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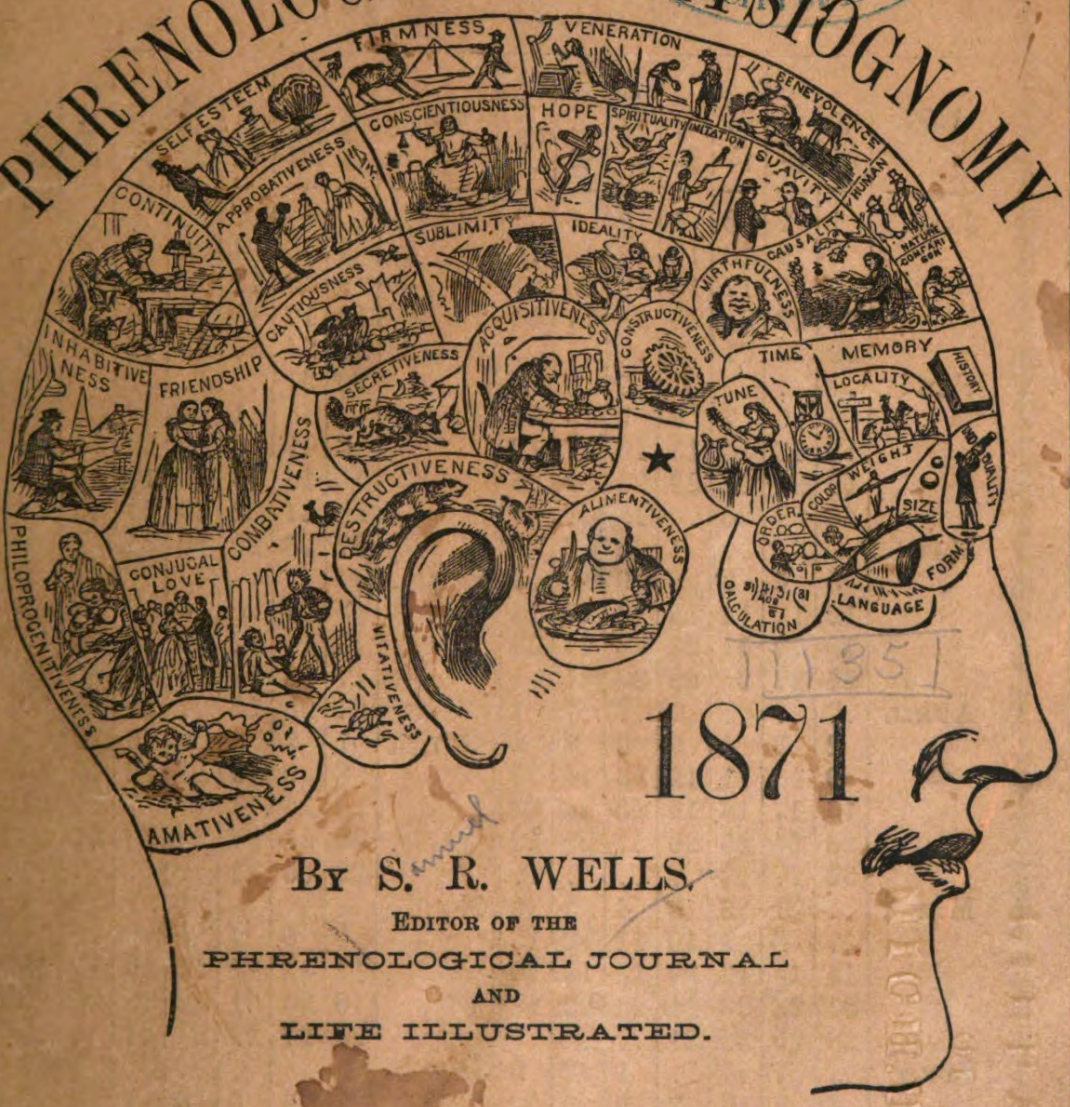

1871

By S. R. WELLS.

EDITOR OF THE

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FOR 1871.

THIS is the seventh volume of our ILLUSTRATED ANNUAL. It has become an established fact. Readers now look for it as for the coming of an expected friend. Many date the beginning of their interest in the study of human character from the reading of an ANNUAL. Large editions are called for, and they are used as wedges with which to open the minds of prejudiced persons for the admission of light. Many will read a tract, a pamphlet, or an ANNUAL like this on a subject new to them, who would not undertake a larger volume. In this way we are enabled to elicit attention to subjects of the greatest importance to the race of man.

Regarding Phrenology and its collateral subjects, Anatomy, Physiology, Physiognomy, and Psychology, as the great central starting-point in the study of man, from which radiate all human interests, material and spiritual, Education, Temperance, Our Social Relations, Self-Government, Science, Art, Literature, Mechanism, Commerce—aye, even Religion—*all*, we think, are to be studied in the light of the science of mind, if studied so as to be rightly understood and rightly applied.

The human brain may be likened, in some respects, to the mariner's compass. Its right use depends on a knowledge of its functions. Phrenology is the needle which points to the true mental pole, and discovers the organization and adaptation of mind. Here are the FACULTIES—God-given faculties! —whose *use* each of us ought to fully understand. There are the PROPENSITIES, with all their desires, impulses, and temptations, to be directed, restrained, and regulated. There are the INTELLECTUAL FACULTIES, to be educated and trained in their proper manner—Causality to reason, Comparison to analyze,

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Language to express ideas, with Size, Weight, Form, Calculation, and Order, to do their necessary work. There, too, are the MORAL SENTIMENTS, Conscientiousness, Hope, Faith, Benevolence, and Veneration, to be awakened and developed. In short, each organ of the mind is to be called out and put to that service which our Maker intended it to perform; and also the fullest growth and perfection of each bone and muscle of the body should be sought, so that body and brain may be made to work together to the best advantage for one's own prosperity and happiness in this life, and for the saving of the soul, and for the glory of God.

Surely these objects are worthy our study and our effort. If we would make the most of ourselves—if we would aid others in the work of development and improvement, this is the place to begin. If we would know what we can do best, and make life a success, and not a failure, we *must* "know ourselves." This modest little ANNUAL simply proposes to point the way by which each of us may grow better, more healthful, more intelligent, more useful, more kindly, more manly, more just, more devotional, and more godly.

CHARACTERISTICS OF SOUND.—The following curious observations in regard to the transmission of sound have been carefully verified by an extended series of experiments: The whistle of a locomotive is heard 3,300 yards through the air; the noise of a railroad train, 2,800 yards; the report of a musket and the bark of a dog, 1,800 yards; an orchestra or the roll of a drum, 1,600 yards; the human voice reaches to a distance of 1,000 yards; the croaking of frogs, 900 yards; the chirping of crickets, 800 yards. Distinct speaking is heard in the air from below up to a distance of 600 yards; from above, it is only understood to a range of 100 yards downward. It has been ascertained that an echo is well reflected from the surface of smooth water only when the voice comes from an elevation.

Other similar phenomena connected with the transmission of sound have been observed, but the results disagree either from inaccuracy in the observations or from the varying nature of the circumstances affecting the numbers obtained. Such variations occur to an extent of ten to twenty per cent., and even more. The weather's being cold and dry, or warm and wet, are the chief influencing causes. The velocity of sound varies, also, with the temperature, traveling faster as the air is rarefied by heat. At the point of freezing water, sound travels 1,090 feet per second, at 62 degrees it travels 1,125 feet per second.

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NATIONAL TYPES OF FEMALE BEAUTY.

THE French have a saying, that "Nothing is beautiful which is not true," and this we believe is quite as applicable to the human form and face as to anything else. Real beauty of form is that which has nature and health as a basis. Wisdom, goodness, and truth constitute the basis of beauty in the face. Some see beauty in the sparkle of the serpent's eye, or in the varied hues of his scales and skin; but when we remember that the eye blazes but to betray, and the radiance of the skin is but the cloak of the treacherous serpent, the thought of beauty is instantly dissipated, and shivering dread and disgust take its place.

In analyzing briefly the types of female beauty represented in the following engravings, we begin with the Grecian lady, with her jaunty

FIG. 1.—GRECIAN.

FIG. 2.—FRENCH.

hat, classic features, tasteful habit, and symmetry of form, more artistic than utilitarian. Perhaps she would nearly realize the adage, "A thing of beauty is a joy forever."

Here we have a brisk, intelligent, well-formed French face, with pointed features and a dashing style of dress, somewhat unique and independent, showing that she belongs to that polite and facile nation which, while it gives fashions to some of the most influential nations in the world, has no fixed fashion of its own, each lady dressing according to her own figure, complexion, and taste, and always being tasteful; vivacity, emotion, and spirit are her leading traits.

In the next, we have the Russian, from that growing giant nation of the North. What staid substantial features! what a neck! what a broad chin! how sedate and earnest the expression! what an ample bust! evidence of no effeminacy, but of healthfulness, vigor, and endurance, strength, steadfastness, and power, and less of the artistic and ornamental. There is stamina, if not so much delicacy here.

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In the next face we have the Swiss girl, with her masculine hat and short curly hair; the features indicating health, cheerfulness, physical exuberance, with not much culture. Liberty and self-helpfulness rather than sentiment are seen to be the characteristics.

FIG. 3.—RUSSIAN.

FIG. 4.—SWISS.

Here is the Swede, with a well-formed head, strong moral sentiments, a full, eloquent eye, and a really womanly face. Jenny Lind has taught us to respect whatever is truly Swedish, and without any knowledge to the contrary, to think well of it.

FIG. 5.—SWEDE.

FIG. 6.—AUSTRIAN.

Next, we have the elegant Austrian. Here is a stately beauty—we are reminded of Marie Antoinette—classical in every feature, straight and dignified in person, with beautifully chiseled features, tresses abund-

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ant, exquisite taste in dress, which, though elaborate, is very appropriate. The Austrian woman is loving and lovable, and doubtless merits all the gallantry of her countrymen.

The Polish beauty, with a square hat and tassel, has a good figure, a marked face, and a strong character; but we fancy there is a sadness in

FIG. 7.—POLISH.

FIG. 8.—HOLLAND.

the expression, and we can not think of Poland without a feeling of sympathy. In looking at this sad countenance, it is perhaps made more so by looking through sad glasses. In that head, how much of ambition and bravery, how much of affection and patriotism, how much of intensity and power!

The Holland beauty has a quiet, motherly, loving look; the calmest,

FIG. 9.—ENGLISH.

FIG. 10.—GERMAN.

the most contented face in the group; and exhibiting a most domestic, good-tempered, and affectionate person.

This English face, though beautiful, has less strength of expression than is requisite to illustrate English feminine character. It fails to do justice to the subject. An English—Anglo-Saxon—beauty has a soft

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silky skin, a florid complexion, fine auburn hair, blue or gray eyes, an ample chin, an aquiline nose, full rolling lips, sound, regular, and handsome teeth, and is one of the best of wives and mothers. The artist was unfortunate in the selection of his model to illustrate the typical English beauty. There is a class of ladies in England which that face might represent, but there is not enough of breadth and strength to

FIG. 11.—CHINESE.

FIG. 12.—JAPANESE.

represent the true English woman. There has been in this representative so much refining as to abolish the elements of strength, leaving only effeminate dignity.

The German beauty is plump, strong, broad, and substantial. Health, constitutional vigor, endurance, and power are seen here, rather than artistic grace or aristocratic refinement. A motherly affection is evinced in the full back-head, and is also shown in the mouth, the luscious loving lips, and in the eyes. We see in this face, not much of aspiration, not a restless, discontented nature, but one who would love her husband, her children, her home, her friends, her pets, her duties, cares, and responsibilities, and be satisfied when she had fully met the claims of all these.

FIG. 13.—TURKISH.

Next we have the Chinese face, with its contracted forehead and opaque features. There is not much expression of the spiritnal in her. Restricted in her education and sphere, she must content herself with dress decoration, and a diffident, submissive, subordinate life.

The Japanese woman doubtless looks beautiful to her countrymen, but these oblique, almond eyes, that narrow forehead, and that general

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expression of weakness is not particularly fascinating to us. Still, there is benevolence, if not bravery or beauty, there.

In some of these beauties we perceive wit, love of dash and display; in others, earnestness, sincerity, and a sense of duty; but in the German, in the Hollander, the English, and in the Russian we find those domestic qualities which give strength to a nation, and those constitutional developments which give power to a people. In the Grecian and in the French and Austrian we find grace, elegance, brilliancy, sprightliness, dash, and wit; in the Swede, sincerity and tenderness; and in the Polander, power, patience, perseverance, patriotism, and a shade of melancholy. In the Asiatics, there is not much of the vital or the voluptuous, and much less of the mental and the spiritual. Take off the bands of barbarism and supply them with the light of a higher spiritual life, and they will take on expressions in accordance with the superior culture, true philosophy, and religion thus afforded.

BREAD MAKING—HOW TO DO IT.

As bread, in many families, is the chief article of food, and with some indigent, hard-working women almost the only article, it is a matter of the first importance that the bread be of the right material and made in a proper manner.

The first necessity relative to wholesome bread is to have good, plump, well-ripened, properly cured, and well-cleaned wheat, which is the best of all the grains for this purpose.

The grain should be dry when ground; the millstones should be sharp, so as to cut the bran pretty fine, and not merely bruise the grain, thus leaving the dark crust of the berry—the part called gluten—in large flakes. It should be ground without bolting or sifting, the entire grain possessing all the requisites for healthful food. The inventor of the mill-bolt was not a benefactor of the race. His work was a change without improvement.

As it is thought to be indispensable that bread be raised in some way to lightness or sponginess, it is an important point to learn how this lightness can be obtained without loss or injury to the bread.

Fermentation.—This process is the more common, and it is produced by using yeast. This, to speak plainly, is a *rotting process*, a decomposition of certain elements of the grain, thereby producing carbonic acid gas, and this gas in its effort to escape expands, and makes the bread puffy or light. The decomposition of the starch and sugar for the production of this gas uses up a considerable percentage of the nutritious elements of the grain, which is a dead loss to the consumer. Some bakers use flour which is made from grain that had been injured by being wet and grown in the field, or heated in the mow or stack, or heated and soured in the bin or storehouse; or of flour that has been

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injured and soured after being put up in barrels. The process of raising by these bakers is pushed to a great extent, that it may be very light, and the acid is then modified by the use of lime and other alkalies. Common baker's bread is sometimes almost tasteless; occasionally we meet with that which tastes sweet, rich, and natural. The aerated bread, raised by a mechanical process in air-tight receivers, has this rich, sweet, wholesome quality, and is probably the very best baker's bread that is made.

RAISED BREAD, so called, is that which is not made light by fermentation, but is raised by means of acids and alkalies instead of yeast. In this process bicarbonate of soda and muriatic acid are often used. Intrinsically, the result is the same in this method as when yeast is used —the acid combining with the soda forming common salt, and leaving the carbonic acid free to puff up the dough. In the process of fermentation to create gas to make the dough light, we lose a portion of the sugar, an important part of the nutriment of the grain. In using acids and alkalies, if they are combined in just the right proportion to neutralize each other, we have no other extraneous element formed and retained in the bread but common salt; but if this union be not complete, we have disturbing elements which must be got rid of by the system of him who eats the bread. Who has not eaten soda-biscuit heavily charged with alkali? The effects of such food can not but be very mischievous in its effects upon the health and constitution.

UNLEAVENED BREAD made light and spongy by expanded air and the conversion of water into steam is the most nutritious and healthy, and also the most economical, because none of the elements are lost in the process of fermentation, and no foreign elements are added to the original material by the process of raising, as with acids and alkalies, to make war on the health, or to tax the system in its efforts to expel them.

The lower animals find grain a complete and healthful article of food, and do not seem to need sugar, soda, acid, or the fermenting process to make their food palatable; nor do they appear to need drugs and doctors to repair gustatory damages. The lion, the horse, the ox, the pig, and the bird tribes, when left to select their food as well as their dwelling-place, and the amount and time of their exercise, are not troubled with dyspepsia, gout, or rheumatism, but enjoy themselves during their full term of life, accidents and casualties excepted.

WHEAT THE BEST BREAD STUFF.—This grain is cultivated all over the world, but thrives best between the 25th and 65th parallels of latitude. It varies in its composition according to location, soil, and climate. Some varieties contain more carbonaceous elements, and are better adapted to use in cold climates, furnishing a greater amount of heat than others. Some have more nitrogenous materials, and are better adapted to give muscular power. Some have more phosphates, and therefore abundantly feed and sustain the brain, nerves, and bones. The distribution of these elements is such, however, that wheat affords better than any other grain the proper supply of all the requirements of

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the human system, and constitutes perhaps the best single article of food known to man, on which alone, with good water, his health and vigor might be sustained for an indefinite period.

HERE IS A CHEMICAL ANALYSIS OF WHEAT.

Of 100 parts of wheat there are—

Water	14.0-10	Water	14.0
Gluten	12.8	Nitrates or muscle makers	14.6
Albumen	1.8	Carbonates, or heat and fat producers	69.4
Starch	59.7	Phosphates, or food for brain, nerves, and bones	2.0
Sugar	5.5		
Gum	1.7		
Fat	1.2		
Fiber	1.7		
Minerals	1.6		
	100.0		100.0

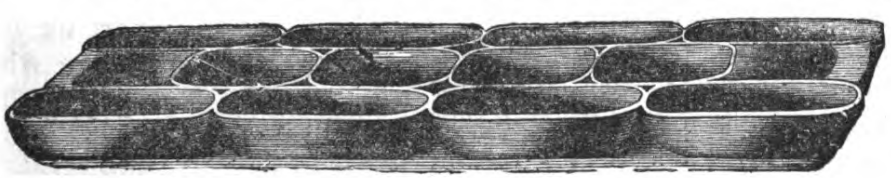
When we examine rice, we find it excellent food to create warmth, but very poor food for the man who would work hard with brain or muscle. One hundred parts of rice contain—

Water	13.5	Heaters	79.5
Muscle feeders	6.5	Food for brain and bones	0.5

Thus wheat contains more than twice as much muscle-feeding power and four times as much brain-feeding power as rice. Rice-eaters are slow, sleepy, and inefficient.

If one will break a kernel of wheat, he will find a dark crust or shell covering the outside, and also the germ or chit, while the body of the grain is white, dry, and crumbly. In the process of grinding wheat for superfine flour, the outer shell, composed chiefly of gluten, being tenacious and adhesive, comes from the mill in flakes with the bran, and is sifted out, while the starch is pulverized and constitutes the fine flour. Thus the starch, which is the chief element in fine flour, is saved, which contains no food for brain and muscle; and the gluten, containing phosphates and nitrates which furnish support for brain, bone, and muscle, is cast away with the bran, and is fed to horses, cattle, and pigs. And this is the kind of flour that makes nine-tenths of the bread in American cities, besides all that is used in cakes, puddings, and pastry.

The most economical and best bread, especially in cold weather, when a hot fire is constantly kept, is what is sometimes called gems, or unleavened biscuit. For this purpose a group of cast-iron pans or cups 2½ by 3½ inches each, all made in one casting, is used. These pans are set on the top of a hot stove and allowed to become almost smoking



THE GEM-PANS OF CAST IRON.

not when buttered for use. Then with cold water and milk, half-and-half, or with cold water alone, and the colder the better, mix and stir

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quickly with a stiff spoon as much Graham or unbolted wheat-meal as will make a stiff batter or thinnish mush; and when the pans are hot, fill them quickly with the thin dough and let them stand a minute on the stove before putting into a very hot oven, where they should remain twenty or twenty-five minutes, until done. If the mixture be neither too thin nor too stiff, and the pans and the oven be hot, you will have twelve as light and wholesome biscuit as any epicure could wish to eat. They may be eaten smoking warm from the oven, as they contain no poisonous chemical elements like yeast bread, which requires cooling to be rid of. They are good cold, or may be warmed in a steam-kettle. Anybody, however unskilled in cooking, can learn to make these light and nice every time. Nice, fresh wheat-meal, very cold wetting, quickly done, with a very hot place to bake them, will insure the best of "luck" always. These, like all other Graham bread, should be fresh every day.

For growing children, and those people who work or think, and especially students and sedentary persons, there is no other bread, and scarcely any other single article of food, that equals it. Let the poor who can not afford to lose 14 per cent. of the grain in the cast-off bran; let those whose bones and muscles are small, tending to rickets and spinal curvature; let invalids and dyspeptics try it, and they never will go back to superfine bread simply because it looks white and nice, and, when dry, is more pleasant to the mouth than the brown.

Oats are largely used as an article of diet in Scotland and other Northern European countries, as well as in British North America—countries where the oat is a sure crop and wheat not easily raised. It contains material for brain, bone, and muscle, and as an article of food is favorable to strength of body and to clearness and force of brain. By the following analysis oats and buckwheat are contrasted:

BUCKWHEAT.		OATS.	
Water	14.0	Water	13.6
Muscle makers	8.6	Muscle makers	17.0
Heaters	75.4	Heaters	66.4
Food for brain and bones	1.8	Food for brain and bones	3.0

Thus it will be seen that buckwheat is good food to keep one warm in cold weather, and is just the thing for a long ride in a sleigh, though for breakfast buckwheat cakes, with butter and syrup, on a hot summer's morning, when coolness, not heat, is required, are a very unfit article of diet; but oats are worth double as a support for muscular labor, and nearly twice as much for brain work. Unlike wheat, the muscle-making materials in oats are not connected with the hull, and are not, therefore, removed and lost in making fine flour. The eaters of oats are strong, enduring, and thoughtful; those who subsist largely on buckwheat and rice have far less power in these important respects.

NOTE.—If the reader desires to pursue this subject further, he is referred to an extended scientific work entitled "Food and Diet," published at this office. Price, by mail, $1 75. The gem-pans can be had for $1, at this office.

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WOMAN AS AN ASTRONOMER.

HYPATIA—NICOLE-REINE ´LEPANTE—MARQUISE DU CHATELET—CAROLINE LUCRETIA HERSCHEL—MRS. MARY SOMERVILLE—WILHELMINE WITTE.

AT the present time, when the question of woman's position and influence is a topic of so much discussion, any item of evidence in proof of her capacity to engage with man in the study or pursuit of the highest intellectual subjects will not be ungratefully received. That woman is endowed by nature with talents splendid enough to enable her to excel in the departments of poetry, painting, music, etc., a long list of brilliant names abundantly testifies. In the following short biographies it will be seen that she is also possessed of the grasp and comprehensiveness of mind necessary to enter into those sublime investigations which have ever engaged the attention of some of the greatest intellects of the world. It will be seen, also, that a learned woman is not necessarily an unwomanly woman, or incapable of attending to those domestic duties which have been assigned by nature to her; but that a liberal education and opportunities for unfolding the mind enhance the charms of the feminine character, in the same degree in which learning and development increase the noble qualities of a man.

Among the women of early times, whose names have come down to us, none is more conspicuous for solid learning than

HYPATIA, DAUGHTER OF THEON,

an astronomer and mathematician of Alexandria, and head of the so-called Neo-Platonic school of that city. She was born in the latter part of the fourth century, and became remarkable for her beauty and wisdom. She early exhibited amazing intelligence, and engaged in her father's studies with such success, and had otherwise acquired such a thorough philosophical culture, that in the year 380 after Christ she succeeded her father as public teacher of mathematics and astronomy. The fame of her teachings brought students from all parts of the East. She aided Bishop Synesius in the construction of his planisphere (probably the first which was ever made), and was called by him "the excellent teacher." She computed astronomical tables after the manner of Hipparchus, and also improved by her own observations those of her own father. She was finally the only person whose fame held up the fading glory of her city; but this very success was her ruin. Though much beloved by the Alexandrians, she became an object of envy among the savants and the religious zealots for her so-called heathen doctrines.

Her end was tragic. Amid the wide-spread corruptions of Alexandria she lived as spotless as a vestal; and if her teaching was not one that could lay a strong hand on the vices of heathenism and arrest their course, it was at least sufficient not only to preserve herself from stain,

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but also to inspire her with a love of beauty, truth, and goodness that was Christian in its spirit and earnestness if heathen in its form and limitations. The citizens of Alexandria were proud of her; and such reliance was placed on her judgment and sagacity, that the magistrates used frequently to consult her on important cases. Among those who were most intimate with her was Orestes, prefect of the city. At this time Cyril, the bishop of Alexandria, was a fierce hater of heathens and heretics. Detesting Orestes, whom he suspected of being no true Christian, and who had drawn up an accusation against him for exciting a tumult, he soon cast an evil eye upon Hypatia, whom he regarded as a Satanic enchantress and the grand obstacle to his reconciliation with the prefect. His hatred communicated itself to the lower clergy, and especially to certain savage monks from the Nitrian deserts, who, headed by one Peter, a reader, attacked Hypatia in the streets as she was returning from her lecture-room. The maiden was dragged from her chariot, hurried to the Cæsarian church, where she was stripped and murdered by being beaten with tiles, after which her body was torn in pieces, and her limbs carried to a place called Cinaron, and there burned to ashes. This most atrocious deed of savage bigotry occurred in the year 415.

NICOLE-REINE ETABLE LEPANTE.

This most celebrated of all female astronomical calculators was born on the 5th of January, 1723, in the Hotel de Luxemburg, in Paris. Her father was in the service of the dowager-queen of Spain, who inhabited this palace. From her earliest youth she manifested an extraordinary impulse for study, or, as Lalande expressed it, "she devoured books." She was married in August, 1748, to Lepante, the most celebrated watchmaker of Paris, and "horologer to the king." Together with her husband she formed a close and lifelong friendship with Lalande, who was the observer in the observatory in the palace of Luxemburg. Madame Lepante observed, computed, and also elucidated her husband's work. She assisted him in the preparation of an instruction-book on watchmaking, and in this work she described the contrivance of a watch which, with a single finger, would give the mean and true time by means of a curve of equation on the dial-plate. She further reckoned a complete table for the length of pendulums, and the diadrom (oscillatory period) agreeing with them, which is annexed to the book. But her greatest work was in connection with the return of Halley's comet. It was expected in 1757, since from its appearance in 1607 and 1682 its revolutionary period was reckoned at 75 years. Clairaut, who had, a short time before, brought the celebrated *problem of three bodies* nearer to a solution than it had ever been brought before, was invited by Lalande to apply it to the reckoning of the return of Halley's comet. This was a gigantic work, such as had never been undertaken before, and which puzzled even a Clairaut. "If Madame Lepante will help me," said he, at length, "I might venture it, for besides

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her I know of no one who could render any assistance." She consented, and the tremendous reckoning lasted eighteen months. The comet was followed step by step through a course of one hundred and fifty years, and at each step the united disturbing influence of all the then known planets had to be computed. Both considered it a matter of honor to finish the reckoning before any one had set eyes on the comet. Their perseverance won success. On the 14th of November, 1758, Clairaut was enabled to give the result of their united labors to the Academy. They had calculated that the disturbing influence of the planets (Uranus and Neptune were not then known) would retard the return of the comet 611 days, and that it would pass through its perihelion on the 1st of April, 1759. The period of this first calculation for the return of the comet approached. It was first seen on the 25th of December, by a peasant near Dresden. On the 21st of January, 1759, it was observed by Messier in Paris, and soon after in many other places. It passed its perihelion on the 25th of March. With a knowledge of Uranus and Neptune, and a better determination of the mass of Saturn, the computation would have come nearer the mark.

Madame Lepante also took part in the computing of the path of the comet of 1762. In 1764 an annular eclipse of the sun was expected, which she calculated for the whole of Europe, and published two maps, one of which showed the course of the eclipse through Europe every fifteen minutes; while the other represented the phases for Paris. She was also a member of the Academy of Bezières, the writings of which contain many contributions by her hand, among others a reckoning of the transit of Venus of the year 1761. Fifteen years, from 1759 to 1774, she helped in computing for the *Connaissance des Temps*, until another Academician could undertake the arduous task. She then undertook the calculating of the ephemerides of the sun, moon, and planets for ten years forward. This remarkable woman had to deny herself many of the amenities of life in order to pursue her labors of usefulness. A hard trial was reserved for the evening of her life. Her husband became ill, fell into a state of melancholy, and ended by becoming quite insane. She denied herself the society in which she had shone by her talents, discontinued the learned labors to which she had so long and zealously devoted herself, and gave herself to caring for her husband alone. She left Paris for St. Cloud, where she hoped her husband would be benefited by the pure air; but in this she was disappointed. For seven years she patiently watched and nursed him, until she was at length worn out by her exertions and thrown on the bed of sickness. A fever ensued, and she died on the 6th of December, 1788.

We can not do better than close this memoir, with Mädler, with the words of Lalande: "Since the day when I saw my father sink into the grave, the saddest for me was that on which I followed her on her last journey. She had beautified my life, she had accompanied my inexperienced youth and guarded me from dangerous associations; she led me into the society of noble and good men. Never will her remem-

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brance vanish from my memory; never shall her image, that adorned my work-room, be torn from my eyes, until they close forever."

GABRIELLE EMILIE DE BRETEUIL, MARQUISE DU CHATELET.

This talented lady first made her public fame in 1738, by a prize work on the "Nature of Fire." She had also finished in the same year her "Institutions de Physique," which were published in 1740. Her principal work was nevertheless a French translation, with algebraic

MARQUISE DU CHATELET.

elucidations of Newton's "Principia," the publication of which, however, did not take place till seven years after her death She held a learned contest with Mairan, as we learn from a letter of l is of the year 1741, concerning the so-called *living forces in physic.* Though we possess nothing of hers on this contest, it is known that she gave a very spirited and witty answer to her antagonist. Voltaire's works are the

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only sources of everything concerning her life, and he gives, as is his custom, more brilliant declamation and reasoning than positive data. Lalande endeavored to supply the latter by research, but without success. Voltaire relates that on one and the same day she was engaged in translating Newton and playing in a comedy, and that she also translated Virgil. He called her the Minerva of France, and added that in her social life she did not show the slightest trace of her learned occupation. She was born on the 17th of December, 1706. We are enabled to present herewith a portrait of this remarkable woman.

CAROLINE LUCRETIA HERSCHEL.

This lady, the sister of Sir William Herschel, was born in March, 1750, and lived in Hanover until 1772, when she went to England to live with her brother at Bath. When her brother turned his attention to astronomy, she became his constant helper, and when he was appointed astronomer to King George III., she became his secretary and assistant, and in that character received a small stipend from the king. While discharging these duties she carried on a series of observations on her own account, with a small Newtonian telescope which her brother had made for her special use. Her special business was to sweep the heavens for comets; she discovered nine, in regard to seven of which she has the honor of priority of discovery. Several remarkable nebula and clusters of stars owe their descriptions in astronomical tables to her assiduous study of the sky. On the death of Sir William, in 1822, Miss Herschel returned to Hanover, then being over seventy years of age. She lived to be ninety-eight, retaining, in a very remarkable degree, the vigor of her intellect to the very last. The interests and associations of her English life, and the scientific pursuits to which she had devoted her mental strength, could not be set aside amid the scenes of her native land; for even in her advanced age she maintained a lively correspondence with friends in England, and read all the astronomical reports published by her nephew, Sir John, who had succeeded his father, Sir William, in the conduct of the Royal Observatory. She loved to speak of "Our observatory at Windsor," where for so many years she helped her brother "sweep the sky and look for comets," and where she felt herself removed from the turmoil and cares of the jostling world. In 1828 the Royal Society of England conferred on her their gold medal for completing the catalogue of nebula and stars observed by her brother, and shortly afterward elected her an honorary member. Her death occurred in 1848.

MRS. MARY SOMERVILLE.

This lady was born in Scotland about the year 1780. Her father, Sir William George Fairfax, was a naval officer. In 1804 she married James Grieg, captain and commissioner in the Russian navy, who, being fond of mathematics and astronomy, instructed his wife in those studies through which she has since become celebrated. Her husband

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died in 1806, and in 1812 she married Dr. William Somerville, of Edinburgh. Mrs. Somerville first became known to the scientific world through some experiments on the magnetic influences of the violet rays of the solar spectrum. Her scientific researches eventually brought her in connection with Lord Brougham, and at his suggestion she undertook a summary of the "Mecanique Céleste" of La Place for the "Library of Useful Knowledge." But as this work exceeded the dimensions first contemplated, it was published in an independent form in 1831, with an introduction by Lord Brougham. In 1834 she brought out her treatise "On the Connection of the Physical Sciences," which has passed through nine editions in England, besides being translated into several foreign languages. It forms a compendium of science which reminds one of Humboldt's "Cosmos," though of course not so comprehensive. Her next work was a treatise on physical geography, published in 1848, and her "Mechanism of the Heavens" followed soon after. The former has gone through four editions, and has been translated into Italian. "Her works," says Mädler, "will always retain an honorable place in the history of science.

WILHELMINE WITTE.

Wilhelmine Witte was born in Hanover in the year 1777, and was married to the Hofrath Witte in 1804. She early showed a predilection for the study of mathematics, with the highest branches of which she made herself acquainted. She subsequently was led by her mathematical studies to that of astronomy. She possessed a fine achromatic telescope, with which she diligently observed the moon, and at length conceived the idea of constructing from the existing charts of the moon, assisted by her own observations, a lunar globe in relief. In commencing this labor she had to find out everything for herself—mechanical contrivances, manipulation, implements, and material. She had set herself a task which only a rare genius, combined with a great amount of positive knowledge, could accomplish. Globes of the moon had been attempted before, although without relief, besides being of meagre details and unsatisfactory in design. On her first attempt Madame von Witte made her proportions too small. She lacked a good lunar chart. This at length she procured in the "Mappa Selenographica" of Mädler, which was three feet in diameter. After a year's time she produced a lunar globe of thirteen Paris inches in diameter, and arranged in such a manner as to allow of the representation of each phase and libration. Where the chart was at fault she supplied the error by observation. The material she used was wax, with an admixture of mastic. The globe was purchased by Frederic William IV. of Prussia. She subsequently made another of the same dimensions, which came into the possession of Prof. Mädler. This talented lady died in 1854, after having survived her husband thirteen years. She had brought up a large family in a most careful manner, although she carried on her scientific labors till the close of her life.

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It would be an easy task to increase our list of women whose names are celebrated in the history of astronomical research, but space compels us to merely mention a few other names. We have to thank Madame Rümker, of Hamburg, Germany, the wife of the astronomer in that city, for the discovery of a comet. Maria Mitchell, of Nantucket, U. S., also discovered a comet. Baroness von Matt, of Vienna, was a zealous astronomer, and before her death had built a private observatory.

PHRENOLOGY

ITS HISTORY, PRINCIPLES, PROOFS, AND USES.

PHRENOLOGY, which signifies "*a discourse on the mind*," is either true or false. If true, it is of great importance; if false, it should be disproved and repudiated. Some have condemned it without a hearing; others have accepted it without knowing enough of its principles or its history to explain and defend it; still others—a few—have carefully learned its history, philosophy, and uses, and become its advocates and friends. The object of these pages is to give an outline of the subject, that all may know enough of it to form an intelligent judgment as to its truth and utility.

HISTORY OF PHRENOLOGY.

The history of Phrenology must of necessity involve some notice of its discoverer and its principal promoters.

Dr. Francois Joseph Gall, the founder of Phrenology, was born at Tiefenbrunn, in the Grand Duchy of Baden—one of the German states—on the 9th of March, 1757. His father was a merchant, and mayor of the town, and intended his son for the clerical profession. Early and continued attention was therefore given to his education. Gall was a diligent and successful scholar, but more distinguished as a student for solidity of talent and originality of mind than for literary brilliancy. His *forte* was in branches involving science and philosophy; here he met no superiors of his age. His passion for Nature led him in the direction of anatomy and physiology, and on coming to manhood he chose medical science as a profession. Having completed his studies at the University, Gall established himself at Vienna. He rapidly rose to distinction as a physician, and gained a high rank as a man of science. Being physician to a lunatic asylum in Vienna, he had opportunities of making minute and extensive observations on the insane. He visited prisons and schools; was introduced to the courts of princes, to colleges, and to the seats of justice, and counted among his associates the first men of the nation, and was connected with several public institutions. Thus it will be seen that Dr. Gall, the founder of Phrenology, was no charlatan, quack, or pretender. Dr. Gall was led, not by theory, but by practical observation, to the discovery of Phrenology. He did not, as has often been asserted, "map out the skull into compartments, and then apply names and faculties to each." To show the candor and simplicity of his method, we copy a few extracts from his own account of his course.

"From my earliest youth I lived in the bosom of my family, composed of several brothers and sisters, and in the midst of a great number of companions and schoolmates. Each of these individuals had some peculiarity, talent, propensity, or faculty

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which distinguished him from the others. Among our number we soon formed our judgment who were virtuous or inclined to vice, modest or arrogant, frank or deceitful, peaceable or quarrelsome, benevolent, good or bad. Some were distinguished for the beauty of their penmanship; some, by their facility in calculation; others, in their aptitude to acquire history, philosophy, or languages. One shone in composition by the elegance of his periods; another had always a dry, harsh style: another reasoned closely and expressed himself with force. A large number manifested a talent or taste for subjects not within our assigned course. Some carved or drew well; some devoted their leisure to painting, or in the cultivation of a small garden, while their comrades were engaged in noisy sports; others enjoyed roaming in the woods, hunting, seeking birds nests, collecting flowers, insects, or shells. Thus each distinguished himself by his proper characteristic."

The pupils with whom young Gall had the greatest difficulty in competing in verbal memory had large, prominent eyes, while he was their superior in original composition. When he entered the University, he at once selected every student who was gifted in this respect, and he found them by no means equally talented in other respects. The uniformity with which this peculiarity of the eye accompanied the talent in question, led him to suspect that they were connected as cause and effect, and were the result of a great development of a certain portion of the brain. If memory of words was indicated by an external sign, he conceived that the same might be true of other intellectual powers; and therefore every person having any remarkable faculty became objects of his critical study. By degrees he discovered external characteristics, indicating a talent for painting, music, and mechanism. He observed that persons remarkable for determination of character had a particular part of the head very largely developed. This fact led him to look to the head for the signs of the moral sentiments. He never conceived for a moment that the *skull* was the cause of different talents, as some have represented; he referred to the brain for the influence, whatever it was. He observed a concomitance between particular talents and dispositions, and particular *forms of head;* he next ascertained that the figure and size of the brain are indicated by those of the skull; and he then minutely dissected the brain, unfolding it in a manner entirely unknown to the medical world.

It was his custom, when he observed a peculiar development of head, to study the character of the person closely, and learn his prominent dispositions, perhaps taking a cast of the head. When he found a head similar in shape, he learned the character, and compared it with the head and character of the previous person; and not until he had found many hundreds of such correspondences between development and character did he accept an organ as established. Thus for thirty years did he pursue this patient course of investigation, when he ventured to give public lectures on the subject in 1796, and he was listened to by audiences the most intelligent and respectable. Scientific men who admired his lectures, published reports of them in different journals.

In 1805, Dr. Gall accompanied by Dr. Spurzheim, also a German, who had now been with him as a student and coadjutor for five years, visited Berlin and more than thirty other towns in Germany, Prussia, Holland and Switzerland, giving lectures and anatomical demonstrations of the brain, and arrived in Paris in 1807. In these travels they received the most flattering reception. Sovereigns, ministers, philosophers, legislators, and artists seconded their designs. Universities tendered invitations to lecture, which they accepted, and they created the most profound impressions upon the best minds of the age. They visited the prison at Berlin in company with the officers and

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physicians. In their presence they examined more than two hundred prisoners, selected and arranged into separate classes those convicted of murder, robbery, theft, etc., and stated many things with remarkable correctness concerning their previous history and character.

In 1809, Gall and Spurzheim commenced the publication of their great work entitled "The Anatomy and Physiology of the Brain, with Observations on the Possibility of Ascertaining several Intellectual and Moral Dispositions of Man and Animals by the Configuration of their Heads," price, 1,000 francs.

Dr. Gall continued to reside in Paris, and to lecture to medical students and literary and scientific men, and to study animals, dissect brains, and to write and publish to the close of his life, which occurred August 22d, 1828. His remains were followed to the grave by an immense concourse of friends and admirers, embracing many of the most distinguished men of that learned city, five of whom pronounced discourses over his grave. Dr. Fossati, in his funeral discourse, has the following touching paragraph: "What an irreparable blank do I perceive in the scientific world by the death of one man!—a blank which will long be felt by all the friends of science and sound philosophy. But what a man have we lost! what a genius was his! what a happy organization Nature had given him! Yes, Dr. Gall was one of those privileged individuals whom the Creator sends upon the earth at the interval of ages, to teach us how far human intelligence can reach!"

In 1814, Dr. Spurzheim visited England and Scotland, and in Edinburgh met the savans of learning, and demonstrated the truth of Phrenology by a dissection and explanation of the brain, and that day won over five hundred witnesses to the fibrous structure of the brain which Dr. Gordon, in the forty-ninth number of the *Edinburgh Review*, had described as "trash" and "despicable trumpery." This doctrine of the fibrous structure of the brain is *now taught in every medical college in the world.*

Dr. Spurzheim divided his time between Great Britain and France, lecturing, investigating, writing, and publishing. He was invited to America by its best informed and most advanced minds, in response to which he arrived in New York on the 4th of August, 1832, and proceeded to Boston, visiting on the way Yale College, and dissecting a brain before the learned men of New Haven; thence he visited at Hartford the Deaf and Dumb Asylum and the Insane Retreat, and the State Prison at Weathersfield, everywhere making friends and converts. At this prison he examined, among many others, the heads of William Teller, a noted thief, and Cæsar Reynolds, a negro, the first convicted of passing counterfeit money. After dismissing these convicts, he remarked to Mr. Haskins, the keeper, and others, "That negro interests me much. He is a desperate character and should be carefully watched." Not long after, these two prisoners, in an effort to escape, killed the keeper, Mr. Haskins, with a bar of iron, in the hands of Reynolds, and were executed at Hartford the next year. Teller's skull is in the New York Phrenological Cabinet.

On the 17th of September he commenced a course of eighteen lectures on Phrenology at the Boston Atheneum, and soon after, a course at Harvard University. Besides these, he gave, on each alternate afternoon, lectures before the medical faculty of Boston on the anatomy of the brain. During the daytime Dr. Spurzheim was much engaged visiting the public institutions and returning the calls of friends.

In Boston, as at all other places which he visited, he won the respect and friendship of the chief scholars and thinkers, such as Horace Mann, Dr. S. G. Howe, Rev. Dr. Channing, Rev. John Pierpoint, Dr. J. V. C. Smith, Dr. Woodward, and Dr. Brigham

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the two latter noted for skill in the treatment of the insane at the asylums in Hartford, Ct., Worcester, Mass., and Utica, N. Y. The phrenological method of dissecting the brain excited the wonder of all anatomists; for instead of slicing it in the usual manner, as one does a melon or a cheese, he *unfolded* it with his fingers and spread it out like an unfolded ruffle without rupturing its structure, until it would cover the top of a moderate-sized table. In the midst of a course of lectures to a select class of learned and professional men in Boston he fell a victim to overwork and the severity of the climate, and died on the 10th of November, 1832, in the fifty-sixth year of his age. He was universally mourned, and was honored by a public funeral, and by a burial and a monument just within the entrance of Mount Auburn, bearing the simple but sufficient inscription "Spurzheim." Dr. Spurzheim's works (aside from the great work on the anatomy of the brain, which was the joint work of Gall and himself) are "Physiognomy," "Insanity," "Anatomy of the Brain," now out of print, "Natural Laws of Man," and "Education Founded on the Nature of Man."

Mr. George Combe, of Scotland, the eminent lawyer, and author of the "Constitution of Man" and other works, was a convert and pupil of Spurzheim; also his brother Dr. Andrew Combe, author of several valuable works on the application of Phrenology to health, insanity, education, etc., have done much to place Phrenology in a favorable light before the English-speaking nations. Mr. George Combe, in 1838-41, by invitation and pre-arrangement, visited America and delivered extended courses of lectures in the chief cities of the United States, everywhere calling around him the ripest scholars and those of the most vigorous intellects of that day.

Among American phrenologists the late Dr. Charles Caldwell, President of Transylvania University, at Louisville, Ky., should be mentioned with honor. He was, during his prime, the ablest American medical writer. He wrote several valuable works on Phrenology, particularly in vindication of it from the false charges of materialism and fatalism, and against objections to the science on anatomical grounds.

The visit and unexpected death of Spurzheim just as he was opening his great field of labor awakened thought on Phrenology and led to the publication of the works of Spurzheim and Combe in America. Some students in Amherst College (Mass.), soon after Spurzheim's death, proposed to have a public discussion on Phrenology, one of whom, Henry Ward Beecher, offered, at a venture, to argue against it. To prepare himself for the discussion, he sent to Boston for all the books he could get on the subject. In reading them he became converted to the truth of the new doctrine, and from that day to this he has employed not only the philosophy, but the technology of Phrenology in his treatment of the human mind. He has been heard to say that he is largely indebted to his knowledge of this subject for any special success attained as a public teacher. He even went so far as to give public lectures on the subject while a student. After reading those books he loaned them to the brothers Fowler, one of whom was a student with him in college, and the other a student in the Amherst Academy. So much were they interested in the subject, that they adopted it as a profession, and in the spring of 1835 commenced to give public lectures During the autumn of that year, the younger brother, L. N. Fowler, opened an office in New York, and soon after was joined by the elder, O. S. Fowler, and this was the first permanent office opened in America, and the beginning of Phrenology as a practical profession. Four years later, viz., in 1839, Nelson Sizer, of Massachusetts, commenced lecturing on the subject, having had his attention called to it in 1832 by reading the reported lectures and writings of Spurzheim.

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In 1843, Samuel R. Wells left the systematic study of medicine to join the Messrs. Fowler at New York, when the firm of Fowlers & Wells was formed. The Fowlers for several years after the formation of the firm devoted themselves solely to lecturing, writing, and making professional examinations; while Mr. Wells at that time devoted himself chiefly to the publishing department.

Charlotte Fowler (Wells) came to the office in 1837, to aid her brothers in the work, and more than once kept the office from being closed and the enterprise of maintaining a cabinet and permanent office abandoned, and thus she stayed up their hands whenever they flagged, until her marriage with Mr. Wells in 1844; and from that day to this she has devoted herself to the work of the office.

In 1849, Mr. Sizer, having traveled and lectured constantly for ten years, became associated with Fowlers & Wells, and from that time to the present (1870) has occupied a prominent place on the JOURNAL and as professional examiner in the office. This arrangement permitted the Fowlers to respond to the many calls for labor in the lecturing field, and by these means and the publication of the PHRENOLOGICAL JOURNAL, in connection with a long list of books written and published by the firm, the science has become widely known and respected. In 1854, Mr. O. S. Fowler retired from the firm, and has since traveled and lectured on his own account, and has had no connection with the office or publications of Fowler & Wells.

Mr. L. N. Fowler and Mr. Wells visited Europe together in 1860, and lectured for years through England, Scotland, and Ireland with acceptance and decided success.

The large collection of busts and portraits of distinguished persons, also skulls and casts of noted criminals, animal crania, etc., make the PHRENOLOGICAL CABINET one of the marked points of attraction in the commercial metropolis of the Western Continent. In 1865, Henry S. Drayton, a graduate of the University of the City of New York, and also of its Law School, became connected with the office as Assistant Editor of the PHRENOLOGICAL JOURNAL, and also as a lecturer. Mr. John L. Capen has had an office in Philadelphia for fifteen years, which was originally a branch of the New York house. Several other persons have been engaged as phrenologists in the United States, some for five, ten, or more years, but most of them have studied for and entered some other profession or gone into other business. Phrenology has transformed public sentiment respecting man's mental nature; and literature is full of its teachings. Education, the training of children, the treatment of criminals, and especially of the insane, have been greatly improved by means of the light shed upon the nature of man by Phrenology.

PRINCIPLES OF PHRENOLOGY.

Phrenology claims to explain the powers and faculties of the mind by studying the organization of the brain during life. Its chief doctrines may be briefly stated thus:

1. The brain is the organ of the mind.

2. The mind has many faculties, some of which may be stronger or weaker than the rest in the same person.

3. Each faculty or propensity of the mind has its special organ in the brain.

4. Size of brain, if the quality be good, is the true measure of its power. The brain when deficient in size or low in quality is always connected with a low degree of mental power. Among the lower animals the brain is found to be large and complicated in proportion to the variety and strength of the faculties.

5. Organs related to each other in function are grouped together in the brain. For example, the organs of intellect are located in the forehead; those of the social nature,

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in the back-head; those of passion, appetite, and self-preservation, in the side-head those of aspiration. pride, and ambition, in the crown; and those of sentiment, sympathy, morality, and religion, in the top-head.

6. As each function of the body has its specific organ, so each faculty of the mind, each sentiment and propensity, has its own organ. If this were not so, each person would exhibit the same amount of talent or power on all subjects, such as arithmetic, language, music, mechanism, memory, reasoning, love of property, courage, prudence, pride, etc. Everybody knows that persons rarely show equal talent on all topics. A man will be a genius at one thing, and find it impossible, by long training, to become even respectable in other things. This would not be the case if the mind were a single power and the brain a single organ. As the senses of seeing, hearing, tasting, smelling, etc., are not always possessed by each person in an equal degree of perfection, these several powers being dependent on different organs, so the mental faculties and dispositions are sometimes very unequal in a given person, owing to the greater strength or weakness of their respective organs in the brain. Partial genius, partial idiocy, and partial insanity strongly sustain the phrenological theory of the mind; indeed, they demonstrate its truth.

7. The quality or temperament of the organization determines the degree of vigor, activity, and endurance of the mental powers. These temperaments are indicated by external signs, including the build, complexion, and texture, and may be comprehended to a greater or less degree of perfection by every intelligent person.

There are three Temperaments, known as the Vital, Motive, and Mental.

THE VITAL TEMPERAMENT is evinced by large lungs, powerful circulatory system, and large digestive and assimilating organs, abundance of blood and animal spirits. This temperament is a combination of the *Sanguine* and the *Lymphatic*, as set forth by Mr. Combe and other writers. But as the digestive and assimilating organs, which constitute the Lymphatic temperament, together with the respiratory and circulatory systems, which constitute the Sanguine temperament, are really VITAL organs, we regard their combination into one, under the name of VITAL TEMPERAMENT, as both convenient and philosophical. This condition of the bodily system produces ardor and impulsiveness of mind, a tendency to passional enjoyment, social affection, warmth of temper, cheerfulness, and a desire for active, practical business.

THE MOTIVE TEMPERAMENT, corresponding to the *Bilious*, has a strong bony system, an abundance and hardness of muscle, dark wiry hair, dark eyes, rough, prominent features, dark complexion, and a great disposition to locomotive effort.

The Motive temperament is favorable to dignity, stornness, determination, power of will, and desire to govern and control others. It gives slowness of passion but great permanency of disposition, sternness and strength of thought but not brilliancy, and a desire to engage in heavy labor or large business operations.

THE MENTAL TEMPERAMENT (formerly called Nervous) depends on the brain and nervous system, and is accompanied by mental activity, smallness and fineness of muscle, light frame, thin skin, fine hair, delicate features, and a large brain as compared with the body. As this temperament gives delicacy of body, it also imparts a peculiar sensitiveness and vivacity to the mind, a disposition to think, study, and cultivate art, or follow some light and delicate business.

The structures which, in excess, determine these temperaments exist in each individual. In one person one temperament may predominate—in the next, another. They can be, by proper training, essentially modified, particularly in youth.

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DR. RICHARD ROTHE, OF HEIDELBERG, GERMANY.

THIS eminent German scholar and writer had a fine temperament, and a strong yet sensitive mental nature. He had a broad and prominent forehead, indicating originality of thought, and taste for refined learning. His moral and religious organs were amply developed, showing a strong tendency to think in the direction of ethics and theology He was regarded as one of the foremost men in Germany, especially in that field of inquiry and effort ordinarily denominated liberal Christianity. An eminent American divine, in speaking of him, said "his theology was based on God manifested in Christ, and to him the personality of our Saviour was the way, the truth, and the life of God to men. He stands, probably, at the head of the liberal Christian moralists of our time; has all the freedom and loftiness of Channing and the breadth of Dewey, with far less eloquence and beauty of style, yet larger learning, deeper insight, and more evangelical positiveness than either. His chief work, his 'Ethics,' is probably the most

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memorable contribution to Christian thinking in our time, and opens to us a grand temple of life as large as human duty and high as the grace and truth of God. It takes in the whole domain of humanity and declares our whole life sacred, and demands fair play for every sensibility, and taste, and emotion, and faculty in the name of the living God, whose heirs we are in Christ."

Richard Rothe was born at Posen on the 28th of January, 1799; received his first instruction at Breslau; was two years at Heidelberg, then at Berlin, afterward at Rome, as chaplain to the embassy, in close relation with Bunsen. From thence he went to Wittenberg, as theological professor, with great success. In 1830 he opened a course of theology at the new school of preachers in Heidelberg. In 1849 he went to Bonn, and after a few years he returned to Heidelberg, where he remained till his death, August 19th, 1867.

His "Theological Ethics" are regarded as the masterpiece of his writings, proving him to be a profound thinker, a Christian sage, and a great teacher, and this work is regarded as an imperishable monument to his name. His domestic life was very retired. Having an invalid wife, he devoted a great part of his time to her, patiently and assiduously laboring to promote her comfort. In disposition and manner he was genial and sociable to that degree which wins the esteem and confidence of society.

CULTURE OF THE PERCEPTIVES.

BY a persistent course of training, a person endowed with fairly developed perceptive faculties may become so skilled that his rapid and accurate inferences, from conditions hardly appreciated by others, appear to fall little short of the magical. Men who mingle in those spheres of human activity which require a quick eye, a sharp ear, a sure and skillful hand, are distinguished by their well-marked and prominent perceptive faculties. The forehead, from the hair down to the root of the nose, inclines outwardly from the plane of the face; the eyes appear sunken, on account of the projection of the brows; the head appears retreating, because it is so built out at the base; and the whole aspect is one of inquiry and scrutiny. The accompaning engraving of the naturalist Agassiz illustrates this class of organization well. Men who pursue the callings of hunters and trappers, who, like the Indian, are skilled in the secrets of woodcraft, have a cranial organization which approximates to that of the aboriginal. Their external senses are sharpened; they can discern the character of objects at distances so great that the unpracticed eye perceives only an indistinct form, and they can catch sounds inaudible to the inexpert, and explain their source.

It is exceedingly interesting to read the narratives of men who have

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lived amid the scenes of wild life in the far West. Many of their recitals of actual performances fall little short of the marvelous.

In those extensive regions toward the setting sun, where civilization has not yet planted its prolific seed, there is a class of men who may be called "prairie detectives," and who practice the art of trailing. Dr. Hachenberg, of the United States Post Hospital at Fort Randall, Dacotah Territory, describes the trailers in a very graphic manner, and recounts some of his experiences with them. We are indebted to him for the following instances illustrative of the trailer's powers:

AGASSIZ.

The trailer is not a graceful man. He carries his head much inclined; his eye is quick and restless, always on the watch, and he is practicing his art unconsciously, hardly ever crossing the track of man or animal without seeing it. When he enters a house, he brings the habits he contracted in the practice of his art with him. I know a trailer as soon as he enters my room. He comes in through the door softly, and with an air of exceeding caution. Before he is fairly in, or at least has sat down, he has taken note of every article and person, though there may be a dozen vacant chairs in the room. His description of a route he took as guide and trailer for the Ogallalas in bringing them from the Platte to this place was minute, and, to me, exceedingly interesting. Every war party that for the season had crossed his trail—of course unseen by him—he described with minuteness as to their number, the kinds of arms they had, and stated the tribes they belonged to. In the strange revelations that he made, there was neither imposition nor supposition, for he gave satisfactory reasons for every assertion he made.

I have rode several hundred miles with an experienced guide and trailer, Hack, whom I interrogated upon many points in the practice of this art. In going to the Niobrara River we crossed the track of an Indian pony. My guide followed the track a few miles and then said, "It is a stray, black horse, with a long, bushy tail, nearly starved to death, has a split hoof of the left fore foot, and goes very lame, and he passed here early this morning." Astonished and incredulous, I asked him the reasons for knowing these particulars by the tracks of the animal, when he replied: "It was a stray horse, because it did not go in a direct line; his tail was long, for he dragged it over the snow; in brushing against a bush he left some of his hair, which shows its color. He was very hungry, for, in going along, he has nipped at those high, dry weeds which horses seldom eat. The fissure of the left fore foot left,

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also, its track, and the depth of the indentation shows the degree of his lameness: and his tracks show he was here this morning, when the snow was hard with frost."

At another place we came across an Indian track, and he said, "It is an old Yankton, who came across the Missouri last evening to look at his traps. In coming over, he carried in his right hand a trap, and in his left a lasso, to catch a pony which he had lost. He returned without finding the horse, but had caught in the trap he had out a prairie wolf, which he carried home on his back, and a bundle of kinikinic wood in his right hand." Then he gave his reasons: "I know he is old, by the impression his gait has made, and a Yankton by that of his moccasins. He is from the other side of the river, as there no Yanktons on this side. The trap he carried struck the snow now and then, and in the same manner as when he came, shows that he did not find his pony. A drop of blood in the center of his tracks shows that he carried the wolf on his back, and the bundle of kinikinic wood he used for a staff for support, and catching a wolf shows that he had traps out." "But," I asked, "how do you know it is a wolf? why not a fox, or a coyotte, or even a deer?" Said he, "If it had been a fox, or coyotte, or any other small game, he would have slipped the head of the animal in his waist belt, and so carried it by his side, and not on his shoulders. Deer are not caught by traps; but if it had been a deer, he would not have crossed this high hill, but would have gone back by way of the ravine, and the load would have made his steps still more tottering."

Another Indian track we saw twenty miles west of this he put this serious construction upon: "He is an upper Indian—a prowling horse thief—carried a double shot-gun, and is a rascal that killed some white man lately, and passed here one week ago; for," said he, "a lone Indian in these parts is on mischief, and generally on the look-out for horses. He had on the shoes of a white man whom he had, in all probability, killed, but his steps are those of an Indian. Going through the ravine, the end of his gun hit into the deep snow. A week ago we had a very warm day, and the snow being soft, he made these deep tracks; ever since it has been intensely cold weather, which makes very shallow tracks." I suggested that perhaps he bought those shoes. "Indians don't buy shoes, and if they did, they would not buy them as large as these were, for Indians have very small feet." The most noted trailer of this country was Paul Daloria, a half-breed, who died under my hands of Indian consumption last summer. At one time I rode with him, and trailing was naturally the subject of conversation. I begged to trail with him an old track over the prairie, in order to learn its history. I had hardly made the proposition when he drew up his horse, which was at a ravine, and said: "Well, here is an old elk track. Let us get off our horses and follow it." We followed it but a few rods, when he said it was exactly a month old, and made at two o'clock in the afternoon. This he knew, as then we had our last rain, and at the hour named the ground was softer than at any other time. The track before us was

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then made. He broke up here and there clusters of grass that lay in the path of the track, and showed me the dry end of some, the stumps of others, and by numerous other similar items accounted for many circumstances that astonished me. We followed the trail over a mile. Now and then we saw that a wolf, a fox, and other animals had practiced their trailing instincts on the elk's tracks. Here and there he would show me where a snake, a rat, and a prairie dog had crossed the track. Nothing had followed or crossed the track that the quick eye of Daloria did not detect. He gave an account of the habits of all the animals that had left their footprints on the track, also of the state of the weather since the elk passed, and the effect of sunshine, winds, aridity, sand storms, and other influences that had a bearing on these tracks.

THE FIRST OYSTER-EATER.—Methinks I see the first oyster-eater! A brawny, naked savage, with his wild hair matted over his wild eyes, a zodiac of fiery stars tattooed across his muscular breast; unclad, unsandaled, hirsute, and hungry, he breaks through the underwoods that margin the beach, and stands alone upon the sea-shore, with nothing in one hand but his unsuccessful boar-spear, and nothing in the other but his fist. There he beholds a splendid panorama! The west is all a-glow; the conscious waves blushing as the warm sun sinks to their embraces; the blue sea on his left; the interminable forest on his right; and the creamy sea-sand curving in delicate tracery between. A *picture* and a *child* of Nature! Delightedly he plunges in the foam and swims to the bald crown of a rock that uplifts itself above the waves. Seating himself, he gazes upon the calm expanse beyond, and swings his legs against the moss that spins its filmy tendrils in the brine. Suddenly he utters a cry; springs up; the blood streams from his foot. With barbarous fury he tears up masses of sea-moss, and with it clustering families of testaces. Dashing them down upon the rock, he perceives a liquor exuding from the fragments; he sees the white pulpy delicate morsel, half hidden in the cracked shell, and instinctively reaching upward, his hand finds his mouth, and amid a savage, triumphant deglutition he murmurs—"Oyster!" Champing, in his uncouth fashion, bits of shell and sea-weed, with uncontrollable pleasure he masters this mystery of a new sensation, and not until the gray vail of night is drawn over the distant waters does he leave the rock, covered with the trophies of his victory.—*Haywarde.*

HOW TO BREAK ONESELF OF BAD HABITS.—Understand clearly the reasons, and all the reasons, why the habit is injurious. Study the subject until there is no lingering doubt in your mind. Avoid the places, the persons, and the thoughts that lead to temptation. We are responsible even for our thoughts. Frequent the places, associate with the persons indulge the thoughts that lead away from temptation. Keep

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busy; idleness is the strength of bad habits. Do not give up the struggle when you have broken your resolution once, twice, ten times, a thousand times. While there is life there is hope, and that only shows how much need there is to strive. When you have broken your resolution through lack of firmness and moral sense, just think the matter over, and endeavor to understand why it was you failed, so that you may be on your guard against recurrences of the same circumstances. Do not think it a little or an easy thing that you have undertaken. It is folly to expect to break off a habit in a day which may have been gathering strength in you for years. Be manly, be brave. Learn to say No, and to stick to it.

WHAT CAN I DO BEST?

BY NELSON SIZER.

IT is of great importance to every person to select a pursuit best adapted to his peculiar qualities of constitution and character. Many persons, though not endowed with talent for a high pursuit, crave earnestly the pleasures and emoluments of pursuits for which they have little if any capability, and in which, of course, they can deserve no high degree of success. God bless those who are willing to do the laborious work requiring manual strength! We render special honor to the genius which contrived the steam-engine, whereby horse-flesh and manual labor are greatly relieved, and the comforts of the world multiplied a hundred-fold. He who invented the mowing machine relieved the aching backs of millions. Honor to the man who invented iron fingers to do the world's sewing, as well as to him who invented the spinning jenny and the power loom with which to make the cloth. Notwithstanding all the machinery the world has in use, there is still a great deal of laborious work to be done, and happy is the man who has the wisdom and the honesty to accept cheerfully the pursuit in which he can best serve the world and himself, whether it be, according to the world's estimate, high or low. To be a good and faithful doer, and to secure success in the doing, should be the great object of effort. It is better for a man to be a first-class lumberman than a third-class cabinet-maker or carpenter. One had better make good timber and boards than to be a shabby builder or cabinet-maker who partially spoils good lumber in the construction of indifferent houses or poor furniture. Success, in its best sense, is the measure of merit. What, then, can each person do which will be most useful to the world, and bring to himself such remunerations as will be necessary for his support, comfort, and happiness?

FARMING.—The first necessity of man is food; consequently food producers should rank well. In this country we need five farmers where we now have one. Men should learn to till the soil well, and

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make every acre largely productive. Nor should men be satisfied to raise corn, wheat, pork, beef, and butter for the market. Every farmer should raise all the fruit he needs, and if possible some for the market. Farmers should not be the mere drudges and intellectual dwarfs they now are. They should study chemistry, botany, and physiology that they may understand the nature of soils, plants, and the laws of health. Intelligence, not mere brute force, is required by the farmer. A man with culture will get as much profit from ten acres, as one without culture or knowledge will from fifty acres. Young men of talent and culture should turn their attention to farming, and while elevating the vocation, acquire a generous support instead of shivering and starving around the outskirts of the overcrowded professions.

A farmer needs courage and strength, caution and economy; Constructiveness, to enable him to use the tools skillfully; perceptive powers, to learn by observation; analysis and memory, to classify and treasure all the knowledge acquired; and a good constitution, that he may endure and enjoy the labor incident to his pursuit.

MECHANICS AND MANUFACTURERS—require large Constructiveness, combined with large perceptive organs, to give good judgment and facility in the use of tools and machinery; also large Causality and Ideality, to give success in planning and inventing. The mechanic is forced more or less by competition to educate himself in his business, to bring all the appliances of science to the perfection of his work. He therefore needs a good intellect, an active imagination, patience, perseverance, and energy, as well as a healthy constitution to bear the necessary labors with pleasure.

There are two kinds of mechanics: one plans well and executes indifferently; the other can not plan, but has skill in working. Some individuals can both design and execute in a high degree of perfection. Michael Angelo is an example. A perfect man can do anything, can become a master of arts, but may not become a Beethoven or a Thalberg in music; a Watt, a Stephenson, or a Fulton in invention; a Newton or a Bacon in philosophy; a Cicero in oratory, or a Shakspeare in poetry, as he might do in any one of these departments were all his power thrown into that channel; yet he who can do all things is the greater if not the more useful man.

TEACHING.—What does the teacher require? First, an elastic and energetic constitution with a predominance of the Mental and Motive temperaments, which give activity, clearness, and compactness to the mind, and strength and earnestness to the character. He needs robust health, and the temperance and exercise which promote health. The teacher requires, second, a large and active brain with a decided predominance of the perceptive intellect, indicated by a fullness of the lower part of the forehead. These give him facility in acquiring, while fullness through the middle of the forehead enables him to retain what he learns and have it ready for use. The reasoning organs, which give fullness and prominence to the upper part of the forehead, should be

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ample, so that he may be able to explain to inquisitive pupils the philosophy involved in the subjects of study. He needs a full back-head, where the social organs are located, that he may win and hold the affection of his pupils. He should have large Self-Esteem and Firmness, to give dignity and strength of character, to govern well and command the respect of pupils. Large Conscientiousness will make him just and impartial; large Language, enable him to explain what he knows; Veneration and Benevolence, that he may impress his pupils with a spirit of kindness and with a consciousness of a higher Power, and that reverence for just authority is a virtue. A good development of Caution and Secretiveness, to give watchfulness and shrewdness equal to detect the most tricky of pupils; Combativeness and Destructiveness, to give power and courage that the rebellious may be impressed with respect for his latent power to punish.

It will thus be seen that the teacher requires an excellent organization mental and physical, and that he needs all the Christian graces carried, in the spirit of wisdom.

THE ARTIST.—The artist should have a poetic nature, a temperament full of feeling and activity. He should have a high, long head, and broad from the external angle of the eye upward and backward. These give emotion in the direction of sentiment, and that creative fancy, imagination, power of construction and combination, and ability to work out the image which the mind has created. The true artist does not begin his picture or statue as one does the brick wall of a house, laying it out by metes and bounds, and erecting it by line and plummet according to fixed mathematical rules; but in the dream of the artist or the artisan the beautiful dome, with all its elegant finish, is instantly brought into being and spanned above his head. The statue or the picture comes to him like the inspiration of a dream. The secret of art-power is to hold those images in the memory until the faculties of Constructiveness, Form, Size, and Order shall have wrought out and fixed the image in material form. The artist should not only be moral but religious. He should have strong social affection, so that his work may be imbued with and minister to that great element of human life. He should put love as well as beauty in the statue or the picture; in short, the poet or the artist who can appeal strongly to every feeling that is natural and noble in human nature, is the true artist, and in proportion as they approximate to this high point are they artists, and their works valuable and enduring.

LAW.—"I would be a lawyer!" Do you know how much you propose to yourself? Can you master the knowledge which the legal profession requires? Have you the courage to meet the opposition which is incident to that profession? Have you the memory to hold the knowledge required? Have you the quick perception to seize upon facts and appropriate them to your use on the instant? Have you the breadth of thought, the philosophic capability which will enable you to comprehend the arguments of others, or to meet them successfully?

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Have you the fluency of speech which will enable you to express your knowledge, your feelings, or your arguments with facility and point. Do you read the human mind so as readily to understand a witness, a jury, or an opposing attorney? Have you such a balance of all the qualities that you can appeal to every feeling, social, moral, and sympathetical, in judge, jury, and audience? Have you enough of Conscientiousness to meet all manner of temptation successfully—to judge of the right, the true, and follow it? If you have all these qualifications, be a lawyer, and you will be a good one.

The true lawyer, in our judgment, is the man of eminent ability, with a splendid body, an harmonious temperament, a large brain well cultivated and well balanced, so that he will not fail in courage, prudence, policy, memory, judgment, or justice, with learning and knowledge and eloquence to set them forth, and may justly be regarded as among the first of men. It is thought by many that the lawyer needs only tact, keenness, cunning, assurance, and unscrupulousness; but the true lawyer seeks for justice, not merely for victory right or wrong; for the establishment of truth and right according to law, both human and divine. If the profession has fallen below this level, it should be at once rectified and elevated to such a noble rank, that pure and gifted young men may enter it in the fear of God and in the love of man.

PERSONAL BEAUTY.

BY REV. W. T. CLARKE.

THERE is nothing more attractive and fascinating than personal beauty. All men instinctively admire a handsome form and face. They go to the opera, the theater, the church, wherever people congregate, to feast their eyes upon human beauty. They pay the highest price for the painted counterfeit of it, however imaginary the semblance to adorn their parlor walls. We do not wonder that men are so fascinated by it, and sometimes are so smitten by the sight of it, that they pine away in misery if they can not call its possessor theirs. We do not wonder that people resort to all devices and expedients to preserve and cultivate it, and that the aid of costly clothing, paints, and cosmetics are invoked to conjure up its semblance and prolong its spells.

ADVERTISING IMPOSTORS.

Nor do we wonder that impostors, who advertise that they will restore the faded bloom to the cheek, and make the plain face "beautiful forever," find dupes enough to make them rich. A beautiful person—mankind has always gone down on its knees before it as at the shrine of a god. To be beautiful is one of the spontaneous ambitions of the human heart.

WORTHINESS OF BEAUTY

There is no use of disparaging the motive, or of trying to wink it out of sight as something to be ashamed of, or to shut it out of the breast as

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an unholy thing. It has Heaven's own autograph upon it, and its universality and intrinsic worthiness give it permission to be. It should be recognized for what it is, and taken up into the family of motives whose function it is to spur mankind to noble endeavors and holy living. It is not only right, but a duty, to try to be beautiful.

HOW TO BE BEAUTIFUL.

How to be beautiful, that is the practical question. We begin with admiring beauty of form and feature, a particular cut, contour, and color of face and countenance; and these are admirable. But as we grow older we perceive that there is a higher order of beauty than this —a beauty of expression which enfolds the features in an atmosphere of indefinable fascination—a beauty of mind, of disposition, of soul, which makes us forget the absence of regular features and lovely tints where they are not, and overlook their presence where they are. Everybody has seen men and women of irregular features and ungraceful form who, notwithstanding their physical defects, were so irradiated and glorified by the outshining of noble thoughts and kind affections that they seemed supremely beautiful.

A perfectly developed, symmetrical figure, a finely chiseled face, delicately tinted complexion, a clear eye, and an elegant mien are attractive, if not commanding; but when contrasted with this higher quality and transfiguring spirit of beauty which irradiates the intelligent and kindly face, informing every feature, and glowing in look, act, and air, all merely physical prettiness and elegance seem petty, if not contemptible.

Not every one can have the symmetric form and the finely chiseled face; but no one is so poor and so deformed but he can acquire a beauty as superior to these as the diamond to the gilt it is set in. This fact respecting personal beauty, a fact of the utmost importance, is so generally overlooked that it can not be stated too often and urged too strongly upon public attention; and this fact goes far to determine the means by which that personal beauty which every one desires is to be attained. There are a great many things that contribute to personal beauty—a simple, various diet, pure air, proper exercise, regular habits, constant occupation, cleanliness, temperance in all things. These things are of far more importance, as a means of increasing beauty of person, than people generally imagine. They add immensely more to personal good looks than the costliest clothing and the richest ornaments. The glow of health on the cheek, the upright form, and elastic step and noble bearing which come from the constant practice of nature's physical commandments, do unspeakably more to beautify a person than any cosmetics art has contrived, or any decorations human ingenuity has invented, or any fashions that have been spun from the exhaustless cunning of the human imagination. But these are not the only means, indispensable as they are; they are merely the beginning. They furnish merely the materials out of which true beauty is built up.

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NATURAL FORM OF A BEAUTIFUL SOUL.

Indeed, they give only the canvas and outline, which must be completed by the artistic and perfect blending of ethereal colors and a spiritual expression, to represent that higher order of beauty which realizes our ideal and wins the admiration of all cultured minds. It is strange that so many people overlook a fact so important as this. A beautiful person is the natural form of a beautiful soul. The mind builds its own house. The soul takes precedence of the body, and shapes the body to its own likeness.

HOW NOT TO BE BEAUTIFUL.

A vacant mind takes all the meaning out of the fairest face. A sensual disposition deforms the handsomest features. A cold, selfish heart shrivels and distorts the best looks. A mean, groveling spirit takes all the dignity out of the figure and all the character out of the countenance. A cherished hatred transforms the most beautiful lineaments into an image of ugliness. It is as impossible to preserve good looks, with a brood of bad passions feeding on the blood, a set of low loves tramping through the heart, and a selfish, disdainful spirit enthroned in the will, as to preserve the beauty of an elegant mansion with a litter of swine in the basement, a tribe of gipsies in the parlor, and owls and vultures in the upper part. Badness and beauty will no more keep company a great while than poison will consort with health or an elegant carving survive the furnace fire. The experiment of putting them together has been tried for thousands of years, but with one unvarying result. Some people imagine that there can be no sufficient punishment for sensual indulgence and a sinful life without an everlasting prison-house of fire. But the laws of the spirit work in finer and surer ways than any that the old doctors dreamed of, making sin punish itself, transforming the guilty face, cutting and staining the features and countenance into shapes and hues of ugliness.

Stand on one of the crowded streets and note the passers-by, and any one can see how a vacant mind has made a vacant eye, how a thoughtless, aimless mind has robbed the features of expression; how vanity has made everything about its victim petty; how frivolity has faded the luster of the countenance; how baby thoughts have made baby faces; how pride has cut disdain into the features and made the face a chronic sneer; how selfishness has shriveled, and wrinkled, and withered up the personality; how hatred has deformed and demonized those who yielded to its power; how every bad passion has turned tell-tale and published its disgraceful story in the lines of the face and the look of the eye; how the old man who has given himself up to every sort of wickedness is branded all over with deformity and repulsiveness—and he will get a new idea of what retribution is. This may not be all, but it is terrible—this transforming of a face once full of hope and loveliness into deformity and repulsiveness, then the rose blushing on its stalk, now ashes and a brand.

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THE MIND A SCULPTOR.

There is no sculptor like the mind. The man who thinks, reads, studies, meditates, has intelligence cut in his features, stamped on his brow, and gleaming in his eye. There is nothing that so refines, polishes, and ennobles face and mien as the constant presence of great thoughts. The man who lives in the region of ideas, moonbeams though they be, becomes idealized. There are no arts, no gymnastics, no cosmetics which can contribute a tithe so much to the dignity, the strength, the ennobling of a man's looks as a great purpose, a high determination, a noble principle, an unquenchable enthusiasm. But more powerful still than any of these, as a beautifier of the person, is the overmastering purpose and pervading disposition of kindness in the heart. Affection is the organizing force in the human constitution. Woman is fairer than man, because she has more affection than man. Loveliness is the outside of love. Kindness, sweetness, good-will, a prevailing desire and determination to make others happy, make the body a temple of the Holy Ghost. The soul that is full of pure and generous affections fashions the features into its own angelic likeness, as the rose by inherent impulse grows in grace and blossoms into loveliness which art can not equal. There is nothing on earth which so quickly and so perfectly beautifies a face, transfigures a personality, refines, exalts, irradiates with heaven's own impress of loveliness as a pervading, prevailing kindness of heart. The angels are beautiful be cause they are good, and God is beauty because He is love.

CULTIVATION OF BEAUTY

To be beautiful in person, then, we must not only conform to all the laws of physical health, and by gymnastic arts and artificial appliances develop the elements of our physical being in symmetry and completeness; but we must also train the mind and develop the affections to the highest possible degree. To be beautiful, we must feed the spark of intellectual fire by reading and meditation, until it burns in steady flame, irradiating the face by its brilliancy, suffusing the countenance with light. To be beautiful, we must fill the brain with great thoughts and live in an atmosphere of ideas. To be beautiful, we must put a great, organizing, and ennobling purpose into the will, and concentrate our thought and affection upon it until enthusiasm wells up in the heart, and suffuses the countenance, and rebuilds the body on its own divine plan. To be beautiful, we must cherish every kind impulse and generous disposition, making love the ruling affection of the heart and the ordering principle and inspiring motive of life. The more kindness, the more beauty; the more love, the more loveliness. And this is the beauty that lasts. Mere physical good looks fade with the years, bleach out with sickness, yield to the slow decay and wasting breath of mortality. But the beauty that has its seat and source in kind dispositions, and noble purposes, and great thoughts, outlasts youth and maturity, increases with age, and, like the luscious peach, covered with the delicate plush of purple and gold which comes with autumn ripeness, is never so beautiful as when waiting to be plucked by the gatherer's hand.

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PETER COOPER.

THIS gentleman has by nature a strong and vigorous constitution, and ability to endure hardship and labor, both physical and mental. The Motive temperament is indicated by a strong frame and ample muscular system, as well as by his marked features. He has a large brain and comparative fineness of texture, indicating a mental temperament, and now, at the advanced age of nearly eighty years, he exhibits briskness and elasticity, energy of mind and body, and a keen enjoyment of whatever is transpiring. He is not haughty, but self-reliant. He has large Benevolence, indicated by that highness of head in front, and also by those munificent generosities which he has organized for the benefit of the poor. He has but little tendency to follow the customs and usages of others. His dress and manners are guided by his own sense of propriety, without much regard for the prevailing fashion. He is a good reader of man—understands character readily; knows how to select men for particular duties, and to govern them accordingly. He is a critical and discriminating man; knows how to classify, organize, and administer affairs with wisdom and success.

He has a good memory of facts and things; has good mechanical talent; readily appreciates improvements, and adapts them to use. He is frank, open-hearted, truthful, yet cautious and mindful of consequences. He has more than common energy of character, earnestness, courage, and promptness.

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He is warmly social; interests himself in family and friends, and wins his way to the kindly and affectionate regard of old and young His head rises high from the eyes and ears, the top-head being amply developed, showing strong moral tendencies. He is upright, truthful, respectful, persevering, kindly, sensible, practical, and energetic.

BIOGRAPHY.

This eminent philanthropist was born on the 12th of February, 1791. His father was an officer in the Revolutionary army. Peter was apprenticed to the trade of coach-making, and was successful as a workman; but when the war of 1812 broke out, and America was obliged to go to manufacturing woolen cloth, Mr. Cooper engaged in the manufacture of machinery for that purpose; he has since been engaged in the manufacture of glue, also in the manufacture of iron and iron ware. The first locomotive in general use on this continent was built by Mr. Cooper, at Baltimore, after his own designs, and was used on the Baltimore and Ohio Railroad. Mechanism or scientific improvement has always interested Mr. Cooper. He was warmly interested in the electric telegraph from its earliest inception, and invested liberally in aid of its establishment. He has made his name especially famous, however, through his many acts of charity. The erection of the splendid building known as the Cooper Institute, located in the central part of New York, costing several millions, designed for the free education of the working classes, has been the crowning, as it will be the most noted and lasting labor of his life. This Institute furnishes opportunity for acquiring a scientific education, in connection with which there is a chemical laboratory and school of design, a large, free reading-room; there are classes in mathematics, natural philosophy, chemistry, architectural drawing, mechanical drawing, and vocal music, besides a school of design for women. The building is fireproof, and quite below the level of the street there is one of the largest and best lecture-rooms in the city; above this, on the main floor, are elegant stores, the rental of which is designed to maintain the working portion of the institution so that the benefit shall be self-sustaining and perpetual. Peter Cooper has a reputation for integrity, kindness, common-sense, and practical philanthropy which is eminent and enviable. Many rich men hold on to their property during life, and leave it to be wrangled over by selfish and grasping heirs who not unfrequently disgrace the deceased by proving him insane or imbecile, that they may break his will and divide the estate. Mr. Cooper has evinced not only a kindly spirit toward the poor and the public, but has shown solid wisdom in disposing of a considerable portion of his property during his lifetime, and the people duly appreciate his kindness and good sense, for when he enters the great auditorium of the Cooper Institute, whether the meeting be convened for political, literary, scientific, or musical purposes, his appearance is always a signal for an outburst of rapturous applause. Everybody in New York knows Peter Cooper, and delights to honor him. May he live a hundred years!

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WEST POINT—HOW TO ENTER.

IN answer to the often-asked question, How may I enter the National Military School as a student? we publish the following circular from the War Department, which tells the whole story in plain English. By this it will be seen that sound bodies as well as sound minds are indispensable in those who would be educated at the expense of the Government.

ADMISSION OF CADETS.

1. Each Congressional District and Territory, besides the District of Columbia, is entitled to have one cadet at the Academy, and no more; but ten are also annually appointed "at large," without regard to selection by Congressional Districts.

2. The District and Territorial appointments are made upon the nomination of the Representative or Delegate in Congress from the District or Territory, and the person nominated is required by law to be an actual resident of the District or Territory from which the appointment is to be made. The selections at large and from the District of Columbia are especially made by the President.

3. The pay of a cadet is $500 per annum, with one ration per day, commencing from the date of admission, and, with economy, is sufficient for his support.

4. Application can at any time be made by letter to the Secretary of War, to have the name of the applicant placed upon the register, that it may be furnished to the proper Representative or Delegate when a vacancy occurs.

5. The application should be in such form as to exhibit the full name, the precise age, and permanent abode of the applicant, and the number of the Congressional District in which he resides.

6. Candidates are admitted into the Academy only between the ages of 17 and 22 years; but those who have served at least one year in the regular or volunteer army during the late war, and have been honorably discharged, are by special provision of law eligible up to the age of 24 years. No candidate less than five feet in height can be admitted. Candidates must be free from any infectious or immoral disorder, and, generally, from any deformity, disease, or infirmity which may render them unfit for arduous military service.

7. The candidate is required by law to be proficient in reading and writing; in the elements of English grammar; in descriptive geography, particularly of our own country, and in the history of the United States. In arithmetic, the various operations in addition, subtraction, multiplication, and division, reduction, simple and compound proportion, and vulgar and decimal fractions, must be thoroughly understood and readily performed.

8. The following are the leading physical disqualifications: 1. Feeble constitution and muscular tenuity; unsound health from whatever cause; indications of former disease; glandular swellings, or other symptoms of scrofula. 2. Chronic cutaneous affections, especially of the scalp. 3. Severe injuries of the bones of the head; convulsions. 4. Impaired vision, from whatever cause; inflammatory affections of the eyelids; immobility or irregularity of the iris; fistula lachrymalis, etc., etc. 5. Deafness; copious discharge from the ears. 6. Loss of many teeth, or the teeth generally unsound. 7. Impediment of speech 8. Want of due capacity of the chest, and any other indication of a liability to a pulmonic disease. 9. Impaired or inadequate efficiency of one or both of the superior extremities on account of fractures, especially of the clavicle, contraction of a joint, extenuation, deformity, etc., etc. 10. An unusual excurvature or incurvature of the spine. 11. Hernia. 12. A varicose state of the veins of the scrotum or spermatic cord (when large), sarcocele, hydrocele, hemorrhoids, fistulas. 13. Impaired or inadequate efficiency of one or both of the interior extremities on account of varicose veins, fractures, malformation (flat feet, etc.), lameness, contraction, unequal length, bunions, overlying or supernumerary toes, etc., etc. 14. Ulcers, or unsound cicatrices of ulcers likely to break out afresh.

Every person appointed, upon arrival at West Point, is submitted to a rigid medical examination, and if any causes of disqualification are found to exist in him to such a degree as may now or hereafter impair his efficiency, he is rejected. As a general rule, no person who has had a brother educated at the Academy will be appointed.

9. Whenever possible, appointments are made one year in advance of the date of admission (viz., about the first of July in each year), so that candidates may be afforded time to prepare for a successful examination.

10. During the months of July and August the cadets live in camp, engaged only in military duties and exercises, and receiving practical military instruction. The academic duties and exercises commence on the first of September, and continue till about the end of June.

11. The newly appointed cadets are examined at the Academy prior to admission, and those not properly qualified are rejected. Examinations of the several classes are held in January and June, and, at the former, such of the new cadets as are found proficient in studies and have been correct in conduct are given the particular stand-

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ing in their class to which their merits entitle them. After either examination cadets found deficient in conduct or studies are discharged from the Academy, unless, for special reasons in each case, the Academic Board should otherwise recommend. These examinations are very thorough, and require from the cadet a close and persevering attention to study, without evasion or slighting of any part of the course, as no relaxations of any kind can be made by the examiners.

12. A sound body and constitution, a fixed degree of preparation, good natural capacity, and aptitude for study, industrious habits, perseverance, an obedient and orderly disposition, and a correct moral deportment are such essential qualifications that candidates knowingly deficient in any of these respects should not, as many do, subject themselves and their friends to the chances of future mortification and disappointment by accepting appointments to the Academy and entering upon a career which they can not successfully pursue.

EXAMINING CANDIDATES FOR ADMISSION.

Candidates must be able to read with facility from any book, giving the proper intonation and pauses, and to write portions that are read aloud for that purpose, spelling the words and punctuating the sentences properly.

In arithmetic, they must be able to perform with facility examples under the four ground rules, and hence must be familiar with the tables of addition, subtraction, multiplication, and division, and be able to perform examples in reduction and in vulgar and decimal fractions, such as:

Add $\frac{2}{3}$ to $\frac{3}{4}$; subtract $\frac{2}{5}$ from $\frac{5}{6}$; multiply $\frac{3}{4}$ by $\frac{7}{8}$; divide $\frac{2}{5}$ by $\frac{3}{8}$

Add together two hundred and thirty-four thousandths (.234), twenty-six thousandths (.026), and three thousandths (.003).

Subtract one hundred and sixty-one ten thousandths (.0161) from twenty-five hundredths (.25).

Multiply or divide twenty-six hundredths (.26) by sixteen thousandths (.016).

They must also be able to change vulgar fractions into decimal fractions, and decimals into vulgar fractions, with examples like the following:

Change $\frac{15}{16}$ into a decimal fraction of the same value.

Change one hundred and two thousandths (.102) into a vulgar fraction of the same value.

In simple and compound proportion, examples of various kinds will be given, and candidates will be expected to understand the principles of the rules which they follow.

In English grammar, candidates will be required to exhibit a familiarity with the nine parts of speech and the rules in relation thereto; must be able to parse any ordinary sentence given to them; and, generally, must understand those portions of the subject usually taught in the higher academies and schools throughout the country, comprehended under the heads of orthography, etymology, syntax, and prosody.

In descriptive geography, they are to name, locate, and describe the natural grand and political divisions of the earth, and be able to delineate any one of the States or Territories of the American Union, with its principal cities, rivers, lakes, seaports, and mountains.

In history they must be able to name the periods of the discovery and settlement of the North American continent, of the rise and progress of the United States, and of the successive wars and political administrations through which the country has passed.

DRESS AND APPEARANCE.—Upon the subject of dress and appearance the New York *Times* thus remarks: "A coat that has a mark of use upon it is a recommendation to people of sense, and a hat with too much nap and too high a luster a derogatory circumstance. The best coats in Broadway are on the backs of penniless fops, broken-down merchants, clerks with pitiful salaries, and men that do not pay up. The heaviest gold chain dangles from the fobs of gamblers and gentlemen of very limited means; costly ornaments on ladies indicate to the eyes that are well opened, the fact of a silly lover or husband cramped for funds. And when a pretty women goes by in plain and neat apparel it is the presumption that she has fair expectations, and a husband that can show a balance in his favor. For women are like books, —too much gilding makes men suspicious that the binding is the most important part."

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ANNA CORA MOWATT RITCHIE.

THIS celebrated American actress and authoress died in London on the 29th of July, 1870, aged about fifty years. She was born in Bordeaux, France, about the year 1821, where her father, Samuel G. Ogden, a merchant of New York, was temporarily established in business. She was the tenth of a family of seventeen children, and her early childhood was passed in an elegant chateau, in the private theater attached to which she frequently participated in the juvenile theatrical performances with which her brothers and sisters were accustomed to amuse themselves. When she was about six years old the family returned to New York, and Anna Cora, in the intervals of daily study, devoted much time to reading and private dramatic entertainments. When about fifteen years of age she married Mr. James Mowatt, a lawyer of New York. During the first two years of her married

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life she devoted herself to study and the writing of poetry, when her health began to fail, and she made a visit to Europe of a year and a half, during which she wrote a play entitled "Gulzora, or the Persian Slave." Not long after her return financial embarrassments overtook her husband, and as a means of support she gave a series of dramatic readings in Boston, New York, and other cities. She contributed brilliant articles to the magazines under the pseudonym of "Helen Berkley," and also wrote a five-act comedy entitled "Fashion," produced at the Park Theater, New York, in March, 1845, with success. In June of the same year she was tendered an engagement at this theater, and at once attained the most complete success, which was followed by profitable engagements in the principal theaters in the United States, which placed her once more in a position of ease and comfort. In 1847 she made her *debût* in Europe, and soon attained the rank of a star, creating everywhere most favorable impressions. While in London in 1851 Mrs. Mowatt lost her husband, and in 1854 became the wife of Wm. F. Ritchie, of Virginia. Since her last marriage Mrs. Ritchie has written several works of merit; and though she retired from the stage and from public life, she devoted herself to literature for years, and like most artists who re-marry and retire, she returned again, not so much from necessity as from choice, to the stage and to dramatic readings.

To gain distinction under favorable circumstances and with the ordinary aids to success, evinces talent; to achieve distinction in a difficult profession in spite of obstacles without assistance, bespeaks genius. The antecedents of our subject, her trials and triumphs, prove her to be endowed with the latter.

The phrenology and temperament of Mrs. Ritchie were remarkable. In the portrait we see indications of great activity, enthusiasm, earnestness of purpose, intensity of thought and feeling, heroic courage and restless industry. Her large social development won for her friends and led her to live and labor for those she loved. She was self-reliant, ambitious, hopeful, respectful, spiritual, and sympathetical. She had large Ideality, Comparison, and Human Nature, which gave her imagination, sense of the poetical; the power of criticism and ability to read mind and motives, and to act out character to the life. She had a practical intellect, an excellent memory, and great readiness and availability of talent; hence her brilliancy of mind as a writer, an actress, and in society.

HOW TO STUDY MEN.

THE proper way to obtain a practical knowledge of men is to mingle with and study them. A preacher has great opportunities for this. He need not fear to lower his dignity or impair his influence by a free and easy intercourse with all classes. The people have acute perceptions, and will give him credit for all that is good

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in him; and he has no right to demand more. Indeed, if he have not native goodness and intelligence enough to retain the confidence of his people in the closest social intercourse, the sooner he relinquishes his office the better for all concerned. It is no excuse to say that he can not spare time from his studies; for no labor will more surely bring a return of added power and eloquence than the study of his flock around their own hearths. The best books are only transcripts of the human heart, and here he can study the original in all its freshness.

But merely to mingle with the people will not fully cultivate this critical knowledge of character, unless it is made a particular study. A good way of doing this is to write down our first thoughts and impressions of persons we come in contact with, and test our correctness by subsequent experience. We thus discover the source of our errors, and avoid them in future, and, at the same time, form a habit of observation which, if continued for years, will increase the acuteness of our perceptions until we are able to read men at the first glance.

But most valuable of all means for attaining this power is a thorough, practical acquaintance with Phrenology. Much ridicule has been thrown on this science by traveling impostors, who have practiced character-reading, together with witchcraft and fortune-telling—just as astronomy and astrology were once joined. But such associations are not more necessary than that sometimes supposed to exist between geology and unbelief. Phrenology is a branch of the inductive sciences, established and tested by observation and experiment. Its two cardinal principles are: First, that the brain is the organ of mind; second, that different mental functions are performed by different parts of the brain. The latter is no more unreasonable than to suppose that the different bodily actions, walking, lifting, eating, smelling, etc., are performed by different parts of the body. The first proposition is admitted by all; and if the second is allowed to be reasonable, it then becomes easy to determine whether the correspondence of faculty and organ in any case is sufficiently proved. The poets Whittier and Bryant, Horace Greeley and the eminent educator Horace Mann, all professed to derive great advantage from the study. Henry Ward Beecher, who stands among the first of living orators, attributes all his power "in making sermons *fit*" to the early and constant study of Phrenology. It is an instructive fact, that although the different organs were discovered singly and at long intervals, yet when the contributions of many laborers have been brought together, the result is a most beautiful and perfect mental philosophy—contrasting with the warring systems of metaphysics as the clear sunlight does with clouds and night. We give it as a deliberate opinion, that it is better for the preacher to remain ignorant of any one of the natural sciences or learned languages, than to neglect that study which unfolds the laws of mind and teaches us to understand our fellow-men.*

* "Oratory, Sacred and Secular." Price, $1.50.

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COUNT FRED. FERDINAND VON BEUST.

COUNT VON BEUST.

THIS face and head show a substantial constitution, an active temperament, and a great deal of positiveness and power. His head is high, but not remarkably broad. The fullness across the brow indicates good perception, and the height and prominence of the forehead shows breadth of thought and comprehensiveness of mind. His Firmness, Conscientiousness, and Veneration are large, as shown by the high ridge through the center of the top-head. We judge him, therefore, to be a man of benevolent impulses, strong respect for things great and sacred, and a very strong will. His head appears not to be very broad; hence he is not selfish, artful, or grasping. He loves power more than he loves wealth, and is more likely to achieve results by intellectual strength than by artifice or policy. The fullness of the eye indicates good talking talent. On the whole, he is a man of decided intellect, perseverance, dignity, respect, with power to comprehend and control men.

Count Von Beust was born in 1809; studied law from 1826–1829 at Gottingen; in 1831 became *attaché* to the Minister of Foreign Affairs in Dresden, Saxony, and in 1835 he became secretary to the ambassador, which office he filled at Berlin, and three years later in Paris. In 1841 he became ambassador for Munich; 1846, for London; 1848, for Berlin.

On the 24th of February, 1849, he became Minister of Foreign Affairs in Saxony, and afterward also of the Interior, which position he filled until 1866, when he was called upon to fill the position of Minister of Foreign Affairs to Austria. It was understood that the chief aim of the new ministry would be to conciliate all the different nationalities of the Empire, and in particular the Hungarians. The policy of Baron Von Beust did indeed raise great hopes among the Hungarians, but created great dissatisfaction among the Germans. On February 7th, 1869, the Emperor accepted the resignation of Count Belcredi, prime minister, and appointed in his place Baron Von Beust; and in June of the same year he was also made Chancellor of the Empire.

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THE LATE CHARLES DICKENS.

ON the evening of the 8th of June, 1870, while entertaining a party of friends at his house near London, Charles Dickens, the eminent novelist, journalist, etc., suddenly expired from an attack of apoplexy. His death created a profound impression on both sides of the Atlantic.

He had a large brain, chiefly developed in the front, side, and back head. The intellectual lobe, including both the perceptive and reflective groups, was of large size. Language was very large; Ideality, Sublimity, Imitation, Mirthfulness, Human Nature, Constructiveness, and Benevolence were well marked. His Veneration and Conscientiousness were moderate. Dickens lacked the spiritual, the devotional,

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the more exalted human characteristics, though he possessed boundless sympathy; and he knew, like a dramatist, how to touch the affections and the sympathies of others.

He was born at Portsmouth, February 7th, 1812; educated at Chatham and Rochester, and commenced the study of law in London. After two years' experience as an attorney's clerk, he left the law for literature, taking first a reporter's position on a newspaper.

From 1838 to 1842 he wrote "Oliver Twist," "Nicholas Nickleby," "Master Humphrey's Clock," "Old Curiosity Shop," and "Barnaby Rudge," which served to assure his numerous readers that they had not mistaken the real genius of the author of Pickwick. The fertility of his imagination and the facility of his pen may be inferred from this immense amount of work in so short a time. In 1842 he visited the United States, and after his return in 1843 published "Martin Chuzzlewit," as a sort of take-off of American men and manners. When our people complained of injustice, he said he had talked harder about the people of his own country and they had not complained. "Dombey & Son," "David Copperfield," "Bleak House," "Little Dorritt," "Great Expectations," "Tale of Two Cities," and others of his works followed. In 1869 he made his second visit to America, and gave readings in the principal cities with decided success.

He married Miss Hogarth, the daughter of a lawyer who had been an intimate friend of Sir Walter Scott and Jeffrey. The union did not prove a happy one, and after twenty years, during which several children were born, an agreement to live apart was entered into between Mr. and Mrs. Dickens. The cause of their domestic unhappiness, as stated in the document of separation, was "uncongeniality of temper, implying no dishonor to either party."

Mr. Dickens' life may be looked upon as an abstract of his numerous and remarkable works. His personality lives in them, and the chief feature of his character, charity, breathes through them. He was an earnest worker, yet he knew how to enjoy the comforts of life and society. One of his favorite recreations was the organizing of dramatic entertainments at home, to which he invited his literary friends and others.

As a writer, he occupied a place by himself. He viewed life and character as no other man saw them, and at the same time he exhibited a mastery in handling his subjects which won respect in the outset of his career. A writer of the people and from the people, his sprightly delineations of eccentric character made him as familiar to Americans as to Englishmen, the good in his works winning our esteem and theirs. He had his faults; but we believe his literary labors sprang from a good motive and were pursued with a good aim. At any rate they exist, and his record is in them.

The obsequies of the great writer were performed on the 14th of June, and his remains were deposited in the Poet's Corner of Westminster Abbey. He left an estate estimated at half a million dollars.

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DON'T FORGET THE OLD FOLKS.*

LET me say a few words to *children who have gone out from their old homes, but who have parents still.* There is always a liability, when sons and daughters have gone away from the home of their childhood, and have formed homes of their own, gradually to lose the old attachments and cease to pay those attentions to their parents which were so easy and natural in the olden time. New associations, new thoughts, new cares, all come in, filling the mind and heart, and, if special pains be not taken, they crowd out the old loves. This ought never to be. You should remember that the change is with you and not with those you left behind. You have everything new, much that is attractive in the present and bright in the future; their hearts cling to the past, they have most in memory. When you went away, you knew not, and will never know till you experience it, what it cost them to give you up, nor what a vacancy you left behind. They have not, if you have, any new loves to take the place of the old. Do not, then, heartlessly deprive them of what you still can give of attention and love.

Visit your parents. If you live in the same place, let your step be, perhaps daily, a familiar one in the old home; if you are miles, yea, many miles away, make it your business to go to them. In this matter do not regard time nor expense; the one is well spent and the other will be fully, yea, a hundred-fold repaid. When some day the word reaches you, flashed over the telegraph, that father or mother has gone, you will not think them much, those hours of travel which last bore you to their side.

Write to your parents. I have known father and mother wait with sick hearts through weary months, longing that some word might reach them from an absent son. They have watched the mails till in despair they have ceased to expect any more, and while they may not have the grief of a great bereavement, they have what is almost as bad, the bitter consciousness that they are not in mind enough even to call out a few poor lines from one whose infancy and early years they watched with sleepless love. Sons are often guilty of this crime—I can not call it less—from sheer neglect or indolence. While an hour, perhaps a few moments, would suffice to write a letter which would give unspeakable satisfaction, they let months and even years slip away in utter indifference to all the pain they are causing. Oh, how full is many a mother's heart of sorrow and foreboding, when just a few words from an absent son would fill it with joy and praise! Such indifference or neglect is shameful and wicked. One need not wonder that sons guilty of it are not prospered, that they wait in vain for those turns of fortune which will send them home, as they dream, to surprise the old neighborhood with their wealth. Their thoughtlessness has been productive only of disaster.

* "Life at Home." $1 50.

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Keep up your intercourse with father or mother; do not deem it sufficient to write when something important is to be told; do not say, "No news is good news." If it be but a few lines, write them; write, if it be only to say, "I am well," if it be only to send the salutation that says they are "dear," or the farewell that tells them that you are "affectionate" still. The little messengers shall be like caskets of jewels, and the tears that fall fondly over them will be treasures for you. Say with a warm-hearted son—

"The hills may tower, the waves may rise,
And roll between my home and me;
Yet shall my quenchless memories
Turn with undying love to thee!"

In the passing of human life there frequently comes a time when the mutual duties of child and parent are reversed. Advancing years bring a childhood to the one and the care of childhood to the other. To the aged father and mother the days of labor are over; the work of life has been done. Now attentive tenderness becomes the duty of those who once received it all themselves, while those are dependent upon it who once gave it all. Now the parent is the child, and the child is the parent. The watchfulness and care of many years ago is to be repeated over again; only that the giver then is the receiver now. To a true-hearted child here is a return of love which it is good to make. There is a deep satisfaction in being able to repay by words and looks the lavished love of the by-gone time.

SISTERLY DUTY TO BROTHERS.

SISTERS, *guard and protect your brothers.* You wonder that I say so to you. The guard and the protection, you think, should surely rather come from them. But there is a talismanic power, which may emanate from a fragile and gentle sister, mightier than brawny muscle or iron will. A sister can throw over her brother the purity of her maiden life, which shall surround him like a charmed atmosphere. Oh, if some sisters had understood this, and had won and held their brothers to their side; if they had but shown them the beauty and the grace; had made to pass not only before them, but to touch and caress them lovingly, the sweetness and the spotless innocence of a true woman's life, they would have clad their brother in a panoply of steel, and put in his hand a weapon whose very gleam would have scared away the ugly demons of vice and infamy. But they did not do it; and so he went out, and wanton and brazen-faced temptation, not put to shame by the contrast of love and purity at home, easily gained the victory over him. Try, then, to live so lovingly and with such power that, when vice allures your brother, there shall come up such visions of purity and affection, that, in the contrast, he shall turn in disgust and loathing away.

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Let brothers *protect the reputation and the happiness of their sisters.* Do not think me saying only something stale and commonplace. It would be commonplace if I meant only that a brother should defend his sister's honor. If he would not do that, let him lay aside the name of brother. I mean much more than that. Let him make a defense in her own bosom, by daily exhibiting before her the ideal of a man, pure, honorable, and good. Then, when one stained and dishonorable comes near her, the ideal shall help her intuition, and he shall have no power over her.

Let a brother also make a wall about his sister, so that she shall be shielded from the contact of all but the pure and good. You, as a young man, may have been thrown into companionship with one whom you know to be impure and licentious, and he may seek the acquaintance of your sister. Let him seek it in vain! Let the harlots with whom he has been in fellowship suffice him; never let his presence pollute the air which your sister breathes; never let his touch defile your sister's hand!

Nor need I confine what I want to say to brothers alone. Let sisters protect themselves. "Why did you not take my brother's arm last night?" asked a young lady of her friend, a very intelligent girl of eighteen or nineteen. "Because," was the reply, "I knew him to be a licentious man." "Nonsense," the sister said; "if you refuse the attentions of all licentious men you will have none." "Very well, then, I can dispense with them altogether." There was a volume of revelation in the brief conversation.

Young women are not always true as they ought to be to themselves. Frequently a man is known to be immoral; perhaps known to have been the betrayer of one who fatally put her trust in his honor, and whom he ruined forever; and yet that man is welcomed into the society of the pure, as if there were no stain upon his soul and no crime cursing the ground on which he treads. The wretch who could deliberately plot, and steadily accomplish, the destruction of a young character and life, is not fit to walk even this sin-defiled earth. Instead of allowing such a being to associate in familiar friendship with you, you should stand for your honor, defend the sanctity of your life, keep untarnished your own purity, by banishing him from your presence. You should have enough of sisterhood in your heart to avenge the immeasurable wrong he has done your sister-woman. The patriot would loathe the hand of a traitor, much more should you disdain a worse than traitor's touch.

Let brothers and sisters, whatever else they do, keep pure the air of home. Ye brothers, see that no serpent leaves its slimy trail, or even crosses the grass upon which your sister walks.

Girls do not always know their power. It is far greater than they think; and were they true and brave enough to exert it, they might almost, in a generation, revolutionize society about them.*

* "Life at Home." $1 50.

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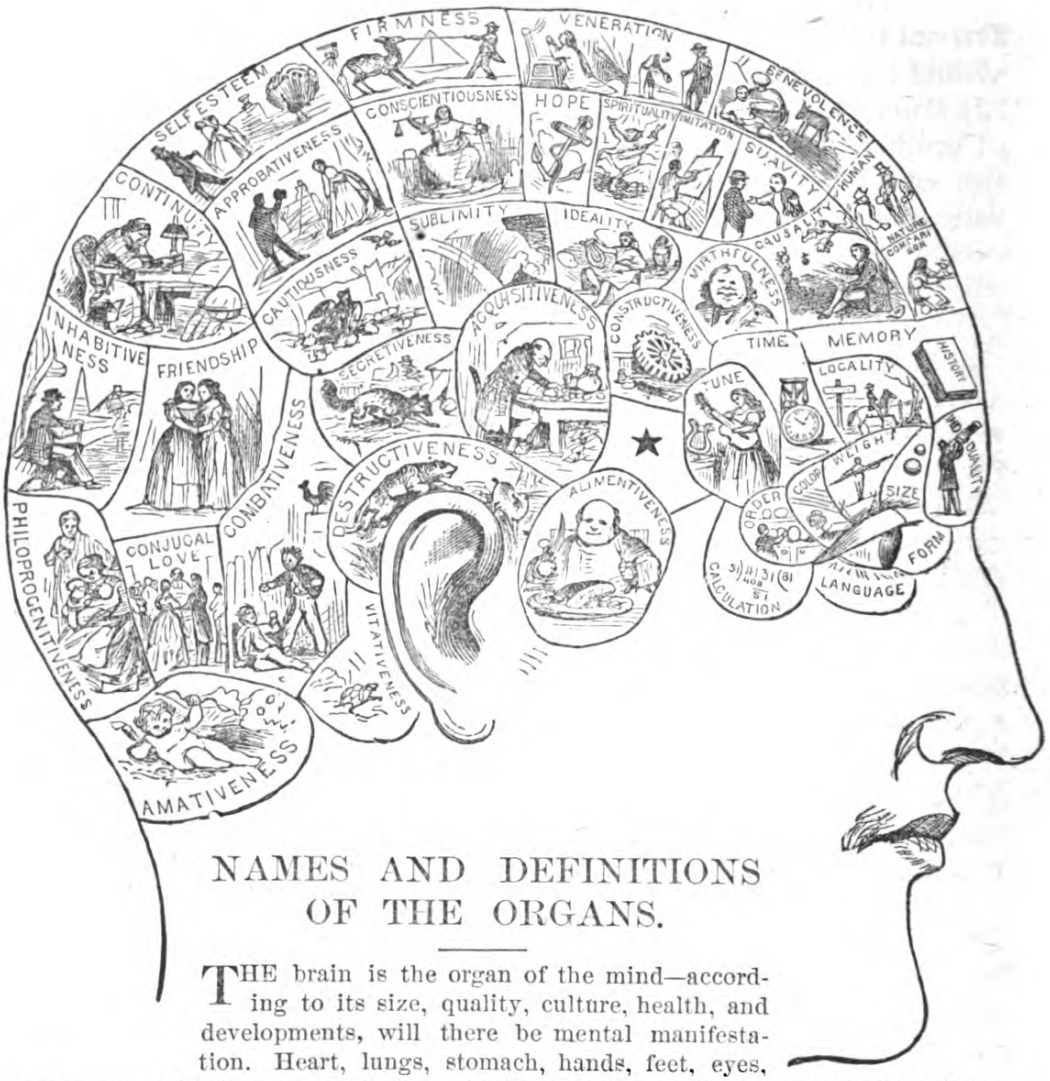

NAMES AND DEFINITIONS OF THE ORGANS.

THE brain is the organ of the mind—according to its size, quality, culture, health, and developments, will there be mental manifestation. Heart, lungs, stomach, hands, feet, eyes, ears, etc., perform separate and special functions; so, different parts of the brain are allotted to different functions. The forehead is the seat of Intellect—the knowing faculties; the lower back-head, of the Affections; the side-head, of the executive, propelling, constructive, and economical powers; the top-head, of the moral, spiritual, and religious Sentiments. And all these are subdivided, as seen in this pictorial head. To read character correctly, therefore, one must know not only PHRENOLOGY, but something of ANATOMY, PHYSIOLOGY, PHYSIOGNOMY, and ETHNOLOGY. And the more he knows of all these the more perfectly can he judge the character, motives, and capacities of his fellow-men—their adaptation to this or that pursuit, and in what sphere they may be most useful, successful, and happy.

No. 1, Amativeness—the faculty of connubial love, lends attractiveness to the opposite sex, and a desire to enjoy their company. It is represented by a rosy, chubby Cupid, the "god of desire," bearing a flaming torch, indicative of ardor, and flourishing his bow by which he is enabled to reach the affections of the objects of his desire. His stout, nutritive temperament indicates the form of physiology most favorable to this function.

A, Conjugal Love—the monogamic faculty, giving a desire to reciprocate the exclusive love of *one* in matrimony. It is symbolized by the performance of the ceremony of marriage, the result of its action.

No. 2, Philoprogenitiveness—the parental feeling. It disposes man and animals

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to give due attention to their offspring. It is most fully developed in woman, and the feminine sex generally, which is well illustrated in the engraving. A woman is shown exulting over a lapful of children, while her partner is contented with merely standing near and looking on.

No. 3, Friendship—the social feeling—desire for companionship, attachment, devotion to individuals and society, is beautifully represented by two young girls walking hand-in-hand, with their arms around each other's necks.

No. 4, Inhabitiveness—is symbolized by the traveler contemplating his home in the distance: the familiar village church-spire seen beyond the hill. It is that element of mind which gives a desire for a home, place of abode, or haven of rest. It also gives rise to love of country, and combined with the other social feelings leads to clannishness and offensive nationalism.

No. 5, Continuity.—The student poring over his books, and consuming the oil of life, and burning the midnight lamp, represents the power of mind which inclines us to give undivided and continued attention to one subject until it is exhausted. Some have this organ very small, and get "too many irons in the fire." Those who have it large are prolix, and their friends vote them a bore.

E, Vitativeness—love of life—desire to exist, symbolized by the turtle, which is exceedingly tenacious of life. It will live for months without food, and can scarcely be killed unless its vital apparatus is disorganized by mechanical means. It has been known to live several days after the head had been cut off.

No. 6, Combativeness—needs very little added to the picture to explain it. The "offensive" part toward the ear is very clearly defined by the excited boy who has just knocked his companion down, and who is consequently on the "defensive," and his position on the diagram points out the relative spot through which this form of Combativeness manifests itself. "Courage" is located above, which the position of the game-cock indicates.

No. 7, Destructiveness—Executiveness, hardiness, promptness, and severity are all very fully represented in the acts, habits, and manners of carnivora. A tiger about to spring upon the timid antelope very aptly conveys the language of this organ.

No. 8, Alimentiveness—desire for food, appetite. The captain of the commissariat department rejoices at the sight of a good dinner, and much more in the eating of it. He is wide in front of the ears, and, to allow the organ to gratify itself, a full development of the nutritive temperament is required, which the engraving distinctly shows.

No. 9, Acquisitiveness—desire for property—is represented by a miser counting over his accumulations. This indicates the extreme perversion of the organ, which normally is the principal element in industry, economy, and that providential forethought which "lays up for a rainy day."

No. 10, Secretiveness—concealment, policy—the conservative principle—aids acquisitiveness in the retention of wealth. The sly cat in pursuit of the mice symbolizes one phase of the organ. No faculty is more operated upon for good or for evil by social and domestic usage than this. Misdirected, it is a prime element in hypocrisy, evasion, and that equivocating spirit which is scarcely compatible with honesty and candor.

No. 11, Cautiousness—fear, prudence—apprehends danger—is anxious and sometimes timid and irresolute. The prudent hen protecting her chicks from the rapacious hawk represents more than one phase of this organ.

No. 12, Approbativeness.—The gentleman bowing to an overdressed and ostentatious lady expresses the language of a desire to please on his part, and to gain admiration and popularity on hers. These subdivisions of the organ are relatively located where the figures of the lady and gentleman are placed. This faculty is of great importance in social life. It gives ease of bearing to the person, and a desire to cultivate the amenities of social intercourse. It is often found in a perverted condition, and causes extreme sensitiveness.

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No. 13, Self-Esteem—dignity, governing power, independence, the manly and commanding spirit—is not very well symbolized in the drawing. The strutting man and vain peacock would have been more at home within the lines of Approbativeness. It would perhaps be difficult to devise a symbol which would represent this important feeling without leading to ambiguity. The "man at the wheel," and the commander of a ship giving orders in time of danger, might be introduced.

No. 14, Firmness—conveys its definition by its name, as well as by the pyramid on the diagram. The position occupied by the man pulling the halter is the seat of "Perseverance." "Stability" is in the center, while "Decision" is in the left-hand corner, very forcibly indicated by the blows that are falling on the stubborn donkey.

No. 15, Conscientiousness.—Justice holding the scales symbolizes this moral sentiment. It inclines to self-examination, integrity, scrupulousness in matters of duty, obligation, and consistency. It inclines one to hold to his convictions, and to "be JUST, though the heavens fall."

No. 16, Hope—has long been represented by the anchor. It looks to the future, buoys the mind with enthusiastic expectations of the yet-to-be. It has a most happy influence on the individual, and is too generally found low in development.

No. 17, Spirituality.—The witch of Endor, in the act of raising Samuel for the satisfaction of Saul, very indifferently symbolizes this little-understood faculty. Faith, trust, and a satisfied state of mind arising from a settled dependence or reliance on the nature of things is the happy result of this faculty. The point toward Ideality is often largely developed in mediums and those subject to impressions and visions. It is an intuitive religious element, and gives rise to the belief in a superintending Providence and spiritual guidance.

No. 18, Veneration—has a high moral influence upon the character, giving an intense aspiration for that which is supreme in holiness, purity, and merit. It has the most powerful influence of any faculty in restraining and directing the passions, affections. and intellect. It inspires the mind with awe and regard for sacred subjects, for the aged or worthy, as indicated by the youth paying respect to the man of ripe experience. It "hungers and thirsts" for higher moral conditions, which is universally expressed in the act of prayer to God.

No. 19, Benevolence—the distributive moral feeling—has among its definitions the desire to do good, tenderness. sympathy, charity, liberality, and the philanthropic spirit. It is appropriately figured by the Good Samaritan assisting the stranger in difficulty.

No. 20, Constructiveness.—The mechanical faculty is indicated by a cogged-wheel. It is pre-eminently a planning and tool-using faculty, but is takes many forms besides that of machine-making. In some it aids in the construction of pictures, poetry, orations, lectures, books, garments, houses, ships, plans, schemes, and all employments demanding manual or mental dexterity.

No. 21, Ideality—the esthetic faculty, or love of the beautiful and perfect, is represented by a beautiful woman—one of the Muses, we suppose—with elegantly formed limbs, holding a musical instrument, and reclining near a work of art, with a painter's pallet near her. It is powerful in poetry, in literature, the arts, and all that is refining, pure, and expanding. In some instances, when this organ is very large, the person is more nice than wise. It is frequently either uncultivated or misdirected.

B, Sublimity—may also be called an organ of the imagination. Those who are large in the region of Sublimity and Ideality are sometimes very imaginative and impractical. They live too much in dreamland, and find the common objects of life scarcely up to their expectations. This organ is symbolized by Niagara Falls. The stupendous in nature or art excites this faculty highly. It leads to exaggeration.

No. 22, Imitation, or APTITUDE.—The copying instinct manifests itself in many ways, one of which is represented in the diagram by an artist taking a portrait. It enables us to adapt ourselves to society by copying manners. It helps the actor in representing character, and is one of the chief channels by which we obtain knowledge and benefit by surrounding influences. It is very active in the young.

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No. 23, Mirthfulness—the vital temperament and humorous face of Comedy, as seen in the engraving, well represents the nature of this faculty. It aids reason by ridiculing the absurd and incongruous.

No. 24, Individuality, CURIOSITY.—The inquisitive knowledge-gathering disposition is well represented by an astronomer gazing at the stars through a telescope. This is an indispensable organ in the acquisition of physical knowledge, or distinctness of conception on any subject.

No. 25, Form—gives width between the eyes, and enables us to remember the outline shapes of things. A child with it large can learn the alphabet more readily than one having it small.

No. 26, Size—enables us to measure distances and quantities with the eye, and is represented by two apples of different sizes.

No. 27, Weight—adapts man to the laws of gravity, whereby he judges of the weight of things, strength of materials, and to balance himself in walking, as is represented in the diagram by a man walking the tight-rope.

These last four organs are exceedingly useful to all mechanics, and those engaged with physical objects.

No. 28, Color.—This faculty is symbolized by the rainbow. Its development enables us to discriminate, and discern tints, and remember colors.

No. 29, Order—method, arrangement, system, neatness, is indicated on the picture by a housewife arranging her plates and dishes on shelves made to receive them.

No. 30, Calculation—the power to enumerate, reckon, etc., shown by a sum in long division.

No. 31, Locality—the exploring faculty—love of travel and ability to remember places is very well illustrated by a traveler on horseback, near a guidepost.

No. 32, Eventuality—the historic faculty. Some people "talk like a book;" they are full of anecdotal lore, and can relate occurrences just as they happened; they are said to have a good memory. A book, in which is recorded what are called facts, very appropriately illustrates this organ.

No. 33, Time—gives a consciousness of duration, helps the memory with dates and music. It is represented by an hour-glass and watch.

No. 34, Tune—the musical instinct. Ability to remember and distinguish musical sounds is pictorially defined by a lady playing on a lyre

No. 35, Language—located in the brain above and behind the eye, and, when very large, forces the eye forward and downward, forming a sack as it were under it: when very small, it is sunken more deeply in the head. It has no symbolic picture to represent it.

No. 36, Causality—the ability to comprehend principles and to think abstractly, to understand the why-and-wherefore of things, and to synthetize. It is represented by a picture of Newton observing an apple fall from a tree. His endeavor to explain the cause of that simple phenomenon is said to have led to the discovery of the law of gravitation.

No. 37, Comparison—the analyzing, criticising, illustrating, comparing, inquisitive, adapting faculty, is represented by a chemist experimenting in his laboratory.

C, Human Nature—the power to discern motives, character, and qualities. This intuitive faculty is shown by two men in conversation, one of whom is devoid of it, while the other on the right, who has it large, reads the motives and controls the mind of the other. It is usually large in North American Indians.

D, Suavity.—Many are thought to have good reasoning intellects because of their high square foreheads, but who do not strongly manifest that tendency of mind. They have an imitative kindliness. Persons so organized are bland, often communicative, playful, youthful, and demonstrative; are often vapid and superficial, yet able to entertain company well. In the division set off as the location of this faculty, its more commonly used name (Agreeableness) is printed.

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CIVIL ENGINEERING 1,800 YEARS AGO.

THOSE who suppose the present is the only age of talent and wisdom, greatly mistake. In engineering and architecture especially, the moderns have excellent examples in the works of the ancients. Remains of architecture we have whose construction would defy any mechanical appliance now known, to move and raise the ponderous blocks of granite to the places they occupy; yet history fails to tell us their antiquity or by whom they were built. The works have outlived the very history of the workers. We, it is true, are blessed with the art of printing, with the power loom, the sewing machine, he telegraph, with photography and phonography, and many other marvels of mechanism and science; but the ancients had arts which have been lost with their history. We are not the only people who have been wise; ours is not the only age of mighty achievements. The following, from the *Agricultural Review*, will interest the reader:

"The Roman genius for construction was the grandest the world has seen. The traveler who visits the cathedral fanes of York and Bourges, Burgos and Seville, Cologne and Milan, the castles of Windsor and Heidelberg and St. Elmo, the temples at Pæstum, at Athens, at Baalbec, and at Thebes, the palaces of the Maharajas on the banks of the Ganges, sees monuments of splendid beauty, unsurpassed by any age, by any people; yet he returns to Rome, and says, while standing upon the vaulted ruins of the Baths of Caracalla, or while counting his steps across the floors of Constantine's Basilica, or while looking down from the uppermost tier of seats into the arena of the Coliseum, that the constructive genius of all the rest of the world must bend before the imperial Latin engineer.

"Never but once were thus combined in the political situation of a city all elements needful for carrying up the culture of mere building talent to the highest pitch, while at the same time were offered unlimited opportunities for its exercise. Rome was a seaport, backed by a country fertile in supplies; a peninsula of mountains made of marble; in the center of a vast sea crowded with well-settled islands, and girt about with coasts inhabited by the oldest, richest, and most advanced communities of man. The Roman state was still physically undebauched, in the prime of its strength, irresistible lord of all the Western and half the Eastern world, was infinitely rich, irresponsible and unscrupulous, proud and vain, sensual and sensational, loving war only for the sake of its fruits, and preferring peace for the sake of its enjoyments. The Bath-house of Rome combines the essential qualities of the exchange, the club, the museum, the bar-room, and the polls. The emperors enriched themselves and confirmed their power by watering their political stock. Caracalla could afford his horse a golden manger in a temple of its own, after affording his fellow-citizens a Bagnio as large as the Tuileries, in which 10,000 bathers could enjoy themselves

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at once, the ceilings of which were eighty feet high, the partition walls as massive as the abutments of a bridge. The sweating-room alone was larger than the Catholic Cathedral in Philadelphia, and surrounded by arcades inside of costly Corinthian columns, the abstraction of which by the medieval princes of modern Rome, for use in the construction of their private palaces, brought down the ceiling with a crash which shook the city as far off as the Castle of St. Angelo.

"St. Peter's is built on the model of these ancient monuments. Its nave is precisely of the size and shape of the great room in the Baths of Dioclesian, and of the nave of Constantine's great church. Its dome is precisely the size and shape of the Pantheon, which, as is now well known, was yet another imperial bath-room, since then appropriated to the uses of religion. The great bath-room of Dioclesian is also one of the grandest churches of modern Rome.

"The necessity for supplying an amphibious population with floods of fluid, developed the civil engineering talents of the empire. Scores of aqueducts were constructed above ground to bring the waters of the Appenines into the city, and an elaborate system of sewerage carried it away again to be repurified in the bosom of the Ligurian Sea."

HE COULD BE TRUSTED.

ALFRED was missing one night about sunset. Mother was getting anxious, for she always wished him to be home early. A neighbor, coming in, said a number of boys had gone to the river to swim, and he thought Alfred was safe enough to be with them.

"No," said the mother, "he promised me he would not go there without my leave, and he *always* keeps his word. He never told me a lie."

But seven o'clock came, then eight, and mother was still watching and listening for the step of Alfred; but it was half-past eight before his merry shout and whistle were heard, when he ran into the gate.

"Confess, now," said the neighbor, "that you have been to the river with the other boys, and so kept away till late."

How the boy's eye flashed, and the crimson mounted to his cheeks!

"No, sir! I told my mother I would *never* go there without her leave, and *do you think I would tell a lie?* I helped James to find the cows which had strayed in the wood, and did not think I should be so late."

James, coming up the street just then, came in to tell us "he was afraid we had been alarmed; they had been so far in the wood it made them late in getting home."

The neighbor, turning to the mother as he took his hat to go home, said, "I think there is comfort in store for you, madam. Such a boy as that will make a noble man."

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PHRENOLOGY—IS IT A SCIENCE?

HOW TO ESTIMATE THE ORGANS—FRONTAL SINUS.

EVERY new generation of men must learn the multiplication-table and other primary facts of education; and though it is said that the sons of the educated are more easily instructed than those from ignorant parents, still all have to be carried through the same process of training and education to bring them up to sound intelligence. For forty years past certain objections have been occasionally raised to Phrenology, and as often explained and settled; but every new set of students meets the same old stumbling-blocks and raises the same stale objections. When Phrenology was introduced, the educational establishments were presided over by eminent men who had received their culture before Phrenology was introduced to the public, and, supposing they had learned all that was worth learning, looked upon the science as an intruder, and felt bound to elbow it off the track. To a great extent the same spirit still prevails in institutions of learning as the result of the leaven of skepticism from the old-school men, and not one in fifty of these opponents has ever carefully, patiently, and honestly read a hundred pages on the subject from the pen of one of its acknowledged masters.

Mr. James P. Beck, writing through the *Missouri Republican* of St. Louis, gives an article entitled "Phrenology a Humbug." He says:

"The first great objection to Phrenology is that at best it is mere guess-work. It begins by assuming that the mind is seated in the brain, a fact by no means certain or susceptible of demonstration. 'Understand with thy heart, and love thy God with all thy heart and soul,' says the Bible. But independent of Holy Writ, fully as many arguments can be adduced for locating the mind in the heart as in the head. If it be true, as the Bible intimates, that the mind resides in the heart, it would seem that the breast is the proper place for the phrenologists to feel for it."

We wonder who this James P. Beck is, to utter such a statement! The subject of the brain being the organ of the mind we had supposed settled long since; that at least this fact was accepted by all the anatomists and physiologists. GRAY, whose great work on Anatomy and Surgery is the standard in all our medical colleges, says (page 510):

"The average weight of the brain in the adult male is 49½ oz., or a little more than 3 lbs. avoirdupois; that of the female 44 oz.; the average difference between the two being from 5 to 6 oz. The prevailing weight of the brain in the male ranges between 46 oz. and 53 oz.; and in the female, between 41 oz. and 47 oz. In the male, the maximum weight out of 278 cases was 65 oz., and the minimum weight 34 oz. The maximum weight of the adult female brain, out of 191 cases, was 56 oz., and the minimun weight 31 oz. It appears that the weight of the brain increases rapidly up to the seventh year, more slowly to the period between sixteen and twenty, and still more slowly to that between thirty and forty, when it reaches its maximum. Beyond this period, as age advances and the *mental faculties decline*, the brain diminishes slowly in weight, about an ounce for each subsequent decennial period. The size of the brain appears to bear a *general rela-*

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tion to the intellectual capacity of the individual. Cuvier's brain weighed rather more than 64 oz., that of the late Dr. Abercrombie 63 oz., and that of Dupuytren 62½ oz. On the other hand, the brain of an *idiot* seldom weighs more than 23 oz." [Daniel Webster's brain was not surpassed in weight by any cases on record, except by the three above named, 62 oz., we believe, being the weight of his.]

In speaking of the convolutions of the brain's surface, Gray says (page 516):

"The number and extent of the convolutions, as well as their depth, appear to bear a close relation to the intellectual power of the individual, as is shown in their increasing complexity of arrangement as we ascend from the lowest mammalia up to man. Thus they are absent in some of the lower orders of mammalia, and they increase in number and extent through the higher orders. In man they present the most complex arrangement. Again, in the child at birth, before the *intellectual faculties are exercised*, the convolutions have a very simple arrangement, presenting few undulations, and the sulci between them are less deep than in the adult. In old age, when the *mental faculties have diminished* in activity, the convolutions become less prominently marked."

From this it would seem evident that the brain was understood by the most learned of anatomists to be the organ of the mind.

CARPENTER, in his "Principles of Human Physiology," says (p. 530):

"We shall now proceed with our physiological inquiry into the functions of the cerebrum. The anatomical relations of the cerebrum to the other encephalic centers clearly demonstrate that it is not one of the essential or fundamental portions of the nervous system, but a superadded organ, receiving all its impulses to action from the parts below, and operating upon the body at large through them; and its great bulk, joined to its position at the summit of the whole apparatus, clearly mark it out as the highest in its functional relations, and as ministering, so far as any material instrument may do, to the exercise of those *psychical* (mind or soul) *powers* which in man exhibit so remarkable a predominance over the mere animal instincts. This conclusion is fully borne out when we extend our inquiries from human to comparative anatomy; for, with some apparent exceptions, which there would probably be no great difficulty in explaining if we were in possession of all the requisite data, there is a very close correspondence between the relative development of the *cerebrum* in the several tribes of vertebrata, and the degree of *intelligence they respectively possess.*"

Again (page 533): "That a cerebrum which is greatly under the *average size is incapable of performing its proper functions*, and the possessor of it must necessarily be more or less *idiotic*, there can be no reasonable doubt. On the other hand, that a large, well-developed cerebrum is found to exist in persons *who have made themselves conspicuous* in the world, in virtue of their *intellectual achievements*, may be stated as a proposition of equal generality. On the other hand, those who have obtained most influence over the *understandings* of others have always been *large-brained* persons. It is very different, however, with those who are actuated by what is ordinarily termed *genius*, and whose influence is rather upon the feelings and intuitions than upon the understandings of others. Such persons are often very deficient in the power of even comprehending the ordinary affairs of life; and still more commonly they show an extreme want of judgment in the

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management of them, being under the immediate influence of their passions and emotions. The life of a 'genius,' whether his bent be toward poetry, music, painting, or pursuits of a more material character, is seldom one which can be held up for imitation. In such persons, the *general* power of the *mind* being *low*, the cerebrum is not usually found of any great size."

Thus the chief anatomists and physiologists of the world maintain that the brain is the organ of the mind, that the quality of the brain indicates the quality of the mind, and that the size of the brain, other things being equal, is a measure of mental power; and this is the old doctrine of Phrenology from the beginning,—yet Mr. James P. Beck says the mind can not with any certainty be located in the head. We leave Mr. Beck on this point between Carpenter and Gray, as the upper and nether millstones to grind him to powder.

Mr. Beck says, again:

"If the mind be located in the brain, it is physically impossible to tell the shape of the brain from the outside skull, for the reason that the inner and outer plates of the skull are not parallel; and if they were, the brain does not in many places touch the inner plate."

We have seen a good many skulls opened, and never before heard or dreamed that the brain did not lie plump against the inner plate of the skull, separated only by the thin membrane which lines the skull. Mr. Beck can not be an anatomist, or he would have spared us that statement. There may be empty places in *some* heads, but it has never been our fortune to see them. We introduce an engraving, fig. 1, to show the lower half of a skull which has been sawed open and the top removed. It is true that the skull is made of two plates, the outer and the inner. Between these two there is a spongy honey comb structure, called diploe, filled with nutritious juices, small blood-vessels, and nerves. On the edge of the skull, laid bare by the saw, in fig. 1, a dotted line will be seen which represents this cellular structure. The same is seen in the inside of all other bones of the body but there is a law which governs this structure as much as that of the two plates of the skull. The thickness of the skull, including both plates and the diploic structure, is generally about three-sixteenths of an inch, in a healthy skull of active temperament, and sometimes a little more; and there is a general parallelism varying perhaps sometimes one-eighth of an inch. But Mr. Beck, like most other ill-informed critics of Phrenology, seems to suppose that we judge of the size of organs by the little hills, or hollows, or bumps. He says, "It is a fact, for which we are not indebted to phrenologists, that the greatest minds have the smoothest pates." Not stopping to admire Mr. Beck's elegant name for the human head, we remark that we do not determine the size of an organ by the shape of the surface of the head, merely, at the location of each organ. It is not by the bumps, or hollows, or hills of the head alone that we determine whether organs are large or small. If so, a smooth, even head must be set down as having no organs at all. When all the organs are of equal size, the

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surface will be comparatively smooth, and the head well formed or beautiful. When one portion of a head is made up of large organs, it will sometimes stand an inch farther from the medulla oblongata or center of the brain than other portions, yet the head throughout that large region will be quite smooth. A man with a 23-inch head might have all his organs large, and there might not be a bump on his head; on the same principle that a wagon wheel may be large, having long spokes on every side, and yet have a perfectly smooth rim. A head of average size might be twenty-one inches, and be shaped exactly like the large head, and all the organs be average in size, and the mental caliber be less strong accordingly; just as the forward wheel of a wagon being a third smaller than the hind one, is, nevertheless, just as round, and its surface just as smooth.

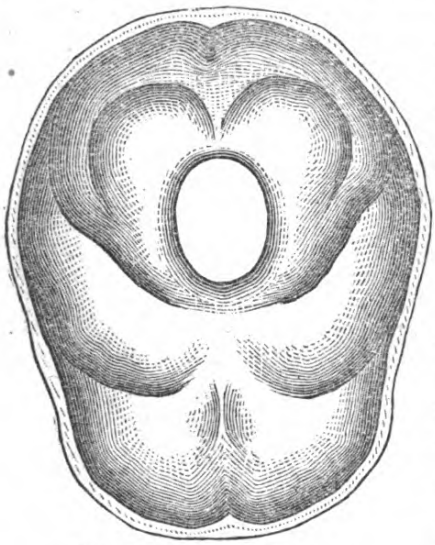

FIG. 1.—BASE OF SKULL, Showing the edge of the skull, its relative thickness—the dotted line showing the division between the two plates.

If a line be drawn through the head from the opening of one ear to the opening of the other, it will pass through the capital of the spinal column at the base of the brain, which is called *medulla oblongata.* It lies just inside of the hole seen through the base of the skull, fig. 1. From that common center, in every direction, the brain radiates like the spokes of a wheel or the slats of a fan, and according to the length of these radii, or the distance from the common center of the brain to the surface where the organ is located, is the organ large or small. And though we have said this in unmistakable terms a hundred times in the JOURNAL, and five thousand times in our lectures, still learned dunces insist on battling Phrenology as if the last quarter of an inch of the surface of the head was the only indication we had of large or small organs. We have taken the trouble, and been at some expense, to have engravings prepared for the illustration of this subject, which are here introduced. We have made

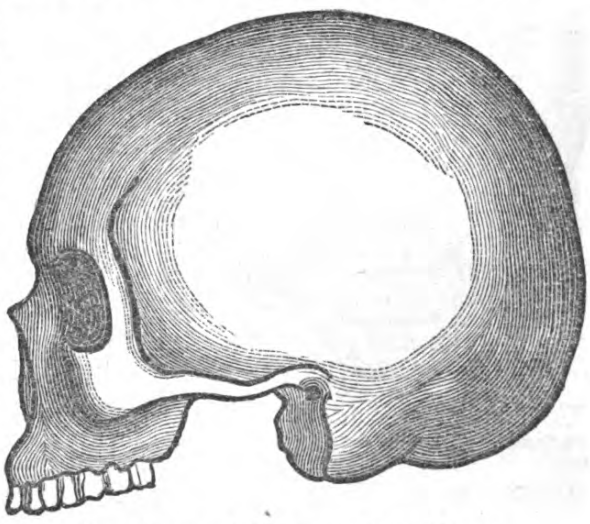

FIG. 2.—BIG THUNDER—SIDE VIEW.

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top views, side views, and front views of two skulls (the originals being subject to the inspection of any person who will take the trouble to call at our office), and we think by the aid of these we can make this subject of radial development, or length of fiber from the center of the brain, plain to the meanest capacity. Fig. 2 is a side view of the skull of Big Thunder, a noted Winnebago Indian chief, whose head is short but very broad. The Indian character is chiefly known for those qualities which come from the middle lobes of the brain, viz., the propensities, especially Destructiveness, Combativeness, Cautiousness, and Secretiveness, but not for social or intellectual power. Compare the form of this head with fig. 3, the skull of an African, which is long and narrow, showing weakness in the organs of the side-head, by the large development of which the power of the Indian character is distinguished. The brain of the negro runs far back, showing great social power, but the head being narrow there is not great force.

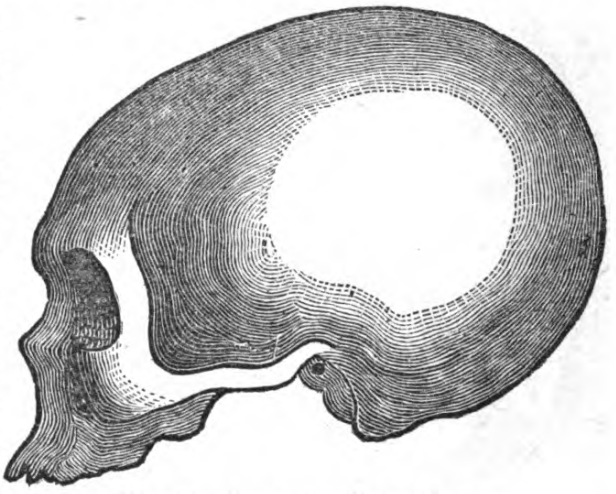

FIG. 3.—AFRICAN—SIDE VIEW.

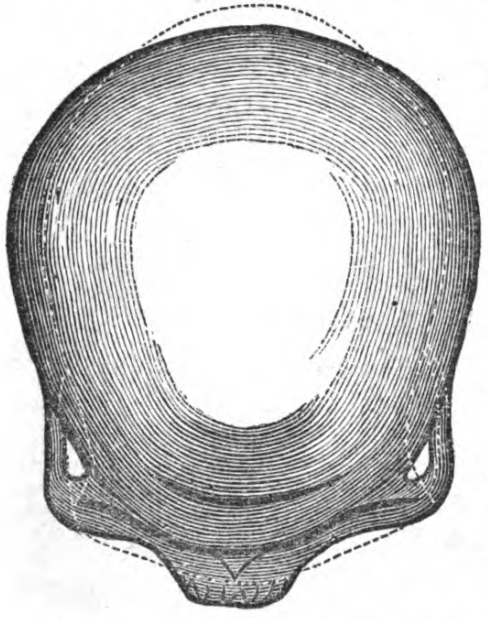

FIG. 4.—BIG THUNDER—TOP VIEW, WITH DOTTED OUTLINE OF AFRICAN.

We introduce the same skulls in different aspects. Fig. 4 shows the top view of Big Thunder's head with its great width and terrible power; and on the surface will be seen the dotted outline of the African, fig. 3. See how much broader and shorter Big Thunder's skull! and, according to Phrenology, how much more policy, and power, and force, and caution would be exhibited! Now, the difference in the width of these two skulls in the region of the ears is an inch and a quarter, and there is a difference of three-quarters of an inch in the length of the two heads, yet the skulls themselves, which have been sawed open, are of about equal thickness. Who will say that there could be a difference of an inch and a quarter in the thickness of the two skulls if they now belonged to the living heads, instead

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of being opened to inspection by the saw? The thickness of skulls can not, by any possibility, account for the differences in the dimensions of heads; and those of which we have here given the measurement do not indicate the broadest differences we can find either in our cabinet or in our daily professional practice. Contrast fig. 4 with fig. 5, the same skulls, the African being shaded with the dotted outline of Big Thunder lying over it, and with these facts before the reader, he can not but see that a phrenologist must be dull indeed who would make a mistake on such heads; and he who would say that the differences in heads could be made up by the differences in the thickness of skulls, either does not know, or intends to misstate, the facts. Fig. 6 is a front view of the skull represented by fig. 3. The side view, fig. 3, shows it to be long. Fig. 6 shows it to be narrow. Fig. 7 is a front view of Big Thunder, of which fig. 2 is the side view. How broad it is in the region of the ears! Mr. Carpenter, already quoted, speaks of men of sound understanding and men of genius, the one class being governed by their will and judgment, the other by their emotions. Phrenology explains this perfectly. We determine the size of the intellectual organs, as a class, by the length of the head forward of the ears as much as by the height and squareness of the forehead. A person may have a large head, yet a short forehead; that is, the distance from the opening of the ear to the center of the forehead may be short, but the back-head may be long and wide and require a large hat, while the intellect, the organs of which are located in the forehead, being small, is weak. Again, a person may have a small head and a strong intellect, but it will be found that the principal part of the brain is forward of the ears. The idea, therefore, entertained by uninformed objectors, that a person requiring a large hat should be intellectual in all cases, and one requiring an average or small hat must be necessarily weak in intellect, is a palpable fallacy. The average Indian

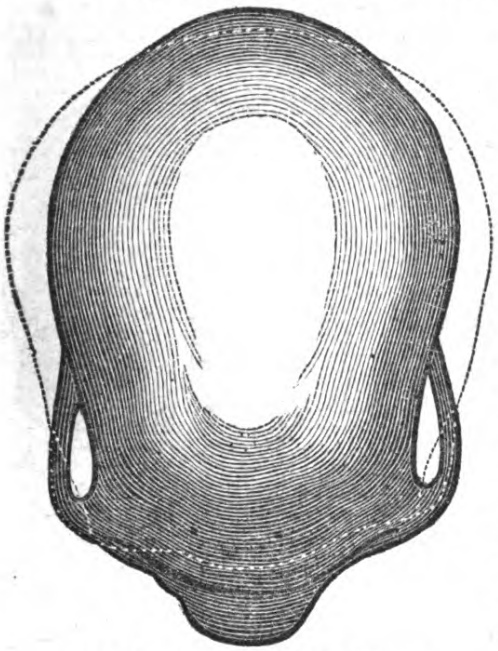

FIG. 5.—AFRICAN—TOP VIEW, WITH DOTTED OUTLINE OF BIG THUNDER.

FIG. 6.—AFRICAN—FRONT VIEW.

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brain is about as large as that of the white man, but he is far his inferior in intellect. Those who are acquainted with Indian heads are aware that their middle lobes of the brain are immense, while the anterior or intellectual lobes are comparatively deficient. But the Indian mind corresponds with the shape of his brain. His animal passions are excessively strong compared with his intellect. Pride, determination, caution, slyness, and cruelty are his leading characteristics, and the organs of these propensities are located about the ears and crown of the head. The annexed figures representing a bottom view of two brains illustrate this point. Fig. 8 shows a Caucasian brain. The letters A A and B B show the anterior or intellectual brain; from B B to C C, the middle or animal lobes of the brain; D D, the posterior or

FIG. 7.—BIG THUNDER—FRONT VIEW.

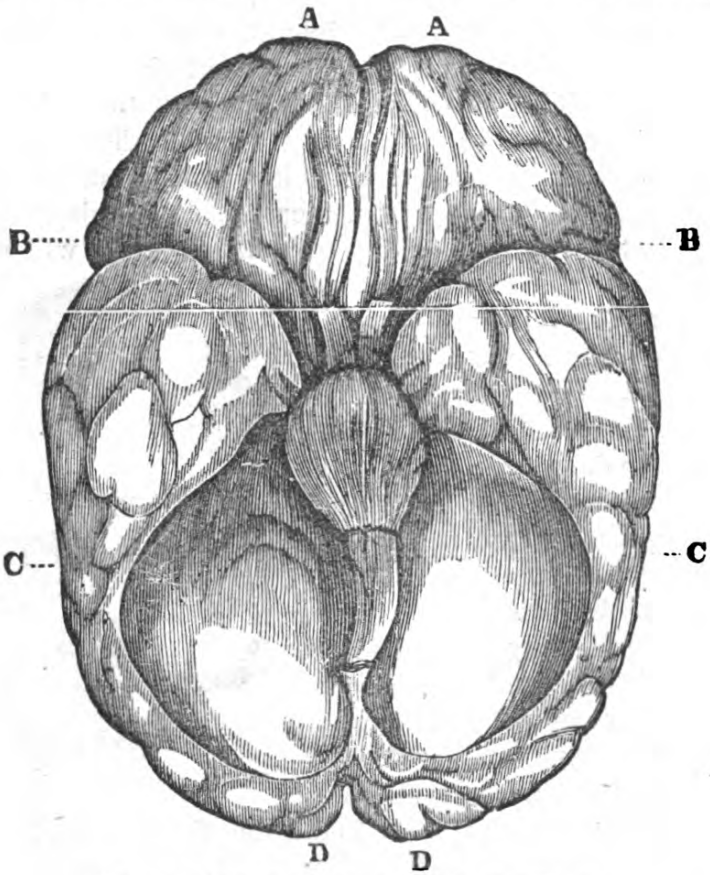

FIG. 8.—CAUCASIAN BRAIN—BOTTOM VIEW.

social brain. The same letters also relate to fig. 9. It will be seen that in the Caucasian brain the three regions are nearly equal, while in

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the Indian there is a vast predominance in the size of the middle lobes. Fig. 1 shows where the three lobes of brain rested during life, and represents very fairly the Caucasian head, while fig. 4, a top view of the head of Big Thunder, shows a correspondence with the Indian brain, fig. 9, in broadness and shortness, and comparative smallness in front. Can Mr. Beck see any difference between fig. 8 and fig. 9? If these were inclosed in the skull, would he have to hunt for hills and hollows to see any difference in those middle lobes? Could he see no difference between the outlines of fig. 4 and fig. 5? Would a little deviation in the thickness of the skull or in the form of the surface of the skull throw him entirely off his balance? Did he never see hens' eggs that were short and broad, and others that were long and more oval? and did he suppose the difference in their form to be in the difference existing in the thickness of the shells? This is perfectly analogous. The shells of eggs differ in thickness. Some are so thin they scarcely are sufficient to maintain the fluid mass within, while others are comparatively thick and firm.

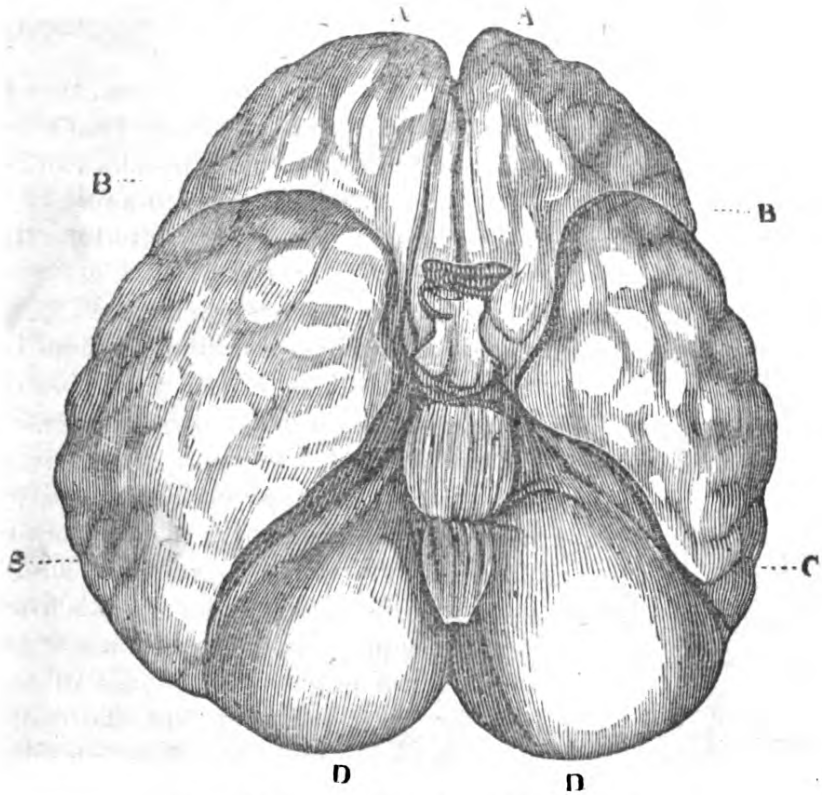

FIG. 9.—INDIAN BRAIN—BOTTOM VIEW.

But we can determine a thick and a thin skull during life. Let the hand be laid firmly upon the top of the head, and ask a man to speak, or cough, or clear his throat, and there will be a sensible vibration. People with fine hair, thin skin, light limbs, and small, finely chiseled features will have a thin skull generally, and the vibration will be very great; while a person with a big fist, coarse hair, strong features,

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and stout shoulders will have a thicker skull, and the vibration will be less. A man versed in physiology and anatomy can instantly see by temperament and the general make-up of a man about how thick his skull is, almost as easily as one can determine the thickness of egg shells by feeling the force required to break them.

Fig. 10 is copied from the cast of the head of Black Hawk. How broad that base! how the head narrows as it rises! He was well known as a cruel, ferocious warrior. He was a marked specimen of predominant animal and selfish propensities. He delighted in all the savage cruelty of Indian warfare, and his untamed nature would not wince even in the presence of the great General Jackson; and though he was a captive in the heart of the enemy's country, he still stood erect and felt like a thunderbolt, strong and self-contained. Compare Black Hawk with fig. 11, Gosse, copied from a cast of the living head. He was noted for kindness, moral sympathy, unselfishness, and inefficiency. His head was narrow and flattened at the sides. The head of Gosse, though on the whole as large as that of Black Hawk, would measure from side to side less than the inside of the skull of Black Hawk at the region of the middle lobes of the brain in the region above and about the ears; and will anybody tell us that that difference is made up by the thickness of the skull?

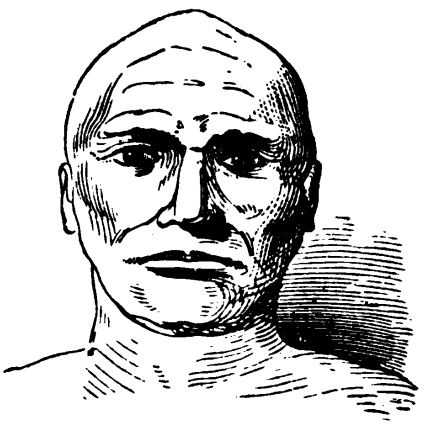

Fig. 10.—Black Hawk, from Cast.

In the light of these engravings and of this argument, the talk about bumps, and about the slight differences in the thickness of skulls, or in the thickness of different parts of the same skull, must vanish into thin air, and ought to make their advocates ashamed of their folly or misrepresentation, or both. But we apprehend that they don't know any better. The frequent remarks which intelligent people make in our office show that there is a wide-spread error abroad, to the effect that we determine the size of organs, not by the length of fiber from the center of the base of the brain, but by slight undulations of the surface. For they say, "You must have an exceedingly sensitive touch to notice the slight differences between one organ and another;" whereas the length of fiber differs in different heads by a whole inch, and sometimes more.

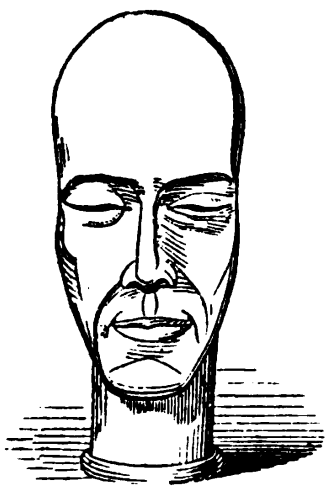

Fig. 11.—Gosse, from Cast. Unselfish and Inefficient.

Mr. Beck, like others, must have his say at the frontal sinus or opening between the external and internal tables of the skull, which occurs

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above the root of the nose, in the region of Individuality, and sometimes extends up to the margin of Locality and Eventuality. In fig. 12 we illustrate the subject of the frontal sinus or opening. A, shows a child twelve years of age, and the opening is represented entirely below the base of the brain, and up to that age it could offer therefore no possible impediment to the correct examination of all the organs across the brow. When the voice changes and the person emerges from child life to adult life, the frontal sinus increases in size and extends upward. Sometimes it is very slight; at other times the opening is greater. The celebrated Dr. Rush maintained that the frontal sinus constituted a kind of sounding-board for the voice; that those in whom it was least had the most shrill voices, while those in whom it was the largest had the more grum voices. Before the voice changes from childish treble, the frontal sinus is known always to be small. Woman has less of this sinus than man; and we believe those who have light, sharp, soprano, or tenor voices have less than those who sing a deep alto or a heavy bass. We believe, moreover, we can generally determine those who have a large and those who have a small frontal sinus by the external appearance of the head, temperament, etc.

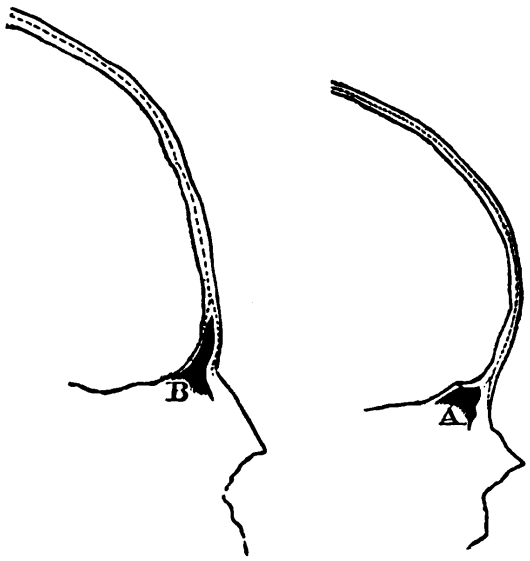

FIG. 12.—FRONTAL SINUS.
A. Childhood; B. Manhood.

In fig. 12 the sinus is seen to have risen from below the base of the brain to some extent upward. This frontal sinus affords sometimes an impediment to an accurate analysis of the organs located there, but not a serious obstacle, as we can generally estimate with considerable accuracy the size of the opening. We have judged of many skulls relative to the size of the frontal sinus, and then sawed them open and compared our estimate with the facts.

Mr. Beck closes with this stunning argument: "If Phrenology means anything, it destroys at one blow man's free agency, and establishes the grossest materialism in exchange for Christianity." He claims literally that from the *heart* proceedeth good and evil things, and not from the head. We should like to know how much more perfectly God made the heart than he made the brain, and if man's mental nature has the heart for an agent, how much more holy and perfect and immaterial it is than if it were manifested through that other God-created organ—the brain. We do not see any materialism in the one view which does not also belong to the other. If there were any difference, it would be in favor of the brain, since it is a far more delicate structure than the

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heart. Certainly the heart is a very powerful muscle, while the brain is a very delicate mass of most delicate nerve fibers, carefully protected, receiving ten times more blood for its nourishment than any other equal portion of the system; and yet when this delicate brain is asserted to be the instrument which the highest part of man's nature employs for its manifestation, it is gross materialism; but the soul may act through the heart, which is a mere muscle, and there is no materialism at all in it. Somehow the mind and the body have relation to each other. It is by means of the heart or the head most people firmly believe. Without calling in question the biblical statement, we may simply say that the language respecting the heart is employed in harmony with the public sentiment of the time. For we read in the Scriptures, also, that the bowels of compassion yearned, and that God tried the reins of men; but we suppose Mr. Beck would be ashamed to say that he felt sorry for poor persons in his bowels, that when he saw the affliction of some sorrow-stricken friend he had a sudden fit of colic. The Bible was not given as a scientific text-book. It was not made for the technical teaching of astronomy, or natural philosophy, or metaphysics, scientifically considered. It employed the language and the metaphors adapted to the knowledge and opinions of men at the time; and the statement that the sun and moon stood still on a certain occasion was no more intended to teach the real facts of astronomy, than the expressions relative to the heart (inner life or disposition) being the fountain of wickedness were intended to teach mental science, or that the heart, and not the brain, was the seat of thought. Phrenology, we may say, lays the broadest and strongest foundation of any system of mental philosophy the world has seen in proof of the existence of a God, moral responsibility, and immortality. There is no materialism in it that does not equally appertain to any other system of moral philosophy or religious teaching. But the term materialism is a club which bigotry and ignorance have always been inclined to wield against Phrenology. It is the mad-dog cry which men utter when they have no argument to use. Infidels and materialists have believed Phrenology, not because they were infidels, otherwise the multiplication-table might be condemned because some among its believers did not accept the five points of Calvinism, or the thirty-nine articles of the Episcopal Church.

The principles of Phrenology are true. Some men are not wise enough in all cases to understand its application to all individuals; even as there are few, if any, physicians wise enough to understand always perfectly every case of illness that may be brought to their attention. It is a great science to understand temperament. One can not always determine to the last degree of accuracy the thickness of the skull or scalp, or the state of health in which a subject may be, and thus he may slightly overrate or underrate him. But Phrenology is the best philosophy of the mind the world has seen. It is the only practical science by which the minds of strangers can be read. One well versed

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in it will go into a dark room with twenty strangers, and he will give a better history of those men than most persons can do who have known them all their lives; that is to say, a history of their real characters. Ten persons of widely varied attainment, talent, and disposition may be put into a dark room, and if we can not so read the character of each that an honest, intelligent committee shall know and acknowledge whom we are examining in each case, we would be ashamed of ourselves. We will take the skulls of ten men whose characters during life have been notorious for power in different directions, and we will write out their respective characters in such a manner as not to make an essential mistake in the whole of them. Can Mr. Beck do the same by feeling of the breasts of men? Can he tell about how much humanity, or courage, or deceit, or ambition, or affection, or intelligence, or ingenuity they have?

We don't know who Mr. Beck is. Of course we have no personal feelings respecting him. As he has seen fit to attack Phrenology, and put his name to his article, we suppose he is willing to be criticised. We commend to all a careful study of Phrenology, not to see what flaws and defects it may have, but how much of truth; what aid it will give mothers and teachers in the training, guidance, and culture of the young; how much it may do for individuals in understanding themselves, that they may restrain their passions and build up their virtues, and guide and regulate their whole lives. Much yet remains to be learned of Phrenology, doubtless. The system is not yet complete, nor its expounders perfect in judgment and knowledge; but if any man will spend one hour with us in the careful examination of our collection, and we can not convince by authentic skulls and the casts of historical heads that Phrenology is based on great fundamental truths, we will bury our skulls, break our casts, and seek another occupation.

WHAT IT COSTS.—There are 100,000 men in New York who receive wages for either manual or mental labor. If they take each one drink a day at ten cents each, the total expenditure is $10,000, and for cigars and tobacco, say ten cents each, $10,000, making $20,000 a day, $140,000 a week, $560,000 a month, and $6,720,000 a year for drinking and smoking and chewing, and they neither give strength to the body, vigor to the nerves, nor health to the brain.—*Evening Post.*

[Is that all? why not enumerate the diseases, pauperism, demoralization, and *crime* which also grow out of this drinking, smoking, and chewing? But what's the use? If one be so imbecile or idiotic that he can not see that these things ruin thousands of human beings, what's the use of such exposures? and even more sensible men, who see and deplore these facts, are such slaves to their appetites that they will not deny and free themselves. Oh, the weakness and folly of poor human beings! Oh, the wickedness of self-indulgence and enervation! Oh, the cowardice, and the apish imitation of perverted man! Why will he not reform? His tendency and his doom, proud and vain as he is, seems to be down, *down*, DOWN!]

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PROFESSIONAL INSTRUCTION IN PRACTICAL PHRENOLOGY.

FOR more than a quarter of a century, during each winter, we have given, at our CABINET in New York, private and popular lectures for the instruction of ladies and gentlemen who desire to become sufficiently acquainted with Phrenology for their every-day use; and many merchants, artists, students in divinity, law, and medicine, parents, teachers, and others, availed themselves of these opportunities. But these popular lessons are not sufficiently specific and critical to meet the wants of those who desire to make practical Phrenology a life-profession.

A demand exists for more thorough instruction, and, accordingly, for several years past, we have given instruction to classes of persons who desired to become professional teachers of the science. Each of the pupils thus taught has received at our hands a certificate of his attendance upon our instructions, which is a voucher that at least he has submitted himself to that training and drill the valuable results of which it would require many years of unaided practice to obtain. Honest, intelligent, moral men, with a missionary spirit, good common sense, and a fair education, we welcome to the field, and will do what we can to aid them in acquiring the proper qualifications to teach and practice this noble and useful science.

We propose to open our next annual class on November 1st, 1870, two months earlier in the season than formerly, in order that students may be prepared to enter the lecture field at the proper season. Those who desire to become members are requested to give us early notice. The class of 1871 will be opened on the 4th of November.

In the forthcoming courses we propose to teach students how to lecture and delineate character on scientific principles; how to become practical phrenologists. The science needs more public advocates, and it is our desire to aid those who can, by proper training, do it justice. The world will extend its respect and patronage to all who are qualified to deserve them.

THE SUBJECT WILL BE ILLUSTRATED BY OUR LARGE COLLECTION OF SKULLS, BUSTS, CASTS, AND PORTRAITS. Among the topics treated in the course of instruction, the following will receive attention:

Outlines of Anatomy, particularly of the Brain and Nervous System, and also of the Vital Organs; their offices in the maintenance of bodily vigor and proper support of the brain.

Physiology; its general laws; influence of different kinds of food; laws of digestion and assimilation; effects of stimulants, and the influence of bodily conditions, as affecting the mind.

The Doctrine of Temperaments, as giving tone and peculiarity to mental manifestations, also as affecting the marriage relations, or what constitutes a proper combination of temperaments for parties entering into the marriage state, with reference to their own happiness, and also to the health, character and longevity of their children. This branch of the subject will be copiously illustrated.

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Comparative Phrenology—the mental development and peculiarities of the animal kingdom; embodying some curious and interesting facts relative to the qualities and habits of animals.

Human Phrenology: mental development explained and compared with that of the lower animals; instinct and reason; the phrenology of crime; Idiocy; its causes and management; Insanity, its causes, and how to treat it.

Location of the Organs: how to find them and estimate their size, absolute and relative, a matter of great importance—indispensable to the practical phrenologist.

The Elements of Force—courage, energy, and industry,—and how to estimate them in the living person, and train them to become the servants of virtue and of success in life.

The Governing and Aspiring Group of Organs, their influence on character and in society, and the mode of estimating their power and regulating their action.

Self-Perfecting Group of Faculties, their location, and how to judge of their size and influence in the economic and decorative phases of life.

Division between the Intellectual and Animal Regions of the Brain: how to ascertain this in a living head.

Memory, how to Develop and Improve it; its nature, quality, and uses.

The Reasoning Faculties, and the part they play in the great developments and duties of life. How to judge of their size, and how to cultivate them.

Examination of Heads explained—practical experiments; heads examined by each of the students. Under this head, students will be thoroughly trained and instructed how to make examinations, privately and publicly.

The Combination of the Organs, and their influence on character. How to ascertain what organs most readily combine in an individual, and how to determine his mental tendency or leading traits of character.

The Moral Bearings of Phrenology and a correct Physiology: home training of the young, and self-culture; Phrenology applied to education, to matrimony, to legislation, and choice of pursuits.

Matrimony; its laws, and the proper developments of body and brain, for a true and happy union. How to determine this

The Natural Language of the Faculties; its philosophy and bearing on the reading of character as we meet people casually as strangers.

Physiognomy—Animal and Human; or, "Signs of Character," as indicated in the face, form, voice, walk, expression, and so forth.

Ethnology, and how to judge of Nativity and Race, including Resemblance of Children to Father and Mother.

Psychology, Mesmerism, Clairvoyance, discussed and explained.

Objections to Phrenology Considered, How the skull enlarges to give room to brain; the frontal sinus; fatalism, materialism, moral responsibility.

Elocution, how to cultivate the voice. Eloquence, how to attain the art.

A Review and answering Questions on all points relating to the subject by each student.

How to teach Phrenology. Instruction as to the best method of presenting Phrenology and Physiology to the public, by lectures or classes; not only how to obtain an audience, but how to hold it and instruct it.

Dissection and Demonstration of the Human Brain, in detail, giving the students a clear view of this crowning portion of the human system.

The course will consist of Fifty or more private lessons; and it is proposed to give at the rate of two or more daily till completed; though the wishes of the class will be consulted.

The works most essential to be mastered are "How to Read Character," $1 25; Phrenological Bust, showing the location of all the organs, $2.

The following are exceedingly useful to the student, and they should be read, viz.: Memory, $1 50; Self-Culture, $1 50; New Physiognomy, with one thousand illustrations, $5; Combe's Physiology, $1 75; Combe's Lectures, $1 75; Combe's System of Phrenology, $2; Defense of Phrenology, $1 50; Constitution of Man, $1 75.

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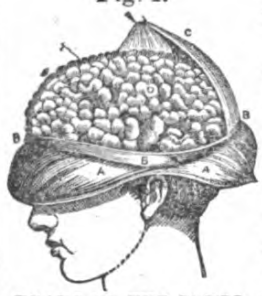
THE HUMAN BRAIN AND SKULL.

THE human brain is an oval mass filling and fitting the interior of the skull, and consisting of two substances, a gray, ash-colored, or cineritious portion, and a white, fibrous, or medullary portion. It is divided both in form and function into two principal masses—the cerebrum and the cerebellum.

Fig. 1.



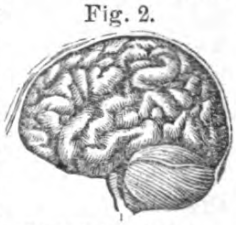
BRAIN IN THE SKULL.

Fig. 1. The side and top of the cerebrum are seen in this engraving. A A. The scalp turned down. B B. Edge of the base of the skull, the top having been sawed off and removed. C. Dura Mater, a part of the lining membrane of the skull raised up from the brain. D. Left hemisphere of the brain. E. Right hemisphere. F. The longitudinal cleft or fissure which divides the hemispheres.

Fig. 2 is the brain fully exposed.

The cerebrum is divided longitudinally into two equal hemispheres, and each of these, in its under surface, into three lobes. But the most remarkable feature in the structure of the cerebral globe is its numerous and complicated convolutions, the furrows between which dip deeply down into the brain. By means of these foldings the surface of the brain is greatly increased, and power gained with the utmost economy of space; for it is a demonstrated fact, that in proportion to the number and depth of these convolutions is the mental force. "The mind's revolvings," as Wilkinson beautifully expresses it, "are here represented in moving spirals, and the subtile insinuation of thought, whose path is through all things, issues with power from the form of cerebral screws. They print their shape and make themselves room on the inside of the skull, and are the most irresistible things in the human world."

Fig. 2.



BRAIN EXPOSED.

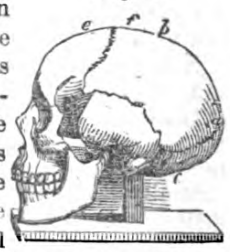
The cerebellum lies behind and immediately underneath the cerebrum, and is about one eighth the size of the latter organ. It is divided into lobes and lobules, and consists of a gray and a white substance, like the cerebrum, but differently disposed, the white portion being internal in the cerebrum and external in the cerebellum, in which, also, both substances are disposed in thin plates instead of convolutions.

Extending from the base of the brain to the atlas or bony pivot on which the head rests, is the medulla oblongata. It is conical in shape, and may be considered as merely the head or beginning of the spinal cord, which continues it, and, in fact, extends the brain down the vertical canal, and by means of the nerves which it gives off, and which pass through notches between the vertebræ, connects it with every part of the body. There are generally reckoned eleven pairs of nerves arising from the brain, and thirty-one from the spinal marrow. It is thus seen that the whole nervous apparatus is included in the mental system, and that the brain, as the organ of the overruling mind should be, as it unquestionably is, is omnipresent in the human body.

Fig. 3.

MALE SKULL.

Fig. 4.



FEMALE SKULL.

Now, as is the soul which is incarnate in it, so is the brain in texture, size, and configuration; and as is the brain, so is its bony casement, the cranium, on which may be read, in general forms and special elevations and depressions, and with unerring certainty, the intellectual and moral character of the man.

The heads of the sexes differ in shape as much as do their bodily forms. The engravings of the skulls, Figs. 3 and 4, are from two skulls in our possession, and were copied by daguerreotype, and show their relative size and shape. Fig. 3 is from the skull of a man and is a fair specimen of the male head. It rises high from the opening of the ear, *a*, to Firmness, *b*. It is large in the social region, particularly at Amativeness, *c*. The phrenological organs of force, pride, energy, and self-reliance are predominant. Fig. 4 is of a well-balanced female skull, and is fine, smooth, and even. The leading developments are at *d*, in the region of Philoprogenitiveness, Adhesiveness, and Inhabitiveness, while at *b* and *c* it is much less than in the male. At *e*, Benevolence, and at *f*, Veneration, the female is relatively more developed, but less so at Firmness and Self-Esteem, *b*.

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Phrenology and its Uses.

PHRENOLOGY is the most *useful* of all modern discoveries; for while others enhance creature comforts mainly, this Science teaches LIFE and its LAWS, and unfolds human nature in all its aspects. Its fundamental doctrine is, that each mental faculty is exercised by means of a portion of the brain, called its organ, the size and quality of which determine its power. It embodies the only true SCIENCE OF MIND and philosophy of human nature ever divulged. It analyzes all the human elements and functions thereby showing of what materials we are composed, and how to develop them

PHRENOLOGY shows how the bodily conditions influence mind and morals—a most eventful range of truth. It teaches the true system of Education, shows how to classify pupils, to develop and discipline each faculty separately, and all collectively, into as perfect beings as our hereditary faults will allow Indeed, to Phrenology and Physiology mainly is the world indebted for its modern educational improvements, and most of its leaders in this department are phrenologists.

PHRENOLOGY teaches parents for what occupation in life their children are best adapted, and in which they can, and can not, be successful and happy. It also teaches parents the exact characteristics of children, and thereby how to manage and govern them properly; to what motives or faculties to appeal, and what to avoid; what desires to restrain, and what to call into action, etc

PHRENOLOGY and PHYSIOGNOMY teach us our fellow-men; disclose their real character; tell us whom to trust and mistrust, whom to select and reject for specific places and stations; enable mechanics to choose apprentices who have a particular knack or talent for particular trades; show us who will, and will not, make us warm and perpetual friends, and who are, and are not, adapted to become partners in business More. they even decide, beforehand, who can, and who can not, live together affectionately and happily in wedlock, and on what points differences will be most likely to arise.

Most of all, PHRENOLOGY and PHYSIOLOGY teach us OUR OWN SELVES: our faults, and how to obviate them; our excellences, and how to make the most of them; our proclivities to virtue and vice, and how to nurture the former and avoid provocation to the latter.

TESTIMONIALS.

If the opinions of learned and eminent professional men, both in Europe and America, in regard to the truth and utility of Phrenology be of any account, then the following testimonials should have some weight with unbiased readers.

Let man confine himself to the phenomena of nature, regardless of the dogmas of metaphysical subtilty; let him utterly abandon speculative supposition for positive facts, and he will then be able to apprehend the mysteries of organization. —DR. GALL.

While I was unacquainted with the facts on which it is founded, I scoffed, with many others, at the pretensions of the new philosophy of mind as promulgated by Dr. Gall, and now known by the term of Phrenology. Having been disgusted with the uselessness of what I had listened to in the University of Edinburgh (on mental science), I became a zealous student of what I now conceive to be the truth. During the last twenty years I have lent my aid in resisting a torrent of ridicule and abuse, and have lived to see the true philosophy of mind establishing itself wherever talent is found capable of estimating its immense value.—SIR G. S. MACKENZIE, *President of the Royal Society, Edinburgh.*

For more than thirteen years I have paid some attention to Phrenology and I beg to state, the more deeply I investigate it, the more I am convinced of the truth of the science. I have examined it in connection with the anatomy of the brain, and find it beautifully to harmonize. I have tested the truth of it on numerous individuals, whose characters it unfolded with accuracy and precision. For the last

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ten years I have taught Phrenology publicly, in connection with Anatomy and Physiology, and have no hesitation in stating that, in my opinion, it is a science founded on truth, and capable of being applied to many practical and useful purposes. —ROBERT HUNTER, M.D., *Professor of Anatomy, University, Glasgow.*

I have great pleasure in stating my firm belief in the truth and great practical utility of Phrenology. This belief is the result of the most thorough investigation, and was proved by evidence that to my mind seemed almost, if not altogether irresistible.—JAMES SHANNON, *President of Bacon College, Ky.. Prof. Mental and Moral Science.*

As far as twelve years' observation and study entitle me to form any judgment, I not only consider Phrenology the true science of mind, but also as the only one that, with a sure success, may be applied to the education of children and to the treatment of the insane and criminals. C. OTTO, M.D., *Professor of Medicine in the University of Copenhagen.*

I candidly confess that until I became acquainted with Phrenology, I had no solid foundation upon which I could base my treatment for the cure of insanity. —SIR WILLIAM ELLES, M.D., *Physician to the Lunatic Asylum, Middlesex, England.*

All moral and religious objections against the doctrines of Phrenology are utterly futile.—ARCHBISHOP WHATELY.

As an artist, I have at all times found Phrenology advantageous in the practice of my art; and that *expression, in almost every case, coincided* exactly with what was indicated by the cerebral development.—GEORGE RENNIE, ESQ., *Sculptor.*

I have long been acquainted with the science of Phrenology, and feel no hesitation in declaring my conviction of its truth. In Phrenology we find the best exposition of the moral sentiments, and the most approved metaphysical doctrines heretofore taught, while it surpasses all former systems in practical utility and accordance with facts; being that *alone* which is adequate to explain the phenomena of mind. This opinion, I am emboldened to pronounce, not merely as my own conviction, but as that which I have heard expressed by some of the most scientific men and best logicians of the day.—RICH. D. EVANSON, M.D., *Prof. Practice of Physiology, R. C. S., Dublin, Ireland.*

No sooner had I read Dr. Gall's work, than I found I had made the acquaintance of one of those extraordinary men whom dark envy is always eager to exclude from the rank to which their genius calls, and against whom it employs the arms of cowardice and hypocrisy. High cerebral capacity, profound penetration, good sense, varied information, were the qualities which struck me as distinguishing Gall. The indifference which I first entertained for his writings gave place to the most profound veneration. Phrenology is true. The mental faculties of men may be appreciated by an examination of their heads.—JOSEPH VIMONT, M.D., *of Paris, an eminent Physician and Author.*

I declare myself a hundred times more indebted to Phrenology than to all the metaphysical works I ever read. * * Mental Philosophy is a Natural Science. The human mind is the most important part of nature. It rests on experience, observation, and induction. It is a science of facts, phenomena, and laws. * * * This science of mind is neglected because its benefits are not immediately apparent; its attainments are not capable of display. * * The phrenological division of faculties of the mind is far more numerous than any other; it looks to the classes of actions or functions mind has to perform, and finds faculties to perform them, as the naturalist, who could not find the ear of a fish by looking externally, looked from the lobe in the brain where the auditory nerve should terminate outwardly, and found it. * * * I look upon Phrenology as the guide to philosophy and the handmaid of Christianity. Whoever disseminates true Phrenology is a public benefactor.—HORACE MANN.

We deem it right to mention that Phrenology appears to us to be true, in as far as it assigns a natural basis to the mind, and that it is entitled to a very respectful attention for the support given to it by a vast amount of careful observation, and the strikingly enlightened and philanthropic aims for which many of its supporters have been remarkable.—JOHN CHAMBERS, *of Chambers' Edinburgh Journal.*

The more I study nature, the more am I satisfied with the soundness of phrenological doctrines —J. MACKINTOSH M.A.

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By this science the faculties of the mind have been, for the first time, traced to their elementary forms.—ROBERT CHAMBERS, *of Chambers' Journal.*

Phrenology has added a new and verdant field to the domain of human intellect.—REV. THOS. CHALMERS, D.D

Phrenology undertakes to accomplish for man what Philosophy performs for the external world—it claims to disclose the real state of things, and to present nature unveiled and in her true feature.—PROF. BENJ. SILLIMAN.

To a phrenologist the Bible seems to open up its broadest and highest beauties.—REV. P. W. DREW.

Phrenology is the true Science of Mind. Every other system is defective in enumerating, classifying, and tracing the relations of the faculties.—PROF. R. H. HUNTER.

If we would know the truth of ourselves, we must interrogate Phrenology, and follow out her teachings, as we would a course of religious training, after we had once became satisfied of its truth. * * * The result of all my experience for something over two-score years is this: that Phrenology is a revelation put by God himself within the reach of all His intelligent creation to be studied and applied in all the relations and in all the business of life; that we are all of us both phrenologists and physiognomists in spite of ourselves, and without knowing it, and that we have only to enlarge our observations, and be honest and true to ourselves, and these two sciences will have no terrors for us, and our knowledge of them, instead of being hurtful or mischievous, would only serve to make us wiser and better, and therefore happier, both here and hereafter; and in conclusion, let me say that I have never yet examined a sturdy disbeliever with a head worth having.—HON. JOHN NEAL.

All my life long I have been in the habit of using Phrenology as that which solves the practical phenomena of life. Not that I regard the system as a completed one, but that I regard it as far more useful and far more practical and sensible than any other system of mental philosophy which has yet been evolved. Certainly, Phrenology has introduced mental philosophy to the common people. Hitherto, mental philosophy has been the business of philosophers and metaphysicians—and it has just been about as much business as they needed for their whole lives; but since the day of Phrenology, its nomenclature, its simple and sensible division of the human mind, and its mode of analyzing it, the human mind has been brought within reach and comprehension of ordinary common intelligent people. And now, all through the reading part of our land, it may be said that Phrenology is so far diffused that it has become the philosophy of the common people. The learned professions may do what they please, the common people will try these questions, and will carry the day, to say nothing of the fact that all great material and scientific classes, though they do not concede the truth of Phrenology, are yet digesting it, and making it an integral part of the scientific system of mental philosophy.—REV. HENRY WARD BEECHER.

I speak literally, and in sincerity, when I say, that were I at this moment offered the wealth of India on condition of Phrenology being blotted from my mind forever, I would scorn the gift; nay, were everything I possessed in the world placed in one hand and Phrenology in the other, and orders issued for me to choose one, Phrenology, without a moment's hesitation, would be preferred.—GEORGE COMBE, *Author "Constitution of Man."*

We may also mention the names of the following prominent men who have accepted Phrenology as a true science, and in various ways given it the support of their influence:

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Phrenology being true, it should be learned, and cordially embraced by all, and its benefits appropriated. It comes to mankind, not as a partisan or sectarian proposition, but as the voice of God revealed in nature to aid and guide mankind.

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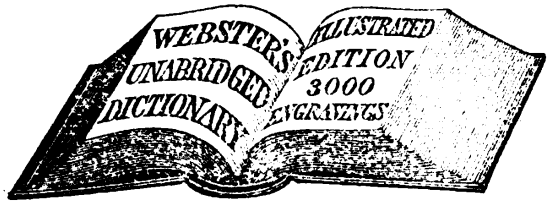

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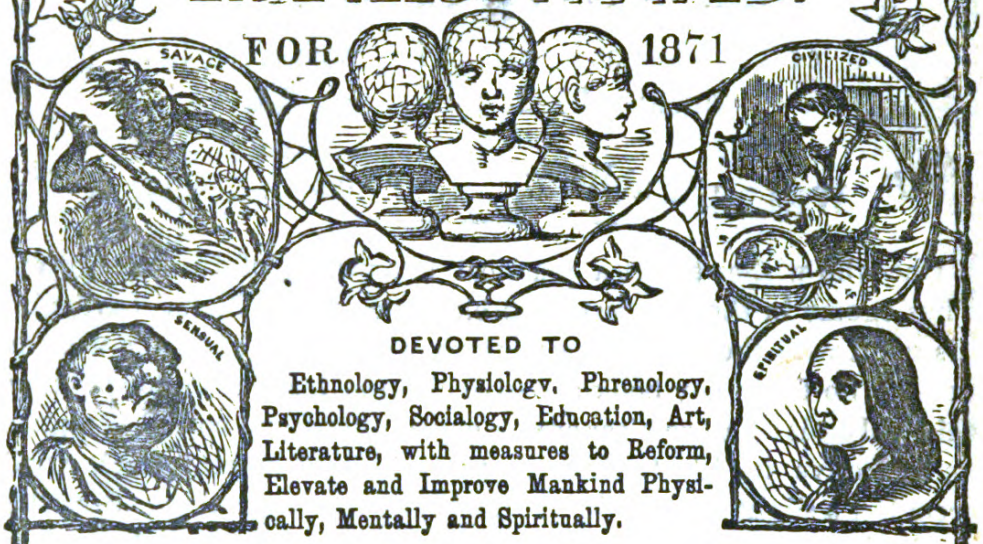

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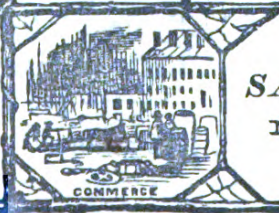

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