclaiming the universality of mankind. "He was directly attacking the racists who said Europeans were superior because they had evolved from a more advanced progenitor," Ekman says, "and his proof was the universality of human expression, which he said shows that we all have a single progenitor."

While our common African origins have since become widely accepted, we have yet to understand how differently and variously we use the facial expressions that we so universally share. Flash on the smile, again. "It seems so clearly straightforward," says LaFrance, "yet it can occur where it shouldn't and not occur where it should. People smile when they're anything but happy and sometimes don't smile when they are in fact delighted." The "display rules" set by culture, class, gender, race, or age can cause people to showcase, suppress, or disguise their emotions.

Won't you smile awhile for me?
-HALL & OATES

O'Connor, who has collected reams of Boston's ethnic and cultural history, tells a story of Dr. Oliver Wendell Holmes traveling south in search of his son, the future Supreme Court jurist, who he had heard had been wounded on a battlefield during the Civil War. "After a long period of time, he suddenly saw him on a train," O'Connor says. "And instead of, as I would have done, letting out a yell and rushing forward and throwing your arms around him and so forth, he stopped and drew himself up erect and quietly walked forward and tapped his son on the shoulder from behind and said, 'How are you, boy?' "

The elder Holmes, who is credited with coining the term "Boston Brahmin," was exhibiting a mode of behavior and a masking of emotions that O'Connor says are deeply Anglo-Saxon and were passed down from early Massachusetts settlers.

"There was a natural suspicion on the part of the so-called Yankee, the peddler, who is almost a Dickensian skinflint type, that someone is going to cheat him, get the better of him," says O'Connor. "So therefore he plays his cards close to the vest, keeps his eyes down, doesn't look at you directly. He doesn't want to give anyone any sort of emotional edge over him. I find it interesting," O'Connor says, "because people talk so often about the differences between the Irish and the Yankees, and yet in this unwillingness to yield, to soften, to open up, they have some strange similarities."

While there is a stereotypical tendency to think of Irish people as being warm and forthcoming in many folksy ways, O'Connor says there is among the Boston Irish a xenophobic distrust that fostered these watchwords: "You don't tell anybody anything." You don't even make eye contact with strangers.

As early settlers displaced native inhabitants, it is understandable why the settlers would be wary. And because many Irish immigrants were persecuted and maltreated and were initially unsure of the extent of their freedoms and protections in this new land, it is easy to see how they might tend to be tight-lipped in public. However, others of the immigrant groups that helped form Boston's rich cultural fabric may have adopted the local demeanor as a means of fitting in. And in doing so, they may have picked up on behavioral cues that have outlived their causes.

In that event, Bostonians who come across as surly probably do not consciously choose to present such a front. "Habits learned early in life don't necessarily reflect how a person actually feels in the present," says Ekman. "They may have been brought up, as were their parents and as were *their* parents, not to manifest the smile. And since everybody is used to it, nobody notices it."

Furthermore, Boston is still very much a city of neighborhoods and tightknit communities, and the amount of smiling that goes on among strangers in anonymous public settings is doubtless different from what happens when like meets like on home turf. Of course, it also must be stressed that there are no scientific studies that document this reputed Boston demeanor. Yet over the years, a weight of colloquial

testimony has accumulated that is difficult to deny.

"I feel like a traitor when I talk about this, because I love Boston," says Northeastern's Levin, "but let's be honest about this. There's a culture of rudeness here, and you learn it. You almost have to learn it in order to survive."

Take driving in the city, for a well-cited example. "In every other city, merging traffic into one lane is guided by the rule 'every other car,' " says Levin. "Here it's more 'close your eyes and floor it.' We have our own rules, and they're more aggressive rules, even vengeful rules."

Aside from the area's beginnings as a Colonial beachhead, the weather is another obvious culprit to blame for Boston's mood. McNeill, a Californian who lived in Cambridge for three years while attending Harvard Law School, says: "When I came back here from Boston, it seemed there was a shift in the atmosphere and the climate - of the people as well as weather. People in California simply seem sunnier, and it seems that we smile more and more often."

Of course, while Massachusetts was one of the first frontiers, California is one of the last. People settled here and stayed, "surrounded by their support systems, their family, their friends, their fraternal organizations," says Levin. And while the Boston area grows a new crop of students each season and tends to cyclically attract budding technologies and their workers, it is not perceived to be a land of opportunity on the scale of California or Texas or Florida, which Levin says are flooded each year by people in search of "a new beginning or maybe even a last resort."

In those types of settings, a striver needs to show up smiling. "Everybody's a stranger, so if you're trying to make friends and establish relationships, you can't afford to be rude," says Levin. "But in Boston, people don't need strangers, or at least that's how they feel."

Gray skies are gon-na clear up,
PUT ON A HAP-PY FACE
Brush off the clouds and cheer up,
PUT ON A HAP-PY FACE.
-LEE ADAMS AND CHARLES STROUSE

If the human smile derived from the primate's grimace, it evolved from an expression of fear, a recognition of another's dominance, and it might function subliminally as a sign of submission. Therefore, it might often be used in greetings and other encounters among humans to inspire trust - or at least the lack of intent to do harm. As LaFrance points out, however, "The human species has many other ways to communicate trust, and if everybody is doing the same thing, we trust it." It would follow then, that if Bostonians have tacitly agreed that they don't need to smile while interacting publicly, then nothing may be lost.

But if Ekman and many other researchers are right in believing that the human smile evolved from the

chimpanzee's "play face" and is rooted in amusement and joy, then people who don't routinely crinkle their eyes while lifting the corners of their mouths may be missing out big time.

The impulse should start with life. "Infants who don't smile have a hard time getting caretakers to take care of them," says Ekman. "That smile motivates the parent. Smiles attract us to people. The advertisers know that."

There is a certain circuitry in the brain that responds positively to a smile. That perhaps explains centuries' worth of fascination with Leonardo da Vinci's *Mona Lisa*, says Givens, the Center for Nonverbal Studies' director. "The world is a much friendlier and nicer place for those who smile, because they elicit good vibes from people they smile at. This includes people who have the luck of the draw genetically to have their lip corners turn up when their face is at rest, like Mona Lisa's. Folks whose lip corners naturally droop when their face is at rest just don't have as much gratuitous friendliness come their way."

Researchers are just now beginning to map out these subliminal pathways in the brain. "People were stuck for years just trying to define emotion," says Harvard's Etcoff. "Almost all of the brain science was on language, cognition, thinking. Emotion was considered too fuzzy or difficult a topic to study." She credits the exquisitely detailed Facial Action Coding System that Ekman and Wallace Friesen devised in the 1970s to measure and compare expressions with "giving us a window into emotion and the beginning of an understanding."

Ekman also revived the work of 19th-century French neurologist Guillaume-Benjamin Duchenne, who had determined the physical difference between a true smile of joy and a smile that was simply social. The distinction is in the eyes - particularly in the contraction of the orbicularis oculi muscles, which pull the lower eyelids up and the eyebrows slightly down and often create crow's feet at the outer corners of the eyes. While the mouth smiles at will, Duchenne said that the eyes are inspired "only by the sweet emotions of the soul." And because most people cannot naturally control the muscle that orbits the eye, Duchenne said that it "unmasks the false friend." (Only 10 to 15 percent of people can voluntarily contract the muscle without being taught how, Ekman says.)

Before he confirmed Duchenne's thesis through experiments that compared brain activity to facial expressions, Ekman says that "some of the most distinguished scientists had concluded that smiles meant nothing. They had found that people smile when they're happy and unhappy, so they treated all smiles as the same. Now we are able to distinguish when people are enjoying themselves and when they are not."

Studies have shown that 5-month-old babies shine true smiles - or D-smiles, as they have been dubbed in honor of Duchenne - on their mothers and non D-smiles on strangers. Likewise, couples who are happily married shower each other with D-smiles at the end of a workday, while the unhappily married do not.

Beyond that, Ekman has identified something of a two-way street between pleasure centers in the brain and the facial muscles. Not only does the brain send signals to the face to express emotions, Ekman has

found that if we deliberately configure our facial muscles in certain ways, we can send messages in the other direction and voluntarily trigger emotions in our brains. He likens the process somewhat to the Stanislavsky acting technique, which is used to generate emotions on the stage.

Etcoff compares it to ways that we empathize with one another. "If you look at people talking, you'll often see them mimicking each other's facial expressions," she says. "There's an idea that this is how we feel what others feel, that our body, through facial feedback, begins to experience the same emotion." It's an idea that has long existed in our folkloric arts and wisdom but has not been explored extensively in scientific ways.

In our age of angst and pharmacological frenzy, it would seem that the possibilities of such a sublimely simple and cost-free tool of self-induced mood enhancement would be welcomed. Ekman says, however, that he hasn't been able to get funding for clinical trials. He chalks up the lack of funders' interest to the tendency in society to value our species' ability to reason above all else.

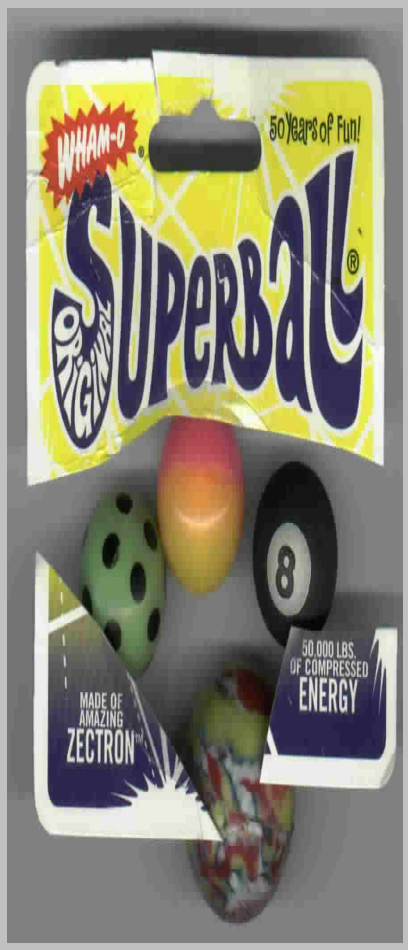
"The idea of a rational mind controlling everything is very appealing to some," says Etcoff, "and thinking of emotions as automatic and unconscious has always intrigued people, but I think it has also frightened them."

While Ekman has moved on to other research topics, he says he's working on a book that will teach people how to smile the Duchenne smile and perhaps feel a little happier. Others remain skeptical, however. "I know when he first came out with this, folks were saying, 'Boy, all we have to do is get people to sit in a room and smile, and they'll be happy,' " says Givens. "And it does appear to be a fact that just as your **emotional brain** can trigger a smile, that there's some reverse triggering. The thing is that the reverse is a weak kind of a shadow that probably doesn't have much practical use."

Perhaps this far from the savannah, people have progressed past their need to smile. Given Boston's success from its early days as a cradle of liberty to current triumphs in technology, education, business, and beyond, it would be hard to argue that the city has suffered from being closed-mouthed. Maybe it's enough that we smirk instead, smug in our achievements and safe in our space. After all, anthropologists aren't agreed on the origins of the smile, much less on its proper, modern usage.

When someone dares to smile at you, what do you do? Grimace or grin?

SUPERBALL®



. . . *our little life is rounded* . . . . --Shakespeare (*The Tempest,* IV, I)

Consumer product. A small, lively, spherical **artifact** of **vinyl**, designed to bounce approximately 90 percent as high as the point from whence it was dropped.

Usage: Considered a child's toy, adults too enjoy Superball's animated bounce. The rhythmic, back-and-forth reciprocity of releasing and catching a Superball is a "whole brain" workout which stimulates the entirety of the central nervous system (including circuits of the spinal cord, hindbrain, midbrain, and forebrain).

Anatomy. Made of Zectron®, the Superball contains 50,000 lbs. of compressed energy (source: WHAM-O package).

History I. In the 1960s, a chemical engineer accidentally created a plastic product that bounced uncontrollably. Thus the Superball was born, followed by the Super Gold Ball, Super Baseball, and Super Dice. "In one celebrated incident, a giant, promotional Superball was accidentally dropped from of a 23rd floor hotel window in Australia. It shot back up 15 floors, then down again into a parked convertible car. The car was totaled but the ball survived in perfect condition." (Source: *www.wham-o.com*)

History II. During the 1960s, ca. 20 million Superballs were sold. However, the toy was so copied by competitors (e.g., today, by Taiwan's Hi-Bouncing Ball) that WHAM-O® "bounced" the product from its line. "If you're one of the countless others who've never been satisfied with mere copies, the wait is over! WHAM-O has brought back the original Superball." (Source: *www.wham-o.com*)

Literature. "It's alive!" (Mary Wollstonecraft Shelley, *Frankenstein*, 1818)

Meaning. Through its shape, color, texture, and lifelike movements, the Superball has a great deal to "say," especially to children--and to the young at heart. Nonverbally, its body-language motions are **gestures** which carry information, attract our fancy, and catch our eyes (see **MESSAGING FEATURE**).

RESEARCH REPORT: Our attraction to the zany body language of Superballs is due, in part, to the unusual amount of energy they contain. According to the researcher, Margaret D. Campbell, ". . . when two superballs of different masses are dropped with the larger on the bottom, the smaller one has its velocity increased by a factor of three and reaches a final height of nine times its original height." Thus, "The first collision will have only the effect of reversing the large ball's velocity. For the second collision, involving both balls, we use the fact that the total momentum and the total kinetic energy of the two balls is the same before and after the collision, and, solving for the final velocities, obtain the equations (where Mr = M1/M2 is the mass ratio):

V1f = [(Mr - 1) / (Mr + 1)]V1i + [2 / (Mr + 1)]V2i

V2f = [2Mr / (Mr + 1)]V1i + [(1 - Mr) / (Mr + 1)]V2i

or, if V1i = V2i = Vi

V1f = [(-Mr + 3) / (Mr + 1)] Vi

V2f = [(1 - Mr) / (Mr + 1)] Vi

and Mr -->0,

V1f = 3Vi . . . [and thus,] the smaller ball will gain ***three times the velocity*** it started with . . . ."

E-Commentary: "I am a high school student and basketball player, and I'm working on a science project. I need some advice. I know this might be off topic and not in your field, but anyway, I saw your report on the superball, and for my project I would like to manipulate the superball material into insoles for my shoes which, in theory (mine anyway), will improve my jumping ability. Do you think it would actually work? And if so, how could I manipulate the material into an insole? Would melting it change its 'bouncy' properties? Any help would be greatly appreciated." –Jay (8/31/00 8:17:23 AM Pacific Daylight Time)

Neuro-notes. Like many successful products, a Superball "speaks" to our senses. Its color targets the ventral temporal lobe; when bounced it addresses the middle temporal gyrus. At a deeper level, via emotional modules linked to vision centers of the **amphibian midbrain**, lively movements give the Superball its charming "personality." The diminutive size confers cuteness, and (like human skin itself) the **smoothness** of its vinyl contours pleases free nerve endings in our **hands**.

See also **BIG MAC®**.

Entries in The NONVERBAL DICTIONARY:

(Entries added and updated weekly)

******References******

ADAM'S-APPLE-JUMP

AFFERENT CUE

AGNOSIA

AKINESIA

AMPHIBIAN BRAIN

AMYGDALA

ANATOMICAL POSITION

ANGER

ANGULAR DISTANCE

ANIMAL SIGN

ANTIGRAVITY SIGN

APOCRINE ODOR

APRAXIA

AQUATIC BRAIN & SPINAL CORD

ARM WEAR

ARM-CROSS

ARM-SHOW

ARM-SWING

AROMA CUE

ARPEGE®

ART CUE

ARTIFACT

ATNR

AUDITORY CUE

AUTISM

BALANCE CUE

BARBIE DOLL®

BASAL GANGLIA

BASELINE DEMEANOR

BEAUTY

BEND-AWAY

BIG MAC®

BITE

BLANK FACE

BLUE JEANS

BLUSHING

BODY ADORNMENT

BODY ALIGNMENT

BODY DYSMORPHIC DISORDER

BODY LANGUAGE

BODY MOVEMENT

BODY WALL

BODY-BEND

BODY-SHIFT

BOOT

BOW

BRANCH SUBSTITUTE

BROADSIDE DISPLAY

BUSINESS SUIT

CANDY

CHAIR

CHIN JUT

CINGULATE GYRUS

CLEM

CLEVER HANS PHENOMENON

CLOTHING CUE

COCA-COLA®

COLOR CUE

CONFERENCE TABLE

CONSUMER PRODUCT

COURTSHIP

CROUCH

CROWDING

CRY

CUE

CUT-OFF

SPACE

SPECIAL VISCERAL NERVE

SPEECH

SPEECH ERRORS

STARTLE REFLEX

STEEPLE

STEINZOR EFFECT

STOMP

STRANGER ANXIETY

SUBMISSION

SUPERBALL®

SWAGGER-WALK

SWEATY PALMS

TABLE-SLAP

TACTILE CUE

TACTILE WITHDRAWAL

TASTE CUE

YAWN

ZYGOMATIC SMILE

References

The

NONVERBAL DICTIONARY

of

GESTURES, SIGNS

&

BODY LANGUAGE CUES

***From* Adam's-Apple-Jump *to* Zygomatic Smile**

By David B. Givens

(Spokane, Washington: Center for Nonverbal Studies Press)

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CHAIR

The human race spends a great deal of time sitting down, whether working in an office, studying in a library, commuting by bus, car, or airplane, or eating in a restaurant. Some seats are far more comfortable than others. --Barry H. Kantowitz and Robert D. Sorkin (*Human Factors*, 1983)

I quit following straight lines and work with the natural lines that are there. --Warren Schulze (Taggart 2001:B3; see below, *Woodworking impressionist*)

Consumer product. **1.** A piece of furniture with a horizontal seat, quadrupedal legs, an upright back, and horizontal arms, usually designed to be occupied by a single person. **2.** *Homo sapiens's* most diversely styled furniture item.

Usage: Office workers spend the majority of their working days seated in ergonomic swivel chairs. "Office seating has been extensively studied" (Kantowitz and Sorkin 1983:480).

Word origin. The word *chair* comes from Greek kathedra, "seat," from the 7,000 year old Indo-European root, **sed-**, "to sit."

Anatomy. "The main weight of the body should be carried by the bony protuberances of the buttocks,

more technically known as the ischial tuberosities" (Kantowitz and Sorkin 1983:478).

Animals. The legs of ancient Egyptian and Greek chairs were often carved to mimic the feet of beasts. The legs of ancient Assyrian backless chairs were carved to depict lion claws or the hooves of bulls.

History. ". . . this familiar piece of furniture was not common anywhere in the world until just 300 years ago!" (Manchester 1982:69). Before the widespread use of chairs, people sat on benches, logs, mats, stools, and storage chests. The earliest chairs served as symbols for high-status aristocrats, clan elders, religious leaders, and royalty. Today, the leader of a group seated around a **conference table** is called "the chair."

Psychology. Asking someone to "please sit down" reduces an opponent's standing height, and thus diminishes effects of the **high-stand** display. Sitting in a slightly higher chair confers a subtle but powerful psychological advantage in bargaining and negotiations. Through the nonverbal principle of **isopraxism** a chair suggests sitting down, because it, itself, appears to be seated.

Rocking chair. The soothing effect of rocking in a chair is due to the vestibular sense (see **BALANCE CUE**).

Symbolism. More than any other type of furniture, chairs have been elaborately carved, ornamented, and bedecked with symbols of heraldry, power, and wealth. They have become the everyday totems of status and rank.

Woodworking impressionist. **1.** "'I had a need to create things with my hands,' Warren [Schulze, former attorney, now chair designer in Rathdrum, Idaho], 41, says, believing forces out of his control pulled him from the mainstream. 'I had to take something from natural materials and create something'" (Taggart 2001:B3). **2.** Schulze makes trees with natural branches and twigs (see **BRANCH SUBSTITUTE**). "The backs of his chairs reach toward the ceiling like arms stretching for an escaping balloon. His table legs bend with the natural grace of windblown branches. His benches grip the floor with duck-like feet" (Taggart 2001:B3).

Toilet seating. "The Posture Mold seat designed by architect Alexander Kira is contoured and provides proper support for the thighs. This seat was selected for the design study collection of the Museum of Modern **Art** showing that good human factors can be esthetically as well as functionally attractive" (Kantowitz and Sorkin 1983:482).

Trees. "Until the middle of the 17th century, the majority of chairs in all European countries were made of oak, without upholstery or other cushioning" (Manchester 1982:72).

Vehicular seating I. "Layout of most vehicle cabs begins from a theoretical design eye point. This is an imaginary point in space from which lines of sight are calculated" (Kantowitz and Sorkin 1983:483).

Vehicular seating II. "Anthropometric data also can determine side-by-side seat spacing, that is, how many seats will fit in each row. The crucial dimension is called shoulder breadth. If your shoulders fit, so will your hips" [however, this '. . . does not guarantee you will have much room to move your elbows.'] (Kantowitz and Sorkin 1983:487).

EXPECTANCY THEORY

Conceptual model. The hypothesis--also known as *expectancy communication* or *interpersonal expectancy effects*--that a person's nonverbal communication unwittingly scripts a recipient's behavior, deportment, or performance in the manner of a *self-fulfilling prophecy*.

Usage I: Displayed nonverbally, a teacher's positive expectancies for certain chosen students encourages them to work harder and get better grades.

Usage II: A judge's **body language** can transmit negative signals (e.g., *gaze **cut-off**, **tense-mouth***, and ***tongue-show***), which may inadvertently influence jurors to decide against a defense attorney's case.

Salesmanship. "As in most areas concerning the sales confrontation, the salesperson will be viewed and treated largely according to *how he expects to be treated*" (Delmar 1984:31).

Clever Hans. As **primates** we are highly responsive to nonverbal cues, and thus susceptible to the "Clever Hans" phenomenon (Pfungst 1911):

> Once upon a 19th-century time, there lived a world-famous horse named Clever Hans, who displayed amazing mathematical ability. If somebody asked him to add, say, five plus seven, Hans would faithfully stomp 12 times, astounding all present. For years, puzzled scientists were baffled by how the animal could add and subtract. One Oskar Pfungst solved the riddle at last. According to Pfungst, Clever Hans looked closely at his human audience for subtle body cues [e.g., of the eyes and head] telling him when to stop tapping his hoof. Tiny **kinesic** signs alone sufficed (Givens 1981:56).

RESEARCH REPORTS: **1.** Research has shown that "nonverbal cues play an enormous role in signaling interpersonal expectations, often within the first 30 seconds of an interaction" (Burgoon et al. 1989:448). **2.** Relaxed postures, dominance displays, leg movements, **head-nodding**, smiling, and "interested" facial expressions may show positive expectations; while **head-shaking**, eyebrow-raising, looking surprised or disappointed, and tapping a pencil may show negative expectations (Burgoon et al. 1989).

See also **ISOPRAXISM**.

ERGONOMICS OF THE MIND

Concept. **1.** The application of *neuroscience principles* to **consumer product** design. **2.** *Design features* **a.** adapted specifically to the brain and nervous system, and **b.** intended to optimize product appeal, enjoyment, and value (see, e.g., **new car smell**). **3.** Emotional **messaging features** added to make products more expressive (e.g., more "lively") and fun to use.

Usage: Ergonomics of the mind means "user friendly to the brain." For the last 100,000 years, human beings have designed products so as to maximize their appeal to emotions, feelings, and moods. Today we form strong attachments to products which express themselves, show attitude, and emote personality (see, e.g., **BIG MAC**, **BLUE JEANS**, **VEHICULAR STRIPE**).

Familiarity. We prefer those products we have already seen, tasted, heard, felt, or smelled to those yet unexperienced. According to research by Robert Zajonc (1980): "If subjects are exposed to some novel visual patterns (like Chinese ideograms) and then asked to choose whether they prefer the previously exposed or new patterns, they reliably tend to prefer the preexposed ones. Mere exposure to stimuli is enough to create preferences" (quoted in LeDoux, 1996:53). Subliminal mere exposure works, too: "This led him [Robert Bornstein] to conclude that the mere exposure effect is much stronger when the stimuli are subliminally presented than when the stimuli are freely available for conscious inspection" (LeDoux, 1996:59).

Color. We like multi-hued products. Like our primate relatives, we have acute color vision and can recognize ca. 200 specific hues, from fiery reds to violet blues. (***N.B.***: The color green strongly attracts our attention, and is used in traffic lights, under the first and last steps of escalators, and in rented bowling shoes.)

Touch. We like products that feel smooth and soft to the touch. When a silk scarf, e.g., is drawn across our palm, the "soft" sensation is carried by *free nerve endings*, the oldest touch sensors found in vertebrate skin. Today, the soft or *protopathic* touch sensors found in hairless areas of our skin are partly responsible for our itching, tickling, and sexual sensations.

See also **ARTIFACT**, **OBJECT FANCY**, **VEHICULAR GRILLE**.

Top illustration: A native American atlatl (spear-thrower) weight from Ohio, dated between 2600-2400 BC (Scarre 1993:101; copyright Dorling Kinderslee)

VEHICULAR STRIPE

It was an effort to make the car look longer and lower. --Harley Earl (Patton 1992:185)

Product cue. **1.** A horizontal pinstripe, painted by hand or by mechanical means, running the length of a motor vehicle just below the windows. **2.** Any of several thin, linear markings **a.** of *chrome* stripping or **vinyl**, or **b.** stamped as embossments or indentations, running along the sides of an automobile or truck body.

Usage: Vehicular stripes decorate virtually all U.S. automobiles produced since 1927. Through an optical illusion, horizontal stripes suggest that cars are both "longer" and "lower" to the ground. Horizontal stripes also suggest greater "speed."

Evolution. The vehicular stripe originated as a **messaging feature** around the body (or "beltline") of the 1927 LaSalle. According to its inventor, Harley Earl, "This strip was placed there to eat up the overpowering vertical expanse of that tall car" (Patton 1992:185).

RESEARCH REPORTS: **1.** "Earl dictated that a single highlight should run the length of the car, like a theme or plot" (Patton 1992:185). **2.** Originally, "These encircling lines were painted by hand instead of by mechanical means because a rule line is a 'dead' line, and a perfect, rule line lacked the insouciant raciness a hand drawn line gives a finished automobile" (Patton 1992:185).

Neuro-notes. We are highly stimulated by edges, lines and linear details (perhaps from a primate fascination with branches and trees). Just as the linear necktie (see **NECKWEAR**) creates an illusion of greater verticality and physically imposing height (see **HIGH-STAND DISPLAY**), the automobile

pinstripe creates an illusory vision of length and "speed." This is because one layer of our primary visual cortex contains specialized *orientation-selective* neurons, which respond only to vertical or horizontal lines, or to linear angles between the two.

See also **CONSUMER PRODUCT**, **VEHICULAR GRILLE**.

LIP-TOUCH

Gesture. **1.** A brief or sustained *tactile stimulation* of the hypersensitive, fleshy folds around the mouth. **2.** A touch delivered to one or both **lips** with the knuckles, fingers, or tactile pads of the fingertips, or with an object (e.g., a pencil or pen) held in the **hands**.

Usage: One of our most common **self-touch** cues, the lip-touch signals a variety of moods and mental states including *anxiety*, *boredom*, *excitement*, ***fear***, *horror*, and ***uncertainty***. Stimulating the lips diverts attention, e.g., from **a.** disturbing thoughts and **b.** people who may upset us. As a self-consoling gesture, the lip-touch is equivalent to infntile *thumb-sucking*.

Observation. In a conversation, cross-examination, or interview, the lip-touch marks a nonverbal **probing point**, i.e., an unexpressed feeling, opinion, or thought to be explored.

Salesmanship. "Make a note: *Do not touch the area between your nose and upper lip when you are lying to a prospect*" (Delmar 1984:47).

Media. In the ninth inning of a nationally televised ball game at Busch Stadium, in which St. Louis Cardinal first baseman, Mark McGwire, hit his record-breaking 62nd home run of the year, McGuire *touched his lips* with his glove, in deep **emotion**, while awaiting the end of the ball game. (***N.B.***: In a nonverbal ritual before the game, McGwire *rubbed his chest* with the bat Roger Maris used to hit his own record 61st home run.)

RESEARCH REPORTS: **1.** With adult strangers, girls show more *hand-to-mouth* gestures than boys (Stern and Bender 1974:245). **2.** At 3-to-6 months, babies bring most objects to the mouth to be touched and explored (Chase and Rubin 1978:186).

Neuro-notes. Touching the mouth is emotionally *analgesic* (i.e., helps relieve physical and psychic pain). Our brain's cerebral neocortex devotes a disproportionately large part of its surface area to *fingers*, *hands*, and *lips* (see **HOMUNCULUS**). In the mind's eye, therefore, pressing "huge" fingertips against "enormous" lips is an efficient form of *acupressure*.

See also **FINGERTIP CUE**.

NONVERBAL FILMS

Motion pictures. Photographed or videotaped sequences designed to show body motions, facial expressions, gestures, and other forms of human communication apart from words.

Usage: Films depict our nonverbal communication in a graphic medium, usually supplemented by printed words, verbal narration, and voice-over speech.

E-Commentary: "To: alex.k@bankerinter.net, archer@cats.UCSC.EDU, Don_Mccormick@redlands.edu, emer@millbrook.ie, Farhanas@aol.com, jfr@golden.net, kiesler@cs.cmu.edu, klads@cistron.nl, M_Wrobel@mx.grey.com.pl, mg152@hotmail.com, mpierce@santarosa.edu, msrstern@yahoo.com, Nonverbal2@aol.com, rachelas@Savion.cc.Huji.ac.il, roeverc@griffon.mwsc.edu, roxanna_stern@sbehsd.sbceo.k12.ca.us, rvenegasv@yahoo.com, sddoctv@hotmail.com, Stan.Kaplowitz@ssc.msu.edu, vesna.ivasovic@zg.tel.hr, woesong@hotmail.com

"I thought you might want to know that there are are some new developments in the University of California video series on nonverbal communication, person perception, cultural differences, and cross-cultural understanding.

"The videos in the University of California series are available from:

"The Univ. of California Extension Center for Media
2000 Center Street, Fourth Floor
Berkeley, California U.S.A. 94704
PHONE (510) 642-0460; FAX (510) 643-9271
EMAIL cmil@uclink.berkeley.edu
WEB site: http://nonverbal.ucsc.edu" --Dane Archer - archer@cats.UCSC.EDU (4/27/01 9:01:22 PM Pacific Daylight Time)

"A WORLD OF FOOD: Tastes and Taboos in Different Cultures"

This new video examines how and why different cultures differ

dramatically in the foods seen as "edible," "delicious," or

"disgusting." The work examines not only Western views of

non-Western foods, but also the reverse case--and the film

demonstrates that any cuisine (including of course our own) can inspire horror and disgust in people from very different cultures. "Diet diversity" is nothing less than remarkable, and "A WORLD OF FOOD" presents a fascinating account of these differences. (Now with new Instructor's Guide).

"PERSONAL SPACE: Exploring Human Proxemics"

This new work examines the power of personal space in our daily lives--including the importance of space in public settings, powerful cultural differences in the use of space, how space is often governed by rigid rules (e.g., for table seating, restroom spacing, etc.), the link between personal space and rank in organizations, reactions to experimental "invasions" of a person's space, and the architectural differences between "favorite" and "failed" buildings. (Now with new Instructor's Guide).

"THE HUMAN VOICE: Exploring Vocal Paralanguage"

This video is about about language and vocal "paralanguage"--i.e., what is revealed about a person from the nuances of their voice and speech? The video explores the important clues embedded in our "vocal paralanguage." Each time we speak, we may reveal what our first language was, how much education we have had, where we grew up, and a long list of other items--e.g., our identity, age, emotions, charisma, dysfluencies, sarcasm, lifestyle, etc. "THE HUMAN VOICE" also examines "standard" and non-standard speech patterns, preferences and prejudices for various accents, how people can try to change their own accents, the universal nature of "parentese" (how adults speak to children), the legal "theft" involved in commercial imitations of "celebrity" voices, and important differences between human voices and computer-generated voices. (Instructor's Guide)

"THE HUMAN FACE: Emotions, Identities and Masks"

This video explores the kinds of information available in our faces, and in the dynamic facial expressions we use

every time we interact with other people. Topics include the differences between genuine emotions and pretend emotions; the ways our faces are "identity documents;" differences between friendly smiles and unfriendly smiles; how police officers use facial details to locate suspects; what pupil size reveals about a person's drug use; facial decorations (piercings, tattoos, and scarification) and the motives of those who adopt them; how facial clues allow those closest to us to "know" our feelings; attractiveness and what "plastic surgeons" try to change. (Instructor's Guide)

"THE HUMAN BODY: Appearance, Shape and Self-Image"

This video explores our preferences and feelings about our own bodies. Topics include bulimia and anorexia; cosmetic surgery; interviews with "super-models" about the effects such models have on the self-images of young women; tattoos and body decoration; the prejudice and effects of "weightism," etc. The video also presents powerful evidence about cultural differences in beauty standards--e.g.,

the viewer meets people from cultures where larger women
are regarded as more beautiful, where women planning to
marry go on special diets to become as heavy as possible, etc.
In extremely powerful interviews, the video examines the onset,
destructiveness, and treatment of eating disorders. (Instructor's
Guide).

"A WORLD OF DIFFERENCES: Understanding Cross-Cultural Communication"

This video is about the power and nuances of cross-cultural
communication. Topics include "culture shock," misunderstandings
and embarrassment, translation problems, emotions, and appropriate
etiquette. The viewer learns about when, what, and how to
eat in other cultures; whether greetings should include
handshakes, hugs, or kisses; how to use space and touch in
specific cultures; why one never offers food or touches someone
with the left hand in Islamic cultures; etc. This video is
designed to sensitize viewers to the "cultural baggage"
we ALL carry with us and--most important--how to prevent this
baggage from causing serious cross-cultural misunderstanding.

This video vividly teaches the power of culture, and the importance (and excitement) of understanding the nature and richness of cultural differences. (Instructor's Guide).

"A WORLD OF GESTURES: Culture and Nonverbal Communication"

This video is a visual "tour" of the remarkable variation in the hand gestures used in different cultures. People from many different cultures show the viewer an extraordinary range of hand gestures--friendly gestures, obscene gestures, gestures for intelligence and stupidity, gestures about love or sexual orientation, gestures from Culture A that mean the opposite in Culture B, famous gestures, secret gestures, problems when a visitor uses the wrong gesture, etc. The video also shows the development of gestures in children, the increasing fluency with age, and the danger of cross-cultural misunderstandings. This video is humorous, outrageous, and unforgettable--"A WORLD OF GESTURES" leaves viewers inspired by the remarkable human diversity found on our planet. (Instructor's Guide).

"THE INTERPERSONAL PERCEPTION TASK (IPT)" & "IPT-15"

These two video "self-tests" enable viewers to see how accurately they can "decode" nonverbal cues to interpret correctly something the person or people shown in each IPT scene. The viewer is asked to guess which of two women is the mother of the child; which of two people won their basketball game; which of two autobiographical statements is true and which is a lie; which of two co-workers is the boss; whether a man and a woman are strangers, siblings, or lovers; etc. Each IPT question has an objectively correct answer--e.g., one of the women really IS the mother; one of the two people DID win the basketball game, etc. The IPT has 30 questions for viewers; the IPT-15 has 15 questions. (Instructor's Guide)

Return to **Center for Nonverbal Studies**

NONVERBAL SURVEILLANCE

You can observe a lot by watching. --Lawrence Peter ("Yogi") Berra

Watching and listening. **1.** The act of observing the behavior and body language of persons or groups under suspicion. **2.** Systematic observations, openly made as well as covert, conducted in airports, at border crossings, and in other public venues, often for reasons of national security.

Usage. As the threat of international terrorism grows, nonverbal communication plays a vital role in the training of government, military, and law-enforcement personnel. The ability to see danger signs in anomalous behaviors and time patterns, in "**intention**" movements, clothing signals, abnormal gaze patterns, emotional **voice tones**, and **deception cues**--and in seemingly "meaningless" grooming habits, facial expressions, and gestures--is essential to ensuring public security today.

Curiosity. The best observers tend to be those who are naturally curious. They like to know what other people are doing--and why. Moreover, they are able to project themselves, through empathy, into the emotional mindset of those they observe (i.e., they can "get inside" others' heads). Perhaps most importantly, they are able to turn off the verbal dialogue going on inside their own heads long enough to monitor the scene. The best observers rely on their own feelings to ask questions: "Why is that person tense?" "Why do those two make me nervous?"

Elevator scenario. Software has been developed to interpret nonverbal behaviors, captured by closed circuit television (CCTV) cameras, as being *normal* or *abnormal*. Staying too long in an elevator, e.g., would be classed as an abnormal time usage which would set off a remote alarm for security workers. Abnormal physical movement in the elevator--e.g., a man assembling a mechanism or opening a suitcase on the floor--also would trigger an alarm.

Facial monitoring. Software enables personnel-identification cameras to recognize faces in airports, ports of entry, government buildings, casinos, and stores. Future software will enable cameras to recognize facial expressions of emotion, as well (see **MOTION ENERGY MAP**). (***N.B.***: Research on the human-computer interface [HCI] may result in software for interpreting postures, body movements, and hand gestures.)

A classic example of nonverbal surveillance was the case of Ahmed Ressam, who, presenting himself as "Benni Noris," crossed into Washington State from British Columbia via the Port Angeles ferry. *U.S. Customs Today* magazine touted the intercept, and praised the customs officers for responding to nonverbal cues.

Ressam's was the last car off the ferryboat, and something nonverbal told inspector Diana M. Dean to take a closer look at him and his vehicle. (Ressam appeared nervous and **sweaty** [Johnson 2000:B3].) She gave "Noris" a standard U.S. Customs declaration, which he completed, and then asked him to step out of his car. In the words of officers on the case, his ***hemming*** (speech hesitations), *hawing* (fumbling for words), *dawdling* (taking more time than necessary), and *stalling* (using delay tactics) drew inspector Mark Johnson's attention.

Ressam finally got out of his car and stood next to Johnson, while a third inspector, Dan Clem, inspected the trunk. When Clem found white powder hidden in the wheel well, Ressam ran away. Inspectors intercepted him as he tried to car-jack a vehicle stopped at a nearby traffic light. It was determined later that Ressam allegedly had ties to terrorist Osama Bin Laden, and that he was carrying highly volatile bomb components in an apparent plan to blow up a major U.S. target (source: *U.S. Customs Today*, © 2000).

Nervousness I. For years, United Airlines has provided annual training for flight attendants to help them watch closely for unusual behavior and nervous passengers. From thousands of hours of flying, attendants internalize an experiential blueprint for what is "normal," which helps them spot the "abnormal" as well. Anxiety should be carefully monitored at all times, both as a sign of abnormal intentions (e.g., in terrorists), and as a contributing factor which may lead to abnormal behavior (by non-terrorists) in the cabin.

Nervousness II. In his report to the FBI, Ken Boyer, owner of Boyer's Tele-Com Services in Springfield, Missouri, recounted how men of Middle East background asked to buy his turbo-prop Piper Saratoga for $500,000. '"They wanted to buy it for cash that day. They meant business. There were no smiles or idle talk.' Boyer said the men were unshaven, dirty and nervous--and looked as though they had been living in their car. They told him, in broken English, that they would pay cash on the spot for a plane. 'They wanted it today,' said Boyer'" (Doria and Menard 2001).

Suspicious behavior. From Reuters (July 27, 2001, 10:05 a.m. PT): "Singapore scientists have created new software that may beef up future surveillance efforts by distinguishing between people's normal activities and suspicious behavior. The software, created by researchers at the Nanyang Technological University, can tell the difference between people walking, talking and acting normally, and abnormal behavior such as a fight or someone collapsing. The Singapore team recorded and classified 73 features of human movement, such as speed, direction, shape and pattern. The features were then used with existing 'neural network' software, which can learn and remember patterns, to create a new program. 'Each of the features is actually generated from a formula . . . then the learning software will be able to classify certain motion as normal or abnormal,' associate professor Maylor Leung told Reuters on Friday. 'It's something new. No one has tried (developing it), and so far we are successful,' he said. Images fed to the software, from a surveillance camera, for example, are analyzed almost instantly and with 96 percent accuracy, Leung said. The software can trigger an alarm when unusual movements are detected, making it well suited for surveillance." (Copyright © Reuters 2001)

Together, then apart. Two or more individuals interacting as a cohesive group who subsequently split up and act individually, each on his or her own agenda, and following his or her own pathways, may be considered an unusual behavior pattern. People seen huddling together upon entering an airport terminal, e.g., who then enter ticket lines or screening checkpoints apart from colleagues, may be trying to disguise their affiliation as a group.

Unusual behavior. Though not always suspicious, unusual behavior is often disturbing: "LOS ANGELES (October 1, 2001 9:58 a.m. EDT) - A group of seven people were escorted by armed guards off a plane at Los Angeles International Airport after one man's actions made other passengers nervous. The FBI released them shortly afterward and no arrests were made, officials said. The travelers did not return to the flight. The America West flight from Los Angeles to Phoenix was preparing to taxi from the gate Saturday when passengers noticed a man, whom they believed to be Middle Eastern, *stand up* and *pass his travel itinerary* to an older man, said Nancy Castles, airport spokeswoman. He then asked a flight attendant if he could get off the airplane to retrieve other documents, said . . . Castles. 'Where was he going to get these documents?' Castles said. 'That's why it was considered suspicious behavior'" (Copyright © by Associated Press 2001).

Visual monitoring. Unusual behavior may also include the act of watching a check station, security door, or food-delivery system at an airport, especially from areas not usually frequented by passengers, friends and family, or airport staff. (Recording routine airport activities with a video camera should be considered highly unusual.)

Walking-in-line. Two men walking side-by-side together in an airport may be benign. But two men walking in line together (i.e., one following closely behind the other) may represent a single-minded mission in pursuit of unsavory goals. Border patrol officers have identified walking-in-line as an unwitting sign given by persons intending to cross the U.S. border, illegally, as a team.

Inspector "Scores" Quick Return on Training Investment

By Patrick Martin, Supervisory Customs Inspector/Class Coordinator
U.S. Customs Today, August 2000 (Excerpts)

Michael Phillips, who recently graduated from the Basic Inspector Training Course at the U.S. Customs Service Academy, wasted little time in putting acquired skills to use in the field. Little did he know that within hours of donning his uniform for the first time, he would be involved in a five-pound heroin seizure.

Phillips immediately departed the Training Center for his duty station at Atlanta International Airport.

Mysterious bulges, inappropriate clothing
On one particular flight, Inspector Phillips gave all passengers an extra level of scrutiny because it had originated from a narcotics source country. With his new inspector title literally only hours old, Phillips noticed that a female passenger on the flight looked particularly bulky around her midsection. She was also wearing a blazer, which caught Phillips' attention because of the warm climate from which she had departed, as well as the warm Atlanta weather.

Phillips' newly-acquired training and natural instincts led him to suspect that passenger was using the blazer as a concealment device. As he began to question the traveler, his suspicions grew stronger.

She claimed to be destined for a one-week visit with a friend in New York, yet could provide no details about the friend beyond his first name. She also said that she would be staying at a hotel, but had no reservations. Phillips thought it unusual that she would not be staying with the friend. She claimed to be employed as a travel agent, but was unable to answer basic questions about information on her airline ticket.

Nonverbal clues mount up
As Phillips questioned the passenger, she became increasingly **nervous**. Her voice began to tremble, she began to fidget, and she no longer made **eye contact** with him. Inspector Phillips felt that further examination would be productive, so he referred the passenger to secondary, where she was asked to remove the blazer.

Bulges under the woman's blouse were quite apparent. A patdown--authorized and performed by a supervisor -- was positive. The supervisor authorized a partial body search, which revealed a girdle containing rows of pellets which tested positive for heroin, with a combined weight of 2.2 kilograms. The heroin was seized and the passenger was arrested.

When Inspector Phillips heard the results of the personal search, he was already back at the checkpoint, trying to ferret out other smugglers. He responded with a broad smile of satisfaction.

"Inspector Phillips knew, as do all graduates of the Customs Academy, that we're not 'guessing' when we perform a personal search on a passenger," says Robert Olson, assistant director for Field Operations Training. "The inspector must present the supervisor with sufficient articulable facts that will lead the supervisor to believe there is a good chance that the passenger has possession of contraband.

SOFT SIGN

Neuro cue. A **gesture**, **body movement**, or **posture** used clinically to diagnose a psychiatric or movement disorder.

Usage: Soft signs include, e.g., **apraxia** cues, **eye-blink** rates, and **startle reflex** signs. Two generic types of soft sign have been identified: **a.** those involving motor systems suggestive of early-life brain disturbances, and **b.** those involving less localized systems suggestive of adult neural dysfunctions and behavioral disturbances (Woods 1992). "Both . . . appear to be clinically useful in [the psychiatric] patient population" (Woods 1992:446).

Psychiatry. "Beginning in the 1700s, increased emphasis was placed on detailed and accurate descriptions of abnormal mental processes and states. Philippe Pinel, a French physician considered to be one of the founders of modern psychiatry, argued for an objective medico-philosophical approach to psychological disorders. He advocated that '. . . only symptoms that are manifest to the senses through external signs, such as the speech, strange gestures, the expression of certain bizarre and uncontrolled emotions . . . are taken into account'" (Martin L. Korn, "Historical Roots of Schizophrenia," CME, *Psychiatry Clinical Management*, Volume 5, presented by Medical Education Collaborative and Medscape, June 21, 2001).

SOLITARY DINER'S GLANCE

Gaze direction. The tendency of a lone diner **a.** to look up in a café or restaurant, and **b.** to move the eyes horizontally across the view-field while taking a bite of food or drinking from a cup, bottle, or glass.

Usage: Solitary diner's glance resembles the cautious *visual checking* that goes on among unacquainted individuals (e.g., in elevators and waiting rooms), though it occurs at regular intervals (usually with each bite or sip) and with greater frequency. The behavior may be a protective response to **stranger anxiety**.

RESEARCH REPORT: Eibl-Eibesfeldt (1970) observed that individuals who ate alone *looked up and around into the distance after each bite or two*, alertly "scanning the horizon" against enemies, much as baboons and chimpanzees do in the wild.

See also **EYE CONTACT**.

The

NONVERBAL DICTIONARY

of

GESTURES, SIGNS

&

BODY LANGUAGE CUES

***From* Adam's-Apple-Jump *to* Zygomatic Smile**

By David B. Givens

Dedication

Center for Nonverbal Studies

The Nonverbal Dictionary *is lovingly dedicated to my father,*
Willis Bradley ("Bill") Givens, an independent thinker,
who encouraged his son to think independently as well.

Click Here for my Dad's Autobiography

[Editor's note: What follows is a written transcription of my father's oral narrative of his life to date, as he tape-recorded it over a period of several months in the Year 2000.]

S U C H
H A P P I N E S S !

(*It Don't Get Any Better than This*)

"My Life is an Open Book--and Here are a Few Pages from It"

By Willis ("Bill") Bradley Givens

The Early Years

I was born in 1916, June the first, in the little town of Bowie, Texas. I was born in a log cabin, on the edge of Bowie, Montague County [between Wichita Falls and Fort Worth].

My parents died when I was two years old, and consequently I don't remember them. But I do remember a little of my grandmother, because my grandmother took care of me at that time.

The first two or three years of my life I really don't remember anything, but I do remember that my grandmother taught me how to read and write before I was four.

Mostly in pecans. We lived in a farm house out in the country. My grandmother had 100 acres, mostly in pecans.

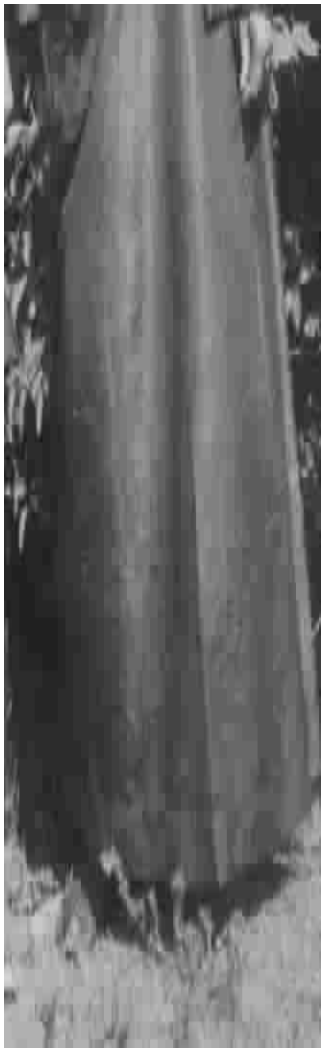
(I'm sorry to kind of think and record at the same time, but I'll do my best to do this.)

Grandmother

Grandmother had 100 acres of pecan trees. Some were hard shell, some were soft shell pecans back in those days. There was a creek at the edge of our property--or her property--that adjoined my Uncle Joe's 100 acres. And my brother and I also had 100 acres, north of my grandmother's farm, which also had the old house that I was born in.

My grandmother couldn't do anything, because of her old age at that time. We just lived there in this old farm house.

The back of the house was a long, long, long porch, and she had canvas there which she could pull down to keep the sun out in the evenings. It was a wonderful play area for me when I was that age.



My grandmother was always quilting, and had a quilt in one room that she was always working on. There was a squirrel up in the attic who would come down and watch my grandmother while she was quilting.

I would try to catch the squirrel, and one time I really caught the squirrel, and he caught me, and he bit me on my little finger. His sharp nails went right into my finger, too. Actually, I screamed and yelled and all that stuff and hated the squirrel from that time on.

But my grandmother said poor varmints didn't mind biting people except for self defense. She taught me more about animals after that, and said you just have to respect them.

Many, many's the time when one of my uncles would come to see their mother. The things we ate the most were pecans, because we grew a lot of them. My uncle would take his knife and cut the ends off and slice through the pecan and it would come out whole and we'd have a whole bowl full of pecans, and we'd also have some cream to go with them.

Some of the neighbors would bring my grandmother food. We didn't have a lot to eat, but what we had was rich back in those days.

And all the neighbors around would take care of my grandmother, who was also taking care of me. It was

kind of a fun thing to be back in those days.

We also had a cellar in the back of our yard, and my grandmother and I spent many a night in the cellar waiting for a cyclone to go over.

I saw an oak tree get stuck by lightning when we were living there. There's lots and lots of things I observed when I was very young and lived at that old farmhouse.

And my grandmother doted on me--all the time. I was her only charge to take care of, and we had no chickens to feed or hogs to slop or cows to feed. The only things she had to feed were herself and myself. So it was a close togetherness for she and I.

Again, you know, she taught me to do many, many things, and to respect things, and to believe in God, and all those things that grandmothers try to do with their children and grandchildren.

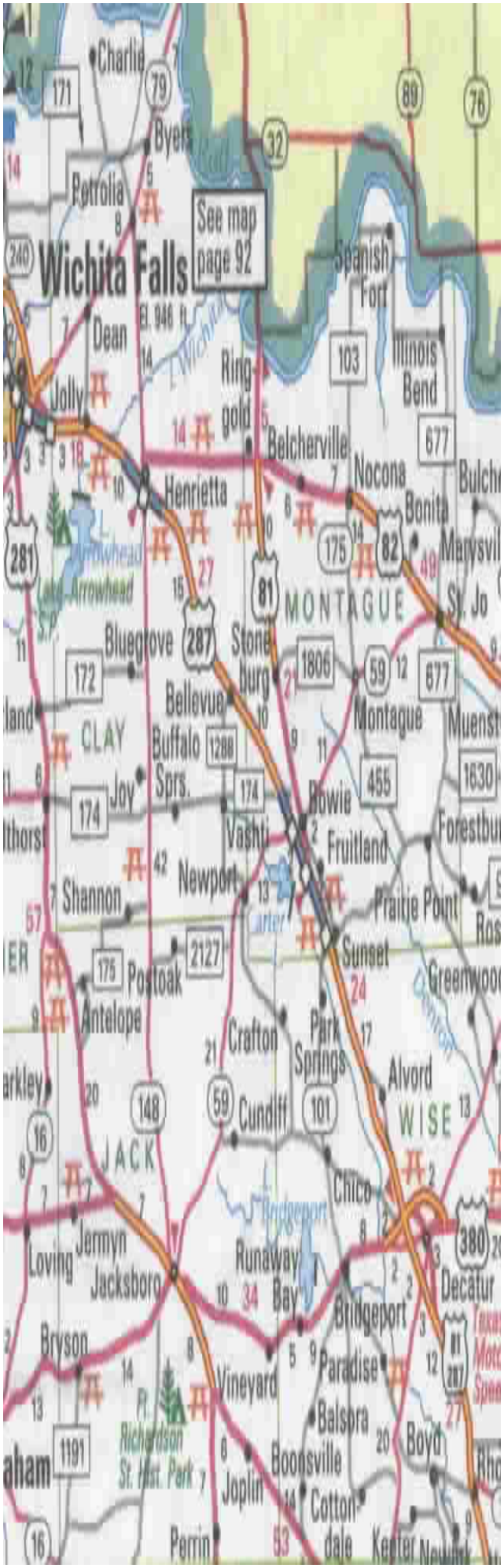
In a way, it was kind of a lonely life, but once in a great while some of her children would send money to her, and she and I would go visit them.

My parents died in 1918. They died because of the big flu epidemic that particular year. My parents died, and three of my grandparents died at that time, leaving only my grandmother.

I also had the flu at that time, but I pulled through. And like I say, again, it gave me the chance to be adopted by my grandmother, and she raised me until I was 11.

She had her hands full with me as a little child, and she was getting on in age. She really, really, really took good care of me. We lived on this farm, and again, we had no running water, we had an outhouse, we had no electricity, and naturally, no gas.

And like I say, I hadn't seen a single airplane in my life fly over. Once in awhile you'd see a car. We went a lot of places by wagon. We'd go ten miles from where we lived on the farm to the little town of Bowie.


Wichita Falls
See map page 92
Petrolia
Byers
Charlie
Spanish Fort
Illinois Bend
Ringgold
Belcherville
Nocona
Bonita
Henrietta
Lake Arrowhead
MONTAGUE
Bluegrove
Stonewall
Bellevue
Buffalo Spgs.
Montague
CLAY
Joy
Vashti
Bowie
Fruitland
Newport
Shannon
Prairie Point
Sunset
Postoak
Antelope
Crafton
Park Springs
Alvord
WISE
Cundiff
JACK
Chico
Jermyn
Loving
Jacksboro
Runaway Bay
Bridgeport
Decatur
Bryson
Vineyard
Paradise
Balsora
Boyd
Boonsville
Joplin
Cotton dale
Perrin
Keller
Richardson St. Hist. Park

Second Tuesdays. And many times I've gone there by wagon with my Uncle Joe. Back in those days they had what you'd call a "Second Tuesday." The second Tuesday of every month, people would go in and swap things, swap pocket knives for something better, and this and that. And my Uncle Joe was famous for his horse trading, and it was said of him that he could go into town with a blade knife and come back with a team of horses because of his sharp trading. But that was, you know, hearsay, because I had no proof of it.

Again, it was fun back in those days because there were no radios, to speak of--and we didn't have one--and no televisions, naturally. Just imagine all of the things that weren't there that are here now.

It's nice to think back, in those days, what you did to improve yourself, and amuse yourself, for the days you were running around. It made you closer to nature, closer to the things that later on become awfully important to you.

My homes. Again, my grandmother and I lived on this farm until one day it was too much for her to take care of, and we moved to the little town of Bowie. [**Click here to go to the little town of Bowie, today.**]

Our first home there was an old three-story frame house about three blocks from my Aunt Martha's house. So my Aunt Martha could come up from time to time to see how we were getting along.

I had a lot of my toys up in the third floor of the house. I could play up there because my grandmother could not climb the stairs to see what I was doing. Every once in a while my Aunt Martha would come up and try to see if I was doing things that were naughty, in her mind.

My grandmother and I lived in that home for just about a year, I guess. Again, she had no money, and her children kept groceries in the cupboards for us, and so forth and so on.

Our next place we moved to was a little house about four miles away there in the little town of Bowie, and one-half of the house was occupied by my Uncle R.D.'s girlfriend [laughter]. Back in those days, most people had a mistress. But I didn't know it at the time. His mistress was very close to the family, and nobody knew back in those days what was happening.

But my grandmother and I lived in that one-half of the house. Again, we had no running water. We had an outhouse in the back on the creek. We did have electricity in this place. And it was about, oh, I guess, half a mile from what we would call [laughter] downtown Bowie, because Bowie was a small little town of about 2000 people–and all-all white.

Signs of really bad times. There was one highway that went through the town. And at each end of this town there was a sign on the highway–in great big bold letters (the sign was probably about ten feet by 20 feet) that said: "Any nigger caught here after sunup might not see sunrise the next day." And the same sign was on the road going into Wichita Falls, and also on the road going into Fort Worth.

Again, it was a lily-white town, and in this particular town you didn't have fountains saying "white" or

"colored." But for me as a young child, in Wichita Falls, I went over to the colored fountain to drink because I thought it might be colored water. My grandmother explained that colored water was for people with black skins to drink.

It was really, really, really bad back in those days, with the oppression of the black people . . . .

My grandmother and I moved to quite a few houses in Bowie, because, again, I don't know where her money came from. In 1925 and 1926, it was in the depression era. Nobody had any money, and almost everything was by barter. If you had a chicken, you'd share your chicken with the neighbors, and vice versa.

We lived about one and a half or two miles away from school, and I would walk to school in the morning and walk back in the evening. No one had any money. It was just amazing how much poverty there was back in those days. People were called dirt farmers. Everyone had 100 acres, but all they grew were maybe some vegetables for their own home, or maybe to barter for something from someone else. And it was really, really, really tough times.

It was back in the time when all the banks closed. And my grandmother had, I think, saved up $87 (and that's an arbitrary figure), and she lost that due to bank closures. It was rough times.

My uncle left his farm and joined my Uncle Joe in Houston, because Ford had opened an assembly plant in Houston and was paying people $5 a day to work there. And $5 back in those days went a long, long, long way. Later on, when I moved in with my uncle, he was making $10 a week working for the Houston pipeline. And raising a family of four people–four of his own kids, and me and my brother. So, it was just one of those things.

Church. My grandmother and I went to a lot of churches: Presbyterian Church, Baptist Church, Episcopalian Church. But my grandmother never did put herself into one church, because she disagreed with the philosophy of a lot of them. And I went along with her because I had, really, no choice, but I did learn to believe in God and Jesus Christ back in those days. (And you'll have to excuse me for saying "back in those days" a lot, because it all was back in those days, in 19 and 25, and 19 and 26.)

When I was living with my grandmother, and I was eight, nine, ten years old, I finally got her permission to sell papers there in the little town of Bowie. I was selling the *Fort Worth Star Telegram* and the *Dallas Morning News*. It was five cents a copy, and if I sold one, I got three cents of that five cents. And if I sold 20 papers, well, I made 60 cents, and 60 cents bought a lot of stuff.

We went to the store very little, because people just brought my grandmother things. But I never will forget the time we were in Bowie, and my grandmother saw a sign in the window of one of the grocery stores saying "New Sliced Bread." And she bought a loaf for, I think, a nickel. And it was the first time in my life I had ever tasted anything other than biscuits and cornbread.

A four-ounce Milky Way. I had a friend in middle grade school--his name was Percy Sellings--and his father owned the theater there in Bowie. And every now and then he would give me a pass to go to the theater. Every once in awhile he'd buy us some candy and--probably about a four-ounce Milky Way

(three for a dime)--and that was the best thing I'd ever tasted in my life. And another thing he bought me one time was a nickel milk shake--a chocolate milk shake--and I thought I'd died and gone to heaven. It was the most tasty thing I'd had in my life.

Looking back, when I was that young, everything was so fun.

I got a job at the Bowie Hotel, shining shoes and carrying luggage. And most people carried their own luggage, because I was so skinny they felt sorry for me. And one thing I did a lot of was play dominoes with the people who were there. I was very, very, very good at dominoes. And the men liked to play dominoes with me because I was really competitive for them.

And I got my glasses. During that time I got shot in the eye with a BB gun, and I needed glasses. But my grandmother couldn't afford them. And one of the men who I played dominoes with--a visitor at the Bowie Hotel--went out to see my grandmother and told her he would buy glasses for me. He would take me into Fort Worth to buy them, and stay overnight, and show me the train station. We'd go down by train. And my grandmother said that was awful nice, but she didn't want him to go out of his way to do that. But he told my grandmother that maybe one day--and back in those days they called me Willis--Willis can return the favor to someone who is down and out.

And I got my glasses. And it just shows to go you that there are a lot of neat people in this world, and you don't know until you just look around.

My mother had two brothers, one by the name of Frank, and one by the name of Elbe. Uncle Elbe lived in a little town called Petrolia. So did my Uncle Frank, for that matter. There were probably 85 people who lived in this dumb little town. And my Uncle Elbe owned a little restaurant. Back in those days, it was called a café. And a general store where you could buy groceries and clothing, and feed, and you name it, and a filling station. In fact, my uncle owned the whole dumb town. And he spent all his time in the café as the cook.

Once in a great while, he would let me come up and spend the summer with his kids. He had four daughters, and he liked having me around because I was the only boy for them to play with.

Later on, he had a little boy, name of Weldon. At the time I used to visit him I--I visited him, I think, for two summers in a row--I went out by train and he picked me up. The town was really a barren nothing of a town. No trees, and a lot of oil wells.

The holes were still there, and it was a wonder that a lot of kids or animals didn't fall into those abandoned oil wells.

As kids, we used to take great big rocks, and anything else, and drop them down those wells and listen for about three minutes before they finally hit the very bottom. And we'd climb up and down the derricks. All those things that kids should not be doing but, but ah, no one was around but us, so we did that.

And when I went home, back to my grandmother's, my uncle always sent along clothes. He had Florsheim shoes back then, and I had a pair of new shoes, and clothes for school, and all those things my

grandmother couldn't afford to buy me.

So, in a way, I had a lot of help when I was a little kid working--I mean staying--with my grandmother. And it's fun for me to kind of look back, back in those days, at all the things that happened to me, and to really appreciate the things that did happen to me.

When I was about eight years old my grandmother and I went up to visit one of her sons in Hardborough, Oklahoma. He had 40 acres of farmland, and he raised broom straw. Broom straw is what you make brooms out of, and he had barns with slats to dry the broom straw, and it was a fun place for kids to play. He had five kids, and they were all older than me.

Eat the hearts out. My uncle also had a lot of farm animals, and he raised rattlesnake watermelons. He raised rattlesnake watermelons, and also blue moon and star melons. Really, really delicious. You would go out into the fields and just hit the watermelons with your fist and break them and eat the hearts out, and it was a nice thing to do.

My uncle also had a lot of farm animals. He had lambs and pigs and chickens, turkey, cattle and horses, and all those things that farmers had back in those days.

It was my birthday, and my uncle asked me what I would like to eat for my birthday. And he said, "How about some lamb?"

A bad memory. Without realizing what would happen, a few minutes later a little lamb came by and he grabbed the little lamb and cut its throat. Well, you can imagine what happened to me that night, because I didn't eat the lamb. All I can remember is the lamb's throat being cut. And to this day I have never really liked lamb. Just the thought of the lamb brings back the thought of that poor little lamb having his throat cut.

It's amazing what you can remember. And some of the things you forget, well, I guess you really should have forgotten. But I never did forget this poor little lamb having his throat cut.

But, my grandmother and I really did enjoy spending those times with her son, George. They had a really nice family, and I kind of hated having to go back to Bowie after visiting with those nice, wonderful people.

Uncle Joe & Aunt Myrtle

When my parents died, my Uncle Joe and Aunt Myrtle took Perry--he was three months old at the time--as one of their own children. They did not adopt him, but took him to raise, and little did I know that when I was 11 years old, I would also be living with them.

Rumor was that my grandmother did not have long to live, and people began to wonder who was going to take [hesitates] . . . Willis.

Nobody really volunteered to take me, and uh, I guess everybody drew straws. My Uncle Joe lost, and he

came up from Houston to pick me up.

Before my grandmother died, she was sick, and my uncle took me to Houston before she died. After she died, I did not go to the funeral, because they did not go back to Bowie for her funeral.

But I never will forget the long journey from Bowie to Houston. And how sad people in the car were that they were picking me up to live with them. But it wasn't their choice at that time.

I lived with Uncle Joe and Aunt Myrtle, and went to [Milby] high school there. I graduated from high school with honors. And my Aunt Myrtle got sick and couldn't do anything, so I kept the house and did the cooking, and so forth and so on.

My uncle and aunt had four children: Ernest, Leota, Irma Lee, and Billie Jean. And they were taking care of my brother, Perry, and then me. So, that made six of us living in this little, itty-bitty house.

My uncle was making $10 a week walking pipeline for the Houston Pipeline Company. And back in those days, again, it was a real deep depression. So $10 was a lot of money, because millions and millions of people didn't have any money at all.

My aunt did the washing in an old iron tub. She put wood underneath it to boil the water, and made her own soap from lye and grease and stuff. She boiled the clothes, and used a broomstick to take the clothes out of the boiling water. And I used to help her.

Every once and awhile, she would get mad and hit me with the stick she was supposed to use to take the clothes out of the pot with. She did that about a couple of times, so one day I grabbed the stick and broke it in two, and told her never, never to do it again or otherwise she'd be sorry.

And she never, ever hit me again [sighs]. And later on she apologized and said she didn't really mean to hit me, but she would just lose her temper.

After I graduated from high school, I told my aunt and uncle I'd stay one more year with them, to take care of the house and family, and to help her with her work and all this stuff, to repay them for all they'd done for me. But after one year, I was leaving because I had my own life to live--and I certainly did not want to live it in Houston. I would disappear.

And sure enough, after one year's time, well, I told them I was leaving. I saved up $10 and packed what few little packages of clothing I had and answered an ad in the paper that said they wanted drivers and $10 to go to California--to help drive and help pay for some of the food. I met with the people, I think it was about in June, and we headed for California. He took my $10, and I had another $5 in my pocket for food, and we headed for California.

California

I didn't really know what was going to happen to me . . .

Aunt Jim. As we crossed the border to California, my past life crossed my mind, too. I didn't know what I was getting into. I knew I would spend some time with my Aunt, Jimmie Grace. She'd married a man by the name of Herschel. Her name was Tice, and she worked at an insane asylum in Norwalk.

Aunt Jim lived in the little town of Norwalk, a suburb of the Los Angeles area, and there were 3500 people living in the little town at that time. She and my Uncle Herschel both worked there at the insane

asylum.

Norwalk was really a nothing sort of town, and there was really nothing--it was the heart of the Depression. People were making--if they did have a job--$5 or $10 a week, and millions and millions of people were still out of a job.

I didn't really know what was going to happen to me when I got there, but the people I was with dropped me off in downtown Los Angeles, in an area I'd never been in before. I caught a bus in L.A. to the little town of Norwalk. And I called my Aunt at the hospital.

. . . and I slept for almost a day and a half.

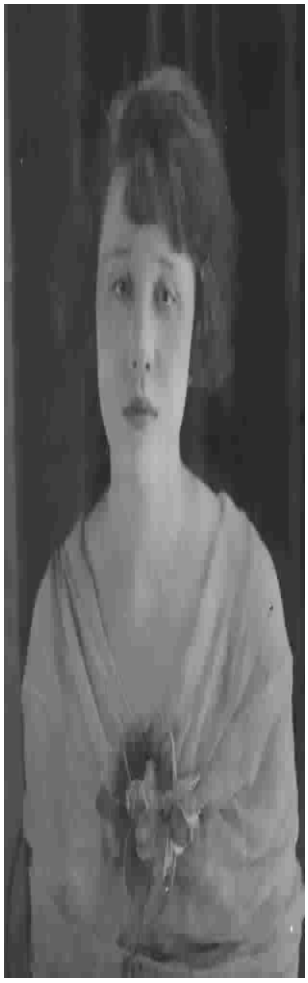
She picked me up at the bus station and took me to the asylum. She had a room there, and I went to her room. I hadn't had much sleep for several days, and I slept for almost a day and a half.

After I recovered from my sleep, it began to dawn on me: What have I really done? I've left Houston, I've left the place where I've known all the people around, even though it was hard living with my relatives back there. But I did have some friends. Everything was cheap back there, of course.

And, back there, I got a job at a roofing company, making three dollars and a half a week, and that really wasn't my bag. I went to work with a friend of mine, in a geologist place working for oil wells. He took core samples and analyzed them for how many billions of years old they were, and so on and so forth. But again, it wasn't my thing.

And I missed living with my brother for four years. He and I had fun times, at times. We'd swum across the channel together, and had plums to eat. We built a clubhouse and all those things that young kids do. And we'd found an old abandoned life boat. One of the freighters had gone by, and had it hidden in the bayous. And those kind of things, but they were kid things and, uh, I guess it was time to grow up and be a man.

I was there, and I had to take what comes.



Living with my Aunt Jim, I tried a little bit of everything. I worked picking black eyed peas, I worked on a thrashing machine, I worked in a little café, I worked in a grocery store--it was a one-man shop. I worked for three or four days for the Red Star Fertilizer Company. I did all those funny things back in those times, because jobs were really hard to come by, and the pay was nothing, really. The most I ever made was $10 for a whole week's work. And millions of people were still out of work.

Rancho Sespe. Finally, I did get a job up in Rancho Sespe. My Uncle Volley had a job working there. Rancho Sespe was a big citrus ranch owned by A. J. Spaulding and Company. My job was doing fumigation work, fumigating trees for black spiders and black scale.

I worked there, but the problem there was I lived in a kind of dormitory type thing, an enclosure with no roof at the top--kind of like a little closet with a single bed in it, and a little closet to hang your clothes. And we ate at the commissary and they fed us all our meals.

My job working for the ranch was doing night work fumigating trees. When the sun set, we went to work, and we worked all night, unless dew came in or the east wind would blow. And I worked there for a year and a half. It really wasn't for me. The people that ran the ranch wanted me to go to school, to take up agriculture and come back and work at the ranch as a full-time manager.

But again, I didn't really see myself doing that kind of work. But I did make a lot of money--sometimes I was making $12 a night, because I got paid by the tree. I got a penny a tree as a "puller" or a "flapper," or

if you were a "taper" you got a cent and a half. If you were a crew chief, you got two cents. After awhile, I became a crew chief and I got two cents a tree, so I made a lot of money. And you didn't have any days off unless the east wind was blowing, or lightning--and you made money but you didn't have time to spend it.

Well, there came a time when we had a lot of east wind blowing, and the ranch decided not to do any work for ten days, and they gave us ten days off.

Alpha Beta. I went into Whittier to see my aunt, and when I got there I happened to go into a little Alpha Beta store. There was one kid running it, a man by the name of John Codd. [**Click here to go to Alpha Beta.**]

My endeavor with John Codd was that he was all alone in this store. It was a very small little store with wooden floors. Its boss, Amer Asher, was out sick, and the store was absolutely filthy. The floors were dirty and shelves were not stocked, and just a horrible mess. I asked John Codd, who I'd never seen before, boy this is a miserably dirty place, why don't you hire some help to take care of it. And he told me that his boss was sick, and so forth and so on.

So, my conversation kept going, and I finally asked him how much he was making to be the assistant manager there, and he was making $19.50 a week. So I told him I'm working a place where I'm making almost that in one night, but I'm tired of it, and he could hire me to clean the place up and I'd work for $19.50, same as he.

John Codd said, well, it was alright with him, but he said when Amer Asher came in he would probably fire me because they only needed two people to work there.

Well, to make a long story short, I went to work and I called Rancho Sespe and told them I would not be back. I would be up to get my clothes and thank them for the time they had put in me.

Alpha Beta began as a merchandising concept rather than as a store name.

Albert and Hugh Gerrard had been operating food stores in Southern California since 1900 and had been early adopters of a self-service system in 1914. Their Triangle Grocerteria (at 329 West Second Street, Pasadena) began arranging groceries alphabetically in 1915, the beginning of the "Alpha Beta system".

The Alpha Beta name was first used for the Pomona store in 1917. By the next year, seven stores were operating under this name. Alpha Beta Food Markets incorporated in 1929. --David Gwynn ©1999-2001
http://www.groceteria.net/alphabeta/index.html

And I went to work for Alpha Beta. I worked there three weeks, and Amer Asher came back to work and fired me. And as I was walking out, I passed by the produce department in front, which was run by a

young man by the name of John O'Neil. He had three men working for him and they were making $10 a week. They were open in the morning from 8 to 6, and closed on Sundays, and the guys were working about 60 hours a week and making $10 for doing it.

So, as I was walking out after Amer Asher had fired me, John O'Neil said, "Why don't you come to work for me?"

And I said, "Well, I'm not going to work ten hours a day doing this kind of work."

He said, "I've watched you work over there, and you're a hard-working young man. I'll give you $19.50 a week if you'll be my assistant manager."

He said, "What do you know about produce?"

And I said, "Well, I know about as much about it as anyone else."

And I went to work for John O'Neil as a produce assistant manager. And I worked there real hard for about a year, and he kind of almost adopted me. He had three daughters and he would invite me every Sunday to go to his house and have dinner and visit with him. We would play Pangini, a game you play with eight decks of cards.

And I really enjoyed the O'Neil family. Pat O'Neil and Sug O'Neil and a little girl named Tootsie, who was what they called a spastic. She couldn't speak and she couldn't understand it, and she couldn't really walk, and she had a little scooter she scooted around on, like a roller skate thing, and it was a delightful family. I felt like I was one of the family.

And I worked for John O'Neil for a year plus. But one day I told him, you know, I haven't any education other than high school. I really believe I should go back to school--go to college--because otherwise I'll just always be an assistant manager for you in the produce business.

And he thought it was a brilliant idea, because he'd always kind of thought of me as an adopted son. And he got me an appointment with the president of Alpha Beta, Mr. Hugh Gerrard, who took some time explaining why a college education is so important for getting promotions and good jobs in all kinds of companies.

Whittier College. I went to work for John O'Neil. I'd work ten hours on Saturday for $10 a week to work part of my tuition off at Whittier College, which back in those days was $300 a year. [**Click here to go to Whittier College**.]

I made a deal with Whittier College to work moving pianos or mow the grass during my recesses and hours off. I worked out a deal with a man named Jack Feral to run the Campus Inn. I could wash the dishes at night for this Campus Inn.

I'd bus dishes five nights a week for seven day's meals. I could have the same meals as the sports guys. If they had steak, I had steak. I also helped Mrs. Hadley at the rooming house--the room I was staying in

was at her house. I mowed her lawn. I stayed at the YMCA in Pomona for a year, then at Mrs. Brown's rooming house, for $12 a week. I also worked out a deal with the gas company to clean out their place. I got $3 a week for doing that.

So, all in all, I was really a busy young man. I really had too much to do, and not enough time to study. I was very fortunate that I had an excellent memory. I did not have to take notes, and I made a deal with my professors that I did not have to take notes if I could be in the top 10 on exams. And it worked well for me because I was in that category in the tests. And to this day I can remember what happened many years ago, and many of the details.

Basic English. I really enjoyed going to college. And I certainly enjoyed basic English, where you had 60 operative verbs to use, and a vocabulary of 300 words. If you made a speech using these words, even a three-year-old could understand it. And also the president of a company and a dictator, because the words are very easy to understand.

I used the basic English philosophy all the rest of my life to communicate in words so people could understand me.

And I also learned that I had to do a little bluffing to see what you could get away with without somebody calling your bluff.

And many times, if you talk with authority, people wouldn't call your bluff, but thought you really knew what you were talking about.

After awhile, John O'Neil got transferred to Pomona to a bigger store, and he asked me if I would like to go along. I told him I would have to find out. I didn't have a car, and a move to Pomona was a new place for me. I also would have to change schools--colleges--lots of things would have to be reviewed and thought about. But eventually we worked out a deal. I went with him to Pomona, and I stayed at the YMCA.

I ate my meals out at a little restaurant in the morning and lunch. I worked 40 hours a week for Alpha Beta, and I went to school just part-time. After awhile the doctor told me that I should either quit school or quit work, because my eyes wouldn't take care of it. ‘Cause I'd had quite a few operations on my eyes when I was in the Whittier area. I had four. And I didn't want to go through that again. I finally decided to quit college. I was going to Pomona Clairmont.

So I quit and went to work full-time for Alpha Beta, 40 hours a week. A little while later the company thought I was good enough to manage a store, and they moved me to a little store in Monrovia, as a manager.

My problem was that, as a manager, you were a slave to it. This store was open from 8 to 7, and you had to be there early in the morning to get the wet rack ready and do all the trimming' so you had to get there at 6:30. And at night time, to close, you were there til 8 o'clock--so it was a 14 hour job. And the big pay was $35 a week. Big deal.

After awhile, I gave myself a raise, and the company was rather irate about it. But I told them I could be a slave for 40 dollars but not 35 dollars. And I worked there for a little while longer. I stayed with a young couple, called Gay Arnold and Gil, and I had a room in their home. And after awhile, I decided I should move on to something else. I went to work as a night stocker for Alpha Beta at a store called "number one" back in those days, on Atlantic Blvd. The store had no doors or windows, but was an open-air market, and stayed that way until World War II started, and with the blackouts they put canvas around it to pull down at night if you had a blackout at night--you were forced to do that back in those days.

So, I worked there for a long time. Not a long time, really, but it seemed like a long time. And I finally decided I should do something other than what I was doing, because World War II had started and a lot of my buddies were being drafted and joined.

They refused me because of my eyes . . .

I tried to join but they refused me because of my eyes, and again, feeling guilty, I decided to go to Houston and work at Brown Shipyard Company. My brother informed me that I could get a job there, because all the ship builders were making deliveries as soon as they finished, and they needed people desperately. Because so many of the young men and even older people were in the military, and labor was scarce. [**Click here to see a 1944 Navy ship built at the Brown Shipyard Co.**]

So I drove back to Houston and went to work in Brown Shipyard. My job was like a steam fitter. Primarily, what I'd do when they launched from Houston all the way to Galveston was to see if anything was wrong with the ship on the six hour cruise down, and the six hour cruise back. I started out fitting it for the mission it had been manufactured for.

On the top deck alone, there would be sometimes 600 people--just on the top deck. Our instructions were just to keep moving, keep moving. All I did was move around until they said they were going to launch the ship and go down to Galveston and back. That was my primary function.

I worked at that for three months and felt really guilty. I decided I should quit because I was making pretty good money, and I wasn't really doing anything except going out on these ships after they were launched.

And I got a telephone call from John O'Neil. And John had opened up a market in Whittier. He'd bought some Japanese people out because when World War II started, the Japanese people were put into concentration camps. And anyone who was doing business in the L.A. area, they were automatically rounded up and taken away.

The Box Market. So John O'Neil, I guess, gave them ten cents on the dollar for this produce stand at the Box Market in Whittier.

One of my friends, Joe Sims, had been working there. He was drafted into the military and went to India. So, my friend John O'Neil called and said, "Why don't you come back and run my produce department for me?"

"I'll go to the produce market and buy the produce and bring it out to you, and you run the market," he said. "I have four guys working for me, and I'll give you $50 a week."

So I gave him a call back and told him I have a problem. "I'm in Texas, and there's a gas rationing program going. I'm only getting four green stamps a week for gasoline, and I can't get too far that way."

But he'd bought a citrus grove and he had a farmers market token thing, so he sent me enough gas tokens to head back to California with. And I took him up on it, and I became the produce manager at the Box market.

I did love the produce business.

It was a fun thing for me because I did love the produce business. I'd worked for John O'Neil before, and John had always given me my way on things. He liked the way I could get things accomplished. And also that I could make a profit doing what I was doing.

Lee Strong. So things worked along fine, and, meantime, I'd hired a young man by the name of Lee Strong. Lee Strong was a young man from Washington, D.C. who had moved into the area.

Helen

And he was a bright young man, and hard working, and we got along famously. And one day I noticed there was a young lady coming into the bakery department, which was also a leased out department. And the young lady's name was Helen--Helen Strong--Lee Strong's sister.

After awhile I conned Lee into--he and I had been doing some things together, going to shows, boating and things--so I asked him to bring along his sister. And after awhile, well, I asked Lee, "Why don't you just stay home and I'll take your sister."

Had it not been for Lee, I would never have had a chance to meet Helen.

Up to this time, everything has been "B.H."--"Before Helen." From now on things will be "With Helen." And I would like to tell you how I'm going to preface things from now on. I never believed in mixing family life with business. I would like to go into my private life--as a father and a husband--and the things that people do as a family.

Later on, I would like to discuss my working habits with Alpha Beta, and also with Mothers Cookies. But I don't like to mix them all together. It's just not right for me.

So, I'd like to take off on what's been the next journey of my life--my life with Helen. I'll be back . . . .

Finally, I did get Lee to agree not to go with us on a date, and I really, really did love it. I just really loved being with Helen. And after five or six weeks I got up the nerve to propose to her. And we went to a beach in Long Beach, and we were laying on the sand and I proposed to her.

And I told her, you know, I said to her, "I'm not rich and I don't have any money to speak of, in fact, the only money I have is, I still owe my doctor on some eye operations. But I do own a car, I own my own clothes, but I promise you that I'll make enough money to support you, me, and a family if we have one. And I just love being with you."

And she, uh, said "Yes!"

I guess that was the most happiest time of my life, and it still makes me feel real good just thinking about

it.

And from that time on I never really had another best friend. Helen has always been my best friend. All my friends that I'd had were in the past. From then on, Helen and I were a couple. We loved doing things together. We loved eating out together, watching television together, we just loved being together.

It was a fun thing, a fun place . . .

And we lived in a little house that was owned by one of the men who worked for me there at the Box Market, a guy by the name of Sam Reynolds. And his daughter also worked for me. But Sam had this little house, and he had a little apartment attached to his garage. And, uh, a real small little place, and the back door opened into the garage. And open up the kitchen, and zip, you were in the alley with only one step. Beside the steps, about a foot by 10 feet long was of dirt, and we made a little garden there and put some plants in it.

It was a fun thing, a fun place, and Helen learned how to cook there. Because, according to her, she didn't know how to boil water, and I didn't know much better, but we really had a fun time while we were living there.

After awhile I told my boss, I said, "You know, now that I'm married, $50 a week won't cut it."

"I'd like to propose to you a new way of doing things. I'd like to have six percent of the gross take, which would only be about $60--only about a $10 raise--but maybe it will give me an incentive to do more."

That was probably the best deal I made in my life, because within six months, some days we were doing over $1000 a day. So that gave me $60. John would give me $50 a week, and then at the end of the week he'd give me a different check. And it was a very lucrative deal for me, because sometimes we'd do as much as $4000, and that was 240 bucks, and I had a $50 draw and I had $190 coming. And it worked out fine for us.

David. And during that period of time we were fortunate enough to have a child by the name of David. It changed our life forever, because when you do have children it does change your life.

After David was born, we had to think about moving, because the little house we lived in was very, very small. And Helen shopped around for houses and she found one, out on the edge of Whittier, in a little street called Midway, because it was midway between Whittier and Pico Riviera. And it was three streets away from a little place we called Jim Town, because it was lived in by Mexicans who lived in that part of the world. [**Click here to visit Whittier, California**.]

John O'Neil was always a great man in my life . . .

We found a house that we could buy for $5000, and we didn't really have any money to speak of saved away. And I got my boss, John O'Neil to loan me the down payment. John O'Neil was always a great man in my life, because I could always turn to him, and he was always kind of my mentor. He loaned us money for our honeymoon. I borrowed a hundred dollars from him, and he gave me some days off, too. We went to Laguna Beach for three days on our honeymoon.

Again, John was a great man on these things, and I worked my tail off for him because of it. Had it not been for John, we wouldn't have had some things. He also had a truck I could borrow from time too time. He also had some gas tokens for his ranch, and we could use them to go down to the beach and those sorts of things, back in those days.

No furniture, period. The house we moved into was, like I say, a little Spanish flat-topped house. It was probably around 1000 square feet, plus it had a livingroom and a diningroom and fireplace, and two bedrooms, one bathroom, and a little, little kitchen and a little, little breakfast room. Since we moved from a furnished apartment, from Sam's rental places, we had no furniture, period. We bought a little crib for David, and that's all he had in his room, was a crib. We bought a box springs and mattress, and I got some pear boxes to put up to put our box springs on. And that's all we had in our bedroom. We had no rugs on the floor, and no furniture in the livingroom or diningroom.

We didn't have any refrigerator. John's daughter, Sug gave us an icebox that you put ice in, a 25 pound block of ice. And we kept that for awhile, because, again, in the war years, you couldn't buy refrigerators or anything else. Everything was rationed, canned goods, gas, almost everything, because of the war years.

But we got along fine. And we didn't know what we were missing, because we never had had it. We really loved this old house, and like I say, we had a lot of experiences in that house. The backyard had not been taken care of. The man who had owned the house had buried his trash in it. He had chickens

back there. And after many months of hard, hard labor, I made the place into a beautiful backyard.

Flagstone. I went to Bloomington and got flagstone to make a flagstone patio out back, and flagstone sidewalks in the front. But again, the house was an old house, and one day, we had a septic tank in the front yard, and it quit working. And the hook up to the city sewer cost money we didn't have. And again, I borrowed some money from John O'Neil.

Fire. Also, one day, a fire we had in our fireplace--I got empty crates and lugs and apple boxes from the Box Market to burn in the fireplace, and it makes for a real hot, fast fire. And it caught the chimney on fire, and we had just painted the livingroom and diningroom. We had a slanted, oval type ceiling in this room, and the plaster was dented, so it took a lot of work to paint it, and I went up on top of the roof and the fire smoked up our ceiling.

But again, we were young and we loved the place, and had lots of parties there, just by burning lugs and apple boxes in our fireplace, and living on our bare floor. We didn't miss any of these things because we didn't have any. It was a fun place to live, and we thoroughly enjoyed it.

Little by little, we got some furniture, first for the livingroom, then for the diningroom. And finally got a used refrigerator--got rid of Sug's icebox--and everything worked out fine for us.

In the meantime, I had a problem with my job. I had to leave John O'Neil, because Joe Sims got back from the war. He had to assume the management there, and I opened up a little market called the Whitleaf Market. I went into business for myself. And almost worked myself to death.

I went to work about six in the morning, and came home at seven or eight o'clock at night. And again, I didn't get to see David in the morning, I didn't get to see him in the afternoon, and things were going the hard way.

Finally, I made a deal with John O'Neil again. I went back to the Box Market to be a manager, not in name, but in actually managing it, because Joe Sims could not turn a profit and John wanted me back.

I was sneakily running the business.

I kept my market and brought my brother-in-law, Lee Strong as the manager of it. John O'Neil paid me $75 a week, same as Joe Sims, but he also gave me another $100 a week under the table, because I was sneakily running the business.

And it all worked out fine, and life was fun again, and we had a little more money and bought a little more furniture.

I made a decision one day to change jobs and change my way of doing things. Because John ran an independent, all I could do would be one day to manage it or buy it from him. So I thought very seriously about going to work for Alpha Beta.

But again, wages were miserable. Most I could make as a retail clerk was $37 a week. That's not a day,

that's a week--$37. And I was making $175 working for John O'Neil. And also, I was making a little money in the Whitleaf Market, until I sold it.

I talked it over with Helen, and we finally decided that it might be the best thing to happen for us. We'd have to adjust our living back to that kind of a deal.

And before making that decision, she and I decided to go on a vacation before I went back to work for Alpha Beta. And we went to San Francisco. We took $100 and decided to come back when we ran out of money. We took the train the train up. Helen's sister took care of David while we were gone, and we had a great, great, great, great time.

We ate three times a day, or five [laughs], but it seems like every time we stopped, we ate. And we had a picture taken while we were there, that is famous in our family today, of us walking down the street, me with a business suit on, and Helen with a hat on, just like we were San Francisco natives.

And again, we certainly always enjoyed each other's company.

We really loved being together. We loved talking over our days together. And all those years, and even to this very day, which has been over 57 years. And no knock-down, drag-out battles. Once in awhile we had some disagreements, but we knew when to stop so we would still speak together.

It was a fun, fun, fun time, living with Helen.

(It's starting to rain. You can probably hear it. It's funny to have rain here [in La Mesa] in September, but it's now really raining [laughs].)

1638 Rideout Way. Helen's mother had moved up onto a little hill, called Rideout Way. She'd bought a house up there, several years ago, and uh, there was a house right next to hers that was for sale. And they wanted $10,000, or I think $10,500, or something like that.

And it was on the side of a hill, was three-quarters of an acre, and had 70 avocado trees. And it had two stories. One story was on the street side of it, and one story was down the hill, where the avocado trees were. And the bottom story was unfinished, except for one room. And, uh, we decided to buy that.

And, again, right next door was, we'd have to live next to Helen's mother. But Mrs. Strong--I always called her "Mrs. "S"--she lived there, and was a wonderful, wonderful, wonderful lady. After we'd moved in, and for several years after we'd been living there, it was such a comfort to have her next door, and to always be there in case she needed us, or we needed her.

And so we bought the place and lived there and did a lot of reworking of it. We had 70 avocado trees, and we ate the avocados. We made the place into a little rancho, and sold the avocados, and made a tax shelter for our avocado trees--a write-off.

Then we remodeled the house--made the front of it glassed-in. It was a beautiful old home, and we just loved it, loved it, loved it. And our kids loved it. They could play in the orchards, and we put swings up for ‘em.

And Helen and I were both really interested in community affairs. Helen had been a den mother for David in Scouting, and I was a Scout leader. We were active in church. I was a deacon at the First Christian Church, and also an usher, and a school teacher--a Sunday school teacher. And Helen worked in the kindergarten part of it with little kids. And, again, we enjoyed it. It was a good place to introduce our children to religion. And it was also a nice place to go on Sundays.

We lived there in this home, and after awhile we had some improvements made. We made some decks on the side of the hill. We hung a pool on the side of the hill. And it was a wonderful place for our kids to be, and we knew where our kids were, because our kids' friends would come to visit with them because we had a pool.

And fortunately, Helen never had to work, because that was our prenuptial agreement I gave her. I said I would make enough money to support us, and her job would be to spend it. And when we had friends around, I'd always remind her that she had done a very good job of spending the money.

But it was always a wonderful thing for her to be there when the children came home from school, even though they really didn't need her, it was a comfort for them to know that she was there. And it just made life more wonderful.

Again, like I say, I never mixed business with pleasure. I never had any pals with the Alpha Beta group. And I never had anything to take me away on the weekends from my family. I thought I was born to do nothing but work, but I did want to enjoy my life as a father and a husband, and a pal of my wife.

Again like I say, I had the best of both worlds.

One thing I've loved about being with my wife, Helen, is this. I worked for 23 plus years with Alpha Beta, and for about 20 something years with Mothers, and all of those years my wife never once called me on the job. She knew that I could do more work better if she didn't bug me while I was on the job. And I didn't have to worry about the house or the finances, because I knew that Helen was taking care of the children, and also taking care of the payments on the house, and the insurance, and those kind of things. It kept me from worrying about them.

So when I got up in the morning to go to work, all I had to worry about was work. And when I got home at night, well, I put all my work into the glove compartment, and stuffed it in the glove compartment, and when I walked into the house, I thought about family and not business.

And it made my life much, much easier. And I really love Helen for going along with me on that, because she took a lot of burdens off my shoulders by being the financial officer of the home.

We lived there on Rideout Way, took long walks around the hill as a family, enjoyed swimming together, hiking up the hill and down the hill, and doing all those things.

The bad thing about living on the hill was you don't get into too many sports, because if you miss a basketball, it will roll down five or ten blocks down to Beverly and Hadley.

And uh, you know, it's a long, long way, and who wants to walk five blocks to get a ball back? And I never was a great sports-type person anyhow. I never did have good eye-to-hand coordination. And so my children didn't inherit any of that from me, because I didn't have it to give to them.

But we enjoyed other things and just being together. We liked to go walking together. We put the swings up, and we had a pool, and we had a deck, and it was fun being a family. And also, also enjoying Mrs.

Strong when she came over to visit with us, or vice-versa.

During this period of time when we lived on Rideout, we were blessed with more children. Christine and Susan rounded out our family of children. And, you know, Helen and I certainly enjoyed all three of these children.

Later on, Helen was very active with being a scout leader for our two girls' Brownie troop. And she was also a den mother for David when he first started. It was a great, great young family. We certainly enjoyed each other's company. I enjoyed playing with the children. I enjoyed playing in the avocado grove. We had some 70 trees, and lots of leaves for them to run around in. It was really a lovely time to be alive and to enjoy one's own family, which I missed so much of when I was growing up. Because I when I lived with my grandmother, I was the only young child there, and no one else to play with.

I really longed to have a family of my own . . .

And so you grow up a little differently. And I really longed to have a family of my own, and watch the kids grow up, and Helen and I were a part of it.

We lived in that part of the world until David almost finished high school, and I got transferred to San Diego.

In San Diego, I went down and worked for two months before I moved the kids down, and Helen. I lived in a motel for two months, and Helen stayed at our Rideout home and took care of the children. Helen would come down every other weekend to look at houses with me. And finally one day we found one, out in, out in the country. It had three-and-a-half acres of ground. It was a ranch-style house with a lot of built-ins, a built-in deck, two fireplaces, one in the den and combination kitchen, with a flagstone fireplace and a raised hearth. And an oversized fireplace, built-in appliances in the kitchen, and a built-in vacuum.

. . . it looked like billions and billions and billions of stars!

It was a lovely, lovely home. When we moved in, the first thing we did was, we got some firewood to burn in our fireplaces. Because we hadn't had a fireplace since we'd moved out of our Midway home, and it was a new experience for us. The first night we were there, the children run out and looked up at the sky. And since there were no street lights--because we were out in the country, and no houses within shooting range of our place--it looked like billions and billions and billions of stars! It was a lovely thing to behold.

We really enjoyed the house. I was busy with my work, and the kids were busy going to school, and we left Helen alone with just the dogs and our cats. And it was a kind of a lonely life for Helen for awhile, because we took her away from all her friends in Whittier, and her mother. But she dealt with it in her way, and some of the sacrifices she's gone through. But, you know, things kind of slowly worked out for the better.

And we thoroughly enjoyed that home. We had long walks up the hill to building sites, and our two dogs

would follow, and I think we had about 22 cats, and all the cats would follow us up the hill. And the cats would run and play, and the dogs, and it was a lovely place to be.

We had a horseshoe pit, and we had a place where we'd play darts on the lawn. And it was a big place, with an acre in the front lawn, and an acre in the back lawn. We kept our dogs in a fenced area in the back. And we had a horse barn. And Susie and Chris wanted a horse, and I promised to get them a horse if they took care of a donkey. And we went through that piece of our life.

Again, my life, being what it is, I still do not blend my work life with my home life. I really made no friends with the people that worked for me, and I did not entertain them or invite them to my home. Our friends were people who were not in the grocery business. And where Helen and I could enjoy that type of pleasure, you know, of friends who would not be talking about the grocery stores, what they liked or did not like about it.

I was a district manager for Alpha Beta at the time, and I'd come down to San Diego to open up this division. And it was a lot of hard work. And thank God for Helen, because again, she did her job of making sure the kids were being educated properly, and that the bills were being paid properly, and I could concentrate on building up a whole new division for the Alpha Beta stores.

And again, it was wonderful. . . .

[Editor's note: This is the end of side 2 of tape 1 . To go to the transcript of tape 2, **please click here**.]

[Editor's note: What follows is part two of three written transcripts of my father's oral narrative of his life to date, as he tape-recorded it over a period of several months in the Year 2000.]

My Working Years

By Willis ("Bill") Bradley Givens

Now for my working life, I primarily worked for two companies, Alpha Beta and Mothers Cookies. I did many jobs before Alpha Beta, but they were primarily very short jobs--very, very short term, and I didn't

really like any of them.

With Alpha Beta, again, I started by accident. I worked with John O'Neill in a little store in Whittier. It was on the corner of an alley, and we'd push our produce stands out on the sidewalk every morning, and at nighttime we shipped then back inside.

We had five parking spots in front and on the street, and that was our parking lot. And the trimmings of the produce and stuff was done outside in the alley, and all those kind of things, but it was kind of a fun thing.

. . . *things were so cheap back in those days*.

And again, things were so cheap back in those days. As the old saying goes, you ask for 25 cents worth of fruit, but not too many watermelons. Apples were two cents a pound, grapes were less, cantaloupes were two cents each, and watermelons were a dime a watermelon.

Cabbages were two cents a head.

And it just boggles your mind now. Bunch goods and carrots were a penny a bunch. Cabbages were two cents a head. You could buy a semi truck of vegetables and fruit at the market and it would probably cost $300 or $400. It boggles your mind how much produce people could have back then. But again, people didn't have any money, so . . . .

Bing cherries sold for seven-and-a-half cents a pound.

Bing cherries sold for seven-and-a-half cents a pound. And you had no refrigeration back in those days. On Saturday night, everything that was perishable, you would either give it away or it rotted by the time you got to work on Monday morning. So you always try to have a restaurant around, some place to come in to haggle over how much of your stuff to buy.

If you had any bunch goods or apples or anything left, you tried to get rid of it, because again, it rots by the time you get back. The only things you could have left were like yams or sweet potatoes, onions or potatoes, banana squash or hard squashes. That was the way business was done then.

But after leaving that Alpha Beta to go back to Texas for the war, I went back to work for John O'Neil in the Whittier area at the Box Market. And I worked there for several years. And then one day I left a $175 a week job for a $37.50 job for Alpha Beta, because I figured there was no way I could go up working for John O'Neil. So I went to work for Alpha Beta as a produce clerk.

After one week of $37.50--because the Alpha Beta people liked me, I also worked Saturday. Because on Saturday you got time-and-a-half. So my pay went up to $65. And I'd been there for about, oh, maybe three months, and they asked me to become the produce manager there. My wages jumped to $95 a week, plus a bonus if I made the gross and made the wage budget.

So, after just a little while, I managed that produce market there at No. 1 for almost a year.

. . . just cheap, cheap, cheap.

And Alpha Beta decided to come in with produce supervisors, because by that time all their produce managers were independent operators. They could buy off the street or anything they wanted to do. There was no unification, and they finally decided to have one buyer do all the buying for all the markets and ship it out on their own trucks. And again, stuff was cheaper than dirt. You could buy a lug of peaches for 60 cents, and you know, you sold it for 78 cents. And just cheap, cheap, cheap.

And they approached me on being a produce supervisor. They put three other people in with me, so we had four supervisors for the chain. And I think I had 12 stores. My area was, ah, Pasadena, Bell, Azusa, Covena, and Whittier. That was my area of operation.

And the markets weren't really doing much business in those days. And again, if you were doing $600 a week or $1,000 a week, you were doing pretty doggone good. And once in a great while you'd have a store doing $2,000 a week or sometimes $3,000 a week, but they very seldom did that. And produce back in those days, again, only operated at approximately six percent of the total take of the grocery store.

And it was a separate checkout, too. It was independent of the other markets. I started a trend of putting a central checkout where the grocery department checked out produce. And that way I could have a produce manager there, and he could have a lunch break because he didn't have to check out the customer. And pretty soon it made my job a lot easier, too.

I worked as a produce supervisor for a number of years. I had a lot of, lot of fun doing it. We opened up a new store in Pasadena, and that was my primary function for awhile, to concentrate on that one store. I took six weeks doing nothing but research on what to do on that particular market, because my objective was to have 15% of the overall market's volume. Meat departments were doing about 25% of the volume in those days, and produce departments did around eight, and I wanted 15%.

And lots and lots and lots of work.

And the company let me do a lot of things there. I hired the first Orientals--two Japanese young men--to do processing of the produce in the backroom. They went to work at 2:00 o'clock in the morning and washed a ton of mud and dirt off the bunched vegetables, and un-crated and trimmed iceberg lettuce, which came four dozen to a crate, with ice on top. Cauliflower came 12 to a crate, with all the growth of

the cauliflower on it, and by the time you trimmed it down, you threw away two-thirds of the crate. And you sold a head of cauliflower for anywhere from two to 12 cents. And lots and lots and lots of work.

You had many seasons on apples. The first season on apples was a white astrican [looked like a pippin] apple, and it was so doggone sour that it took five pounds of sugar for each one pound of apple to make it taste like anything.

Later came the gravenstein apple, which was primarily an applesauce apple. And it was a very short-lived apple, and a very tender apple, and it didn't last very long. Then came the jonathans and the winesaps, delicious, and yellow delicious. And again, apples weren't refrigerated, but you got ‘em and thay had a very short shelf life. [**Click here to see some really cool apples!**]

And there were three or four months out of the year when you had no apples in your store. You didn't see any watermelons or cantaloupes after Labor Day. You saw practically no grapes after August. Things were really seasonal.

String beans you didn't see after a certain time. Many things were seasonal in those times, because they hadn't perfected shipping as we know it today, or refrigeration as we know it today.

I remember years ago we bought some grapes from Chile. They were flown in, and they'd been packed in sawdust, and 60% of the grapes were dried up. But they were a novelty just having them in the store--you had grapes in December. And today everything you see--grapes, watermelon, cantaloupes--you can buy year round. Because it's flown in from South America, Africa, Australia, nothing is out of season.

Apples are year round, uh, they perfected refrigeration to make them last. They keep them at almost 32 degrees--almost freezing--and they put gas in the chambers at the same time, and when you finally take them out and put them on the display case, you'd think you picked the apple out of a tree. Because that's how wonderful they perfected the refrigeration.

More later on my digression on fruits and vegetables . . . .

Working at the Alpha Beta store in Pasadena--again, the company gave me lots of leeway--and I did a lot of innovative things to see if it would work or not. Sometimes you might think I'd be bragging on something I've done, but it's really the truth.

I really started the plant things in Alpha Beta stores. I would go to the nurseries and get beautiful plants that were not quite florist quality and bring them to the store to sell and make 50%.

Later on in my other stores, I would sell dichondra by the flat on the parking lot on the weekends, and camellias in five gallon containers. All these things the company let me do, and it was a fun thing for me.

Alpha Beta opened up a store in West Los Angeles--with a big, big, big produce department. And the store never really got off the ground. Later on, Mr. Edwards, the president of the company, called a meeting because we'd lost about 50 or 60 thousand dollars a year on the store, and asked the staff to come up with their own plans on what they would do to change the direction of the store.

I put together a plan on basics, better controls you could fix in, and better receivings, and so forth and so on, and ‘lo and behold I got picked to have the honor of spending time in that store to help turn it around.

I put together some programs of attracting more black customers and more Jewish customers, because that was the area the store lived in.

I hired some black people to work in the store for the first time, and Jewish people to work in the store, and brought in special milk for Jewish people. We had a store supervisor there who I was trying to train to make the store profitable. And after about six or seven months, we turned the store into black figures, and I got back to being a produce supervisor again.

It required many, many hours in the produce market in the morning to buy special products for the stores. And it was a learning process. But that was just a stepping stone.

Frozen food. Mr. Haskell got together with me one day and asked if I would take over the frozen food division for the company, because they weren't making any money on it, and they were behind the times. And we were with a private-label company, Topco, in those days, and our private label was Top Frost.

On September 29, 1944 a small cooperative was formed to supply its members with dairy products and paper goods, allowing them to operate in spite of wartime shortages. Called Food Cooperatives, Inc., the products procured by this organization were sold under the Food Club and Elna labels. Some of the members of Food Cooperatives were also members of another cooperative called Top Frost Foods. In addition to supplying frozen foods to its members, Top Frost also had an impressive quality program that set its specifications higher than those of the leading national brands. By early 1950, it was obvious that the two cooperatives were clearly well matched, which resulted in a merger of the two companies in December of that year. Thus was the beginning of Topco Associates, Inc., as it is known today. Folklore has it that the name "Topco" came from the "top" of Top Frost and the "co" of Food Cooperatives. Some people claim it's an acronym for "top companies."--From Topco's web site © 2001 **http://www.topco.com/history.htm**

We had Top Frost stored in at least 11 different storage areas. And we would carry frozen foods from those places--non-refrigerated--into our stores.

It was an abuse of how we handled frozen foods. But the company gave me that assignment.

And in frozen foods, we were making, in the grocery division--it was about a 16% markup--and we were doing about six percent of the grocery sales. I took over that responsibility, and really changed the way frozen foods were marketed and merchandised. Frozen foods went from six percent of grocery sales to a ten percent of overall sales.

I changed warehousing, and the delivery system for frozen foods to be delivered at night into the backrooms. It was a complete change, and it was just another of the things the company let me do--and do it my way.

That led to another change in my way of doing things with Alpha Beta. Mr. Haskell had been in charge of the grocery division, and he was training some people to take over his job. But just prior to that happening, he gave me the job of being in charge of the grocery division as the grocery merchandiser for Alpha Beta.

And I told Mr. Haskell that I had no experience in that field. And he said he wasn't hiring me for my experience, but [rather] to manage it. So I took that.

Again, he let me do many, many innovative things. I changed the way we merchandised stores. I went into [horizontal] layers of merchandising instead of up-and-down, vertical sections. And I got into branding, instead of like items by like items. I took potato chips off the ends and put them on gondolas. I put in about a 52-foot run of cookies. I made three-foot sectional shelves with pegging in the back instead of long runs of straight wooden shelves, to change the way the groceries looked. All of these things, and I just had a fun time doing that.

And again things changed, and I had a chance to do something else. The company gave me another job of trying to make 21 stores that were unprofitable, profitable. Or, I could sell them or shut them up, either way I wanted to do. I sold two stores, closed one, and fired supervision in one or two of them. But again, that was my responsibility, and I had a lot of fun doing it.

My title was, I was the assistant to the VP of Operations, who was Cliff Haskell.

San Diego

My next assignment was to look into changing into discount stores. Many chains had gone into discounting, and my job was to make a study in case Alpha Beta decided to go into being discount. I was a member of nine or ten discount stores--you had to be a member of them back in those days--and while I was doing that, I found a chain in San Diego--All American Markets had three stores there--and I made a recommendation to the company that we buy those stores. [**Click here to visit San Diego, California**]

After I made that recommendation to the company, that we buy those three markets from All American, they said, well, we'd like to have you go down and manage that and open up the division for us.

I'd always sort of been an independent soul . . .

Well, that made for a big, big problem for me because I'd have to move to San Diego, and a lot of changes had to be made. But sometimes when you're in a company, your options get narrower and narrower. I'd always sort of been an independent soul, and I got forced into making that change.

That meant we had to move our family. It meant a big, big change. And looking back, maybe I should not have done it, but at that time I practically ended up with no choice but to do it.

But the only way I could change would be to go to work with a different company. So, I went to San Diego, reluctantly, and opened up that division for Alpha Beta.

. . . like being married to the job.

After being there, we bought two stores from Buy and Save, we bought another market, an independent, in Linda Vista, and then we opened several more. I did that for approximately three years, and we ended up with 16 markets in the area.

In the meantime, there was a lot of stress on the job, because you were opening up new markets and hiring new people, and you were responsible for 16 stores, and the bottom line--their profit margins--and it was a real stressful job, like being married to the job.

I hated being responsible for a 24-hour job. But that was the stress I lived under for awhile. And after three-and-a-half years, I got into a philosophy--a philosophical thing--with Alpha Beta, and I decided to leave the company at that time [pauses] . . . .

When I left Alpha Beta, it was a real change for me because I'd worked for this company for 23-and-a-half years. I'd had all the good jobs the company had. I'd worked as an assistant to the operational VP, I'd been in charge of the frozen food division, I was in charge of the grocery division, I'd run a discount study for the company. They gave me all the jobs they thought could be done, and put on my shoulders, and I thoroughly enjoyed each and every one of them.

But . . . [pauses] nothing is forever, and again, I saw it coming several years ago: That our philosophies would change. The company told me they couldn't have an Alpha Beta Company and Bill Givens Company, and I'll have to conform to what they wanted done. And I was really, really bull-headed on my approaches to some of the things, to merchandising and marketing our products, and especially in the San Diego area.

After it got around that I wasn't with Alpha Beta, my friends all called and congratulated me, because they thought I was, you know, putting in way too many hours for the company. And it was going to ruin my health, and they were awfully, awfully glad I had left the company.

I began to get letters and cards and telephone calls offering me jobs in other areas. But I made up my mind I couldn't go to work for another grocery company, because how could I knock the company I'd worked so many years for, and the men I had brought along in responsilbe positions for the company? How could I say I'd spent all my time in vain?

So, like I say, I decided to do something else.

In the meantime, I had many friends in the supply parts of the grocery business, and I began to get calls from them wanting to know if I'd like to work for their company. I went to San Francisco for the S&H Green Stamp Company. They offered me a good position, but the money wasn't there. Other company's offered me the same thing, but I'd have had to move every three years, and I didn't want to do that.

And as time went on, and time went on, and I didn't do anything too much except chop weeds on our three-and-a-half acres and go for interviews, and talk. My family--God bless ‘em all--took it exceptionally well. And they didn't all panic and run and jump off a bridge, because they figured sooner

or later their dear old Dad would find another job.

And that's kind of the way it was. We had a stock option from Alpha Beta, and we sold the stock. After selling the stock we paid our house off out there, and I told Helen and the kids that we can raise our own vegetables and, you know, sell fruit from the side of the road, and we would survive. Or I could get a job shining shoes or something, so it wouldn't be the end of the world.

But in my mind it was kind of [hard on me], because I'd been so active all of my life, doing those kind of things, and getting away with making my family part of my life instead of working 24 hours a day. Because I never worked Saturdays for Alpha Beta, and I didn't work really long hours, [even though] I thought a lot [about business] when I wasn't working for the company.

But you know, everything kind of works out for the best, and I was very active in the Elks at the time. And the Elks said they'd keep us in food. And all our friends would come out on the weekend and we'd have barbecues, and they would bring food, and the booze, and we'd play horseshoes, Jarts, and just have a fun old time.

Mothers Cookies

And before you know it, I was offered a job as a consultant for Murray Hill. He was a distributor for Mothers Cookies in the area. And I went around and rode with his men on their routes and gave him a written report on how I thought they were doing their job, and what I thought of Mothers Cookies as a whole. [**Click here to see some Mothers Cookies**. *Editor's note*: the original Mothers Cookies web site is no longer on line.]

And in the meantime, the cookie company in the L.A. area had gone to warehousing, and quit going direct, to give Mothers Cookies a chance to move into Southern California. They were only serving about two accounts in town at that time, and in the meantime, the grocery companyies were having a strike in that part of the world. I went up as a temporary to help them serve the stores that they were serving.

. . . they finally conned me into going to work for them.

I didn't go out on the trucks, but I'd go out on a bobtail type deal. And I went to all the grocery chains. And I wore an I.D. badge and went through the picket lines. I'd say we were taking cookies from one store to another store. And that way we served all the stores in the L.A. area. And by doing that, I got better acquainted with the people in the Mothers organization. And they finally conned me into going to work for them.

Differences. Right off, we had real differences of opinion because part of their rules and regulations were that you had to be on a route for three months before you could take on a job as account man or manager or something else.

That was part of their rules and regulations. And I said that I had a rule, too, that I wasn't going to ride on a route because my eyes were bad, and I'd worked all my life in grocery stores, and I didn't need to work

anymore doing this kind of thing. And if they wanted to hire me as an account man, calling on the accounts, they could do that.

Deal. And finally we struck a deal, and I didn't have to go on the routes. After I'd been doing that for a little while, they decided to give me a driver to drive me around to the stores, and I stayed on as an account man.

I worked for Mothers as a temporary for quite a little while, and finally decided to join as a permanent with them. I guess that was one of the luckiest things I've ever had to do, because it really worked out fine for me. I was an account man for four years, and during that four years I also had other responsibilities. I became in charge of their merchandising program. Also, I worked for the president of the company on special assignments.

Seattle. We opened up a new market in Seattle, and I was a big part of that. I was a big part of their annual meetings for three or four years.

Division manager. And after awhile, they made a change--the division manager in Southern California--and I was fortunate enough to get that job. I stayed on that job for almost 12 years as a division manager. And we took the share of the market to almost 25% during my regime as the division manager. I was very fortunate in having the ability to acquire talented young men to work with me.

And I gave them a lot of rope, and backed them up if they made a mistake. And they made the company really a success in Southern California. We got a lot of things changed in my regime. I was new with the company, but they were kind of an inbred company, and so almost all of my ideas were different from theirs.

They began to listen to me, and things worked out well not only for me but for the company, because some of my ideas worked and they let me go ahead with them. We changed the pricing structure from a pre-priced form of merchandise to a non-pre-priced merchandise. We got into palatization, and we got into central warehousing. And I fought a lot of people, and spent a lot of time getting those things done.

Regional vice president. And so, like I say, it was a very wonderful experience for me. In the meantime, as time went on, they gave me some more responsibility even as a division manager, and I became a regional vice president in Division III, and the Great Northwest came under my wing. At that time it worked out that I asked the company that my wife be allowed to travel with me. Otherwise, I might become an overworked person.

And I also had the responsibility for Division II, and also Division I and Division V. I also had Division IV, but I kind of let them do their own thing.

I tried to work out a time schedule for when to retire, because I'd worked all my life, and I didn't mind doing some work, but I didn't want to work a whole week. So, I finally worked out a deal with the company where I only worked three days a week, and [I did that] for the last six months of my working career with Mothers.

Vice president of sales. Prior to that the company had made me the vice president of sales. And again, I happened to be a kind of a luck-out when I came on at that time, because we had in our 10th period that year, when I was the VP of sales--we made more profit that one month than we did the whole nine periods prior to that.

And then, the next year was the best year ever the company ever had.

"Retirement"

And I retired in mid-June of that year. In the meantime, I'd gotten one of my young proteges, Al Curran, groomed--I had him go back to college--to be the VP of sales when I left. Had he not taken it, I had another young man, by the name of Dennis Schubin, to go in my place.

Again, it all worked out, and we had all things [ready] on the word go. And I told the company, "The minute we reach a two million dollar week, you have my resignation, and I'll have people in place to take my spot."

And that happened. We had that two million dollar week, and I resigned and Al Curran took my spot as the VP of sales.

. . . it's wonderful to hear nice things said about you while you are still alive.

I had a wonderful, wonderful retirement party in Oakland, and also a wonderful, wonderful retirement party in Anaheim, with a lot of the people from Mothers there, and several hundred people in both of them. And it's wonderful to hear nice things said about you while you are still alive. Some of them were true and some of them weren't, but it was a wonderful experience for me.

Advisor. After almost a year, well, I got called back in to be an advisor to the company because Mr. Wheatly decided to sell the company. He sold it to a French company. And I was invited back to be a senior advisor to the sales force, because the French had a way of doing business that was to break up everything that was happening, and divide and conquer. They fired the personnel director, they fired the information VP, and they really tried to get into the sales division. But I asked my guy, Al Curran, to not let them get into the sales division, [but] to stand up and be counted for it, which he did. He put his job on the line many, many times for it.

So after a period of time, well, I became a full-fledged advisor, subject to call. And some months I would do nothing, and some I'd work two or three weeks. Any time they brought a new person into upper management, it was my assignment to spend some time with him, and try to indoctrinate him on what his function should be, and how he should think, and how he should get things done through people rather than do it himself.

Even to this day, I'm still an advisor to the company. As of September of last year, I had a kind of a little stroke in my brain stem that affected my equilibrium. Since that time I really have not been on any trips at all. But I'm still an advisor to the organization, and it's nice that they see fit to keep me on doing that.

Now when they need some advice, they'll come down and spend time with me here in my own home. And occasionally they'll make telephone calls and come and have lunch with me and we'll talk over some of their opportunities, and we'll discuss them.

And my advice to them is that there are several ways of going, and it is up to them to choose what to do with it.

In the meantime, I've been learning how to adjust to something I've been doing all my life, to adjust to the circumstances that have been handed to me.

At the present time, my main enjoyment is to visit with my grandkids and great-grandkids, and to visit with my family. And uh, I use a scooter to kind of run around and take some trips in the La Mesa area. I have lots of friends who give me a call to see how I'm getting along. I have a friend here in the condo, and we go to lunch almost every Saturday. And it gives also Helen and I a chance to have lunch and go and have coffee. And we get around, to the Sea Port Village and look at things down there.

So all in all, things are working out for me. I don't have the energy I used to, but you don't need too much energy to sit on your "popo" all day.

I do some exercises to keep my muscles halfway intact. And uh, so you know, as I've always said for many years, "It don't get any better than this."

For many years, my motto was, "If I felt any better, I couldn't stand it." And any more, maybe my motto should be, "For the shape I'm in, I'm in pretty good shape."

I've had one swell, swell time in my life.

Well, that's about all of my working life. And like I say, I've had one swell, swell time in my life. Working, and having enough guts to stand up and be counted, and also to spend a lot of time with my family.

And my family was always more important to me than my jobs, and it always paid off benefits for me because Helen and I really have a wonderful, wonderful family. For many years, when my family was growing up, we didn't use any curse words, and that tradition is going on with the grandkids.

For many years, instead of using a curse word, I'd say something like, "Como se llama" [koh-moh-say-yah-mee]. I'd hit my finger and say, "Como se llama!" And the kids thought that was kind of bad language until they went to school and started taking Spanish and found that it meant, "What's your name?"

Sacramento! Another word I used quite often was "Sacramento." You know, you'd stumble or trip or something, and I'd say, "Sacramento!" And to this day, my family does not curse, and they're not alcoholics, and they don't smoke.

And it's been nice that they've listened to Helen and I for a period of years, and have taken some of our

advice. And I hope that we've been good role models for them.

So, that's about all I have to say at this moment.

[Editor's note: To go to the transcript of tape 3, **please click here**.]

[Editor's note: What follows is part three of three written transcripts of my father's oral narrative of his life to date, as he tape-recorded it over a period of several months in the Year 2000.]

My Family

By Willis ("Bill") Bradley Givens

While we were living on La Cresta Road in El Cajon, David graduated from high school, Granite Hills, Christine graduated from high school, Granite Hills, and Susie was still in school at the time.

A little later on, Christine got married. A little later on, David got married. And the only one left was Susie, and Helen and I at home.

Life went on, and things began to happen a little differently. It seemed funny not having Chris and David around because, like I say, we had lived together since they were born, and it kind of hurt when they left and we didn't see as much of them. But again, life goes on.

I was active in the Elks, and was on the board of trustees. I was actually in charge of the club and of it making money. But I was also busy at Alpha Beta, because we were opening up more stores, and I had opened up at least 16 stores, and all of a sudden, well, the company and I had an impasse a little, on philosophy, and in the heat of the moment I resigned.

It was kind of a trial for me and my life at that time. I was almost 48 years of age, and all of a sudden, pow, no work. And I'd worked for Alpha Beta for 23-plus years. Really, I had an enjoyable time, and I was very loyal to the company, but all of a sudden here I was unemployed. What would I do and where would I go, and what would my life be from that point on. Because it was hard to get a job after you passed 48.

. . . *my family was very supportive.*

For two months I really didn't do anything but look for a job, and again, my family was very supportive. They didn't jump off a cliff because I was unemployed. We cut down some of the frills that we had been used to, because I had no income coming. But again, I was lucky because the company paid me for two month's salary during that period of time.

By accident, I went to work for Mother's Cookies in San Diego. Then, by accident, I went to work for Mothers in L.A., which forced us to move.

I swore I would not uproot Susie again until she graduated from high school. And at that time, too, there was a depression going on in San Diego, and in San Diego you couldn't give houses away. All the FHA homes, you could buy them just by taking over the payments. And had I any money in those days, I could have bought 15 houses just by making payments on them. Today, look at the money that could have been

made by buying those houses back then.

Our house was much better than an FHA house. It was a custom made, beautiful home, and we couldn't just walk away and desert it, as people with the smaller homes were doing. And being out in the country, it would have been ransacked in two days time because there were no neighbors.

So I went to work with Mothers, and I spent some time up in the L.A. area--almost a year. I'd go up and spend Monday night, Tuesday night, Wednesday night, and Thursday night with Helen's mother, Mrs. Strong--or Mrs. S., as I called her--and then come home on the weekend. And Helen and Susie stayed there and kept care of the pets.

And Helen--God bless her--said she had nothing to do and said she'd paint the house. So she painted that damn big house all by herself. A good friend of mine, Harold Petrie, got the paint for her and showed her how to do it, and all her free time was spent painting the home.

. . . *and it stayed that way until Susie graduated.*

I'd come home on the weekend, and we'd go out and sit underneath the olive tree and compare weeks, you know, and I'd tell her how I was getting along, and how different it was for me to be away, and so on, and it stayed that way until Susie graduated.

Whittier

I found a buyer for our home, and we moved back to Whittier.

The people from Mothers used their Mothers Cookies trucks to move us back to Whittier. We rented a place in Uptown Whittier for two months, and then we bought an old home--about an 80-year-old home--in what is now Historic Whittier.

Avocado tree. One of the reasons it appealed to me was because it had a big avocado tree in the back yard. That never was as appealing to Helen, because of the traffic noises and those kinds of things, but I guess I was getting a little hard of hearing even back in those days. Because the traffic noise didn't really bother me, but I know it did Helen. Again, God bless her for living through it.

And again, no matter where we lived, when we moved from one home to another home, we closed the door and never looked back. And we started a whole new living experience.

Every house that we ever moved into became our home shortly after we moved into it, and people who visited us always felt that. The moment they walked into our house, they felt at home, because we had that sincere feeling about inviting people to our home.

And again, it was a lovely, lovely home for us to live in. I liked it because in case something should happen to me and I couldn't drive anymore, I could walk to church, I could walk to the store, I could walk to restaurants, and so forth. And it was a wonderful place, again, for us to live.

Susie came with us and lived with us for awhile there in the Whittier area. Then she started going to Whittier College, and then moved away with two other girls and lived on campus. She put in about three years of college, I think, and finally told me one day that she didn't really like college that much, and so she transferred to a business school and took up typing and shorthand, and business-type things, and bookkeeping, where she could make a living when she got out of school.

And again, things worked out fine. We joined the church in Whittier--the Methodist Church--and, again, we loved being there.

In the meantime, I'd worked with Mothers, and I got to be a division manager for Mothers. I was doing quite a little traveling, and finally the company gave me some more responsibility. They gave me Division III in northern California, and Seattle and Oregon and Alaska and Hawaii. They all became part of my responsibilities.

And I told them I would take that responsibility if my wife could go with me on those trips, and if they would pick up her tab. Because I told them that I don't want to go into an area and work too many nights, and have too many sales meetings, and drink too much and eat too much. And I didn't want to be caught dead in a hotel room all by myself. After a few days of hesitation they okayed that.

. . . *Helen went with me.*

And from that time on, well, no matter where I went--God bless the company--Helen went with me. And it was like being on a second honeymoon. We enjoyed going to Seattle for weeks at a time. And we also enjoyed, while we were in Seattle--my son was living there as an associate professor, because he had gotten his doctorate in anthropology and taught on [the University of Washington] campus. And I could go to work in the daytime, and Helen could visit David or explore downtown Seattle.

And it was really a nice thing for us. And we also got the opportunity to go to Hawaii several times, and go to Houston and San Antonio, Dallas, Denver, uh, you name it, and Helen went along with me. And if it had not been for that I would have killed myself, because I wouldn't have had anything to do at night, so I would have scheduled sales meetings or dinner meetings or those kind of things.

And I had a rule, all the time I worked, that my men were not to call me after I got home at night. And all the years that I worked, I had almost no calls at home, because I told my men that I've ordered them to do their jobs, and if they could not do it, don't give me a call at nighttime. I told them, "You make the decision and I'll back you up."

And again, it worked out beautifully for Helen and I. We did not have to entertain the customers or the people who worked for me. We could do our things. In the morning, when we were away, somebody could come by the hotel at 8 o'clock, because I had already had my breakfast with Helen. And they'd take me home at 5:30 or 6:00, and again, Helen and I would go down and have an after-dinner drink--I mean a before-dinner drink--and have dinner just like we were at home. And it was a wonderful relationship.

[Pauses . . .]

We lived at the house on Painter for 30 years almost. And in 30 years, many, many things happened. We became grandparents many times. We have seven, and later a grandson, Aaron, so we have eight.

With that many grandchildren, well, as they grew up a little bit, past five or six years old, we'd invite them up to our home. It was really fun teaching them how to play cards and all those things. Their grandmother enjoyed cooking for them. And it was a really, really nice way to have a family life.

During those 30 years, too, Helen's mother got sick and came to live with us for a short time. She was put into a rest home, because we really couldn't take care of her. And she stayed in the rest home for several years. Helen went to see her every day.

Also during that period of time, too, Helen and I started an MS Society there in the city of Whittier to raise money for MS, because our son-in-law at that time had MS. And we had a meeting in our home one time a month, and most of the members had MS. So, it took quite a bit of our time doing those kinds of things.

A little while later on, Helen got interested in the YMCA, and she became the chairman of the board for the YMCA there in Whittier.

And during that period of time, too, we had a couple of earthquakes. We had one that destroyed part of the YMCA building there in Whittier. Helen went out on a speaking trip to all the Lions Clubs and Kiwanis Clubs, and the Rotarys, and you name it, and helped raise over five million dollars for the new YMCA.

We tried to keep busy, and enjoyed our friends and enjoyed our family.

In the meantime, my job had improved with the Mother's organization. I had worked my way from divisional to a regional vice president. I was in charge of the Northwest, Texas, and Southern California, and everything with the exception of the Denver area. And time passed on, and I became the VP of sales.

And we still lived there in the city of Whittier, and again, when I was called out of town, Helen went with me.

I told the company I would never move to Oakland when I became the vice president, and they went along with my wishes. So I just spent a lot of time away from Whittier, away from my office, because it involved a lot of traveling. And the thing that made it all worthwhile was that I could take my pal, Helen, with me. It kept me really from working myself to death.

Avocado tree. Again, things happened, and two of my kids, they separated from their spouses and were remarried. And they got remarried at our home in Whittier, which made the first marriage we had there under the avocado tree. My daughter, Susan, was married there. Later on, David and Doreen were married there, and Chris and Steve were married there. And we had a niece who was married there, Nancy. And we just loved gathering under the old tree. There was time to enjoy, and we had about 500 plants in pots in the back yard, and brick down for the floor, and it was a wonderful place to have a

marriage ceremony.

San Diego

. . . time for us to move back to San Diego . . .

And again, we enjoyed all our time in that part of the world. Finally one year Helen and I decided it was time for us to move back to San Diego if we could possibly do it. And we began to do some investigation on how to do it, because I had retired, but I was still working as a senior advisor for Mothers Cookies. And if I had to go to Hawaii for a week, well, somebody had to do it. And Helen again went with me on those things.

And the company kept me supplied with a company car, seven or eight years after I had retired. I had to use the car to do some research. All in all, it was a wonderful relationship and the company really took care of me.

La Mesa. But again, we decided to move, and we found a place in La Mesa. It's four levels of condominiums above a commercial parking garage, and some buildings for business. There was a drug store and a novelty shop, a yogurt shop, a U.S. post office--so we'd just go down the elevators and walk through the commercial parking garage into the shops.

And again, it took care of our problem of in case we couldn't drive, we could take buses and/or trolleys. Here we are very fortunate, because the trolleys come right in front of our condominium. And we could be in downtown San Diego in nearly 30 minutes. And since then, they have enlarged the line so you can go much farther. And buses are half a block away, and they'll take you anywhere in San Diego County. And I've learned to use them quite well.

If we had put down all our wishes for a place to live, and put it on a computer, it would have worked out just beautifully. Because we wanted elevators, and we wanted a place with a view, and we wanted to be near transportation, and we wanted a downtown area where we could walk to things. And it's really, really wonderful.

And another wonderful thing about it is, ah, one of our daughters lives up on Mount Nebo, which is only about three-quarters of a mile away. We can almost see her house from here.

And my youngest daughter, she's living in the area also, and my grandson lives in the area, Scott, and it's just really nice that we're all back where we can communicate with each other and see each other quite often. It's a dream come true, really. And Helen and I always say, it's like we've died and gone to heaven because so many of our dreams fulfilled.

. . . the moment you quit being busy, you've had it.

Living here in the condominium, I ended up being the president for two years. And Helen is busy going to the [La Mesa] city council meetings, reporting things back here. As of lately, she's become involved with the Commission on Aging. At the present time, she is acting as the chair. So it's fun to keep busy,

because the moment you quit being busy, you've had it.

So, that's up to now where we are. And it, like I say, as of tomorrow we're going up to Oceanside to my great-granddaughter's fifth birthday, if you can imagine that. It's amazing how fast time goes by.

. . . *you have to learn to cope with it.*

I'm not in as good health as I was a year ago, because I had a little minor stroke. But it hasn't stopped me from thinking. And when I'm sitting or laying down, I really feel good. So it's just one of those things, and you have to learn to cope with it.

And as I've always said, "If I felt any better I couldn't stand it." I'm still just like I was before, except that I have a little problem with equilibrium.

So, enough of my personal life. As you can see, I've really enjoyed life. I've really enjoyed my family, and I've really, really enjoyed staying with my pal and wife, Helen.

Such Happiness

Here I've reached the ripe old age of 84. Been happy almost all my life. Worked real hard for two companies, Alpha Beta and Mothers Cake & Cookie Company. I got to participate in the decision-making process, and thoroughly enjoyed myself, satisfied my creativity, and as the old saying goes, what I've always said is, "Such happiness."

Not only did I have such happiness in my own personal life, in the companies I worked with, but I also had *extreme* satisfaction in my own personal family.

My son, David, is living in Spokane now with his wife, Doreen. He has his doctorate from the University of Washington. He's written a book, *Love Signals*. He's almost world famous now for his *Nonverbal Dictionary* that's on the World Wide Web.com. Really something to be proud of. He used to be a bookworm. And I'm extremely, extremely proud of the young man.

Doreen, David's wife, is another wonderful, wonderful person. She's always got a smile, always got life going, everybody loves the young lady. She's working at one of the hospitals up in the Spokane area. And she keeps David on the straight and narrow. They're doing a good job taking care of Doreen's father.

And Doreen's son, Aaron, is another wonderful young kid, who I first met when he was about two or three, and have loved him ever since. He's really gotten into big time music, to popular music of the day, rock and that kind of stuff. He has cystic fibrosis, and Doreen has spent her life taking care of him.

My oldest daughter, Christine, lives here in La Mesa with her husband, Steve. She lives only about half a mile from us, up on Mount Nebo. She's doing quite well. She has her own greeting card company, called LifeSighs®--"S" "i" "g" "h" "s"--and is doing quite well at it. She started it in her garage, and now she produces over a million cards a year.

Chris is happily married to Steve, who is the business manager of the card company. Steve was in business for himself before he married Chris, so his background has been a real asset to LifeSighs. With his computer skills the business is running smoothly. They're doing quite well and are quite happy. And they're expected to even be better as time goes on, because they have several offers to maybe sell, where she can be part of the decision making in other companies with her. She's also written several little children's books. Again, very creative. She's, again, an artist type, you know, likes to be in shorts and jeans and these kind of things, and is just a down-to-earth, wonderful lady. So's her husband, Steve.

And my youngest daughter, Susan, has always been a real joy to us. She's rather like me on many things--often pretty stubborn in her decisions--and nobody can push her around. She'll do things if she wants to do them.

She's living here now, in the San Diego area. And that's one of the joys that I have: my family's getting closer. For many, many years we were all together when they were young, and now, slowly but surely, they are all getting closer. Susan now works at the San Diego Zoo. She works in the business office. She finished college, and is a great, great, great lady.

It's amazing how all my kids are over 50 years of age, you know. I can't believe my kids are getting that old, but they are. And in turn, they also have children. And my grandchildren, I'm really fond of all of them. And one thing I've said to all of them is, "You must get a college education."

And such happiness, because Scott has got his college education--that's my son's boy. He's working here in the San Diego area, and married to a wonderful young girl, Theresa, and they live over in the Clairmont area. Christine's two boys got college educations, and Paul is living in Washington, D.C. His wife has got her doctorate in chemistry, and they're doing quite well back there. And they have a little boy by the name of Ryan, and are expecting another child even as we speak. Paul also finished college, and obviously Cindy finished, because you can't be a doctor of chemistry by not going to school.

Mikey, Chris's youngest boy, lives up in the L.A. area, and he also finished college. He's working at a job he loves to do, in videotape, and thoroughly enjoys it, and enjoys living in the L.A. area. And my granddaughter, Kim, stayed for awhile with us when she was going to college, and I love her as I do a daughter. She's a wonderful, wonderful young lady, and really a wonderful mother. She really takes care of those kids. And she reminds me an awful lot of Martha Stewart, because if you go to her home, it's really taken care of, and I didn't know how blessed she was at being an artist. Kim lives up in Oceanside, and has two children, my great-grandkids, and she also is expecting, so soon I'll have five great-grandchildren.

And I'm going to tell them all the same thing--that you must get a college education. And you must have enough guts to stand up and be counted, and do your own thing. Because if you don't have enough guts to stand up and be counted, you're not really worth a damn.

Thank goodness all my grandkids and children are doing those kind of things.

Of Susie's three kids, Sammy, even as we speak, is still going to college. And Emily is through with college, and has moved back to San Diego to work in the area. She is a real dynamo. And Elizabeth, the

youngest of Susie's children, is, even as we speak, going to college. She's going to San Diego State. She's working part-time at the San Diego Zoo, and she's learning to be a person who knows how to communicate with the deaf using hand signals, and hopes to get into that in her life's work.

So all in all, Helen and I have been really blessed with wonderful children and wonderful grandchildren, and are being blessed, even as we speak, with great-grandchildren.

. . . *good-bye for now.*

Such happiness, and this is just an addendum to my wonderful life, that it's still happy for me. I'm signing off here, and this is December the 6th, 2000, ten after three in the afternoon. It's real cloudy here in La Mesa, and kind of cool, with a 20 percent chance of rain. And looking forward to the rain, good-bye for now.

Center for Nonverbal Studies

Speakers Bureau

Do you need a speaker or trainer for your group? CNS offers 2-hour to 2-day seminars on nonverbal communication, tailored to diverse audiences and needs. Fees range from pro bono (i.e., no charge for schools and some nonprofit groups) to economical (for government agencies, law offices and private firms). As a nonprofit organization, we accept only what your firm customarily pays for seminars and training. For complete information, please contact CNS (204 West 23rd Avenue, Spokane, WA 99203-1906; 509-624-4794; or e-mail us at nonverbal2@aol.com).

Resort Options: To combine business with pleasure, consider holding your CNS seminar on the beach in beautiful **La Jolla, California** or on the lake at majestic **Lake Coeur d'Alene, Idaho**.

What you do speaks so loud that I cannot hear what you say. --Ralph Waldo Emerson

Tom Hanks is such a master of the subtle gesture that one could happily watch him, say,

rubbing two sticks together. --*People Weekly* (Rozen 2000:37)

Venues:

Couples

Love Signals: The Nonverbal Basis of Attraction, Flirtation, and Courtship (Click here for details)

(Based on David Givens's popular book, *Love Signals* (Crown Publishers, New York) and classic article in the journal *Psychiatry*. The optimal gestures, postures, facial expressions, clothing cues, voice tones and body movements for love, romance and rapport.)

Our television and in-studio audience really enjoyed your discussion and demonstration of 'Love Signals.' We received many telephone calls after your appearance on the show, from viewers requesting more information about your book. You were just terrific. --Tina de Souza, Associate Producer, Good Company, KING-TV Seattle

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CME

Bedside Manner: Using Nonverbal Cues to Find the Person in the Patient (Click here for details)

(Bedside manner is vitally important. It stimulates optimal health behavior and patient cooperation in the wellness process. While good rapport is associated with patient satisfaction, adherence to treatment and favorable health outcomes, poor physician-patient rapport associates with malpractice suits, dissatisfaction and mistrust. We will focus on specific nonverbal signs, signals and cues which lead directly to patient satisfaction, recall of information and perception of competence.)

The student feedback was very positive. One student said your lecture was the most interesting of all the topics presented this quarter. You do convey an excitement for the subject that is contagious as I am sure you are aware of by the body language of the audience. --Carol Stade, R.N., M.N., School of Nursing, U. of Washington

When I first came out of residency after seven years of medical training, I quickly realized that I didn't have the skills, the training, to deal with patients as people. --David Frankel, M.D., North American editor, *The Lancet* (Oct. 1999)

CLE

Off the Written Transcript: Nonverbal Cues In-House and in Court (Click here for details)

(Based on seven years of work with lawyers, judges, and the Washington State Administrator for the Courts; accredited by the Washington State Bar Association, Oregon State Bar and South Carolina Trial Lawyers Association.)

Not only was the course interesting, but you converted me into a people watcher. I am hoping that we may be able to give the course next year. --Hon. Peter W. Thomas, Superior Court of New Jersey

The student comments have been outstanding. Judge George N. Stevens, former Dean of the University of Washington Law School, for instance, described the session as the best, 'by a long shot' CLE program he has attended! --Hon. Donald A. Eide, Washington State Magistrates Association, and Hon. Robert W. Winsor, Washington State Superior Judges Association

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CEU

Product Speak: The Silent Language of Consumer Goods (Click here for details)

(From beach wear to vehicular grille.)

Everyone loved your paper, Dave. And so did I. --Kenneth C. Erickson, Ph.D., Director, Center for Ethnographic Research, University of Missouri at Kansas City

Your presentation was fabulous. --Susan N. Skomal, Ph.D., Managing Editor, *Anthropology News*, American Anthropological Association

I've heard from a number of members who found the topic useful, and your examples fascinating. It was great to kick off our season with such a strong program! --Stephanie Cates, President, Spokane Public Relations Council

Interrogation and the Interview: Nonverbal Agendas for Law Enforcement

(See beneath words, detect deception.)

Thank you, again, for your wonderful and informative presentation. --Frank Simonson, Washington State Division of Vocational Rehabilitation

I am enrolling in some anthropology classes at U of Tennessee in the evening. This is a direct result of my meeting you and the very pleasant seminar that I put on with you at Hilton Head. --J. D. Lee, Law Offices of J. D. Lee, Knoxville

I really enjoyed talking with you and learning from you. It was a great class! --Nick Flint, CEO, Behavior Analysis Training Institute

Between the Words: Counseling's New Nonverbal Agenda

(Decipher emotions hidden in speech. Sponsored by the Washington State University Counseling Services, the University of Idaho Student Counseling Center, the Palouse Area Continuing Education Committee, and the Gritman Medical Center.)

Thanks for your interesting presentation. All that I talked to felt that it was interesting and quite helpful. --James D. Morris, Director, University of Idaho Student Counseling Center

"What was most valuable for you?" *All of it, particularly Dr. Givens' experiences which backed up his info*. --Anonymous evaluation, December 1, 2000

Discussion of the Nonverbal Body was fascinating! --Anonymous evaluation, December 1, 2000

All areas were helpful. --Anonymous evaluation, December 1, 2000

Some very practical information was presented. --Anonymous evaluation, December 1, 2000

I'm looking forward to observing these nonverbals in my clients next week. It's valuable knowing what to look for. --Anonymous evaluation, December 1, 2000

This was great. Thanks! --Anonymous evaluation, December 1, 2000

I enjoyed it--thanks!! --Anonymous evaluation, December 1, 2000

Face-to-Face: The Nonverbal Basis of Rapport

(Determine what clients really think and feel.)

Instructor's knowledge and confidence in what he was talking about was a great help. Course was one of the best I've ever had. (Really!).

A really superb, mind-expanding course. Thank you! --Anonymous evaluations for David Givens' course in nonverbal communication, U. of Washington

Your Nonverbals are Showing: Is What I Say What I Mean?

(Enhance your public persona.)

Several of the judges indicated that the videotape exercise was the highlight of the orientation program. . . . . Looking forward to working with you again. --Esther L. Bauman, Manager, Education and Training, Office of the Administrator for the Courts, State of Washington

I want to tell you how grateful we are for your assistance with the article on this fascinating subject [body language]. We always appreciate it when people take the time to contribute to what we believe is an excellent educational resource. --Nicholas V. Kilzer, World Book Publishing

Drew McGougan called to tell me how much they got out of your talk to the Kiwanis--they thoroughly enjoyed it. Usually

he waits for me to call to ask for a report on our speaker, but this time he called me. --Polly Clark, Manager, U. of Washington Speakers Bureau, Seattle

Q Search: Establishing Viable Rapport Across Continents

(Sponsored by The Marketing Institute and The Institute for International Research. Learn to send, receive, and decode universal signs of emotion.)

The content of this seminar was great! --Leslie Hasbrook, Kraft Foods

Super! Extremely valuable. Very Useful! --Eric Hansen, Director, Marketing Information, Sargento Foods, Inc.

We are always striving to get our customers to think "outside-the-box"--you gave me the "tools" to move respondents in new directions. --Robin Belsky, NOP Healthcare-ACG

Experience

Speaking engagements include: The Smithsonian Institution, the National Academy of Sciences, New York Life Insurance Co., Institute for International Research (IIR-New York), National Association for the Practice of Anthropology (NAPA), Marketing Institute, South Carolina Trial Lawyers Association (SCTLA), Washington State Administrator for the Courts, Behavior Analysis Training Institute (BATI; Oakland, CA), Georgetown U., U. of Maryland, Spokane Public Relations Council, Public Relations Society of America (PRSA), George Washington U., U. of the District of Columbia, St. Alban's School, Spokane Falls Community College Management Department, Washington State Division of Vocational Rehabilitation (DVR), Mt. Vernon High School, Society for Visual Anthropology (Atlanta, Washington, D.C.), American Anthropological Association (Washington, D.C., Philadelphia, San Francisco, Phoenix, New Orleans), U. of California (La Jolla), Grossmont College, Mesa College, San Diego Evening College, Highline Community College, City of Auburn (Washington), Administrative Office of the Courts (New Jersey), Washington State University Counseling Services, University of Idaho Student Counseling Center, Palouse Area Continuing Education Committee, Gritman Medical Center, Northwest Clinic of Psychiatry and Psychoanalysis, Washington Legal Assistants Association (Seattle), Taylor & Ulin P.S., Washington State Magistrates Association, U.S. Probation Office (U.S. District Court, Seattle), Oregon Trial Lawyers Association, King County Involuntary Treatment (Seattle), California Association of Chambers of Commerce Executives (CAACE), Washington State Library Association, Association of Librarians of the U. of Washington (ALUW), U.S. Equal Employment Opportunities Commission (Seattle), Washington State Bar Association accredited seminars, Kiwanis Clubs (through U. of Washington Speakers Bureau), Rotary Clubs, Vandalism Limited Concern (State of Washington), Seattle Master Builders Association, Northwest Center for the Retarded, Zonta International District VIII, U. of Washington (including programs in Anthropology, Astronomy, Psychosocial Nursing, Maternal & Child Nursing, School of Law, Graduate School of Business, Executive MBA Program, Psychology, Textile Sciences, Architecture and Urban Planning, Language Behavior Colloquium, Psychiatry & Behavioral Sciences, School of Medicine and School of Nursing), varied CEU, CLE and CERP seminars (accredited by the Washington State Bar, Oregon State Bar, South Carolina Bar Association, New Jersey Bar, Washington State Nurses Association, and American Anthropological Association), numerous TV and radio interviews on nonverbal communication.

LOVE SIGNALS:

The Nonverbal Basis of Attraction, Flirtation, and Courtship

Presented by **David B. Givens, Ph.D.**
Center for Nonverbal Studies

Morning, Part 1

Phase One: **How to Attract Attention**

9:00 a.m. - 11:45 a.m.

- Nonverbal communication in the **Decade of the Brain**
- The **nonverbal psychology** of courtship
- Nonverbal skills to show **gender**, **presence**, and "**harmlessness**"
- Emotional aspects of the **male-female relationship**

- **Checklist** of nonverbal skills and content areas to be mastered
- Your own **personal repertoire** of body-language cues
- Sending **aroma**, **clothing**, and **color** cues
- Courtship's most productive **clothing** cues
- Three ways to break the innate **stranger barrier**
- How to quickly and substantially sharpen your **observation skills**
- The most compelling body-movements and postures of **attraction**
- Use the **palm-up** gesture to establish rapport
- What **men see**
- How and what **women see**
- Men, show your **wrists**
- Women, show your **arms**
- Two telling signs of hidden **uncertainty**
- A specific pattern of **eye contact** to reduce threat and build rapport
- An advantage of **asymmetry** in hairstyle and dress
- Emotional benefits of aiming, flexing, and shrugging your **shoulders**

Morning, Part 2

Phase Two: Response to Attention-Phase Cues

11:45 a.m. - 12:30 p.m.

- Nonverbal psychology of **meeting someone new**
- **Neurology** and **physiology** of body-language cues
- How to test the waters by **going on "walkabout"**
- How to tell if he's not interested--or merely **shy**

- Which **facial features** are most responsive?
- How to **time** your response
- When **macho** is malo
- How to laugh and **smile**
- Where and when to **look**
- Decoding **shoulders** and **arms**
- Nonverbal cues of positive response: **Face** & **posture**
- Specific cues to recognize partner **evasions** and **resistance**
- Special mention: **Lips** & **hands**
- Three "high-yield" cues of **uncertainty**

Afternoon, Part 1

Phase Three: Breaking into Speech

1:30 p.m. - 3:45 p.m.

- **Nonverbal psychology** of speech
- **Spatial effects** of tables, chairs, and couches
- Nonverbal skills to start and maintain a **conversation**
- The emotional basis of **nonverbal rapport**
- How to establish rapport through **isopraxism** and **angular distance**
- How partners think and feel apart from **spoken words**
- Nonverbal cues to **encourage verbal response**
- Nonverbal techniques to show **concern**
- Targeting **emotion centers** of the brain with speaking gestures
- How and when to vary your **tone of voice**

- Rest-and digest: The fine art of **dining together**
- The **most sensual** foods

Afternoon, Part 2

Phase Four: The Silent Language of Touch

3:45 p.m. - 5:00 p.m.

- The **hidden psychology** of touch
- The wisdom of knowing **when to touch**
- Why touch cues are believable--and profoundly "**real**" to the brain
- Stimulating a primordial **sense of closeness**
- The touch **true test** of where a partner stands
- The most tactile **clothing cues**
- Negotiating the **first touch**--a milestone in courtship
- **Positive** and **negative** reactions to being touched
- From clinging to **hugging**, **embracing,** and **swaying**
- The first **kiss**
- Becoming each other's **baby**
- Advancing to **GO**

David B. Givens, Ph.D.
204 West 23rd Avenue
Spokane, WA 99203
509-624-4794
nonverbal2@aol.com

BIOGRAPHICAL SKETCH

David Givens began studying "body language" for his Ph.D. in anthropology at the University of Washington in Seattle. He served as Resident Anthropologist and Director of Information Services and Programs at the American Anthropological Association in Washington, D.C. from 1985-97, and is currently developing the Center for Nonverbal Studies (CNS), located in Spokane, Washington, and La Jolla, California. His expertise lies in nonverbal communication, anthropology and the brain. Givens's book, *Love Signals*, is a popular, often-cited study of courtship ritual and nonverbal rapport. Two of Givens's academic articles on nonverbal communication are recognized as international classics by the Max Planck Institute in Austria. Givens and neuroscientist Paul D. MacLean introduced the word "isopraxism" (the reptilian principle of mimicking) into the English language, as announced by the executive editor of the *American Heritage Dictionary*, Anne H. Soukanov, in the *Atlantic Monthly* in 1993. David Givens was a member of a team of anthropologists, linguists, astronomers, nuclear physicists, psychologists and materials scientists charged by the U.S. Department of Energy with designing a marker to warn human beings 10,000 years in the future about the dangers of nuclear waste (see WIPP). Givens has been invited to speak on nonverbal communication by the Smithsonian Institution, National Academy of Sciences, New York Life Insurance Company, South Carolina Trial Lawyers Association, Washington State Administrator for the Courts and numerous other groups. He has done communications consulting for Sandia National Laboratories, the Bechtel Group, U.S. Department of Energy, and others; his ideas on nonverbal communication have been written about in magazines such as *Omni*, *Harpers*, the *New Yorker* and *U.S. News & World Report*, and in newspapers such as the *New York Times*, *Washington Post* and *Los Angeles Times*. Author of many reports, magazine and encyclopedia articles, Givens recently completed his second book, *The Nonverbal Dictionary of Gestures, Signs, and Body Language Cues*.

PUBLICATIONS

PUBLICATIONS

David B. Givens, Ph.D.
204 West 23rd Avenue
Spokane, WA 99203
nonverbal2@aol.com

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BEDSIDE MANNER:

Using Nonverbal Cues to Find the Person in the Patient

Presented by **David B. Givens, Ph.D.**
Center for Nonverbal Studies

[Sigmund] Freud learned that in order to understand and effectively treat a patient, a doctor had to listen to his patients. This contribution represented a quantum leap in psychological treatment, which far outweighs the impact of his technical errors. --Leon Hoffman, MD (*Medscape Mental Health* 5(5), 2000. © 2000 Medscape, Inc.)

Morning

One-on-One: Develop Positive, Mutually Productive Relationships with Patients

9:00 a.m. - 12:30 p.m.

- The **new nonverbal agenda** (discoveries made in the 1990-2000 "Decade of the Brain")
- **Nonverbal skills** primary-care physicians need to be effective healers

- Emotional aspects of the **physician-patient relationship**
- Using nonverbal cognition to **humanize** the patient
- **Checklist** of nonverbal skills and content areas to be mastered
- Nonverbal cues as diagnostic **triggers**
- Your own **personal repertoire** of body-language cues
- Four ways to enhance your **interviewing skills** while taking a history
- Three ways to break the **stranger barrier** in the physical exam
- How to quickly and substantially sharpen your **observation skills**
- The most compelling signs of **deception**
- How to gently **probe** deceptive gestures and misleading words
- Using the **palm-up** gesture to establish rapport
- Two signs of hidden **uncertainty**
- A specific pattern of **eye contact** to reduce threat and build rapport
- Cues that contribute to perceptions of physician **competence**
- Emotional benefits of aiming, flexing, and shrugging the **shoulders**
- How to read and respond to **hand-behind-head** cues

Afternoon, Part 1

The Nonverbal Examination (*Incoming*): The Body Language of Patients as People

1:30 p.m. - 3:45 p.m.

- Body-language of the most **effective diagnosticians**
- Nonverbal psychology of **meetings** and **interviews**
- **Neurology** and **physiology** of body-language cues
- A sign for all seasons: **erythema nodosum**

- Nonverbal cues of **patient depression**
- A patient's **skin speaks**
- Decoding signs of **disagreement** and unvoiced **opposition** in the interview
- The most visible signs of **alcoholism**
- Signs of **OCD**
- Nonverbal cues of patient response: **faces** and **postures**
- Specific cues to use to recognize patient **evasions** and **resistance**
- **How to monitor** patient feedback and response
- Four involuntary signs of unvoiced **agreement**
- Special mention: observing the **lips** and **hands**
- Three "high-yield" cues of **uncertainty**
- Nonverbal moods and feelings in the **younger patient**

Afternoon, Part 2

The Nonverbal Examiner (*Outgoing*): Cues that Define a Successful Physician-Patient Relationship

3:45 p.m. - 5:00 p.m.

- Nonverbal skills to foster patient participation in the **wellness process**
- The emotional basis of **nonverbal rapport**
- How to establish rapport through **isopraxism** and the principle of **angular distance**
- Principles of **nonverbal learning** to use in the healing process
- Tempo: how to move swiftly without seeming to **rush**
- How patients think and feel apart from **spoken words**
- A nonverbal strategem to **encourage adherence** with the treatment regimen

- Nonverbal ways to **elicit information** that is not volunteered
- Nonverbal techniques to show **seriousness** and demonstrate **concern**
- Targeting **emotion centers** of the brain with gestures
- How and why to **steeple** when your patient speaks
- **Clothing** strategies to foster credibility in the consultation
- Monitoring **tone of voice**
- Nonverbal wisdom: knowing when and how to **touch**
- Respecting your patient's **personal style** and **space**

OFF THE WRITTEN TRANSCRIPT:

Nonverbal Cues In-House and in Court

Presented by **David B. Givens, Ph.D.**
Center for Nonverbal Studies

Morning, Part 1

One-on-One: **Build Rapport, Detect Uncertainty, Uncover Deception**

9:00 a.m. - 11 a.m.

- The **new nonverbal agenda** (discoveries made in the 1990-2000 "Decade of the Brain")
- Tutorial on **observation skills**
- Nonverbal methodology to plumb below the **usual depths of inquiry**
- Expand your **limited repertoire** of body-language cues
- Gesture to put people **at ease** (so they will **tell you more**)
- The **deposition** is your nonverbal "reading room"
- Nonverbal truth-testing in **voir dire**
- When clients **hesitate**
- Nonverbal basis of the **stranger barrier**
- **Body** signs of **verbal deception**
- Strategies for **probing** an indecisive gesture
- The psychology of **palm-up** and **palm-down** cues
- A reliable sign of veiled **uncertainty**
- **Scientific** eye signals [NLP (neurolinguistic programming) is not good science]
- The emotional lives of **lips** and **shoulders** (how to read *special visceral nerves*)

Morning, Part 2

Meetings: Getting Your Message Across a Conference Table

11:15 a.m. - 12:30 p.m.

- Nonverbal psychology of **meetings** and **tabletops**
- An office design for the **optimal interview**
- Conceal or reveal your **throat**
- Emotions of color, pattern, and texture in **clothing**

- Significance of **cuffs**, **lapels**, and **shoulder pads**
- When, where, and how to **sit** to enhance information exchange
- Postures that promote **understanding**
- How to tell an opponent from an ally (reading **lips**, **hands**, and **shoulders**)
- A **pause** adds drama
- Mastering the principle of **timed delay**
- **Power centers** in the boardroom
- Rapport through **isopraxism** and **angular distance**
- **While you are seated** your clothing can bespeak presence, credibility, and authority
- Three **nonverbal** ways to win **verbal** arguments

Afternoon, Part 1

Courtroom Signs (incoming): Body Language of Judges, Jurors and Witnesses

1:30 p.m. - 3:45 p.m.

- **Neurology and physiology** of body-language cues
- Intelligence gathering–a **checklist** of cues
- Signs of **disagreement** and **opposition** on the bench
- A nonverbal way to question the **reluctant witness**
- **"Insignificant" clues** make or break a case
- Witness response: **face** and **posture**
- Decoding witness **evasions** and **lies**
- Monitor jury **feedback** to renew juror **response**
- Involuntary signs of **agreement**

- Coaching a client's **nonverbal demeanor**
- "High-yield" cues in the jury: reading **tactile antennae**
- Nonverbal emotions in the **younger witness**

Afternoon, Part 2

Courtroom Signs (outgoing): Make Your Argument Convincing, Credible, Memorable

3:45 p.m. - 5:00 p.m.

- Principles of **nonverbal learning** in the litigation process
- How jurors think and feel **apart** from **spoken words**
- Master the entirety of **courtroom space**
- **Nonverbal** techniques that lock your argument in **verbal** memory
- **Physical approach** to reclaim juror attention
- Body language addressing your opponent's **psyche**
- Nonverbal signs to mark your **cross**
- Positive demeanor dominates a **hostile witness**
- Gestures that target **emotion centers** of the brain
- While your opponent cross-examines, **steeple**
- **Clothing** fosters credibility in court (special mention: your **shoes**)
- Hark to your **tone of voice**
- When to **touch the jury railing**
- Should you invade your opponent's **personal space**?
- Mark your oral argument's verbal structure with **body movements**

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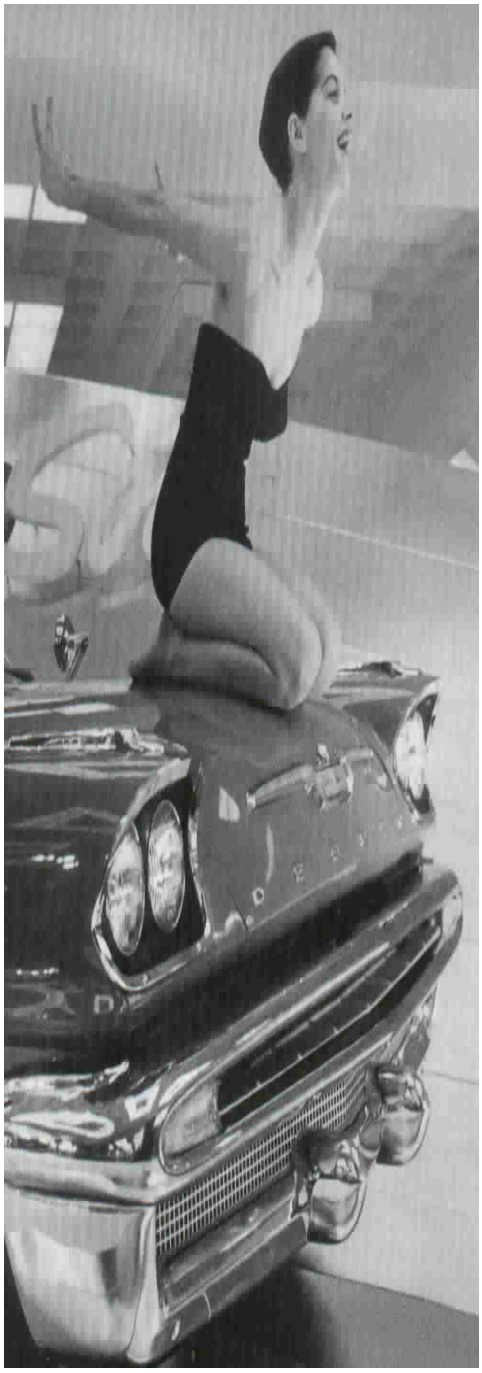
PRODUCT SPEAK:



The Silent Language of Consumer Goods (From Beach Wear to Vehicular Grille)

Presented by **David B. Givens, Ph.D.**
Center for Nonverbal Studies

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Morning, Part 1

Product Speak: Why Consumer Goods are so "Chatty"

9:00 a.m. - 11 a.m.

- Products and the **Decade of the Brain**
- Products are material objects deliberately fabricated for **mass consumption** and use
- How **Darwin's decorations** shape our material culture
- Like **gestures**, products have a great deal to "say"
- Products **call to us** through colors, textures, aromas, tastes, and sounds
- We **handle millions** of products in a lifetime
- By age five, the typical American child has owned **250 toys**
- How **product selection** creates ever more fluent and fascinating consumer goods

Morning, Part 2

How to Read a Product: From Blatant Message to Hidden Cue

11:15 a.m. - 12:30 p.m.

- Semiotics of products: **signs**, **signals**, and **cues**
- The nonverbal psychology of the **20,000-to-30,000** everyday artifacts in our lives
- Why products have **more to say** than natural objects, such as twigs and stones
- How product selection is shaped, intensified, and sped by media amd reptilian **isopraxism**
- The power of **"As seen on TV"**
- Why images of human beings gulping soft drinks reached **120 million viewers**

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Afternoon, Part 1

Evolution of Products: Oldowan Chopper to Automobile Stripe

1:30 p.m. - 3:45 p.m.

- **Neurology and physiology** of product cues
- **Consumer products** are fabricated by humankind
- **Product selection** parallels the biological process of natural selection
- Why product evolution is **three times faster** than biological evolution
- **Messaging features** (e.g., Levis® red tags) stand out against functional elements of design
- From jeans to pyramids, interstate highways, and the Great Wall of China
- Why we covet products--the neurology of **object fancy**
- Why only the **most expressive** products survive

Afternoon, Part 2

Case Studies: Adding Nonverbal Punch to Vinyl, Foods, Fabric, and Steel

3:45 p.m. - 5:00 p.m.

- Seven principles of **nonverbal perception and appeal**
- A Superball® engages multiple **knowledge areas** of our brain
- Silly Putty® appeals to **protopathic touch**
- A Big Mac® engages the amygdala of our **emotional brain**
- Neckties conceal our throats and help us **stand taller**
- Vehicular stripes create **illusions of speed**

- Vehicular grilles add **primate personality** and "attitude"

PRODUCT SELECTION AND THE EVOLUTION OF CONSUMER GOODS

Presented by David B. Givens (**Center for Nonverbal Studies**)

American Anthropological Association, Chicago Hilton & Towers Hotel, *Thursday, November 18, 1999,* in *Private Dining Room 2, 3rd floor*.

Session

4:00 pm-5:45 pm
TIME ON THEIR CLOCK: ANTHROPOLOGY IN, ABOUT AND FOR BUSINESSES
Organizer: Ken C Erickson. **Chair:** P L Sunderland, Ken C Erickson. **Papers:** P L Sunderland, David B Givens, Marietta L Baba, Gerald Mars and Valerie Mars, Michael Hitchcock, Alain Robichaud and Susan Gzesh. **Discussant:** Jean-Francois Chanlat

Abstract

As material artifacts, consumer goods evolve through a process of product selection, paralleling that of natural selection in biology. Products, labels and brands not chosen by consumers become extinct, while selected items survive to live and sell another day. Interpreted nonverbally, successful products display messaging features--such as the Nike swoosh, the red tag on Levi's jeans and the mouth-shaped vehicular grille--designed to appeal to consumers as emotional signs. A messaging feature may be a meaningful mark, line, shape, pattern, seal, banner, badge, decoration, symbol, gloss, color, aroma, cadence, edging or spangle added to a product to transmit information rather than to provide functionality, durability, or

strength. Using linear messaging features incorporated into the designed of the necktie, the Brooks Brothers suit and the vehicular stripe as examples, this paper shows how nonverbal signs work to (1) encourage product selection, and (2) promote the evolution of modern material culture, manufactured artifacts and consumer goods. (Copyright 1999 by the American Anthropological Association)

AAA Press Release: Darwin's Decorations

Product selection parallels the biological process of natural selection, says *David Givens* (Center for Nonverbal Studies), where products become extinct or survive to live and sell another day. Givens describes how nonverbal signs in clothing and packaging encourage product selection and promote the evolution of modern material culture. (Copyright 1999 by the American Anthropological Association)

[slide 1] Case 1: Visual cue

This 72 year-old consumer product is embossed, or made of enamel, vinyl, chrome, or steel. Through an optical illusion, its horizontal placement suggests "longer," "lower," and "faster." Pandemic throughout most of the world.

Your diagnosis is:

a) Design for a Jeepney

b) Wickerwork motif

c) Condominium fascia

d) Vehicular stripe

[slide 2 (fig. A)] Vehicular stripe

[slide 3a] Case 1: Decoding the message

It was an effort to make the car look longer and lower. --Harley Earl

Break-down into MESSAGING FEATURES:

A messaging feature is:

- A usually brief communication crafted into the design of a consumer product

- A meaningful mark, line, shape, pattern, brand, label, seal, banner, badge, decoration, symbol, gloss, color, aroma, spice, cadence, tone, edging, spangle, or appliqué added to a product to transmit information (rather than, e.g., to provide functionality, durability, or strength)

- Through messaging features, consumer products "speak" to us as gestures

- Messaging features evolve through a process of product selection

- We choose products that function properly and "express themselves"

[slide 3b] Case 1: Decoding the message

Thin-horizontal lines

- Horizontal pinstripes painted by hand or by mechanical means
- Linear markings of chrome stripping or vinyl
- Stamped as embossments or indentations
- Run the length of a vehicle, bilaterally, below the windows

Evolution:

- Originated as a "beltline" design for the 1927 LaSalle
- Stripes decorate virtually all U.S. autos since 1927

Meaning:

- According to inventor Harley Earl, "This strip was placed there to eat up the overpowering vertical expanse of that tall car."
- A single highlight should run the length of the car, like a theme or plot
- Originally painted by hand because mechanical lines are "dead" lines
- Perfectly ruled lines lack a hand-drawn line's "insouciant raciness"

Neurology:

- We are highly stimulated by edges, lines, and linear detail
- (Perhaps from a primate fascination with branches and trees)
- Horizontal lines add illusory "length"
- Vertical lines add illusory "standing height" (e.g., the necktie)
- Primary visual cortex contains orientation-selective neurons
- Only responsive to vertical or horizontal lines, or other linear angles

[slide 4] Points:

- Products speak nonverbally as **gestures**
- Consumers relate to products via **messaging features**
- Product evolution selects for ever-increasing **expressivity**
- To design or sell a product, know what it **"says"**

Benefits:

- Emotional triggers
- Focus group questions & strategies
- Design features
- Ad hooks & hot buttons

[slide 5] Case 2: Emotion cue

This 91 year-old, usually curvilinear product expresses "emotion" by mimicking perioral features, esp. our lips, tongue, and teeth. Reflecting facial mood signs--from the friendly smile to the angry tense-mouth--it is designed to show personality and "attitude," and command respect. Occurrence is pandemic throughout the world.

Your diagnosis is:

a) Big-screen TV emoticon

b) Totem-pole spirit face

c) Disney character

d) Vehicular grille

[slide 6 (fig. B)] Vehicular grille

[slide 7a] Case 2: Decoding the message

. . . *resembling the silent-bared teeth face of monkeys and apes*. --The Nonverbal Dictionary

MESSAGING FEATURES

- Facial expressions (smiles, frowns, tense lips, disgust, anger)
- Mouth parts (lips, gums, teeth, tusks, tongue)
- Run along the "face" end of buses, cars, and trucks

[slide 7b] Case 2: Decoding the message

Evolution:

1903 Ford Model A: neither grille nor vertical front-end

1908-1927 Model T: vertical front-end with framed radiator as "proto-grille"

1928 Model A: shapely, contoured radiator suggests a vertically ascending "nose"

1932 Lincoln: nose-like, V-type radiator was "high-brow"

1940s: grille design shifted from "noses" to "mouths"

1946 Mercury: aggressive, tooth-showing grille resembles angry bulldog

1946-2000: mouth motifs predominate; nose shapes inadvertently damage sales

(Note: nasal illusions help sales of "aristocratic" vehicles, such as Jaguar and Mercedes-Benz, which "look down their noses" at lesser automobiles)

1955 Mercury Montclair: redesigned bumper grille houses "teeth" and "tusks"

1955-57 Ford Thunderbird: features "tusks"; mouth-like grille shouts, "Hey!"

1958 Edsel: "horse-collar" grille dooms it to extinction

1963 Mercury Breezeway: adds tusk-like dual headlights to grille

1966 Mercury Comet Cyclone: tense-mouth grille is "toothless"

(Note: illusory hood scoops compensate for defanged look with "muscle")

1966 Mercury Cougar: introduces silent-bared teeth "smile face"

2000: Smile-face grilles predominate

[slide 7c] Case 2: Decoding the message

Neurology:

- Like a face, a grille is decoded in the anterior inferotemporal cortex
- Familiarity registers in superior temporal polysensory area
- Links between biting, chewing, showing fangs, genital erections, anger, and fear are found in the anterior hypothalamus in a region of converging nerve fibers involved in angry and defensive behavior
- Emotional impact of grilles registers subcortically in the amygdala

[slide 8] Case 3:Taste cue

This 31 year-old product "speaks" through the chemical medium of taste. Its meaty flavor is enhanced by the rush of primary salty, sour, and sweet ingredients which address tongue receptors directly, but have little effect on more discerning nerves of the nose. Occurrence: epidemic throughout much of the world.

Your diagnosis is:

a) Greek oven-cooked bread with opson

b) Pounded Hamburg steak

c) Domino's® pizza slice

d) Big Mac® sandwich

[slide 9 (fig. C)] Big Mac

[slide 10a] Case 3:Decoding the message

A mass-produced beef sandwich with stratified layers that mark an incredibly long prehistory in time. --The Nonverbal Dictionary

MESSAGING FEATURES

- Chemical signs: mainly taste
- Sesame seeds: nutty flavor primates crave
- Cooked beef: furans, pyrones, and other carbon, hydrogen, and oxygen molecules provide complex onion, chocolate, nutty, fruity, and caramel-like tastes we prefer to bland taste of uncooked flesh
- Pickles: add texture and primary sour taste

- Lettuce: soothing properties of magnesium

- Onions: volatile sulphur compounds

- Sauce: adds moisture; variant of thousand-island dressing (salad oil, orange and lemon juice, minced onion, paprika, Worcestershire sauce, dry mustard, parsley, and salt)

- American cheese: sends salty signals to tongue tip. Smoothness blends well with coarse texture of beef. Flavorful fatty acids and esters of glycerol satisfy a natural craving for fat

[slide 10b] Evolution:

- Encodes potpourri of flavor messages from the past

- Bread and meat an age-old combination. Oven-cooked bread invented by Greeks and eaten with opson ("non-bread" veggies and meats) on top. Open-faced sandwich later evolved as pizza.

- From Dark Ages to Renaissance, thick bread slices (trenchers) prepared with meat and sauce on top, paving way for double-decker sandwiches such as Big Mac

- Gherkins, eaten in India with salt or lemon juice for 3,000 years, came to Europe during Renaissance. Sour tastes enjoyed with

lettuce since the Roman era

- Lactuca sativa (lettuce) preferred by the ancient Greeks above all other greens; aided digestion

- Wild onions used 4,000 years ago by Egyptian peasants to season bland meals. (Mummies included onions, wrapped in separate bandages, as carry-out for afterlife)

- Sweet & sour sauces have flavored meats for thousands of years

- Cuneiform tablets place cheese in the Near East by 6,000 b.p.

[slide 10c] Case 3: Decoding the message

Neurology:

- Like primary colors, the basic bitter, salty, sour, and sweet tastes of fast-food coffee, fries, pickles, and soda make brash rather than subtle statements

- Subtleties of cabernet, truffles, and haute cuisine processed in higher brain
centers, capable of culinary learning

- Primary tastes of fast food handled subcortically

- In the thalamus

- And in a buried part of cerebral cortex, the insula, which is linked to the amygdala and the emotional limbic system

[slide 11] Case 4: Clothing cue

This 399 year-old product enabled men to seem "bigger," and present "larger" versions of themselves in public. Today its conservative design allows men and women to display a powerful, influential silhouette in business, military, and public affairs. Pandemic, worldwide.

Your diagnosis is:

a) Swim suit

b) Zoot suit

c) Birthday suit

d) Brooks Brothers suit

e) Business suit

[slide 12] Business suit

[slide 13a] Case 4: Decoding the message

Beowulf put on his warrior's dress, had no fear for his life. --Beowulf

MESSAGING FEATURES

- Downplay personal identity
- Showcase upper-body strength
- Strength cues from the broadside display
- Squared shoulders exaggerate size and "strength" of upright torso
- Jacket's hemline visually enlarges upper body to pongid (gorilla-like) proportions
- Flaring upward and outward, lapels enhance illusion of primate pectoral strength
- Pads & epaulets cover inadvertent shrugs
- Crisp, tailored look frames permanently established "wedge"

- Lapels lie flat, buttons blend in

- Shoulders firmly defined within jacket's stable edges and secure collar

[slide 13b] Evolution:

- Through product selection, suits became power uniforms

- Broadside display first appears in animal-hide clothing of Neanderthals, ca. 200,000 years ago

- First solid evidence appears in Roman toga in 200 B.C. Men in tunics draped wool or linen toga-cloths over left shoulder to make upper body "thicker"--more formidable than in tunic alone

- From togas to doublets (1300s), to shortcoats (1600s), court coats (1700s), and sport coats (1990s), clothing enabled men to seem "bigger" and present "larger" versions of themselves in public

Conclusions & Discussion

Between the Words: Counseling's New Nonverbal Agenda

Palouse Area Continuing Education Committee
Washington State University
University of Idaho
Friday, December 1, 2000, 1:00 pm - 4:30 pm
Quality Inn, Pullman, Washington

Welcome!

I. What is Nonverbal?

A. Messages apart from words

B. The Nixon tape transcripts, e.g.

C. A couple of tools

II. What's New? Discoveries in the 1990-2000 Decade of the Brain

A. Our emotional brain evolved-and ballooned--too

B. Humans: The most emotional creatures on earth

C. Nonverbal cues show emotions that words alone hide

III. Let's explore our Nonverbal Body

A. On walkabout in Shoulder Country (SHOULDER-SHRUG*)

B. We fly over Lip Terrain (TENSE-MOUTH)

C. The migration of Hands (PALM-DOWN, PALM-UP, STEEPLE)

D. Notable Clothing Landmarks (BUSINESS SUIT)

E. The EYE looks back (FLASHBULB EYES, GAZE-DOWN)

F. Spelunking the Brain (NONVERBAL BRAIN)

G. The Lie of the land (DECEPTION CUES)

H. Psychiatric Soft Parts (SOFT SIGNS)

IV. Conclusion: Your Nonverbal Skills in Counseling

* Caps designate entries in ***The Nonverbal Dictionary***

David B. Givens, Ph.D.
Center for Nonverbal Studies
Spokane, Wash.
La Jolla, Calif.
509-624-4794
http://members.aol.com/nonverbal2/index.htm
www.Google.com (type in "Center for Nonverbal Studies")

Communication Arts

COMM 306, Communication Research Methods
Spring 2002
MWF 9:00 am - 9:50 am
Instructor's office: Administration 486
Dr. Dave Givens, instructor
509-624-4794
nonverbal2@aol.com

To acquire knowledge, one must study; but to acquire wisdom, one must observe. --Marilyn vos Savant

You can observe a lot by watching. --Lawrence Peter ("Yogi") Berra

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San Diego Update

Your instructor will be out of class for a few weeks (Feb. 5 - 24, 2002) due to a family emergency. My mother is having heart bypass surgery. Meanwhile, my father is returning home from a nursing care facility. Yours truly will coordinate the tricky job of getting them back together again, up and running, at their condo in San Diego.

Our last class meeting was Mon., Feb. 4. We will meet again starting on Mon., Feb. 25.

Our Department chair, Prof. Tom Miller, indicated we could continue our COMM 306 class in this hiatus through assignments and communications via our class web site. So, please stay tuned to announcements from this page:

(1) Please make sure I have your e-mail address. Shoot me an e-mail if you haven't already done so with Project III.

(2) For our 4th week of class (Feb. 6 - 8), we'll focus on Quantitative Analysis. In *How it's Done*, please read pp. 393-

414 (Ch. 15: "Quantitative Data Analysis"). Please complete Class Project IV: "Quantitative Survey Analysis" (see below ***Our Twelve Class Projects***).

(3) For our 5th week of class (Feb. 11 - 15), we'll focus on Qualitative Analysis. In *How it's Done*, please read pp. 431-446 (Ch. 16: "Qualitative Data Analysis"). Please complete Class Project V: "Qualititative Survey Analysis" (see below ***Our Twelve Class Projects***).

(4) For our 6th week of class (Feb. 20 - 22), we'll focus on Content Analysis. In *How it's Done*, please read pp. 333-347 (Ch. 13: "Content Analysis"). Please complete Class Project VI: "Content Analysis" (see below ***Our Twelve Class Projects***).

(5) I'll be back for the 7th week of class--See you on Monday, Feb. 25 at 9:00 a.m.!

Ciao,

Dr. Dave Givens
San Diego phone 619-589-7144

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Welcome to COMM 306's official web page! *Please click **here** to go to our syllabus.*

Study Guide for Midterm Exam:

Our midterm exam will have about 30 fill-in-the-blank type questions and one or two essay questions. Don't worry about any of the reading or textbook sections we didn't explicitly talk about in class. Do worry (a little) about understanding the methodologies of the "Focal Research" sections in our text. Be sure to know how to compute percentages (including percent increase/decrease), means, medians, modes, and standard deviation statistics, using your calculator (***please bring your calculator to the exam***). Understand how we did our class projects from week 1 thru week 6--please review your data sheets, data matrices, crunch sheets, and report-out memos to your prof. This exam will be relatively easy, and more than one response will count for almost all of the fill-in questions. There will be no questions with obscure answers--everything is pretty staightforward. Please have some basic working knowledge for each of the research methods we've experimented with so far, especially surveys and survey questionnaires. (Hint--Here's one of your essay questions: "In a job interview, you are asked to explain your training/experience in communication research methods. Your answer, please: ".) Okay, good luck!

Our Twelve Class Projects:

I. Descriptive Statistics for our Class

Objectives: **A.** to learn to use a data sheet; **B.** to learn to take data; **C.** to learn to compute means, medians, modes, and percents; **D.** to learn to summarize data in a succinctly written report.

Method: **A.** make up a data sheet and label it "Descriptive Statistics" (please also date your data sheet); **B.** for each student in our class, ask (1) age, (2) gender, (3) year in school, (4) major, and (5) career goal; **C.** record quantitative and qualitative responses on data sheet; **D.** using your calculator, compute descriptive statistics for our class; and **E.** for Project I, please report back findings in a memo to your prof.

II. Available Data: "Why Major in Communication" Info for the *Washington Post*

Objectives: **A.** to learn to respond in a focused way to media inquiries; **B.** to learn to gather requested information from available data sources for a prompt media response; **C.** to learn the difference between objective (e.g., science) and advocacy (e.g., professional-association) data.

Method: **A.** assume you're employed at PRSA; **B.** assume the *Washington Post* calls about doing an article on higher education and careers; **C.** assume the reporter wants some information on PR as a career; **D.** using the Internet, magazine and newspaper articles, Communication Arts departmental flyers, industry statistics, and so on, provide at least a dozen positive reasons for majoring in PR at Gonzaga; and **E.** for Project II, please report what you told the reporter in a memo to your prof.

III. Designing a Communication Majors Survey

Objectives: **A.** to formulate quantitative and qualitative (open-ended) questions designed to assess the quality of the communications major; **B.** to learn how to test and critique the survey questionnaire.

Method: for Project III, please e-mail a memo to your prof. recommending five questions to be added to the survey.

IV. Quantitative Analysis of our Communication Majors Survey

Objectives: **A.** to learn how to assign a unique I.D. number to each returned survey; **B.** to learn how to produce a KEY which gives names to the variables of each question (e.g., "gender") and values to each variable (e.g., "M" and "F"); **C.** to learn how to produce a data matrix in which to record data from the survey prior to data analysis (e.g., produce a spreadsheet for data input).

Method: **A.** your prof. selected ten (10) completed surveys and handed back a complete set of the sample of ten to each of you (additional data sets are available in Dave's mailbox on the 4th floor of Admin. in the Communication Arts Dept.); **B.** for Project IV, please do a quantitative analysis of the quantitative questions (e.g., percents, means, medians, modes, and so on) and summarize your findings in a memo to your prof (try and get as much quantitative information out of the sample data set as possible, e.g., are our men older than our women, what percent of PR majors have mentors, and so on).

V. Qualitative Analysis of our Communication Majors Survey

Objectives: to learn how to analyze open-ended survey questions by identifying common themes in the respondents' answers (as per our discussion on Fri., Feb. 1).

Method: **A.** Project V is in two parts; **B.** first part, see what common answers and themes emerge from the open-ended questions; **C.** second part, using your quantitative and qualitative findings in tandem, suggest five (5) possible ways to improve our Communication Arts Department here at Gonzaga (please report out your qualitative findings first, and then your suggestions [about one paragraph each] in a memo to your prof).

VI. Content Analysis of a Stem-Cell Article

Objectives: **A.** to learn to do a quantitative and qualitative content analysis; **B.** to enter the arena of media coverage of stem-cell research (with an eye toward our final project, on marshalling communication-research methods to study fairness in media coverage).

Method: **A.** make up a data sheet and label it "Content Analysis" (please also date your data sheet); **B.** click on the article, "**How Bush Got There**"; **C.** number the paragraphs; **D.** for each paragraph, make a reasoned judgement as to (1) favorable to stem-cell research or (2) against stem-cell research; **E.** use concepts to justify your judgements (e.g., the number of citations of opponents of stem-cell research (such as the Catholic Council of Bishops) vs. the number of

proponents cited (such as Michael J. Fox); **F.** tally the number of pro and con paragraphs; **G.** make a judgement of "fairness," based on the relative number of plus and minus paragraphs in the piece; and **H.** report back findings in a memo to your prof.

VII. Case Study of Sports Promotion on the Gonzaga Campus

Objectives: **A.** to learn to make observations of the world around you; **B.** to learn to work with a local, Inland Washington case study which is representative of a larger, national phenomenon; **C.** to gain insights into the world of collegiate sports promotion in the U.S.; **D.** to work with data sheets; and **E.** to generalize, using inductive reasoning, from specific observations to more general patterns of human behavior.

Method: **A.** walk around the Gonzaga campus as if you were a Martian (i.e., as if everything is strange and mysterious); **B.** ask yourself how collegiate sports are promoted on campus; **C.** describe the physical media you see (e.g., banners, clothing, flyers, key chains, stuffed animals, web sites, shrines, and so on) that advertise and promote sports here on campus; **D.** reflect on the who, what, when, where, how, and why of these strange, Earthling customs; **E.** [optional] interview staff in the PR offices on campus; **F.** reflect on how your Gonzaga case study itself reflects the larger, national collegiate-sports scene; and **G.** report back findings in a memo to your prof.

VIII. Comparison of AAA, ASA, and PRSA Ethics Statements

Objectives: **A.** to learn how professional associations handle ethics issues in research on human beings; **B.** to learn how do a content analysis of three codified research-ethics statements; **C.** to compare and contrast the ethics content of these formal documents as they pertain to research on human subjects.

Method: **A.** click on the **AAA**, **ASA**, and **PRSA** ethics statements; **B.** compare (1) three key similarities and (2) three key differences in these statements (as they pertain to research on human subjects); **C.** reflect on why the differences in research ethics exist; and **D.** report back findings in a memo to your prof.

IX. Collecting Measurement Data from Consumer Products: Vehicular Grilles

Objectives: **A.** to learn to make observations; **B.** to use a data sheet; **C.** to take measurements; **D.** to experience uncertainty about measurement accuracy (e.g., where to position the tape measure); **E.** to compute measurement indices; **F.** to compare indices; and **G.** to interpret sizes and shapes.

Method: **A.** make up a data sheet and label it "Vehicular Grille" (please also date your data sheet); **B.** check out how, what, and why grilles communicate (**please click here**); **C.** using a tape or a yardstick, measure (1) the horizontal length of the top of the grille, (2) the horizontal length of the bottom of the grille, and (3) the vertical height of the grille from bottom to top; **D.** please measure seven grilles, noting the year (estimate if you must, e.g., 1998) and make (e.g., Toyota); **E.** compute the "attitude index"--divide measurement (1) by measurement (2) [if your decimal is, say, 1.3, you may have a friendly "smiley-face" Ford grille; if it's less than 1.0 (say, 0.8), you may have a fierce "frown-face" Toyota truck]; **F.** compute the "status index"--divide measurement (1) by measurement (3) [if your decimal is, say, 5.3, you have a "mouth-shaped" grille; if it's less than or equal to 1.0 (say, 0.5), you have an "nose-shaped" fierce or frown-face grille, like that of a Toyota truck]; and **G.** report back findings in a memo to your prof.

X. Using Chi-Square Calculator for Bivariate Results of Coin & Tack Flipping Trials

Objectives: **A.** to learn to make observations; **B.** to use a data sheet; **C.** to compute statistical frequencies; **D.** to compare differences between two independent variables (i.e., do a bivariate analysis); and **E.** to use a chi-square calculator to gauge if differences are statistically significant.

Method: **A.** make up a data sheet and label it "Coin vs. Tack" (please also date your data sheet); **B.** flip a U.S. quarter

20 times and record the number of heads and tails; **C.** flip a standard, bulletin-board-type thumbtack 20 times and record the number of heads (flat-side down) and tails (pin down); **D.** record data in matrix form as a chi-square-table (if you missed this in class, please see **chi square tutorial**); **E.** type data into **chi square calculator**; **F.** calculate results; and **G.** report back findings in a memo to your prof.

XI. Sampling from Generation X and Y: Is Androgyny evident--and statistically significant--in Footwear?

Objectives:

Method:

XII. Observing Generation X and Y: Thin Description of a Convenience-Sample Group at Crosby

Objectives:

Method:

Format for Individual/Team Research Methods Final Project:

I. Title
II. Abstract (i.e., a summary paragraph)
III. Part One: *Research Proposal for Case Study*
IV. Part Two: *Pilot Study*
V. Conclusions
VI. References

Study Guide for Final Exam:

Our final exam will be cumulative from the first day of class. It will have about 30 fill-in-the-blank type questions and some short essay questions (perhaps one long essay, too). Don't worry about any of the reading or textbook sections that we didn't explicitly talk about in class. Do worry about understanding the methodologies of the "Focal Research" sections. Be sure to know how to compute percentages, means, medians, modes, and standard-deviation statistics, using your calculator (***please bring your calculator to the exam***). Please be able to answer the question, "What is a chi square test? (Check out Georgetown U's chi square tutorial, below.) Understand how we did our class projects--Project I thru XII--please review your data sheets, data matrices, data crunch sheets, and report-out memos to your prof. Please be able to answer short-essay questions about each of the research methodologies we have explored (content analysis, case studies, qualitative interviews, evaluation research, and so on), including an example for each method. This exam will be relatively easy, and more than one response will count for almost all of the fill-in questions. There will be no trick questions with obscure answers--everything, again, is pretty staightforward. Please have some basic, working knowledge about each of the research methods, measurements, and computations we've used this fall. (Hint--Here [again] is one of your essay questions: "In a job interview, you are asked to explain your training/experience in communication research methods. Your answer, please: ".) Okay, good luck!

Class Links:

American Communication Association (www.uark.edu/~aca)
Chi Square Calculator (www.georgetown.edu/cball/webtools/web_chi.html)
Chi Square Table (www.gypsymoth.ento.vt.edu/~sharov/PopEcol/tables/chisq.html)
Chi Square Tutorial (www.georgetown.edu/cball/webtools/web_chi_tut.html#computing)
The Nonverbal Dictionary

Public Relations Society of America (www.prsa.org)
Spokesman-Review article of Feb. 15, 2001 (members.aol.com/nonverbalguy/sprague1.htm)

***Standard Deviation Calculators*:**

http://espse.ed.psu.edu/statistics/Chapters/Chapter5/mystdevcalc.html
http://www.geocities.com/CollegePark/Quad/5274/sd.htm

Research Methods Final Project Links:

(1) Text of President Bush's August 9, 2001 TV Speech (members.aol.com/nonverbalguy/stem41.htm)
(2) Catholics Condemn Stem Cell Decision (stem61.htm)
(3) Hollywood's Latest Cause: Stem Cells (stem71.htm)
(4) U.S. Identifies Firms With Stem Cell Lines (stem121.htm)
(5) Elizabeth Cohen: Ethics of stem cell research(stem131.htm)
(6) How Bush Got There (stem141.htm)

(A) Accuracy in Media (www.aim.org)
(B) Fairness & Accuracy in Reporting (www.fair.org)
(C) The Poynter Institute (www.poynter.org)

Syllabus

Gonzaga University - Communication Arts
COMM 306 - Communication Research Methods
Fall 2001, MWF 9:00 am - 9:50 am
Administration 203
Dr. Dave Givens, instructor

Text
How It's Done: An Invitation to Social Research
Emily Adler and Roger Clark
New York, Wadsworth Publishing Co., 1999

Office Hours
MWF 8:00 am - 8:50 am
Administration 486
Phone & Voice Mail: 509-624-4794
nonverbal2@aol.com

Grading
Class Participation & Class Projects = 25%
Midterm Exam = 25%
Individual/Team Research Methods Final Project = 25%
Final Exam = 25%

Special Needs
If you have special needs, such as testing, seating,
or religious or sports-related attendance problems,
please contact me as soon as possible.

Our Class Web Page
http://members.aol.com/nonverbalguy/zags1.htm
Essential Links to Internet Resources
Announcements

Week I (Descriptive Statistics)

Wed., Sept. 5 - Welcome!
1. Intro to class
2. Our textbook
3. Our syllabus and home page

Fri., Sept. 7
1. *How it's Done*: please read pp. 1-15 (Ch. 1: "The Uses of Social Research")

2. How to make and organize *data sheets*
3. *Gather data*
4. Select a *sample*
5. Compute *mean*, *median*, *mode*, and *percent* (we'll do a *standard deviation* later on)
6. Project I: Descriptive Statistics (please summarize your results in short memo to me)

Week II (Available Research Data)

Mon.
1. *How it's Done*: please read pp. 305-324 (Ch. 12: "Using Available Data")
2. Hand back Project I - discussion; overhead example, FYI
3. "American Information Association" - Welcome Aboard!
4. Class Project II: *Washington Post* - "Why Major in Communication?"

Wed.
1. Share & discuss resource venues for Project II
2. Internet resources for communication studies
3. *Hyperlinks* on our class web page
4. Merits of using available quantitative & qualitative data from *Internet* and *library* sources
5. Using *interview data*
6. Data modification: refiguring Project I's *percent*, *mean*, *median*, *mode*, and *standard deviation* with a new N

Fri.
1. Project II - share & discuss results
2. Value for a newspaper article, for our own Department, and for next week's Project III
3. The *Big 6 Questions* about all communication research projects
4. Discuss reading - "The Uses of Social Research" - pp. 1-15 in *How it's Done*

Week III (Survey Questionnaires)

Mon.
1. *How it's Done*: please read pp. 201-227 (Ch. 9: "Questionnaires and Structured Interviews")
2. How to do a *survey*
3. Gonzaga's recent survey: "GU Faculty Lacks Diversity" (the politics of research)
4. Class Project III: Survey Questionnaire - "Communication Majors Survey"
5. Designing survey *questions* (using some results of Project II)

Wed.
1. Designing survey questions
2. Choosing an effective *format* for our survey questionnaire
3. Title, short explanation (e.g., why you should fill out our survey)

4. Demographic questions (e.g., age, sex, major, year in school, race, ethnicity)
5. Substantive questions (e.g., about quality of library resources, mentoring, career counseling)
6. A very cool Internet site for interactive descriptive statistics, FYI
7. Discuss reading - "Using Available Data" - pp. 305-324 in *How it's Done*

Fri.
1. How to *test* a survey, before administering it to real people
2. Good medicine: Taking our own survey
3. Evaluating our draft survey

Week IV (Quantitative Data Analysis)

Mon.
1. *How it's Done*: please read pp. 393-414 (Ch. 15: "Quantitative Data Analysis")
2. Introducing our Team Research Project (Team A & Team B)
3. Class Project IV: Quantitative Survey Analysis
4. How to make a *data matrix*
5. How to *code* survey responses and enter into data matrix

Wed.
1. Class workshop on computing statistics from survey data matrix
2. How to make, structure, and use a *data crunch sheet*
3. Discussion of our survey questions, codes, and procedures
4. Suggestions for improving our survey questionnaire

Fri.
1. Discussion and results of Class Project IV: Quantitative Survey
2. Thinking ahead to our Individual/Team Research Project
3. Individual/Team Project links on our class web site
4. Discuss *Smithsonian* magazine article on "Discovering the Odds"
5. Discuss reading - "Questionnaires and Structured Interviews" - pp. 201-227 in *How it's Done*

Week V (Qualitative Data Analysis)

Mon.
1. *How it's Done*: please read pp. 431-446 (Ch. 16: "Qualitative Data Analysis")
2. Class Project V: Qualitative Survey Analysis
3. How qualitative answers shed light on quantitative responses
4. How to code & interpret qualitative, open-ended answers

Wed.
1. Class workshop on qualitative coding and bivariate analysis

2. Data coding, data matrix, data crunch sheet
3. "Gender Differences in Communication Majors"--extracting patterns from our survey
4. What does *correlation* really mean?
5. Using your intuitive sense to spot patterns
6. Using your logic (and statistics) to test patterns

Fri.
1. Discussion and results of Class Project V: Qualitative Survey
2. Discuss reading - "Quantitative Data Analysis" - pp. 393-414 in *How it's Done*
3. Discuss reading - "Qualitative Data Analysis" - pp. 431-446 in *How it's Done*

Week VI (Content Analysis)

Wed.
1. *How it's Done*: please read pp. 333-347 (Ch. 13: "Content Analysis")
2. Discuss teams and rationale for our Individual/Team Research Project
3. Class Project VI: Content Analysis - *Spokesman-Review* Feb. 15, 2001 (see hyperlink on COMM 306 web page)

Fri.
1. Discuss Content Analysis
2. Discuss Project VI
3. Discuss reading - "Content Analysis" - pp. 333-347 in *How it's Done*

Week VII (Theory & Researchable Topics)

Mon.
1. *How it's Done*: please read pp. 17-56 (Chs. 2 & 3: "Theory and Research" & "Selecting Researchable Topics and Questions")
2. *Please turn in Data Work Sheets one week from next Wednesday*.
3. Theory and research topics, to complete the first half of our semester.

Wed.
1. Study class notes and readings
2. Review class projects, data work sheets, data matrices, data crunch sheets
3. **No class project this week**

Fri. - Midterm Examination

Week VIII (Case Studies)

Mon.
1. Hand back and go over midterm exam
2. *How it's Done*: please read pp. 147-72 (Ch. 7: "Cross-Sectional, Longitudinal, and Case Study Designs")
3. Please check out your instructor's **longitudinal survey** on the Web
4. Discuss final Individual/Team Research Project
5. Class Project VII: Promoting Sports: A Gonzaga Basketball Case Study

Wed.
1. Please hand in your Data Work Sheets
2. Discuss final Individual/Team Research Project again (please see *How it's Done* pp. 448-52, on Report Writing)
3. Thoughts on Project VII?
4. Discuss reading - Chs. 2 & 3: "Theory and Research" & "Selecting Researchable Topics and Questions" - pp. 333-347 - and Ch. 7: "Cross-Sectional, Longitudinal, and Case Study Designs" - pp. 147-72 - in *How it's Done*

Fri.
1. Complete observations for Project VII
2. Optional discussion of Project VII and the methodology of case studies

Week IX. (Research Ethics)

Mon.
1. *How it's Done*: please read pp. 57-84 (Ch. 4: "Ethics and Social Research")
2. Project VIII: Comparative Study of Three Ethics Statements:
A. **AAA Ethics Statement**
B. **ASA Ethics Statement**
C. PRSA Ethics Statement (on PRSA's web site [please see link on **COMM 306 web page**])

Wed.
1. Discuss Project VIII
2. A case study of ethics in communications studies: **The WIPP**
3. For additional information on the WIPP project, please see **Halcyon.com**

Fri.
1. Discuss Project VIII
2. Conclude WIPP Case Study
3. Discuss reading - "Ethics and Social Research" - pp. 57-84 in *How it's Done*

Week X (Measurement)

Mon.
1. *How it's Done*: please read pp. 119-46 (Ch. 6: "Measurement")
2. Discuss Individual/Team Research Project - What's your topic?
3. What is measurement? Nominal, ordinal, interval, and ratio measurement data.
4. Project IX: Measuring the Shape of an Expressive Consumer Product
5. The expressive **vehicular grille** (http://members.aol.com/nonverbal2/vegrille.htm)
6. Calculating and using indices

Wed.
1. How to measure people, phenomena, and products
2. Project IX's measurements
3. Measurement decisions and problems in light of your Data Work Sheets' 6 questions
4. Measuring probability: coins vs. tacks
5. Introduction to *chi square statistics* (please see chi square tutorial and links on **COMM 306 web page**)
6. Project X: Use Chi Square Calculator to interpret your coin vs. tack statistics

Fri.
1. Project IX conclusions on measurement
2. Discuss reading - "Measurement" - pp. 119-46 in *How it's Done*
3. Field exercise for grille measurement project

Week XI (Sampling)

Mon.
1. Sampling
2. *How it's Done*: please read pp. 85-117 (Ch. 5: "Sampling")
3. A template for your Individual/Team Research Project
4. Sampling from Gen X and Gen Y: Our *population*
5. Male and female members of this population: our *independent* variables
6. Evolution of human **footwear**: Our *dependent* variables
7. Class Project XI: Are Generations X and Y Androgynous? A Footwear Case in Point

Wed.
1. Key issues in sampling as presented by Project XI
2. Generations X and Y are (only) *concepts*
3. *Conceptual categories* of footwear: Our *units of analysis*
4. Using Chi Square to assess the significance of findings in Project XI
5. What is a *sample*?
6. *Probability* vs. *nonprobability* samples
7. Q: What is a *biased* sample? (A: It's a *systematically unrepresentative* one)
8. *Nonresponse* bias in a sample
9. *Parameter* of the population vs. *statistics* of the sample

10. What is *sampling error*? (When the sample differs from the population)

Fri.
1. Project XI's conclusions on sampling
2. Discuss reading - "Sampling" - pp. 85-117 in *How it's Done*

Week XII (Observation Techniques)

Mon.
1. *How it's Done*: please read pp. 271-98 (Ch. 11: "Observation Techniques")
2. Participant, unobtrusive, and systematic observation
3. Class Project XII: Observing Generations X and Y

Wed. - Thanksgiving Holiday

Fri. - Thanksgiving Holiday

Week XIII (Experimental Research - No Class Project)

Mon.

Wed.
1. *How it's Done*: please read pp. 173-200 (Ch. 8: "Experimental Research")
2. What is experimental research?
3. *Causal hypothesis*
4. *Experimental design*
5. Pre-test, post-test, stimulus, placebo, internal validity
6. Double-blind experiment

Fri.
1. Thoughts on Projects
2. Discuss reading - "Observation Techniques" - pp. 271-98 in *How it's Done*
3. Discuss reading - "Experimental Research" - pp. 173-200 in *How it's Done*
4. Classroom time for projects

Week XIV (Catch-up Week - No Class Project)

Mon.
1. What are qualitative interviews?
2. *How it's Done*: please read pp. 233-69 (Ch. 10: "Qualitative Interviews")
3. Focus groups: Hallmark, Riva, and Sunkist examples

Wed.
1. What is evaluation research?
2. *How it's Done*: please read pp. 355-92 (Ch. 14: "Evaluation Research")
3. Gonzaga PR office: an evaluation example

Fri.
1. Final catch-up items
2. Meet your prof. in Admin. 486 (only if necessary) - no classroom lecture today
3. Please use classroom time to complete all your projects

Week XV (Prep Week)

Mon.
1. What we did all semester--and why we did it
2. Review & discuss communication research methods class
3. Please turn in all missing projects

Wed.
1. Review & discuss communication research methods class
2. The method in the madness

Fri. - December 14
Final Examination - 9:00 a.m. - 9:50 a.m.
Please turn in your Individual/Team Research Project - deadline is today

Week XVI (Semester Examinations)

Make-up Final (by appointment)

HAPPY HOLIDAYS!

Return to COMM 306 web page

August 20, 2001 Vol. 158 No. 7 Special Issue/America's Best/Science & Medicine

How Bush Got There

Months of debate--and one lucky break--led to the President's compromise. The inside story

BY RICHARD LACAYO

For a while this year it seemed that George W. Bush buttonholed everybody he met to get his or her view on stem-cell research. Emissaries from Capitol Hill, delegations of scientists, pro-lifers, bioethicists, patients' advocates, the Pope--if they had a take, they had his ear. "Almost everyone in the White House, well, he asked your opinion at one point," says presidential counselor Karen Hughes. "He also questioned what led you to that decision. He wanted to know the rationale."

Of all the advice Bush got, however, none was more important than the consultation he held on Aug. 2 with doctors and scientists from the National Institutes of Health. Weeks earlier, Bush had sent the NIH on a treasure hunt through clinics and laboratories around the world, searching for available lines of stem cells. These are cells extracted from embryos created for fertility treatments but not used to produce children. The extracted stem cells potentially can be made to grow into any cell in the human body, making them an extraordinary resource in the fight against Alzheimer's, Parkinson's, diabetes and other diseases.

Religious conservatives argue that using those stem cells means deriving benefit from the destruction of human embryos--fertilized eggs in the early stages of development--in their eyes no less a crime than abortion. And Bush, son of the great tax-promise breaker, did not want to go back on his vow that he would not fund such research. He believed that if he banned federal funding of research using stem cells derived from embryos destroyed in the future, many pro-lifers might swallow their misgivings about the use of stem cells already extracted from discarded embryos. There was still a problem. Bush and his advisers were being told there were probably a dozen, maybe 20, such lines--not enough, many scientists said, to sustain the necessary research. But the Aug. 2 meeting with the NIH scientists lifted that cloud. They told Bush there were more than 65 lines available worldwide--not as many as scientists would like but enough for a plausible compromise.

"It made this decision possible," said a senior White House official. "It allowed you to balance the hopes of research against the moral imperative that the government should not be funding the destruction of human life."

Last spring, when Bush was running for the White House, stem-cell research was for most people an obscure specialty on the frontiers of medicine. In a campaign dominated by education and tax cuts, his promise, made in a letter to the U.S. Conference of Catholic Bishops, that "taxpayer funds should not underwrite research that involves the destruction of live human embryos" must have seemed like a detail on the margins of his platform, like his pledge to reform the crop-insurance program.

Instead, it has provided the central predicament of his young presidency. It is an issue that has placed Senate pro-lifers like Orrin Hatch and Strom Thurmond on the side of those who want federal funding, and brought out stars like Mary Tyler Moore and Michael J. Fox to speak on behalf of juvenile diabetics and people with Parkinson's disease, who might benefit from the research. For Bush, the past few weeks provided a supreme opportunity. For a man who has sometimes seemed to lack the gravitas that the presidency demands, the stem-cell debate offered the chance to show that he was thoughtful, earnest, tireless--in short, worthy of holding the title of President of the United States. Bush's prolonged rumination about the right thing to do was not just a time for soul searching. It was a way of signaling that he could engage issues that mattered at a level commensurate with their importance. In the days just before and after his speech, his aides were everywhere to spread the word that Bush had given this question every last ounce of the consideration it deserved. "I think he just really took it seriously," says an Administration official involved in the decision. "He was bombarded from so many sides. I think he just had to sift and sift."

What Bush announced in his televised address last Thursday night was a compromise that was, at least in the short term, wonderfully adroit. By allowing funds for research on the small number of already existing stem-cell lines but denying money for any work with stem cells derived from embryos destroyed in the future, he positioned himself in the narrow political space that allowed him to claim he had not stood in the way of promising medical investigations. At the same time, he could insist that he had kept his promises to the Republican right, which abandoned his father after the elder Bush broke his no-new-taxes pledge. To placate scientists who argue that Bush did not go far enough, he promised "aggressive federal funding of research on umbilical-cord, placenta, adult and animal stem cells, which do not involve the same moral dilemma." The government is already spending $250 million on such research this year.

The White House is hoping that the Bush compromise will deflate moves in Congress to push through legislation that would override his decision. Majorities in both houses support federal funding for research on embryonic stem cells. The Bush compromise might be enough "to head them off at the pass," says Pennsylvania Senator Rick Santorum, an opponent of embryonic stem-cell research. It helped that Bush timed his announcement for the summer recess, when members of Congress are scattered, making it harder for Democrats to offer a speedy, unified alternative.

For the most part, Bush also defused the fury from the right. The U.S. Conference of Catholic Bishops--to whom he initially made his no-funding promise--blasted his decision as "morally unacceptable." Ken Connor, president of the Family Research Council, said that by trying to distance himself from the destruction of the embryos, Bush was like Pontius Pilate, who "washed his hands of the blood" of Christ. But evangelical leaders like Jerry Falwell and conservative radio host James Dobson called the compromise one they could live with.

If nothing else, it was not the outcome that pro-lifers feared most--the compromise developed last month by Republican Senator Bill Frist of Tennessee, the only physician in the Senate, who has been an important Bush adviser on medical and health-care issues. Frist's plan would allow stem cells to be

extracted from surplus embryos currently in stock and due for destruction in clinics and labs around the country, a supply that numbers between 100,000 and 1 million. Senate majority leader Tom Daschle, who was mildly critical of Bush's compromise, says he will introduce a broad stem-cell funding bill that could embrace the Frist approach; in the fall Daschle will find out whether Bush has cut him off at the pass.

For months a White House working group led by Karl Rove, the President's top political adviser, had been taking views from all sides on the stem-cell question. Bush turned to the issue seriously three months ago. On May 8 he had lunch with Tommy Thompson, the pro-research Secretary of Health and Human Services. At the time Thompson was fairly certain that Bush would not budge from the position he took during the campaign, when the question had been turned over to aides who handled abortion issues, with predictable results. To Thompson's surprise, Bush insisted that he was looking for a solution somewhere between a total ban and the kind of green light that might encourage the spread of virtual embryo factories. "He made it clear that he was up in the air," says a White House aide.

Thompson was a major advocate of the idea that already existing lines of stem cells might serve as the basis for compromise. He spoke from time to time with James Thomson, the stem-cell pioneer at the University of Wisconsin (see America's Best), who had led him to believe there could be useful research with even a limited number of stem-cell lines.

Bush continued to seek views from everywhere. On an Air Force One flight to Philadelphia a few months ago, G.O.P. moderate Senator Arlen Specter of Pennsylvania presented the case for a bill he had sponsored that would fund and control stem-cell research through the NIH. Bush listened attentively but gave no hint of what he thought. On July 11, Bush met with medical leaders to talk about the patients' bill of rights. Toward the end of the meeting, he broke away from health care to tell his audience that "the issue I am wrestling with is stem cells." Dr. Stan Pelofsky, president of the American Association of Neurological Surgeons, says he told Bush that "the genie was out of the bottle" and that federally funded research with oversight would accomplish the best of both worlds. "You would perhaps get spectacular benefits down the road," he said, "and you would also have governmental oversight." But again Bush gave no indication of which way he was leaning.

As the President peppered people with questions, his staff suggested a series of Oval Office meetings with representatives from all sides of the issue. One of them, in early July, turned out to be pivotal. Bush met with conservative bioethicists Daniel Callahan, co-founder of the Hastings Center, a bioethics institute, and Dr. Leon Kass from the University of Chicago. (Bush named Kass last week to head an advisory panel that will monitor stem-cell research and recommend guidelines.) At the July meeting, the two ethicists reinforced Bush's growing conviction that he should not fund research on newly extracted stem-cell colonies. Now it only remained for him to find a way to make the narrower compromise work. When the NIH discovered the larger number of existing stem cells, the shape of the policy was locked in.

Meanwhile, pressure was building in Congress. On July 25, Rove huddled with 43 moderate Congressmen of the Republican Mainstreet Partnership at the Capitol Hill Club. Minnesota

Representative Jim Ramstad, whose mother suffers from Alzheimer's disease and whose first cousin died from juvenile diabetes, stood up and made an impassioned plea for stem-cell research. In reply, Rove recounted how on a trip he took to Georgia a young couple came up to him and pleaded for stem-cell research to continue for another six months so it might save their ailing child. The President, Rove told the Congressmen, considered the consequences of a stem-cell decision "no less important than a decision to commit troops to war."

The next weekend, when both men were attending the G.O.P.'s Midwest Leadership Conference, Ramstad informed Rove that a letter would soon be delivered to the White House with the signatures of 202 Congressmen backing the research. Forty were Republicans. "And I have 15 other Republicans," Ramstad warned, "who have committed to us but who didn't want to go public with their support."

Pressure also came from stem-cell opponents on the Hill. In early July House majority leader Dick Armey, majority whip Tom DeLay and Republican Conference chairman J.C. Watts had issued a joint statement demanding that Bush prohibit funding. "It is not pro-life to rely on an industry of death," they argued, "even if the intention is to find cures for diseases." House Speaker Dennis Hastert, though he opposes stem-cell research, refused to join his three top lieutenants in the statement.

For all his consultation on the subject, Bush did not talk much with members of Congress. Even Senator Frist did not have an in-depth talk with Bush after Frist floated his own compromise. "He was searching more for moral authority than political counsel," says Senator Sam Brownback, the Kansas Republican who opposes funding.

The speech Bush ultimately gave last week was written by Hughes, who has a gift for conveying complex issues in kitchen-table language. She rehearsed it with him Wednesday. Until the final hours before he delivered it, just a handful of people knew what he would say--Vice President Dick Cheney, Rove, Hughes, chief of staff Andrew Card, White House communications aide Dan Bartlett and legal adviser Jay Lefkowitz. Half an hour before airtime, Rove held a conference call with five Republican members of Congress who were outspoken opponents of embryonic stem-cell research--Senators Brownback and Santorum plus Representatives Christopher Smith, David Weldon and Joseph Pitts.

"The reaction was first one of relief," says Santorum. "We had heard rumors that the President was going to fund stem-cell research, and many of us thought this was going to be the Frist proposal." Santorum says Bush's decision might "actually stop further destruction of human life because the scientists who now are looking for robust funding programs are going to be working with these existing stem-cell lines. So the desire to create more stem-cell lines through destruction of human embryos will be alleviated."

In weeks to come, protest against the compromise is likely to intensify among both scientists and people waiting for medical breakthroughs. There were immediate questions about whether Bush was correct in saying there are "more than 60" existing stem lines available for research. A White House that has often called for "sound science" on global warming will now have to prove that it has not offered a rosy number of available stem-cell lines.

One way that Bush may have come up with a higher number of available stem-cell lines is through a relaxation of the ethical rules governing how they are collected. The Washington Post reported last Saturday that one of the ethical guidelines put in place by Bush--that the embryo donors must have given "proper informed consent"--was less strict than rules established under Bill Clinton, which specified in detail what informed consent would be. That change could have helped make a larger number of stem-cell lines available for research.

Bush may end up tripping on his own logic. Now that he has sanctioned the principle of government funding for research in existing stem-cell lines, he may have difficulty holding the line at 65. Privately funded researchers will be producing new stem-cell colonies from discarded embryos. When scientists come to Bush saying the federally approved cell lines show promise but they need more cell lines, by what argument will he be able to say no? "I have made this decision with great care," Bush said in his address. "I pray it is the right one." It may be, at least for a little while.

Reported by James Carney, Matthew Cooper, John F. Dickerson, Michael Duffy and Douglas Waller/ Washington and Cathy Booth Thomas/Crawford

Survey shows many approve of change to one-way on Sprague

Lorie Hutson- Staff writer
Spokesman-Review, Feb. 15, 2001 (Web version)

Spokane--Businesses are still stinging from the switch to one-way traffic on Sprague Avenue, but the new Valley couplet does have its fans.

A recent Valley Voice survey found twice as many people who said they liked the new couplet as those who panned the change.

The questionnaire didn't ask any specific questions about Sprague and Appleway, but 65 people said they thought the new road system was among the most positive changes in the Valley. On the other side of the one-way debate, 38 people dubbed the couplet a negative change. In all, 479 people returned the survey.

The results of the survey are not scientific. Most of the people who returned the form had a strong opinion about efforts to incorporate the Valley. And because there were no questions about the new couplet, only the people who were happiest or most concerned about the change mentioned it on the questionnaire.

Dale Hearn drives on the new couplet twice a day commuting between his home in the Valley and his business in downtown Spokane.

"The traffic flows a lot smoother and once people get used to using the couplet, I think it will be easier for them to get to their destinations," he said in an interview this week.

Hearn is a small business owner so he is sympathetic to the stores and shops that have lost business due to the change. He said the overall economic climate in the Spokane area right now is stagnant and that even his downtown business had a slower December than usual.

The road change was a second hit for the businesses along East Sprague Avenue, but Hearn said he expects it won't take long before people start going back to that area.

"I'm hoping as people get used to it business will pick up," he said.

Debbie Poffenberger is one of those shoppers who now avoids East Sprague altogether.

"You see people all the time confused, going the wrong way," she said. "I just have avoided it ever since."

Poffenberger said East Sprague was very busy last year when construction often limited the freeway to one lane. Now that most of the Interstate 90 construction is done there is no congestion on Sprague. In fact, she says, it's often deserted.

If the road needed to be built at all, Poffenberger said county officials should have designed both roads for two-way traffic. That way those who wanted to avoid the business district could use Appleway Boulevard and Sprague would not have changed.

Albert Bair has driven Sprague Avenue for 50 years or more. On his survey he listed the new couplet as one of the most negative changes in the Valley, but since mailing his response he has had a change of heart.

"I think it's just a matter of getting used to it," Bair said this week.

He's happy that the new roadway seems to be moving traffic through the heart of the Valley faster, but he's still critical of some aspects of the change.

Both Appleway and Sprague need better signs, more striping and arrows to direct traffic, he said, and it needs to be extended beyond University Avenue.

"That's a big bottleneck there. I'm surprised there aren't more accidents," he said.

Debbie Rohde uses the couplet about once a week. Traffic moves faster and she has no trouble finding the businesses on East Sprague.

She lauded Spokane County's efforts to find a way to make the Valley more accessible and roads less congested.

"I feel it was an innovative step and it might take people some time to get used to it ... but we definitely need that kind of thinking here in the Valley -- solution-minded people. I think the couplet was just that -- a solution."

Tom Sherry disagrees. Traveling on Sprague Avenue is dangerous, he said.

"I've had more than a couple close calls," he said.

The reconstruction of Sprague, including new striping and signs, should have been finished before the road was ever opened, he said.

"It seems like there was a rush to get it done last fall," he said.

And the road is as ugly as ever.

"There is zero landscaping along that road, and as a landscape architect, that really bothers me," Sherry said.

Others can't wait to see the road extended beyond University Avenue.

"The sooner they extend it the better," said Elroy Schultz, who has lived in the Valley for 30 years.

Time will give the new road system a chance to prove its worth and business will rebound along the Sprague corridor, Schultz predicted.

"It's just one of those things," he said. "A lot of people don't take to change very readily."

Lorie Hutson can be reached at 927-2165 or by e-mail at lorieh@spokesman.com.

[Dave note to COMM 306 class: Readers were invited to send comments, so you might e-mail Lorie to see what folks had to say.]

Top of Form 1

What are your thoughts on
Survey shows many approve of change to one-way on Sprague

If you have a comment or reply to this story that you'd like to share, fill in the form and click submit. Note: Replies are limited to 250 words and must be signed with a valid email address. No profanity or libelous statements will be printed.

Your comment:

Bottom of Form 1

Text of Presidents Bush's August 9, 2001 TV Address to the Nation

Reuters

Following is the text of President Bush's speech Thursday announcing his decision to limit federal funding of research on stem-cells taken from human embryos only to an estimated 60 existing lines of stem cells.

Good evening. I appreciate you giving me a few minutes of your time tonight so I can discuss with you a complex and difficult issue, an issue that is one of the most profound of our time.

The issue of research involving stem cells derived from human embryos is increasingly the subject of a national debate and dinner table discussions. The issue is confronted every day in laboratories as scientists ponder the ethical ramifications of their work. It is agonized over by parents and many couples as they try to have children or to save children already born.

The issue is debated within the church, with people of different faiths, even many of the same faith, coming to different conclusions.

Many people are finding that the more they know about stem-cell research, the less certain they are about the right ethical and moral conclusions.

My administration must decide whether to allow federal funds, your tax dollars, to be used for scientific research on stem cells derived from human embryos.

A large number of these embryos already exist. They are the product of a process called in vitro fertilization which helps so many couples conceive children. When doctors match sperm and egg to create life outside the womb, they usually produce more embryos than are implanted in the mother. Once a couple successfully has children or if they are unsuccessful, the additional embryos remain frozen in laboratories. Some will not survive during long storage, others are destroyed. A number have been donated to science and used to create privately funded stem-cell lines. And a few have been implanted in an adoptive mother and born and are today healthy children.

Based on preliminary work that has been privately funded, scientists believe further research using stem cells offers great promise that could help improve the lives of those who suffer from many terrible diseases, from juvenile diabetes to Alzheimer, from Parkinsons to spinal cord injuries. And while scientists admit they are not yet certain, they believe stem cells derived from embryos have unique potential.

You should also know that stem cells can be derived from sources other than embryos: from adult cells, from umbilical cords that are discarded after babies are born, from human placentas. And many scientists feel research on these types of stem cells is also promising. Many patients suffering from a range of diseases are already being helped with treatments developed from adult stem cells.

However, most scientists, at least today, believe that research on embryonic stem cells offers the most promise because these cells have the potential to develop in all of the tissues in the body.

Scientists further believe that rapid progress in this research will come only with federal funds. Federal dollars help attract the best and brightest scientists. They ensure new discoveries are widely shared at the largest number of research facilities, and that the research is directed toward the greatest public good.

The United States has a long and proud record of leading the world toward advances in science and medicine that improve human life, and the United States has a long and proud record of upholding the highest standards of ethics as we expand the limits of science and knowledge.

Research on embryonic stem cells raises profound ethical questions, because extracting the stem cell destroys the embryo, and thus destroys its potential for life.

Like a snowflake, each of these embryos is unique, with the unique genetic potential of an individual human being.

As I thought through this issue I kept returning to two fundamental questions. First, are these frozen embryos human life and therefore something precious to be protected? And second, if they're going to be destroyed anyway, shouldn't they be used for a greater good, for research that has the potential to save and improve other lives?

I've asked those questions and others of scientists, scholars, bioethicists, religious leaders, doctors, researchers, members of Congress, my Cabinet and my friends. I have read heartfelt letters from many Americans. I have given this issue a great deal of thought, prayer, and considerable reflection, and I have found widespread disagreement.

On the first issue, are these embryos human life? Well, one researcher told me he believes this five-day-old cluster of cells is not an embryo, not yet an individual but a pre-embryo. He argued that it has the potential for life, but it is not a life because it cannot develop on its own.

An ethicist dismissed that as a callous attempt at rationalization. "Make no mistake," he told me, "that cluster of cells is the same way you and I, and all the rest of us, started our lives. One goes with a heavy heart if we use these," he said, "because we are dealing with the seeds of the next generation."

And to the other crucial question -- If these are going to be destroyed anyway, why not use them for good purpose? -- I also found different answers.

Many are these embryos are byproducts of a process that helps create life and we should allow couples to donate them to science so they can be used for good purpose instead of wasting their potential.

Others will argue there is no such thing as excess life and the fact that a living being is going to die does not justify experimenting on it or exploiting it as a natural resource.

At its core, this issue forces us to confront fundamental questions about the beginnings of life and the ends of science. It lives at a difficult moral intersection, juxtaposing the need to protect life in all its phases with the prospect of saving and improving life in all its stages.

As the discoveries of modern science create tremendous hope, they also lay vast ethical mine fields.

As the genius of science extends the horizons of what we can do, we increasingly confront complex questions about what we should do. We have arrived at that brave new world that seemed so distant in 1932 when Alduous Huxley wrote about human beings created in test tubes in what he called a hatchery.

In recent weeks, we learned that scientists have created human embryos in test tubes solely to experiment on them. This is deeply troubling and a warning sign that should prompt all of us to think through these issues very carefully.

Embryonic stem-cell research is at the leading edge of a series of moral hazards. The initial stem cell researcher was at first reluctant to begin his research, fearing it might be used for human cloning. Scientists have already cloned a sheep. Researchers are telling us the next step could be to clone human beings to create individual designer stem cells, essentially to grow another you, to be available in case you need another heart or lung or liver.

I strongly oppose human cloning, as do most Americans. We recoil at the idea of growing human beings for spare body parts or creating life for our convenience.

And while we must devote enormous energy to conquering disease, it is equally important that we pay attention to the moral concerns raised by the new frontier of human embryo stem cell research. Even the most noble ends do not justify any means.

My position on these issues is shaped by deeply held beliefs. I'm a strong supporter of science and technology, and believe they have the potential for incredible good -- to improve lives, to save life, to conquer disease. Research offers hope that millions of our loved ones may be cured of a disease and rid of their suffering. I have friends whose children suffer from juvenile diabetes. Nancy Reagan has written me about President Reagan's struggle with Alzheimer's. My own family has confronted the tragedy of childhood leukemia. And like all Americans, I have great hope for cures.

I also believe human life is a sacred gift from our creator. I worry about a culture that devalues life, and

believe as your president I have an important obligation to foster and encourage respect for life in America and throughout the world.

And while we're all hopeful about the potential of this research, no one can be certain that the science will live up to the hope it has generated.

Eight years ago, scientists believed fetal tissue research offered great hope for cures and treatments, yet the progress to date has not lived up to its initial expectations. Embryonic stem cell research offers both great promise and great peril, so I have decided we must proceed with great care.

As a result of private research, more than 60 genetically diverse stem cell lines already exist. They were created from embryos that have already been destroyed, and they have the ability to regenerate themselves indefinitely, creating ongoing opportunities for research.

I have concluded that we should allow federal funds to be used for research on these existing stem-cell lines, where the life-and- death decision has already been made.

Leading scientists tell me research on these 60 lines has great promise that could lead to breakthrough therapies and cures. This allows us to explore the promise and potential of stem cell research without crossing a fundamental moral line by providing taxpayer funding that would sanction or encourage further destruction of human embryos that have at least the potential for life.

I also believe that great scientific progress can be made through aggressive federal funding of research on umbilical cord, placenta, adult and animal stem cells, which do not involve the same moral dilemma. This year your government will spent $250 million on this important research.

I will also name a president's council to monitor stem-cell research, to recommend appropriate guidelines and regulations and to consider all of the medical and ethical ramifications of biomedical innovation.

This council will consist of leading scientists, doctors, ethicists, lawyers, theologians and others, and will be chaired by Dr. Leon Cass, a leading biomedical ethicist from the University of Chicago.

This council will keep us apprised of new developments and give our nation a forum to continue to discuss and evaluate these important issues.

As we go forward, I hope we will always be guided by both intellect and heart, by both our capabilities and our conscience. I have made this decision with great care, and I pray it is the right one.

Thank you for listening. Good night, and God bless America.

REUTERS 21:48 08-09-01

Catholics Condemn Stem Cell Decision

By RACHEL ZOLL

.c The Associated Press

(Aug. 10) -- Roman Catholic leaders condemned as "morally unacceptable" President Bush's support of limited federal funding for embryonic stem cell research. Conservative Protestants said they were disappointed but encouraged by Bush's thoughtful approach.

After weighing the issue for months, Bush announced Thursday night that he would support federal funding for the research, but only on existing lines of embryonic stem cells, restricting research to cells from embryos that already have been destroyed.

"The fact that he is not putting federal funds in the support of killing additional babies is a very critical line not crossed," said Richard Land, president of the Southern Baptists' Ethics and Religious Liberty Commission.

Pope John Paul II had personally urged Bush to reject research on human embryos. Bishop Joseph Fiorenza, president of the United States Conference of Catholic Bishops, called Bush's choice "morally unacceptable."

"The federal government, for the first time in history, will support research that relies on the destruction of some defenseless human beings for the possible benefit to others," Fiorenza said in a statement. "It allows our nation's research enterprise to cultivate a disrespect for human life."

Bush's own denomination, the United Methodist Church, had urged him to uphold the ban on federal funding, but leaders said they were satisfied the president had thoroughly considered all the ethical issues involved.

"We would have liked him to continue the moratorium that was in place, but if you're going to do this research with federal funding, he narrowed it as much as he could," said Jay Dee Hanson of the United Methodist Board of Church and Society in Washington.

Bush had no obligation as a devout Christian to reach a different conclusion, Hanson and Land said.

"I think he had an obligation as a Christian to do what he thought was right," Land said.

Hanson said it was naive to think Bush's spiritual concerns would completely outweigh his political ones. "I feel as president, he is obligated to take into account all of the religious traditions in this country," he said.

The Church of Jesus Christ of Latter-day Saints, which opposes abortion in most cases, has taken no position on embryonic stem cell research but has said it "merits cautious scrutiny." Utah Sen. Orrin Hatch, a Mormon, had urged Bush to lift the federal funding ban.

The Presbyterian Church (U.S.A.) was alone among major Protestant denominations in endorsing embryonic stem cell research. The church backed the research for medical goals that could be achieved no other way, if embryo donations were kept separate from decisions to abort and if human embryos weren't sold.

Nathan Diament, policy director for the Union of Orthodox Jewish Congregations of America, which had urged Bush to lift the ban on federal funding, felt comfortable with the president's limited approach. The group, which represents 1,000 synagogues, said using existing embryos that otherwise would have been discarded would not violate their beliefs.

"There's nothing wrong with going slow," Diament said. "He basically said he wants this research to proceed slowly but carefully, and that's OK."

AP-NY-08-10-01 0954EDT

Hollywood's Latest Cause: Stem Cells

By ANTHONY BREZNICAN

.c The Associated Press

LOS ANGELES (Aug. 10) - Mary Tyler Moore has diabetes. Michael J. Fox suffers from the degenerative brain disorder Parkinson's disease. Christopher Reeve has been paralyzed from the neck down since a horse-riding accident.

All three stand to benefit from medical breakthroughs, and their outspoken support of embryonic stem cell research has helped make it Hollywood's latest social cause.

``Stem cell research is something I deeply believe in for myself and the millions of other people who could benefit," Moore said before President Bush announced Thursday that he will allow federal funding for limited medical research on stem cells extracted from human embryos.

``I'm pleased. I'm very pleased," she later said on CNN's ``Larry King Live." Moore also serves as international chairwoman of the Juvenile Diabetes Research Foundation.

Reeve was more cautious in his response, saying he is worried about the limited nature of the president's approval.

Bush restricted his support to only already existing lines of embryonic stem cells, limiting research to cells from embryos that already have been destroyed.

Stem cell research involves using cells from newly formed embryos to replace cells attacked by degenerative illnesses. The new cells are useful because they can adapt into any tissue in the body.

Some anti-abortion activists have denounced the process because it destroys embryos. Research supporters counter that the embryos would be discarded by fertility clinics otherwise.

Other celebrity supporters of stem cell research include actor Kevin Kline, ``Ghost" director Jerry Zucker and Paramount studio chief Sherry Lansing.

Zucker and his wife, Janet, who produced his upcoming film ``Rat Race," help pay a lobbyist in Washington to fight for stem cell funding, which they believe could aid their 13-year-old diabetic daughter, Katie.

``She asked if she would have this all her life, and we said, 'Not if we can help it,'" Jerry Zucker said.

Fox, who was diagnosed with Parkinson's disease in 1991, cut back on acting to raise money for research.

``Really it's exercising a responsibility to take all this energy and goodwill that people have directed toward me and redirect it in the right direction," he said.

AP-NY-08-10-01 0411EDT

U.S. Identifies Firms With Stem Cell Lines

By PAUL RECER
c The Associated Press

WASHINGTON (Aug. 27, 2001) - The National Institutes of Health on Monday identified 10 companies and research laboratories with embryonic stem cell colonies that the Bush administration says are eligible for federal research funds.

The groups have a combined 64 stem cell lines, derived from 64 "genetically diverse" embryos, the NIH said in an announcement on its Web site.

"The NIH has met or spoken extensively with each of the investigators who have derived these cells," the announcement said. "These scientists are very interested in working with the NIH and the research community."

Scientists who developed the cell lines, or self-replenishing colonies, reported that some have been tested in lab mice and show that they are able to transform into other types of cells.

Embryonic stem cells are the precursors to all the 200 or so cell types in the body. Researchers hope to be able to direct this transformation to make cells that could be used to treat diabetes, Parkinson's, heart diseases or other disorders. Producing the stem cells, however, requires the death of a human embryo, which is opposed by many people.

Bush, after weeks of studying the issue, announced Aug. 9 that he would permit federal funding using stem cell lines that had been produced before that date. This meant, he said, that no more human embryos would be killed to advance federally funded research.

AP-NY-08-27-01 1003EDT

Elizabeth Cohen: Ethics of stem cell research

July 18, 2001 Posted: 7:20 AM EDT (1120 GMT)

CNN: Good afternoon Elizabeth Cohen. Welcome to CNN.com Newsroom.

COHEN: Hello everyone and welcome to the stem cell chat.

CNN: The president is considering federal funding for embryonic stem cell research. Why is this issue is coming to light at this time?

COHEN: What's driving this is that there are two very passionate sides to this debate. On the one hand you have people like Christopher Reeve and Michael J. Fox who say stem cells could cure their diseases and on the other side you have people who say no cure is worth destroying a human embryo. And since stem cells research at this point usually involves an embryo or fetus, that's where you get the debate

CHAT PARTICIPANT: Is there a lot of misunderstanding about what a stem cell is?

COHEN: Oh, yes. You better believe it. Just for my own education, I've been asking people I know if they can tell me what a stem cell is, and I get all sorts of answers. People know vaguely that they have something to do with medical research, but they have all sorts of misconceptions, such as that they derive by definition from the brain stem, or that they somehow exclusively are used to treat brain stem problems.

So, let's go over what they really are. They are essentially blank cells that potentially can be turned into pretty much any type of body tissue. So, for example, you could take a stem cell and in the lab convert it to a cardiac muscle cell and inject it into a heart that's been damaged by a heart attack, and the stem cells could repair the damaged muscle.

CHAT PARTICIPANT: Isn't an embryo a conceived egg and sperm looking for the wall of its mother's womb?

COHEN: Well, that all depends on how you look at it. One major source of stem cells is embryos made in labs for in vitro fertilization purposes and those embryos have never seen the inside of a woman's uterus. They're in liquid nitrogen because the infertile couple already had their child and didn't need some of the leftover embryos.

CHAT PARTICIPANT: Elizabeth: Is there any way to separate stem cell research from the abortion debate?

COHEN: You know, it's very interesting because several people who are staunchly anti-abortion, such as

Senator Orrin Hatch, are pro stem cell research. I think it boils down to this: while aborted fetuses have been sources of stem cells, they're not the only source. You can also use the in vitro fertilization embryos I mentioned earlier. There are also other sources, such as bone marrow, that don't involve embryos or fetuses at all, but it's unclear how medically useful those so called "adult stem cells" are.

CHAT PARTICIPANT: Ms. Cohen, can you explain why embryonic stem cells are the most hopeful course for research, above other sources for research?

COHEN: First, let's make one thing clear: stem cells at this point have not helped a single person. Embryonic stem cells are still in the animal testing stage -- so you are right to use the word "promising." Scientists believe that stem cells are so valuable because they're more than just a "fix" that your typical drug would give. Stem cells, once converted into, if you use my previous example, cardiac muscle actually become part of the body. They replace cells in the body that have gone wrong in some way

CHAT PARTICIPANT: If stem cells are able to regenerate, then wouldn't it be possible to cultivate a large amount of stem cells from just a small batch of embryos?

COHEN: Scientists simply don't know how many embryos they need to get the full range of stem cells they say would be needed to make various therapies. They say one embryo is not enough because you need a wide range for "matching" reasons. In other words, no one embryo would work for all treatments for all people but these scientists have also said that they don't need to harvest stem cells forever. They think that at some point they could stop. I've heard two years mentioned, but I don't think that's a magic number.

CHAT PARTICIPANT: So what does the opposition say is morally wrong with doing stem cell research if it does not interfere with the development of human life? What is their reason to oppose it?

COHEN: Their reason to oppose it is because they say life starts at conception whether that conception is done the natural way or done in a petri dish in an IVF lab somewhere. They say that these leftover IVF embryos frozen in labs all over the country could at any time be implanted into a woman's uterus and become a child and, in fact, have pointed out that some infertile couples have adopted these embryos and impregnated the wife and today have happy healthy children.

CNN: Is the surplus of these embryos from in vitro procedures enough so that they could be used both for adoption and research?

COHEN: People who are against embryonic stem cell research tell me that's not the point. There are many thousands of these frozen IVF embryos sitting in labs, but for the people who are against using embryos for research, it doesn't matter if there's enough for adoption and research. For them even using just one embryo for research is one too many.

CHAT PARTICIPANT: Aren't stem cells from the umbilical cord also promising?

COHEN: Researchers are looking into using umbilical cord stem cells others are looking into using bone marrow cells, or even cells from fat tissue together. All these options are called "adult stem cells." While some see this as the better alternative to using embryos, we just did an interview with an adult stem cell researcher who says embryonic actually appear to be better and that you can't do one without the other

CHAT PARTICIPANT: Will transplanted cardiac or nerve cells created from embryonic stem cells have then same rejection problems that researchers had with fetal tissue research?

COHEN: You've identified one of the major areas that researchers still need to figure out. There are various immunological issues with embryonic stem cells. Again, this research is still in its infancy. They're still on animals. That is one benefit of using, for example, bone marrow adult stem cells-- you'd be using your own bone marrow so there's no rejection issues.

CNN: Do you have any final thoughts to share with us today?

COHEN: I've been really struck by the emotions on both sides of this issue. On the one hand, parents of sick children can't believe that someone would deny them a possible cure. On the other side, people can't believe that anyone would destroy a human embryo that, if implanted into a woman's uterus, could become a person.

CNN: Thank you for joining us today, Elizabeth Cohen.

COHEN: Bye, and great questions!

Elizabeth Cohen joined the chat from CNN Center in Atlanta, GA. The above is an edited transcript of the interview on Tuesday, July 17, 2001.

Center for Nonverbal Studies

Home of The NONVERBAL DICTIONARY©

A new center to study nonverbal behavior has been founded by an anthropologist, David B. Givens. The Center for Nonverbal Studies, La Jolla, CA, will work with top-flight anthropologists to examine the "neurological tether" associated with nonverbal cues. --Chronicle of Higher Education, Nov 21, 1997, A47

NEWS FILE

The Center maintains a News File of magazine, newspaper, and internet articles featuring research, observations, and commentary on nonverbal issues by members of its staff. Topics include:

GRIN AND BARE IT (*Boston Globe Magazine*)

THE ART OF FLIRTING (College Press Network)

LOUDER THAN WORDS (Discovery.com)

ROMANCE RELIES ON STONE AGE RULES (*U.S. News & World Report* Web Site)

WHY THINGS ARE (*Washington Post* Web Site)

A GESTURE DESIGNED FOR PEACE (*New York Times*)

WORD WATCH (*Atlantic Monthly*)

IT'S THE RITE, NOT THE SPEECH (*Washington Post* Web Site)

JUDICIAL BODY LANGUAGE (Associated Press)

LANGUAGE OF LOVE (*New York Times*)

KEEP YOUR DISTANCE (*The Guardian*)

MESSAGE TO 12,000 A.D. (Halcyon Web Site)

TOP 10 CLIPS (assorted magazines & newspapers)

WHAT IS NONVERBAL COMMUNICATION? (*U.S. News & World Report*)

(**Cumulative Media List**)

The Art of Flirting: What's Your Body Saying?

By Andrew J. Pulskamp

When it comes to flirting what isn't said can often be much more important than what is. Before **eyelash-batting** Romeos and Juliets even open their mouths, body language has already sent a stream of signals to that certain someone across the bar. This nonverbal communication relays everything from "let's meet up later" to "back off, loser!"

David Givens is an anthropologist at the Center for Nonverbal Studies, in Spokane, Washington. He is also the author of *Love Signals*, a book that examines the rituals and **nonverbal rapport** of courtship. Givens' laboratories over the past 20 years have consisted of numerous, dimly lit establishments that are the stomping grounds for hormone-ridden humans looking for love.

Documenting the Chase

"I've logged a lot of time sitting at tables in bars, watching the behavior of men and women during **courtship**. It's kind of like the biologist who goes to Africa and watches animals in the wild," he says.

What he's documenting is the unspoken discourse that takes place between all flirters. Things like a tilted head, pouted lips or a simple smile can all signal a potential mate to "come hither."

These signals are so important because, like animals in the wild, humans are very wary of one another. A large part of flirting is about breaking down defenses. Givens explains, "I see a process of getting closer and closer. I break it down into a series of stages where people are trying to get physically closer. It starts with a stranger across the table and proceeds to the end of courtship, which is the lovemaking. The process is mainly about showing the other person that you are harmless."

The Flirtation Trap

Men often miss the "harmless" facet of flirtation and, instead, nonverbally communicate messages of power and aggression.

Owen McDonald, a freshman at the University of New Mexico has fallen into this flirtation trap. He says, "I think for a guy, you try to act tough [when flirting]. That's just like an unconscious primal thing to show the female that you're tougher than the next guy."

Givens says such beliefs are common among men, and also off target. "I know there's a lot of confusion in college students and men where they often think that they should give tough, macho guy type cues. But these don't do really well with women," says Givens. "When men are doing the macho guy stuff all they're really doing is securing territory against other men."

Givens advises men to appear more approachable if they're on the prowl. He says, "With women it's important for them to see that you can be soft and gentle, youthful and playful, so you can lure them in closer and closer."

Jennifer Rogers is a freshman at the University of Florida, she's seen what Givens is talking about when it comes to mega-macho displays. "I do notice that when guys walk in a room they have a sort of **strut**, they try to look powerful and intimidating."

That's not what she is attracted to. As Givens research suggests, Rogers definitely prefers the gentle approachable type to a puffed-out machismo character. She says, "I guess if [men] have quiet spirit and they seem concerned about the people around them, then that is attractive."

Female Flirting Faux Pas

Men aren't the only ones who commit flirting faux pas though. Women also make their share of mistakes. Givens elaborates, "With women, their main faux pas is not showing who they really are. They withdraw and don't do much of anything. They should be displaying who they are when they go to a place to meet people."

Such withdrawn behavior may explain why many men find women "mysterious" and difficult to figure out.

Givens says one way both men and women can come out of their shell is by going out with other friends when they're trying to meet people. Humans are more comfortable and animated when they're in groups. This animation signals others that one is capable of normal social behavior.

Going out alone, on the other hand, can send out antisocial signals.

Givens warns, "When you're alone, you're very quiet nonverbally. You're not showing anything and that looks suspicious." And suspicious is not the look flirters should be going for.

Essentially at the most basic level, good flirters look harmless. And there are a couple of easy ways to achieve that.

Flirting 101

Exposing the neck is one good flirting tactic. That area is an extremely vulnerable part of the human body. Showing it off lets others know that this is a non-aggressive person. Certain parts of the neck can even indicate further harmlessness. People who show off their **neck dimple** -- that shallow indentation just beneath the Adam's apple -- exhibit even greater vulnerability and thus approachability.

Necks haven't gone unnoticed by Carla Wilson, a junior at Arkansas State University. "You can see with people who are intimate that it is a real sign of endearment when they come up behind someone and put their hands on someone's shoulders and they touch their neck," says Wilson.

The neck, though an important facet of body language, is just one of many nonverbal cues that flirters should be on the lookout for. Another is the ubiquitous **head tilt** -- a posture that crosses cultures. It indicates coyness, submission and self-protection. Those indications signal to a potential partner that there is nothing to be afraid of.

As strange as it may sound, men might want to consider showing off their wrists and hands. They may not be the first body parts that come to mind when one thinks of attracting women, but according to Givens, humans notice hands innately.

"Women have a liking for the male **hand** and wrist. Instead of covering them up with a jacket or sleeve, or cuff -- roll up your sleeve. There are specific modules in the temporal lobe in the cerebral cortex that respond to nothing but hands. That part of the brain is pre-programmed to be nothing but a hand observer," he says.

For those who don't feel a passion for hands -- there's still more body parts that silently bespeak volumes.

Luscious **lips** say just as much without words as they do with. They are one of the most expressive body parts. Slightly pouted lips can signal to the opposite sex that one is harmless and available. Draw the lips back into a smile and love is in the air - showing the pearly whites is a fairly universal signal that one is not a threat.

The lips can also be damning. Beware of the tense mouth. This expression characterized by compressing and narrowing the lips into a thin line evokes emotions of anxiousness, nervous tensions, anger and intensity. Such emotions scare people away.

One such "tense mouth" moment will go down in history. Givens noticed the expression on President Bill Clinton's mug before he said, "Indeed, I did have a relationship with that woman . . . Ms. Lewinsky . . . That was not appropriate."

For people who think the science of nonverbal communication is poppycock, Givens offers a bit of empirical evidence. "I think the greatest example that I can think of that shows that anybody in any culture can court or flirt with anyone in another culture is a man I know from New Jersey," says Givens. "He's an ethnomusicologist and he went to central Africa to study Pygmy music. When he was there he fell head over heels in love with a Pygmy teenager. They went through a courtship and they eventually got married. He couldn't speak her language and neither could she speak his, but they negotiated the whole thing nonverbally."

Just because people are talking with their bodies, don't expect men to start saying, "Did you see the wrists on that girl?" any more than you would expect women to exclaim, "Boy, he's got a really nice neck dimple."

Much of this behavior is picked up on subconsciously. Which also means that just because the sexes aren't talking about these signals, doesn't mean they aren't noticing them.

Louder Than Words: Reading Body Language

By Susan Glick (Discovery.com, August 2000)

The woman sits alone in a noisy cafe. Her legs are tightly crossed; her fingers clasp the edge of the table; her **head is down**. She speaks to the menu when she mumbles her order. She misses the smile the waiter sends in her direction. At a glance, you can guess how she is feeling. Her **body language** says it all.

Like it or not, our bodies send out messages constantly. Sometimes the message is clear. Other times, the message is conveyed more subtlety. Often we don't even realize what our bodies are telling the world. But by familiarizing ourselves with a few basic nonverbal signals, we can improve our ability to read the body language of others, as well as control our own.

Our use of body language is largely unconscious. We **get** the message and we **send** the message--but we really aren't thinking about how we do it. To become more aware, says anthropologist David Givens, Ph.D., "you have to have some kind of strategy for it."

Communication experts study such things as gestures, facial expressions, posture and voice, but Givens recommends a simpler approach. Director of the **Center for Nonverbal Studies** in Spokane, Wash., Givens suggests focusing on "the three most telling and expressive parts of the body:" the lips, the shoulders, and the fingertips and hands. These three parts, with their "great connections to the brain," says Givens, reveal a person's visceral, gut response to what's going on. So watch for compressed lips, hunched shoulders and fidgety fingers, and move on from there to the bigger picture.

To increase awareness of your own body language, Phyllis Mindell, Ph.D., president of Well-Read, a communications consulting firm in Boston, Mass., and Rochester, N.Y., recommends videotaping yourself and watching for what works and what doesn't.

One of the easiest changes to make, she suggests, is to keep an open body. Women, more than men, shrink into their spaces. For example, "you don't clench the fist, you open the fist. You don't fold the hands in a tight hand grasp, you tent the fingertips. You don't sit with your hands tightly folded, you drape them loosely over the arms of the chair. You smile." "The open body represents power," says Mindell, author of *A Women's Guide to the Language of Success*, "and the closed body represents weakness or insecurity or hostility."

Other changes are harder to make. Grimacing, fidgeting, extraneous movement--these distracting gestures can be tough to eliminate. Mindell encourages clients to "concentrate on one less-than-perfect move at a time and resolve to change it."

Eye contact, say the experts, is one of our weakest nonverbal skills and yet it is essential to establishing trust. Mindell points out that eye contact--touching someone with your eyes--helps you "build a bridge

between whatever separates you from your audience--all those physical, psychological, cultural differences."

With effort and self-discipline, anyone can improve their nonverbal communication skills. Admits Givens, "You have to go through a process where initially you get pretty self-conscious and you don't know what to do and you become a statue, but you get over that pretty quickly. You get more natural." Watch people around you and mimic gestures and movements that work. "It's like having a manual," says Givens. A manual without words.

March 15, 1999

THE BIG CITY

Inventing a Hand Signal to Offset the Classic Gesture of Road Rage

By JOHN TIERNEY

New York Times

What we have here is a failure to communicate. New York's streets and sidewalks are clogged with more people from more places than ever before, and often the only way they can talk to one another is through sign language. But there is only one clearly understood gesture.

What if you have something to express that cannot be represented by a raised middle finger? Even New York drivers are sometimes tempted to say "excuse me" or "thank you." Now that civility is coming back into fashion, New Yorkers could use a new signal, and researchers are already at work on it.

One of them is Gridlock Sam, a k a Samuel I. Schwartz, who

coined the term "gridlock" when he was chief engineer for the city's Department of Transportation. "With traffic at record levels, we need to give drivers a way to lower the rage level," said Mr. Schwartz, now a consultant and the traffic columnist for The Daily News. His experimentation with friendly signals began with the 1960's peace sign, the two fingers raised in a V, but he found it ineffective. Some people resented its political connotations; some thought he was flashing a victory sign; some got angry because they saw only one finger. Mr. Schwartz has had better luck with a gesture of apology: a light tap of the palm to the forehead.

"I do it when I've inadvertently cut someone off," he explained. "It's a way of saying, 'How thoughtless of me! I'm sorry!' People seem to get the idea."

Could the Forehead Tap become a standard gesture? Maybe locally. But David Givens fears it will not be a lasting contribution to world peace, and he should know. Dr. Givens,

the director of the Center for Nonverbal Studies in Spokane, Wash., is an anthropologist working on the first dictionary of body language.

"The Forehead Tap," he said, "might show you're angry at yourself, but it's not a sign of appeasement, and it can be ambiguous. In some Mediterranean regions, it means 'I'm crazy' or 'A curse on you!' In France, you knock your forehead to mean that your companion is stubborn."

Incidentally, even the raised middle finger is not universally understood. Although it has a long history--ancient Romans called it the "digitus impudicus," or indecent finger--it's not an automatic reflex. "The finger is an iconic gesture," Dr. Givens explained, "that was invented in some cultures to picture the male genitalia. It's a symbol of dominance that must be learned."

But some gestures are automatically understood by all

humans, and Dr. Givens proposes to use them in a new signal of goodwill that he has concocted: the Bowing Thumb Waggle. It incorporates gestures that vertebrates have been programmed to make--and to recognize in others--since amphibians and reptiles began making peace by lowering themselves to the ground as a display of submission.

"When we feel meek or friendly, our emotions toggle these old reptilian brain circuits," Dr. Givens said, "and we automatically start to shrug our shoulders and rotate our wrists so that the palms face up. It's our equivalent of the submissive gesture that dogs make by lowering their head below their shoulders. Around the world, when people feel helpless or contrite, they hold up their open palms, and when they want to be friendly, they wave hello with an open palm."

To make the Bowing Thumb Waggle, you display the open palm and wave gently, with the fingers spread slightly apart and the thumb folded across the palm. "It looks as if you have only four fingers," Dr. Givens said, "and that's interpreted by the

subconscious brain as a sign of weakness. The overall gesture says, 'I mean no harm, as you can see by my open palm and poor thumbless hand.' It can't be confused with any other cultural cue anywhere, not even in the Middle East."

The Bowing Thumb Waggle has not been tested in the field, but Dr. Givens is confident it could make New York a friendlier place. "You could do it out the window of your car to apologize or ask someone to let you cut in," he said. "You could use it to politely interrupt someone in a boardroom meeting, or if you wanted to accost someone on the sidewalk to ask directions." And if someone does not reciprocate with goodwill to your bowing thumb and waggling palm? In that case, Dr. Givens recommends that even New Yorkers avoid the temptation to fully rotate the palm and bow three other fingers.

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Judicial Body Language Can Speak to Juries

By JIM KLAHN

Associated Press Writer

SEATTLE (AP) -- Unlike Justice, the blindfolded lady weighing the evidence on her scale, courtroom participants have to consider more than what they hear.

What they see, especially when they see a judge doing it, also makes an impression on jurors and others in courtrooms, says anthropologist David B. Givens.

A judge who turns his back, frowns and purses his lips when a defendant is testifying -- then faces the prosecutor openly, lifts his eyebrows and uses his hands to help conversation -- may appear to favor the prosecutor over the accused, said Givens.

"If a judge's opinion is clear, people will try to follow her lead," said Givens, a University of Washington communications consultant. "If her opinion is clear non-verbally, the same things happen."

Most judges, he said, work hard at an appearance of impartiality, and the non-verbal signals they impart are unknown to the jurists themselves.

Givens, commissioned by the Washington State Administrator for the Courts to study the impact of judicial mannerisms in the courtroom, said that in the course of his work, he videotaped a judge whose style was forbidding and formal.

"He used an evangelistic, sermonizing voice to reinforce dominance over those in court. Conversational speaking gestures were absent," said Givens in an article written for the *Judge's Journal* quarterly.

The judge held himself stiffly erect, appearing anxious, "and his tone of voice accented a holier-than-thou orientation."

The judge, said Givens, admitted to liking his work less and less and felt "people just don't like judges."

Givens showed the judge the videotape, and discussed the judge's on-the-bench behavior. The judge began adding speaking gestures, nodded his head at appropriate points while listening, used conversational speech instead of sermon language and relaxed his body.

"Results were immediate: defendants were more cooperative, showed better attitudes and, on balance, were easier to handle," wrote Givens. "Equally important, court work once again became pleasant."

The judge said he could easily slip into a more dominant, formal style if anyone took advantage of the new relaxed manner.

Esther Bauman, education officer for the court administration office, said Givens' study was to be used in training programs for judges. She said judges asked for the study "so that they can pick up any kinds of ways in which they can improve their presentations, or of any body language they're not aware of."

Videotaping has also uncovered positive aspects of judges' works, she said. "They (judges) realize they are doing a good job."

Givens said while some judges had formed habits that needed breaking, the judges impressed him with their diligence and efforts at impartiality.

"By and large, my hat is off to them," he said. "I could never be one."

The study of non-verbal communication, or "kinesics," is becoming of greater interest in the scientific community, and its application to courtrooms is relatively new.

Anthony Wartnik, King County Superior Court judge in Seattle, said judges consciously try to maintain a feeling of impartiality "but we're not always aware of our body actions."

Since he has been working with Givens, he said, he has become more aware of his actions.

"I think one thing I tend to do is over-concentrate on note-taking, which results in my back turned somewhat to the witness stand. It's a bit worse because I'm left-handed," said Wartnik.

He said he also has had to learn to hold his reactions in check when confronted with shocking testimony, and maintain a level approach to those in court.

But it doesn't mean the court should be emotionless, he said. "If there is something that is genuinely funny, it doesn't mean you can't laugh. But it's different when you raise your eyebrows (in response to questionable testimony) -- like saying, "Who are you trying to kid?"

Judicial bodies in other states, including California and Michigan, are also using kinesics in training materials for judges. Gordon Zimmerman, a faculty member of the National Judicial College in Reno, Nev., said kinesics is also getting more attention at the college, which serves judges from across the United States.

"We're just now starting to get the raw materials to look at," he said, noting that only recently were videotapes allowed into courtrooms. Many courtrooms remain off-limits to cameras.

He said there was more to kinesics in the courtroom than the judge understanding how his non-verbal communication affects others. Also important, said Zimmerman, was a judge's perception of a person before him -- especially the accused.

He said a judge should be aware of his feelings when confronted by someone he perhaps doesn't understand -- an older, white judge presiding over the trial of a young black man who is strutting and wearing "in" garb, for example.

But Zimmerman cautioned that critics of judges, and judges sitting in judgement of themselves, could go too far in dampening what are natural reactions.

"We each have our own styles and we should recognize them," he said. Likewise, a judge should know and understand his habitual patterns, and be sure his actions do not elicit unintended meanings.

Givens said training and willpower were needed for judges to keep a show of impartiality in force.

"Bias leaks easily in non-verbal behavior because evolution has programmed our feelings to show," he said in the *Judge's Journal*. He said a judge might even be unkind, as long as the unkindness applies equally to all.

Sometimes the show has a comic aspect. "I recall an episode in appellate court where three judges covered their mouths, leaned backward and averted gaze while listening to the plaintiff's summation, then uncovered mouths, leaned forward, and gazed at the defendant's attorney as he summed," said Givens.

In some cases, indications of bias may appear trifling, said Givens. But perceptive jurors and others still pick up on them, he said. In a small number of cases, he said, judges reacted visibly to nearly everything said in court, and "the personal opinions of these judges were always clear."

Some lawyers, by watching closely, may be able to gear their

handling of a case to signals given unwittingly by the judge, said Givens.

With more and more videotaping being done in courtrooms, said Givens, it was conceivable that a case for retrial could be made if a judge's bias appeared to affect a trial's outcome.

He said traditionally "non-verbal things don't stand up in court. Whereas words . . . evidence . . . those things stand up." [1/31/81]

CNS

For Man and Beast,

Language of Love Shares Many Traits

By Daniel Goleman

New York Times

With the same ethological methods they have long used in studies of animals, scientists are turning their attention to the nuances of human courtship rituals-otherwise known as flirting.

By turning the ethologist's lens on human courtship, scientists are finding striking similarities with other species, suggesting that the nonverbal template used by Homo sapiens for attracting and approaching a prospective mate is to some extent part of a larger, shared animal heritage.

A woman parades past a crowded bar to the woman's room, hips swaying, eyes resting momentarily on a likely man and then coyly looking away just as she notices his look. This scenario exemplifies a standard opening move in courtship, getting attention, said Dr. David Givens, an anthropologist in Washington who is writing a book about evolution and behavior. "In the first phase of courting, humans broadcast widely a nonverbal message that amounts to 'notice me,'" said Dr. Givens. "They'll do it through movement, through their dress, through gesture."

From hundreds of hours of observations in bars and at parties, Dr. Givens discovered that women, more than men, tend to promenade, making numerous trips to the woman's room, for instance, both to scout and to be seen.

A second nonverbal message in this earliest stage is "I am harmless," Dr. Givens has found. The gestures and postures humans use to send this message are shared with other mammals, particularly primates. Charles Darwin, who noted the same gestures in his 1872 book, "The Expression of the Emotions in Man and Animals," called them "submissive displays."

Perhaps the first serious study of flirting was done in the 1960's by Dr. Irenaus Eibl-Eibesfeldt, an eminent ethologist at the Max Planck Institute in Germany. Dr. Eibl-Eibesfeldt traveled to cultures around the world with a camera that took pictures from the side so he could stand near couples and take their pictures without their realizing they were being observed. In research in Samoa, Brazil, Paris, Sydney and New York, Dr. Eibl-Eibesfeldt discovered an apparently universal human vocabulary for flirting and courtship.

In humans, one such gesture is a palm-up placement of the hand, whether on a table or a knee, a reassuring sign of harmlessness. Another submissive display is the shoulder shrug, which, ethologists suggest, derives from an ancient vertebrate reflex, a posture signifying helplessness. A posture combining the partly shrugged shoulder and a tilted head-which displays the vulnerability of the neck-is commonly seen when two people who are sexually drawn to each other are having their first conversation, Dr. Givens said.

Being playful and childish is another way potential lovers often communicate harmlessness. "You see the same thing in the gray wolf," said Dr. Givens.

When wolves encounter each other, they usually give a show of dominance, keeping their distance. But in a sexual encounter, they become playful and frisky, "like puppies," said Dr. Givens, "so they can accept closeness." The next step is a mutual show of submission, all of which paves the way for physical intimacy.

"We still go through the ritual of courtship much like our mammalian ancestors," said Dr. Givens. "These same gestures are subcortical, regulated by the more primitive part of our brain. They have nothing to do with the intellect, with our great neocortex."

The nonverbal repertoire for flirting is "part of a natural sequence for courtship worldwide," said Dr. Helen Fisher, an anthropologist at Rutgers University in Brunswick, N.J., and author of "The Anatomy of Love" (Fawcett, 1993). "Mothers don't teach this to their daughters."

In the long view of evolution, courtship is less about romance than about genetic fitness, the struggle to pass on the maximal number of one's own genes to future generations.

"In evolutionary terms, the payoff for each sex in parental investment differs: to produce a child a woman has an obligatory nine-month commitment, while for a man it's just one sexual act," said Dr. David Buss, a psychologist at the University of Michigan in Ann Arbor and author of "The Evolution of Desire" (Basic Books, 1994). "For men in evolutionary terms what pays is sexual access to a wide variety of women, while for women it's having a man who will commit time and resources to helping raise children."

From this view, the coyness of courtship is a way to "test a prospective partner for commitment," said Dr. Jane Lancaster, an anthropologist at the University of New Mexico in Albuquerque. "Women, in

particular, need to be sure they're not going to be deserted."

Coyness is not seen in species where the female does not need the sustained help or resources of a male to raise her young, said Dr. Lancaster. In species where a single act of copulation is the only contact a female requires with the father of her young, "there's a direct assertion of sexual interest by the female," said Dr. Lancaster.

But in species where two parents appreciably enhance the survival of offspring, "females don't want to mate with a male who will abandon them," said Dr. Lancaster. In such species, "the courtship dances are coy, a test to see if the male is willing to persist and pursue or simply wants a momentary dalliance," she said. "Instead of the female simply getting in a posture for mating, she repeats a promise-withdraw sequence, getting in the mating posture and then moving away."

In humans, flirtatious looks imitate this sequence. The coy look a woman gives a man is the beginning of a continuing series of approach-withdraw strategies that will unfold over the course of their courtship. These feminine strategems signal the man, "I'm so hard to win that if you do win me you won't have to worry about me getting pregnant by another male," said Dr. Lancaster.

A taxonomy of 52 "nonverbal solicitation behaviors" observed in flirting women has been garnered by Dr. Monica Moore, a psychologist at Webster University in St. Louis. In her research, conducted in singles bars, shopping malls and other places young people go to meet those of the opposite sex, Dr. Moore has found that the women who send flirtatious signals most frequently are most likely to be approached by men-even more so than are women who are rated as more attractive.

"It's not who's most physically appealing," said Dr. Moore, "but the woman who's signaling availability that men approach."

Flirting is the opening gambit in a continuing series of negotiations at every step of the way in courtship. Indeed, the first negotiation point is signaled by the flirtatious look itself.

"When a man is looking at a woman and she senses it, her first decision is, 'Do I have further interest in him?'" said Dr. Beverly Palmer, a psychologist at California State University in Dominguez Hills who has studied flirting. "If so, by flirting she sends the next signal: 'I'm interested in you, and yes, you can approach me.'"

Once the conversation begins, there is "a major escalation point," said Dr. Fisher.

"The woman has a whole new basis for judging the man," she said. "A large number of prospective pickups end here."

Though men may say they are well aware of the tentativeness of flirting, Dr. Buss's findings suggest a male tendency-at least among college-age men-toward wishful thinking in interpreting flirtatious looks.

In settings where men and women go to meet someone of the opposite sex, Dr. Buss said, "we find that when you ask men what it means for a woman to smile at them, they interpret it as a sexual invitation."

"But when you ask women what it means," he continued, "they'll say it just indicates she wants to get to know him better."

In interviews with 208 college-age men and women published this month in The Journal of Sex Research, Dr. Buss and colleagues found that when it comes to seduction, "the sexual signals that work for women backfire for men."

"There's a huge sex difference in how effective different tactics are," he added.

Perhaps not surprisingly, the research showed that for women, direct sexual approaches-dressing seductively, dancing close, staring into a man's eyes-worked well in leading to sexual contact. But for men similar direct strategies were failures.

Instead, for men the less overtly seductive tried-and-true romantic strategems fared best. "For men the most effective approaches are displays of love and commitment," said Dr. Buss. "Telling her he really loves her, that he cares and is committed. (February 14, 1995, C1)

Keep Your Distance

By Oliver Burkeman

The Guardian (UK), Sept. 14, 1999

Most of us would prefer to believe we don't have much in common with the kind of people targeted by the government's new air rage legislation, which was used for the first time last week to bring charges against a man from Greater Manchester.

But you may have experienced feelings more closely related than you realise: new psychological research suggests that air rage, road rage and other seemingly irrational outbursts of wild-eyed, foaming-at-the-mouth fury could be extreme reactions to the violation of a set of rules that choreographs our every waking moment: the unwritten, unconscious system of personal body space. Mounting evidence shows that we all need this space to stay sane.

"We walk around in a sort of invisible bubble," says Phil Leather, head of Nottingham University's social and environmental research group. "It's egg-shaped, because we allow people to come closer from in front than behind - an entire language is expressed via the amount of distance we choose to keep between each other."

In northern Europe and North America - lovers, close friends and wrestling partners aside - the average depth of the bubble at the front is between two and three feet. When it's intruded upon, the physiological responses can range from feelings of mild annoyance and tension to a pounding heart, raised blood pressure, sweating and severe anxiety.

But for those with a predisposition to aggression, the invisible bubble seems to matter much more - and, worryingly for the rest of us, we risk invading it without knowing. "People in prison for violent crimes have a bigger personal space need than those convicted of nonviolent crimes," says Leather. "So when you're at a distance that's acceptable to most people you're already too close to them - and air rage is a prime example. Police and prison officers reporting incidents of violence often say that everything was going fine until they reached forward to reassure someone by touching them on the shoulder - and then everything just exploded."

The air steward who confronts a boorish, drunken passenger is caught in a bind: the point at which the steward moves closer to offer a calming touch is the very moment that the personal bubble is at its largest and most brittle. Earlier this year, research from London's City University lent further weight to the notion that cramped airline conditions exacerbate the desire to assert territorial control over any space one can.

The bubble is made up of four concentric layers, according to the veteran American sociologist Edward

T Hall, who first identified the concept of personal space in his 1969 classic The Hidden Dimension, and gamely tried to persuade us to call the study of it "**proxemics**". Invasion of the first, intimate distance - from zero to 18 inches - "in public is not considered proper by adult, middle-class Americans," Hall writes, "even though their young may be observed intimately involved with each other in automobiles and on beaches." Personal distance follows, at one-and-a-half to four feet; for impersonal interactions we opt for social distance (four to 12 feet) and public distance (12 feet and beyond).

Most of us, needless to say, don't flip into tantrums of uncontrolled rage when a layer is inappropriately invaded. But we do subconsciously deploy an armoury of techniques to preserve the integrity of our personal space, either by pretending that the violation hasn't occurred or by finding ways to vent our mounting fury. These tricks have been extensively documented by Robert Sommer, a psychologist at the University of California-Davis who conducted the research for his book Personal Space by systematically invading other people's private zones - a method which, if it didn't make him any more popular on campus, certainly yielded some interesting results.

"Tension levels increase hugely when space is invaded, and responses fall into two categories," says Sommer. "The first kind are blocking tactics - when you avert your gaze, put your hand up at the side of your head or just make yourself immobile: it's the old subway response of turning yourself into a tree. And then there are the tension and anxiety-reduction responses: hair-pulling, foot-tapping, getting **red in the face** and ultimately leaving the scene." Sommer and his colleagues wandered around their university library, sitting in chairs deemed out of bounds by the laws of personal space. Students grew irritated, anxious and fidgety - and then got up and left.

"People develop all sorts of ways to guard their own space - or they just withdraw into alternative spaces by clamping on headphones and turning up the volume," says James, a City worker regularly beset on the London Underground by personal space invaders. "I open up a newspaper and hold it about a foot from my nose - it creates a zone that other people can't impinge upon."

Our need for personal space is neurologically hardwired, the result of millions of years of evolution, says David Givens, an anthropologist who runs the Center for Nonverbal Studies in Spokane, Washington, and whose ***Nonverbal Dictionary*** website (http://members.aol.com/nonverbal2.index.htm) provides a comprehensive glossary of the tiny gestures we use to guard our invisible zones.

"Even 500 million years ago, the evidence suggests, living creatures displayed a significant sensitivity to spatial issues - and this territorial neural wiring has evolved in humans to such an extent that a tiny invasion of space on the highway can become an emotional issue," he says. "Our brains are wired for territoriality, so we overreact to minor infringements to the point where people feel like killing each other." Even infants, confronted by in-your-face behaviour, turn away - prompting a reduction in heart rate, blood pressure and sweating. There are documented cases, too, of schizophrenic episodes triggered by space invasion.

Hardwired though it may be, the parameters of personal space vary wildly from culture to culture. High-

contact societies in southern Europe adopt far closer speaking proximities, and in Latin America, Japan and parts of sub-Saharan Africa such as Nigeria, the average size of the bubble vanishes to almost nothing. Religious and traditional restrictions on contact between the sexes merely complicates the issue further. Differing attitudes to body odour have been cited to explain the differences, but urban overcrowding seems to be a central explanation.

"The classic case is Japan," says Givens. "There, you have to withdraw into yourself and ignore violations of territoriality because there are just too many folks: you can't get upset if people are brushing against you in the subway or sitting too close to you in the Japanese bath. That's a cultural solution to a phenomenon, overcrowding, which is biologically unnatural and extremely recent on an evolutionary scale."

The embarrassing cross-cultural misunderstandings that can ensue are documented with relish by Roger Axtell in his painstaking survey of body language around the world, Gestures. "There is a 'dance' done by an American or European freshly arrived in Latin America who is confronted by a sudden and startling custom of closeness," he writes. "The first reaction of the visitor is to step backward. But the Latin will follow. So the visitor steps back again. The Latin follows. And so it goes, in a poorly choreographed tango."

Misunderstandings of the etiquette of space don't always take such lighthearted forms as the "Latin tango". Apart from air and road rage, Sommer cites the notorious case of Bernhard Goetz, the self-styled "vigilante" who shot three youths on the New York subway in 1984. They had threatened him - but only after he'd violated their personal zones by sitting unnecessarily close by. "If you have a small space bubble and you go into a bar and sit what you consider an appropriate distance from someone with a larger space bubble, watch out," Sommer says. "There could be trouble."

TOP 10 CLIPS

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10. School graduations are "all basically the same because rituals are supposed to be the same. And, despite the torrents of words uttered at them, they are, Givens says, basically nonverbal ceremonies." (Peter Carlson, "Class of '97, Are You Listening?", B1, *Washington Post*, June 6, 1997)

9. "'Tilting your head or lifting your shoulders are classic shy or submissive cues that give the wrong message when you're trying to promote an idea,' says Dr. Givens." (Lauren Picker, "Posture, Please!", pp. 123-25, *Self*, February 1996)

8. "Anthropologist David Givens says: 'Primates are very quick to spot defects. Television is particularly good at addressing our amphibious midbrains with this information.'" (Henry Allen, "Primate Debate," C1, *Washington Post*, October 5, 1996)

7. "A second nonverbal message in this earliest stage is 'I am harmless,' Dr. Givens has found. The gestures and postures humans use to send this message are shared with other mammals, particularly primates. Charles Darwin, who noted the same gestures in his [1872] book, *The Expression of the Emotions in Man and Animals*," called them 'submissive displays.'" (Daniel Goleman, "For Man and Beast, Language of Love Shares Many Traits," C1, *New York Times*, February 14, 1995)

6. "The flair of the lapels and the length of the jacket serve the same function as the gorilla's posture--making the shoulders and chest look as big as possible--and the color adds to the effect. 'Black makes you seem mysterious and unapproachable,' Givens says. 'It's the equivalent of putting on sunglasses.'" (John Tierney, "The Big City: Color Blind," pp. 32, 34, *New York Times* Magazine, September 18, 1994)

5. "Dressing like your colleagues and neighbors dress 'reflects a deep reptilian behavior principle called "*isopraxism*,'" says the research anthropologist David B. Givens." (Anne H. Soukhanov, "Word Watch," p. 135, *Atlantic Monthly*, October 1993)

4. "'Modern technology is fragile,' says Givens. 'Low-tech, like granite monoliths, will last.'" (Linda Marsa, "Bomb Shelter: Warning the Future of Our Lasting Nuclear Legacy," p. 20, *Omni*, July 1993)

3. "Washington, D.C. research anthropologist David Givens--an expert on nonverbal communication--says distinctive dress styles within Washington's diverse subcultures and locales do exist, though they can be subtle." (Susan Gervasi, "Dressing for the Mall," B5, *Washington Post*, May 10, 1993)

2. "The contrast between the two is so great, said research anthropologist David Givens, that if Bush were not the Leader of the Free World, but simply a primate under study in a behavioral experiment, 'one of the things I would look for is to see if the animal had been drugged--given speed and amphetamines in one case or a depressant like Valium in the other." (Lloyd Grove, "George of the Jungle?", E1, *Washington Post*, January 28, 1992)

1. "SEATTLE (UPI)--The lives of people 10,000 years in the future may depend on whether they can understand an enduring message left by anthropologist David Givens." ("Marker May Warn Future Generations," I-C 7, *Los Angeles Times*, November 22, 1981)

What Body Language Can Tell You That Words Cannot

U.S. News & World Report Interview With David Givens, Anthropologist

The most successful lawyers, teachers and salespeople, among others, have one thing in common: A capacity to understand nonverbal signals and use them advantageously.

Q Mr. Givens, why is it important for people to understand body language--that is, communication by means of movements and gestures?

A The best salespeople, the best teachers, the best business managers have an innate ability to read body language and put it to profitable use. They adapt their presentation to the messages they pick up.

For example, the most successful trial lawyers are those who can look at a jury and a judge and pick up little cues that tip off what people are thinking. An observant lawyer may notice that the judge is compressing his lips into a thin line as the lawyer is speaking. This is a common sign people use when they disagree or are becoming annoyed. A smart lawyer will quickly try a new approach.

Such signals are used constantly, even though people generally don't realize they are communicating through their movements, posture and mannerisims.

Q What kinds of information is nonverbal language likely to reveal?

A Very often it signals a person's true feelings, which may be contrary to what is actually being spoken. For example, a person may hunch the shoulders, angle the head to one side and compress the lips. That's a good indication that he or she is uncertain about an idea or perhaps disagrees with it, even without saying so in words.

Q Would you give some examples of the most common indicators of approval and disapproval?

A When people show rapport with each other, they swivel their upper bodies toward each other and align their shoulders in parallel. They face each other squarely, they lean slightly toward each other, and there

is more eye contact. If they disagree, they unwittingly or unconsciously turn their bodies away from each other. Such signs are unmistakable forms of body language.

Q Do people more often than not try to exhibit dominant behavior in the presence of others?

A Some people do, but many also assume a submissive stance. The head, arms, legs and feet tell the true intent. When the boss pats an employee on the back, the employee's toes will invariably pigeon-toe inward--a classic sign of submission--and the boss will toe out, a sign of dominance.

By contrast, people in submissive roles will tend to crouch slightly and display self-protective stances. They may fold their arms or hug themselves, cross their legs or reach up and touch their throats. People with a more dominant attitude will use more-expansive gestures, spreading the arms and legs, creating an air of openness.

Q What are some other universal nonverbal signals?

A One is an automatic raising of the eyebrows that a person does when he or she meets someone else. It takes place very quickly at the instant when recognition takes place, and it is a natural and universal form of greeting.

Another obvious cue is known as the "hand behind head," which signals uncertainty or stress. When someone is disturbed or startled by something, the first reaction is to reach up and touch the back of the head. It is a totally unconscious reflex.

About 125 nonverbal signals of this type have been cataloged as recognizable.

Q Where do we get mannerisms such as these? Are they learned as a part of our culture?

A No, they are almost entirely inborn. Nonverbal behavior occurs naturally, without being taught, and even shows up in newborn infants and in lower animals. It is firmly grounded in evolutionary development. It's something that Mother Nature provides to help us get along with each other.

Nonverbal communication is also what we call culture-free: it applies worldwide. People can go anywhere and understand these signals, even if they don't know the spoken language.

Q Is courtship one of the situations that is strongly influenced by nonverbal skills?

A Yes. In fact, early courtship is almost entirely made up of nonverbal actions. Men and women unconsciously shrug their shoulders when they find each other attractive. It is an "I give up" signal, almost a childlike gesture that shows they are harmless.

Early courtship is filled with shy, juvenile, awkward behavior between the man and the woman. A woman attracted to a man will tilt her head down and to the side, then look in his direction in a coy or coquettish way. A man at a party or at a bar will stake out his territory by putting cigarettes or cash in front of him, to show females his status relative to other men.

Q What if a woman decides that she isn't interested in a man's overtures?

A The simplest gesture is simply to turn her body away from him. It's the "cold shoulder," one of the most recognizable gestures in the entire animal kingdom. It is really one of the kindest yet most effective ways to dampen someone's ardor. And men can use it, too.

Q Would you include touching in the vocabulary of nonverbal communication?

A Yes. And it should be used very carefully. Skin is our oldest sense organ, and when it is touched by someone it carries a strong emotional impact. It is a very sexually loaded form of communication.

In a business or social setting, a casual touch can be almost electric, even in a professional relationship. When someone is touched, he or she immediately stops for an instant and wonders, "What did that mean?" In such settings, "hands off" is the best policy because even a well-intentioned touch can be badly misconstrued. [11/19/84]

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CNS research has been featured in a variety of radio and TV formats, including CNN, CBS News's *Walter Cronkite's UNIVERSE*, and the *Donahue* show.

Forthcoming BBC special on the human face. Forthcoming syndicated newspaper column, "Strange But True," on archaeology of the Big Mac); forthcoming article in *Spike* Magazine on men's caps; forthcoming article in *Dallas Morning Tribune* on clothing in the 20th Century; forthcoming article in *Redbook* on dance; forthcoming article in *Diversions* Magazine on designer hand signals; forthcoming article in *Homemakers* Magazine (Canada) on nonverbal communication (also *Details*, *Jump*, *Maxim*, *Sydney Sunday Telegraph*, *Real Simple*, *Women's Weekly*, HotJobs.com.)

New York Drops Its Game Face

By ALEX KUCZYNSKI
September 16, 2001

NEW YORKERS have long kept their facial expressions guarded, for safety, privacy or emotional safekeeping. They are masters of the cocktail party grin, the passive subway-rider's gaze, the social smile, the cool stare.

But in the days after two hijacked airplanes reduced the city's soaring symbols of good fortune to ashen rubble, New Yorkers abandoned their game face.

Whether they were sitting in a coffee shop, walking down Fifth Avenue or riding the F train, they were forced into a kind of emotional nudity, their faces stripped of the shields used in everyday life. There were the measured grimaces; a smile would have seemed too celebratory and gaudy; between a man and a woman crossing paths on Fifth Avenue Wednesday morning, which signaled a mutual understanding: we must support one another, even if all we can offer is a glance of recognition.

There was the man on Madison Avenue, beetle-browed with exhaustion, who without shame sobbed into a cellular phone that seemed too puny an instrument to convey the spectrum of his emotion. He stopped and looked at another man standing in the door of a deli, his eyes straining with a wordless question.

In acts described by psychologists and sociologists as subliminal bonding consistent with wartime, instead of averting gazes when a stranger stood close, many New Yorkers made eye contact. The cultural historian Neal Gabler, who walked Manhattan's streets for three days after Tuesday's attack, said that New Yorkers have always cultivated the **blank face**. "It is an immunity mechanism, an emotional tax that you pay when you live in New York City," he said. "Now, people have left it behind and are looking at each other with a different kind of civility, looking for some kind of contact."

Outside the 69th Regiment Armory on Lexington Avenue at 26th Street on Thursday morning, hundreds of people holding signs with

photographs of missing people looked into strangers' eyes with a mournful intimacy usually reserved for lovers, parents or siblings. The signs read "Last seen, 102nd floor, 9:15 a.m." or "Have you seen? My dad, 82nd floor."

In Bryant Park on Thursday evening, Mike Shattuck, a college student, caught the eye of a young man who looked, in dress and manner, a lot like him. Both men gave a semi-**shrug** of the shoulders.

Mr. Shattuck said that he wasn't sure why he had exchanged wordless signals with the passerby, but that it had something to do with seeking a sense of community. "I guess you want people to know you're here," he said. "You can't wear blinders all day in a situation like this."

In times of mourning and shock, human beings drop the social proprieties and their faces convey clearer pictures of their emotions, said Dr. Gordon Bower, a professor of psychology at

Stanford University who studies body language and facial expression.

"When people are put in a common situation of shock and anxiety, they bond or affiliate in a way that signals empathy," he said. "It happens particularly if there is an us-versus- them slant. You look for comfort and connection from the strangers around you."

But there were also other types of looks. As the city's mood grew edgy on Thursday after a rash of bomb threats, Wanda Farrington stood outside her office building on Park Avenue after being evacuated. She had found herself staring with open hostility at strangers. "I think things I am ashamed of," she admitted. "I look at the man with the backpack and think, `What is he doing here? Why is he following me 60 blocks?' Normally, I close up, but now I just stare at anybody suspicious."

Ira Didner, standing nearby, said: "I notice a lot of blank stares, a lot of uncertainty. But I also see people who look at each other. I think all of us want to feel as if we've been going

through something together. You don't meet eyes very often in New York, and now I look into everyone's face."

There are 30 finely tuned muscles in the human face, Dr. Bower said, and through evolution a refinement of the facial structure has created a means of wordlessly communicating many messages. "We are now able to pass on an emotional contagion, where one sad person can through their body and facial language pass on sorrow and grief to hundreds of other people," he said. "It is an empathic, imitative response that even little children have."

Dr. Bower said that people abandon facial and physical pretenses during acts of war, natural disaster or whenever they perceive a constant threat, and that New Yorkers' increased facial openness will last as long as there is danger, real or imagined. "The threat becomes so salient that it is foremost on everyone's mind," he said.

David Givens, an anthropologist and the director of the Center for Nonverbal Studies in Spokane, Wash., said that the

empathic expression he has seen most often in times of widespread grief is known as **lip compression**, in which a person rolls in and tenses the lips. Dr. Givens said that President Bush used lip compression during his first television appearances after the attacks.

"It is a very emotional and compassionate signal with the lips," Dr. Givens said. "We know when you combine it with a little **eye contact**, person to person, it is a bonding thing that says, `We have both experienced this horrible, horrible thing together.' It is untrained, and nobody teaches it in school. These days, the only facial expression you are taught is to smile for the camera."

The lip compression activates specific centers in the brain, Dr. Givens said, which have the effect of comforting the person seeing the expression, and the person making it. Even in Spokane, Dr. Givens has noticed drivers displaying more courtesy on the road. "It is as if to say, `We're all in this together, and I'm not going to compete with you on this day,'" he said.

Herbert Gans, a professor of sociology at Columbia University, said he has noticed more signs of consideration on New York streets. "It can be a look, a meeting of the eyes, that says, `Here, I'll let you pass, I won't step in front of you or be impolite today,'" he said.

Mr. Gabler said that he has never thought of New York as a geographical place, but as a zone of shared body language, which can register isolation or compassion with equal force. "New York is a city of no contact, where you don't even know your neighbor and every man is an island," he said. "And suddenly, we find ourselves all together on that island."

http://www.nytimes.com/2001/09/16/fashion/16FACE.html?ex=1001841587&ei=1&en=f9657f49a7704e66

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NOTABLE QUOTABLES:

1. *If personality is an unbroken series of successful gestures, then there was something gorgeous about him. . . .*

--F. Scott Fitzgerald, regarding Gatsby, *The Great Gatsby*

2. *What you do speaks so loud that I cannot hear what you say.*

--Ralph Waldo Emerson

3. *Ninety-four percent of our communication is nonverbal, Jerry.*

--Kramer, *Seinfeld*, January 29, 1998

4. *I have always tried to render inner feelings through the mobility of the muscles. . . .*

--Auguste Rodin

5. *Thoughts too deep to be expressed,*

And too strong to be suppressed.

--George Wither, *Mistress of Philarete*

6. *And I'll draw right here a picture of the face that drove me*

mad.

--H. A. D'Arcy, *The Face Upon the Floor*

7. *In the glance of the speechless animal there is a discourse that only the soul of the wise can really understand.*

--An Indian Poet, quoted by Kahlil Gibran

8. *See how she leans her cheek upon her hand!*

--Shakespeare, *Macbeth, II, 2*

9. *Silence is the element in which great things fashion themselves.*

--Carlyle, *Sartor Resartus*

10. *With just a look or a gesture . . . she would reveal to all of us . . . her compassion and her humanity.*

--Tony Blair, British Prime Minister, Eulogizing Princess Diana

11. *". . . we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by all."*

--Edward Sapir, Anthropologist (1927)

12. *Nothing is often a good thing to do and always a good thing to say.*

--Will Durant

13. *The way her belt was above her hips showed that she had not been in Paris long.*

--Victor Hugo, *The Hunchback of Notre Dame*

14. *Whence came that bald forehead, that head always bent down, that chest always heaving with sighs?*

--Victor Hugo, *The Hunchback of Notre Dame*

15. *Her pure, rosy lips were half smiling; her candid, serene forehead was clouded now and then by her thoughts, like a mirror which is momentarily breathed upon; and from her long, lowered eyelashes emanated a kind of ineffable light which gave her profile that ideal sweetness which Raphael was later to find at the mystic point of intersection of virginity, maternity and divinity.*

--Victor Hugo, regarding La Esmeralda, *The Hunchback of Notre Dame*

16. *The truest expression of a people is its dances and its music. Bodies never lie.*

--Agnes de Mille

17. *Silence is a text easy to misread.*

--A. A. Attanasio, *The Eagle and the Sword* (HarperCollins)

18. *To acquire knowledge, one must study; but to acquire wisdom, one must observe.*

--Marilyn vos Savant

19. *Jerry, the throat-clear is a nonverbal indication of doubt.*

--George, *Seinfeld*

20. *It's incredible. There are no words.*

--Zinedine Zidane, French team player, upon winning soccer's World Cup

21. *You see, but you do not observe. The distinction is clear.*

--Sherlock Holmes to Watson, *A Scandal in Bohemia*

22. *Depend upon it there is nothing so unnatural as the commonplace.*

--Sherlock Holmes to Watson, *A Case of Identity*

23. *Indeed, I have found that it is usually in unimportant matters that there is a field for the observation, and for the quick analysis of cause and effect which gives the charm to*

an investigation.

--Sherlock Holmes to Watson, *A Case of Identity*

24. *It is my business to know things. Perhaps I have trained myself to see what others overlook.*

--Sherlock Holmes, *A Case of Identity*

25.*Bend, bend your knees! Behold the angel of God!*

--Dante Alighieri, *The Divine Comedy (Canto II)*

26. *As sheep come forth from the fold by one and two and three, and the rest stand timid, bending eyes and muzzle to the ground; and what the first does the others also do, huddling themselves to it if it stops, simple and quiet, and know not why; so saw I then the head of that happy flock move to come on, modest in countenance, in movement dignified.*

--Dante Alighieri, *The Divine Comedy (Canto III)*

27. *Beowulf put on his warrior's dress, had no fear for his*

life. His war-shirt, hand-fashioned, broad and well-worked, was to explore the mere: it knew how to cover his body-cave so that foe's grip might not harm his heart, or grasp of angry enemy his life.

Beowulf

28. *Haste thee nymph, and bring with thee*
Jest and youthful Jollity,
Quips and Cranks, and wanton Wiles,
Nods, and Becks, and wreathed Smiles,
Such as hang on Hebe's cheek,
And love to live in dimple sleek;
Sport that wrinkled Care derides,
and Laughter, holding both his sides.

--John Milton, *L'Allegro*

29. *Essential to a serious actor is the training and perfecting of the outer instrument-comprising his body, his voice and his speech. This instrument is the violin on which he will play.*

--**Uta Hagen**, "Respect for Acting" (1973)

30. *Her posture is crooked, her movements odd and*

constrained. When she has nothing to do, she stands wringing a cloth in her hands.

--**Peter Weiss**, “Marat/Sade”

31. *She mimes all the gestures of departure, but remains on-stage, near the wing, looking off-stage and fixed with an attitude of departure.*

--**Jean Genet**, “The Blacks”

32. *Pause. Head back level, eyes front, pause. She clasps hands to breast, closes eyes. Lips move in inaudible prayer, say ten seconds. Lips still. Hands remain clasped. Low.*

--**Samuel Beckett**, “Happy Days"

33. *So he grew taut. His eyes were harder, his temples metallic, his facial muscles more knotted. In response, I hardened accordingly.*

--**Jean Genet**, “The Thief’s Journal”

34. *There is something about her uncertain manner, as well as her white clothes, that suggests a moth.*

--**Tennessee Williams**, “A Streetcar Named Desire”

35. You can observe a lot by watching.

--Lawrence Peter ("Yogi") Berra