

BRAIN ROOFS AND PORTICOS.

A Psychological Study of Mind and Character.

One Hundred Illustrations.

By

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of the Phrenological Journal; Author of "Manual of Mental Science,"
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"Phrenology in the School," "Intuition, or the
Organ of Human Nature," "Physical
Culture," "The Life of Dr.
Francois Joseph Gall."

"The Study of Mankind is Man."—*Pope.*

NEW YORK:

FOWLER & WELLS CO.

LONDON:

L. N. FOWLER & CO.

THE NEW YORK
PUBLIC LIBRARY
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ASTOR, LENOX AND
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PREFACE.

In sending forth this textbook on its journey, the object of the writer has been to fill a long-felt want, by gathering together the best ideas on the subjects treated upon, in order that busy students may have an opportunity of helping themselves in their study of Phrenology without wading through a great deal of unnecessary literature. With this end in view, we trust its object will be attained and its imperfections overlooked.

This is an age when condensation is appreciated, especially in textbooks, and our object will not be defeated if it proves a boon to many who have not the opportunity of securing a large library on the topics selected. During our thirty years' experience we have often wished for some such book, and we have endeavored to study the best authorities on each subject and give up-to-date illustrations.

This is the first of a series of textbooks, for our intention is to publish several similar works on kindred subjects until we have covered the whole ground taken up by students. The second one will be on Physiognomy.

NEW YORK, March, 1908.

J. A. F.

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CHAPTER I.

The Temperaments in a Nut-Shell.

The subject of the Temperaments is of such vast importance that every student ought to master it when he commences the study of Mental Science.

The world is becoming more accustomed to use the word "Temperament" than formerly, when distinguishing a man's characteristics, and some Societies require that the Temperament be mentioned in the schedules of those seeking employment, and certain questions are asked concerning the temperament of an employé.

There is evidently an inclination on the part of Societies to recognize the need of differentiating the kind of Temperament that an employé possesses, and when employers begin to see the need of studying the temperamental fitness of young people for the position they seek, then the round peg will be in the round hole.

The word "Temperament" comes from the Latin word "Tempero": condition, proportion, and its meaning is the physiological and mental condition of the constitution. For-

tunately, people are beginning to classify the Temperaments according to their modern nomenclature, namely, the Motive, Vital and Mental. The conditions of these Temperaments mark out the constitution according to a normal state of body and mind; while the old terms included diseased conditions. The Temperaments as recognized by Gall and Spurzheim were four in number, namely: the Bilious, Lymphatic, Sanguine and Nervous; while the ancient writers classified them as follows: the Phlegmatic, Melancholic, Cephalic, Abdominal, Thoracic and Choleric.

When comparing these divisions, we find that the Motive Temperament corresponds with the Bilious, Osseous, Choleric, Melanic and Muscular.

The Vital Temperament corresponds with the Lymphatic, the Phlegmatic, the Sanguine, the Abdominal and the Thoracic.

The Mental Temperament corresponds with the Cephalic, Melancholic and Nervous.



ABRAHAM LINCOLN.
The Motive Temperament.

The Temperaments may be further combined in the following way: The Vital-Motive and the Vital-Mental, which indicate that the Vital predominates; the Motive-Mental, and the Motive-Vital; or the Mental-Motive and the Mental-Vital.

Of the old named Temperaments, we find that the Phlegmatic is a cold and moist temperament; it grows fat and lax; the flesh is soft and white; the muscles are yielding and the blood vessels are invisible. The character is dull and inactive.

The Choleric is a dry and warm temperament; it is noted for its abundant dark hair, large and prominent arteries, dark skin, and a well articulated body.

The Melancholic Temperament is dry and cold, and is known for its hard, slender, white body. The dispo-

sition of this temperament is dreamy, despondent, and inclined to give way to circumstances.

TEMPERAMENT COMPARES WITH CLIMATE AND AGE, AS FOLLOWS:

The Phlegmatic corresponds with Infancy, or timidity; Spring, and a temperate climate. The Sanguine Temperament corresponds with Youth, or emulation; Summer, and a warm climate. The Choleric Temperament corresponds with Manhood, or ambition; and a Hot climate. The Melancholic corresponds with Old Age, or Moroseness; Winter, and a Cold climate.

THE CLASSIFICATION OF THE TEMPERAMENTS BY DIFFERENT WRITERS.

Hippocrates, the Father of Medicine, named the Temperaments Sanguine, Phlegmatic, Choleric and Melancholic; Dr. Stahl first adapted them to the modern views of Physiology and Pathology; later on, Dr. Gregory added a fifth Temperament, which he called the Nervous; Cullen reduced them to two, the Sanguine and the Melancholic; Paulus Aegineta, an ancient physician, adopted the theory and followed the classification of Hippocrates, and spoke of them as (1) the Sanguine, or hot and moist Temperament, (2) the Phlegmatic, or cold and moist Temperament, and (3) the Choleric, or warm and dry Temperament, and (4) the Melancholic, or cold and dry Temperament.

Drs. Gall and Spurzheim in their classification spoke (1) of the Lymphatic Temperament as indicated by a pale, white skin, fair hair, roundness of form, soft flesh, feeble pulse, and languid vital action, which gave to the person slowness and weakness in the mental or intellectual functions. (2) The Sanguine Temperament, which is described as a moderate plumpness of features, light or chestnut hair, blue eyes, great activity of the arterial system, a strong, full and frequent pulse, and an animated countenance.

Persons with this temperament are easily affected by external impressions, and possess greater activity and energy than those of the former temperament. (3) The Bilious Temperament, characterized by black hair, a dark yellowish or brown skin, black eyes, firm muscles, and angular form. Those endowed with this temperament have a strongly marked and decided expression of countenance, and manifest great general activity and functional energy. (4) The Nervous Temperament, which is indicated by fine, thin hair, delicate health, and smallness of the muscles, giving vivacity to the emotional and sensational faculties.

It remained for later Phrenologists to eliminate from the old system the abnormal conditions, and place the doctrines of the Temperaments on a strictly Anatomical and Physiological basis, adopting the simple classification of the Motive, or mechanical system; the Vital or nutritive system; the Mental or Nervous System.

THE MOTIVE TEMPERAMENT.

The Motive Temperament corresponds with the Bilious, Osseous, Choleric, Melanic and Muscular.

Fundamental Principles.—The Fundamental Principles of the Motive Temperament are the Framework and Structure.

Condition.—Its Condition is Mechanical.

Specifications. — Its Specifications are (1) the Bones; (2) the Muscles; (3) the Ligaments.

Physical Characteristics.—The Physical characteristics are Large Bones; Tall Stature; Angular Features; Sallow Complexion; Small Abdomen and Flat Chest.

Mental Characteristics.—Its Mental Characteristics, which are strongly developed, are (1) the Executive, (2) the Constructive, and (3) the Per-

ceptive or knowing faculties, which include Destructiveness, Combative-ness, Constructiveness, Individuality, Form, Size, Weight, Order, Calculation, Locality and Firmness. These faculties are all located in the basilar region, with the exception of Firmness, and give the appearance of a broad or brachycephalic head.

Diseases.—The Diseases most common to this Temperament are Chronic Affection, Rheumatism, Indigestion, Biliousness, Liver Complaint, Gravel, Stone, Piles and Joint Troubles.

Attributes.—Its Attributes are Muscular Strength, Endurance, Grit, and Wiriness.

Occupations.—Its Occupations are Building, Engineering, Railroad Construction, Surveying, Navigation, etc.

Foods.—Its foods are naturally those of a nitrogenous character, such as Wheat, Eggs, Milk, Graham



Photo by Rockwood.

SUSAN B. ANTHONY.

The Motive-Mental Temperament.

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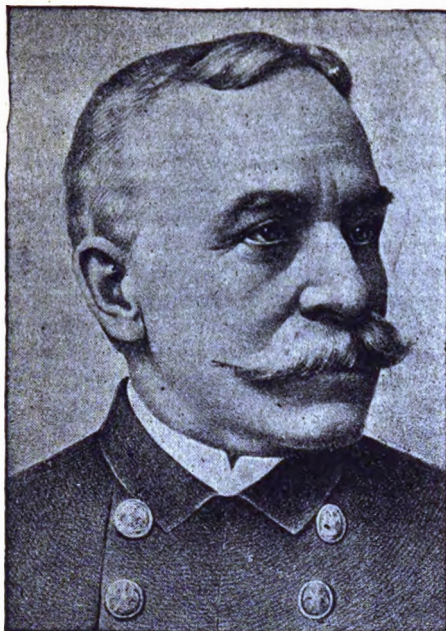
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Photo, by Rockwood.

SUSAN B. ANTHONY.
The Motive-Mental Temperament.



ADMIRAL DEWEY.

The Motive Temperament.

Bread, Fruit, and Vegetables, etc., as Salads, Celery, Lima Beans, Peas, Onions; also the dark meat of Poultry and Mutton. To increase the Vital conditions in this Temperament, a person should eat more Salad Oil, Cheese, Oatmeal, Butter, Brazil Nuts, Peanuts, etc.

Marriage.—A person with this Temperament should unite with one who has a Vital or Mental Temperament, for these are complementary; if the gentleman has the Motive, it is appropriate for the lady to possess the Vital Temperament.

Nationalities.—This Temperament shows to the best advantage in Americans, Scotchmen, Swedes and Russians; also in the American Indian, the Malayan, and the Mongolian.

Examples.—The following persons have been known for possessing this Temperament: Abraham Lincoln,

Lord Brougham, John Brown, Gladstone, Roosevelt, Chamberlain, Moltke, Bismarck, Kitchener, Dewey, O. S. Fowler, Black Hawk, Sandow, Dr. Parkhurst, and Susan B. Anthony.

Length of Life.—Though the Mental Temperament produces the predominance of long livers, yet the Motive Temperament comes next in importance as regards longevity, and has given to the world many octogenarians.

Climate.—A person with the Motive Temperament can endure the heat of a hot climate better than a person who has the Vital elements. Thus the Motive Temperament can live in India, Africa and South America, though it much prefers the colder climate of Canada, Alaska, Russia and Northern China.

Exercise.—Persons of this Temperament should exercise considerably in the open air by riding, driving, walking, golf, tennis and swimming.

Baths.—The Baths generally selected by persons of this Temperament are the cold sponge bath in the morning, and the cold plunge in the sea. But when a person is suffering from rheumatism or aenemia, tepid and Turkish baths are beneficial.

Animals.—The Animals that possess this Temperament are the Lion, Tiger, and Wolf. The greyhound has the Motive-Mental, and the Bear has the Motive-Vital. Some horses and dogs are found in this class.

Special Advice.—To prevent the Motive Temperament from becoming too prominent, persons should observe the following advice: (1) Do not overwork. (2) Read domestic stories rather than those of adventure, war or strife, as religious books and domestic stories bring one into the realm of the religious and social faculties. (3) The diet that should be encouraged should be the carbonaceous kinds of food, such as the oils and fats, as well as the albumenoids.

THE VITAL TEMPERAMENT.

The Vital Temperament corresponds with the Lymphatic, Sanguine, Phlegmatic, Abdominal and Thoracic, and there are many things that are just as expressive as those found in the Motive.

Fundamental Principles.—The Fundamental Principles of this Temperament are found in the Vital Organs.

Condition.—The Condition is Nutritive; it takes care of nutrition; it has nutritive power; it is nutritive in character, and assimilates food easily; and also gives warmth and heat, of which there is always an abundance.

Specifications.—The Specifications are (1) Blood Vessels, (2) Lymphatics, and (3) Glands, which take into account the action of the heart, lungs and stomach; also the respiration, circulation and digestion. The first three are very active in all parts of the body; they add strength to the muscles, and also feed the brain.

Physical Characteristics.—The Physical Characteristics of this Temperament are found in the Ruddy Face, the Small Bones, the full development of the Abdomen, the Full Chest, Medium Stature, Plump and Round Features, Muscles composed mostly of flesh and fat instead of muscle and fiber, and consequently they are soft and pliable instead of being hard and enduring.

Mental Characteristics.—The Mental Characteristics are distinguished as being (1) Emotional, (2) Social, and (3) Domestic, and include a large development of the Social Faculties and Domestic Centers; a large development of Benevolence and the Emotional Nature, and a less development of the Basilar brain above the ears and across the brow. Persons who have this Temperament generally have a large Posterior Region of the head backward from the ears, including Amativeness, Conjugal, Philo-

progenitiveness, Friendship, Inhabitiveness, as well as Benevolence, Approbativeness and Spirituality, which give the appearance of a long or dolichocephalic head.

Diseases.—The Diseases most common to this Temperament are Gout, Tumors, Apoplexy, Sciatica, Cutaneous and Heart Diseases, Dropsy, and some Inflammatory troubles; imperfect circulation of the skin and eruptions. Children who have this Temperament have a tendency to Scarlet and Typhoid Fevers. It is becoming more and more the fad of the present age to expect Phrenologists to be experts in regard to health laws; hence the more they study the Temperaments, the better they will understand the normal and abnormal developments of individuals.

Attributes.—The Attributes of this Temperament are Impulse, Candor, Good Nature, Sympathy and Frankness.

Occupations.—Its Occupations are Indoor Work, Domestic Science, Bookkeeping, Design and Architecture; and in Professional work Literature, Medicine, Singing and Art.

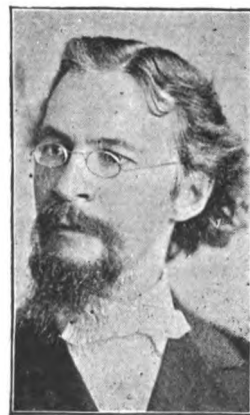


Photo by Rockwood.

REV. CHARLES PARKHURST, D.D.

The Motive Temperament.



QUEEN VICTORIA.

The Vital Temperament.

Food.—The Food of this Temperament is naturally of a carbonaceous character, such as a starchy and heat-giving diet; for instance, Fat Meat, Pastry, Butter, Oils and Sweets; and in order to counteract a too great supply of heat and fat, a person should take more nitrogenous food, such as Milk, Eggs, Fruit and Vegetables; also Fish, Graham Bread, Farinaceous Articles, Oatmeal, Rice and Tapioca, and avoid Watery Vegetables, Strong Acids, Fat Meat, Rich Gravy, Pastry, Sweets, or Sugar in Tea or on Porridge.

Marriage.—A person with this Temperament should mate with one who possesses the Motive or Mental Temperaments, as these are complementary, and hence beneficial in the building up of a family, and in giving conjugal felicity.

Nationalities.—The Nationalities that possess this Temperament are the

English, French, Swiss, Italians and Negroes.

Examples.—Some of the best examples of persons possessing this Temperament are John Bright, Martin Luther, Vice-President Hobart, Queen Victoria, Puncheon, Rev. Charles Spurgeon, Benjamin Franklin, Norman McLeod, D. D., Grover Cleveland, Madame Cappiani, Elizabeth Cady Stanton, Dr. Egbert Guernsey, Ramon Reyes Lala.

Length of Life.—Persons who have this Temperament generally expend their energy too prodigally; hence do not live as long as those persons possessing the Motive or Mental Temperament. They should, however, conserve their energy so as to extend their lives.

Climate.—A person with the Vital Temperament should live in a mild, but not too dry, climate, where exercise in the open air can be encouraged daily, and sedentary habits corrected



Photo by Rockwood.

ELIZABETH CADY STANTON.

The Vital Temperament.



DR. EGBERT GUERNSEY.
The Vital Temperament.

by systematic gymnastic exercises that expand the chest and increase the power of the lungs and heart. This Temperament needs plenty of sleep and sunlight, and these must never be stinted, nor should the system be over taxed, hurried or excited. Thus the English climate is better for persons of this Temperament, rather than India, Australia, Western Africa and South America.

Exercise.—Persons of this Temperament should be regular in taking physical exercise; otherwise their arterial and muscular systems will not respond properly to the needs of the system. But the exercise should be more passive than what is described for the Motive Temperament, and a person should be where he can take the fresh air without doing heavy muscular work. Thus driving or automobileing will be preferable to foot-

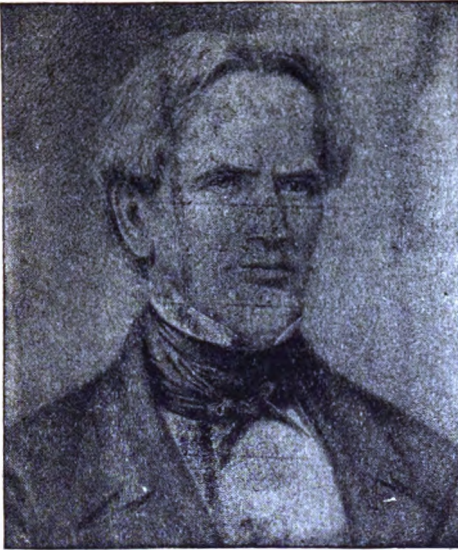
ball, or any violent athletic sports. Walking should be encouraged, but not rapid walking; cycling should be taken, but the posture should be erect, and the rider should avoid bending over in order to make speed.

Baths.—The Baths best suited to this Temperament are of a tepid nature, and the extremes of hot and cold should be avoided.

Animals.—The Animals that have this Temperament are the Beaver, Bear, Opossum, Domestic Cat, and Carriage Horses. When buying a dog, if you wish a domesticated one, select a kind that has the Vital Temperament; we should not leave out of this list Ducks, Hens, Mice, Swine, Owls and Donkeys.



RAMON REYES LALA.
(Of the Philippines.)
The Vital Temperament.



HORACE MANN.
The Mental Temperament.

Advice.—In order to prevent the Vital Temperament from becoming too pronounced, a person should carry out the following suggestions: (1) Increase activity of muscles; (2) Study a scientific course in some practical subject; (3) Avoid fat and carbonaceous foods, intoxicating beverages, tobacco, and great nervous excitement; (4) Encourage the condition of body and mind conducive to enjoyment and success in life.

THE MENTAL TEMPERAMENT.

When comparing the Mental Temperament with other older classifications, we find that it corresponds with the Nervous of Gall and Spurzheim's classification, and the Cephalic and Melancholic of the Ancient Division. It is largely found in combination with the Motive and Vital in European Nations.

Fundamental Principles.—The Fundamental Principles of the Mental Temperament include activity of the brain.

Conditions.—The Conditions of this Temperament are recognized as Nervous and Thoughtful,—hence Cerebral in character. The Nervous condition is the result of the high state of activity of the brain, and the nerves which issue from it.

Specifications.—Its Specifications are (1) the Cerebrum; (2) the Cerebellum; and (3) the Organs of Special Sense, which take into account the action of the brain.

Physical Characteristics.—The Physical Characteristics of this Temperament are found in its Small Bones, Short Stature, Pale Features, High Forehead, Large Head, Active Brain, and Keen Sensibilities.

Mental Characteristics.—The Mental Faculties that are strongly developed in this Temperament are Causality, Comparison, Human Nature, Benevolence, Veneration, Conscientiousness, Hope, Spirituality and



NICHOLAS MURRAY BUTLER, PH.D.
The Mental Temperament.



CARDINAL MANNING.

The Mental Temperament.

Ideality. These are joined to an active brain, and keen susceptibilities, giving the appearance of a high head and superior intellect; a narrow Lateral development, and a flat Posterior region, or a Mesocephalic Head.

Diseases.—The Diseases most common to this Temperament are Inflammation and Congestion of the Brain, and often a clot of blood is found on the brain, through imperfect circulation; Consumption, caused by the lack of vitality and insufficient warmth and nourishment; Spinal Diseases; Dyspepsia, which is a functional trouble and caused by undigested food, brought about by a disturbed mental action, which in its turn disturbs the stomach; and various forms of Insanity.

Attributes.—The Attributes of this Temperament are Nervous Excitability, Predominance of Thought, a desire to study, and a wish to enter

Professional Life. It is in this connection that the brain becomes vigorous and healthy in its action.

Occupations.—The Occupations that come under this head are Teaching, Writing, Philosophy, Mathematics, Chemistry, Public Speaking, Electricity, and with a combination of the Vital Temperament; Medicine, Music and Theology.

Food.—The food of this Temperament should be of such a character as to encourage the building up of the wasted tissue and brain cells of the organization. It should include an abundance of nutritious, wholesome and easily digested food, composed largely of Wheat, Grains, Farinaceous Substances, and Phosphates. If meat is taken at all, it should be game and the dark meat of chicken. The Fish selected should be Salmon, Turbot, Halibut, Massachusetts Herrings, Bass and Mackerel. Those who wish



POPE LEO THE XIII.

The Mental Temperament.

to increase their vitality and balance their mentality should eat such foods as Butter, Olive Oil, Potatoes, Haricot Beans, Split Peas, Parsnips and Carrots; or those who wish to add muscular tissue should take the Albuminous substances and the Gluten of Wheat.

Marriage.—A person with this Temperament should unite with one who possesses the Motive or Vital Temperament, so that it may be complementary to the other. If the gentleman has the Mental Temperament, the lady should possess the Vital, or vice versa.

Nationalities.—The Mental Temperament is found to predominate in the Causasian Race, when compared with the Mongolian, Ethiopian, Malayan and Indian. Thus we find it among the English, American, French, German, Italian, Russian, Spanish, Norwegian, Swedish and Danish Nationalities.

Examples.—Some of the best examples of persons who possess this Temperament are Cardinal Manning; Shakespeare; Casimir-Perier; the Hon. Arthur Balfour; William Fife, Jr., yacht-designer; Marconi; Cardinal Manning; Daniel Huntington, President of the Academy of Design; Dr. Amory H. Bradford; Edward Orton, the Geologist; John P. Holland, inventor of the submarine boat; Joseph H. Choate, Henry George, Nicholas Murray Butler, Pope Leo the XIII., and Horace Mann.

Length of Life.—Brain workers generally live longer than those who earn their living by the sweat of their brow. Those who do manual work do not use their brains so studiously. As the brain controls and directs the whole organization, we find it aids in keeping up the healthy condition of the individual; hence celebrated brain workers have lived to be eighty-five and older, and have often reached one

hundred years. Literary and scholastic labor is healthy, and those who follow these occupations generally live longer than those who work as clerks or factory operators.

Climate.—A person with the Mental Temperament should live in a moderate climate, and if possible, change his residence in the Summer and Winter, so that he can avoid the heat of the tropics, and zero weather in the Winters. Thus the mountains and seashore will suit this Temperament in the Summer, and a sheltered inland city in the Winter.

Exercise.—It is essential that persons possessing this Temperament should keep up their muscular activity and circulatory power by a regular course of gymnastic work. But the exercise should not be of a violent character, nor of too long duration. It should be tempered with reason and common sense. The extension movements and deep breathing should be so blended that each part of the body will be called into activity, and the blood should be drawn away from the brain, especially at night before going to sleep, either by a ten minutes' walk, or by suitable exercise in one's room.

Baths.—The baths naturally taken by persons of this Temperament are generally hot, such as Sitz Baths, Shower Baths, and the Turkish Bath. But all baths of this nature should have the addition of cold water before they are completed in order that they may be a tonic to the system. The Hot Foot and Hand Baths should be encouraged, to draw the circulation away from the brain, especially at night before the person retires, but if a person of this Temperament is suffering from any inflammation the application of cold water should be substituted for the hot.

Animals.—The Animals that have this Temperament are the Race Horse, and the highly nervous and susceptible

Dogs, like the Tan Terrier, the Greyhound, the St. Bernard, the Pomeranian, and Spaniels; also the Deer, the Fox, and Monkeys.

Advice.—In order to prevent the Mental Temperament from assuming too much control, (1) a person should withdraw from the study of books and head work, and give more time to the study of nature and rest. (2) Recreation for mind and body in travel and social enjoyment should be indulged in. (3) A person with

this Temperament should eat sparingly; take two meals a day, and follow Dr. Dewey's plan of no breakfast, and should be careful to thoroughly masticate his food.

AUTHORITIES ON THE SUBJECT.

The Authorities on this subject are "The Temperaments" (by Jacques); "Lectures on Man" (L. N. Fowler); "New Physiognomy" (Samuel R. Wells); "Heads and Face;" (Nelson Sizer and H. S. Drayton, M. D.); "Brain and Mind" (H. S. Drayton).

CHAPTER II

Phreno-Ethnology, or A Study of Some of the Races of Mankind.

Ethnology has not succeeded in satisfactorily defining the meaning of the term "Race." The best proof of this is, that Ethnologists cannot agree respecting the number of these grand divisions of mankind. Some enumerate them into three, others into five, and some into thirteen.

THREE DIVISIONS.

If we take the Old World, there are three well-marked divisions:

- The Negro;
- The Mongol;
- The Caucasian.

Under these all the minor subdivisions and varieties may at least be arranged.

Through comparative anatomy the Negro is but the embryonic; and the Mongol, the infantile form of the Caucasian, or perfect man. Their differences, structural and mental, mark successive stages of growth.

These three divisions have their geographical sites and centers:

The Caucasian in the West; the Mongol in the East; the Negro in

the South of the Old World. The first is European; the second, Asiatic; the third, African; or, the Caucasian, Temperate Zone; the Mongol, Arctic zone; the Negro, Tropical zone.

Some ethnologists divide the races as follows:

MANY DIVISIONS.

Dr. Latham makes nine divisions: (1) Monosyllabic, (2) Iranian, (3) Caucasian, (4) Persians, (5) Indians, (6) Oceanic, (7) Americans, (8) Africans, (9) Europeans.

Buffon, six varieties: Polar, Tartan, Asiatic, European, Negro, and American.

Blumenbach makes five divisions: (1) Caucasians, (2) Mongolians, (3) Malays, (4) Indians, (5) Ethiopians.

Hunter, seven varieties. Metzan, into two varieties—white and black. Virez, into three. Cuvier, into three divisions: (1) Caucasians, (2) Asiatic, (3) Ethiopic.

Desmoulins, into sixteen species. Bary de St. Vincent makes fifteen species subdivided into races.

Morton, twenty-two species. Pickering, eleven races. Luke Burke, sixty-three. Jaquetnot, three species.

PHRENOLOGY NECESSARY TO
ETHNOLOGY.

Ethnology cannot stand alone. For its effectual prosecution the aid of many other departments of learning and science is imperatively required. It demands Anatomy, Physiology, Phrenology, Physiognomy, and Photography, as primary and immediate agents and requisites; while it wants Geology, Zoology, Botany, and Climatology, as adjuncts. It needs also to have man correctly described and accurately represented, and it also seeks some knowledge as to the influences of his environments, and how these have acted as a plastic force upon his physical structure and natural endowments.

It asks acquaintance with his habits and his accessories. Nor are these scientific appliances sufficient. It asks, in addition, for the aid of learning, not the formal pedantry of classical scholarship or childish curiosity of olden antiquarianism, but the great lingual facts of an all-embracing philology, and the still more important monumental data which are being slowly furnished by modern explorers. It is too wide a subject to grasp in one short effort, to condense all its subordinate provinces. We must be content somewhat to use each others' eyes and to profit by each other's thoughts for a further study, for Ethnology is as yet but in its incipient stage.

We have our educated and scientific naturalists and geologists—why should we not have our specially educated ethnologists? Man is not so easily understood but what his scientific observer requires special training. Controversies exist with regard to nations distant and near; for instance, there are theories in the minds of

many regarding the statements made as to whether the people of the British Isle are Celtic or Teutonic. Nor is it yet decided how much of German blood is Slavonic, or to what extent the Frenchman is a Frank, or the Spaniard a Goth. Conquest or culture may change the language of a nation, while the race in its fundamental characteristics remains unaltered. It is the same with religion, philosophy, laws, and customs—the impress of a superior race may be distinctly observable long after its effect on the physical type has wholly or nearly disappeared. For example, both China and Japan bear obvious traces of a remote Caucasian culture, whose agents, however, have left no trace of their corporeal presence among the populations who were their disciples.

Nearer home, we find that the Celtic language and faith have disappeared from France, but not the Celtic blood and characteristics.

Even in England it is doubtful whether the lingual mutilations which followed upon the Saxon and Norman conquests were accompanied by a proportionate admixture of the blood of the conquerors. So, in America, an almost purely Indian type was found, with language and institutions indubitably of alien parentage. In these and many more examples the aboriginal stock, after submitting to conquest and colonization, to tuition and amalgamation, has reappeared in the course of ages, probably in renewed vigor, and at a higher stage of development, but with its fundamental characteristics effectually preserved, and therefore with its identity unchanged.

This law of submission to occasional invasion is applicable not only to the superior, who, after periods of exhaustive civilization, require the baptism of material elements—that is, inferior races, for it applies equally

BRAIN ROOFS AND PORTICOS



(No. 1) CARIB INDIAN (No. 2) NATIVE AUSTRALIAN (No. 3) ESQUIMEAU (No. 4) CAUCASIAN (No. 5) AFRICAN
 (No. 6) MONKEY (No. 7) EGYPTIAN MUMMY (No. 8) GREEK (No. 9) CHINESE
 (No. 10) IDIOT (No. 11) SCOTCH.

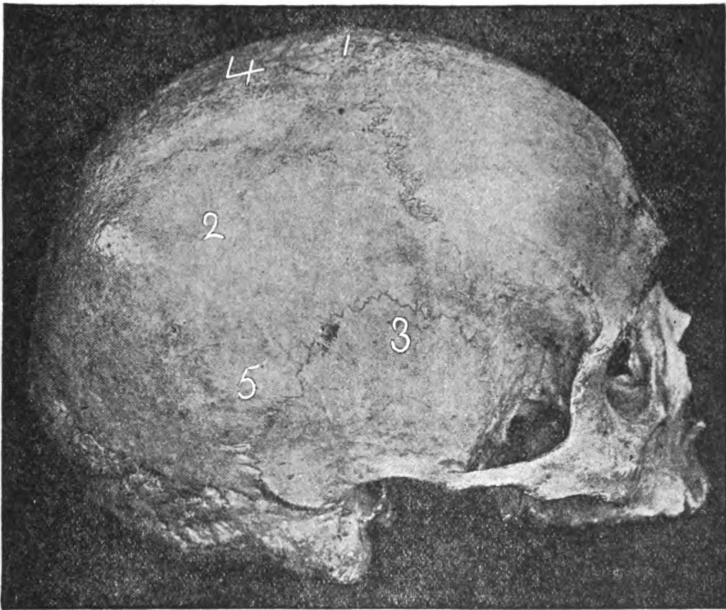
of blood, and bone, and muscle, for the restoration of their overtaxed energies, just as the inferior races demand an occasional infusion of nerve from the superior to stir their sluggish natures into action and start them afresh on the course of progression.

We now come to the vexed question of the possibility of a permanent change, or displacement of race—like,

etary and solar existence.

Ethnology, therefore, has passed out of the realm of dilettante inquiry and elegant speculation, and has burst its boundaries, and has given a tax to our energies and attainments to work out legitimate results.

To the naturalist, ethnologist, and historian, Phrenology comes as an index of racial character and national proclivity. As a plastic force, the



THE SCOTCH SKULL. THE CAUCASIAN RACE.

for example, the Indian by the Anglo-Saxon in North America, the Aborigines by the Anglo-Saxon in Australia. This brings us obviously to the larger whole, the native habitat, not merely of man, but of animals and even plants, and lands us in those great subjects, "Centers of Creation," "Origin of Species," and other grave questions that go down to the fundamentals of organic life and even plan-

nervous system reigns supreme. It is its comparative absence that leaves the worm in his weakness, and its presence that raises man to his irresistible dominion. It is its imperfection that retains the Negro in his hut, and its strength that raises or exalts the Caucasian to his temple.

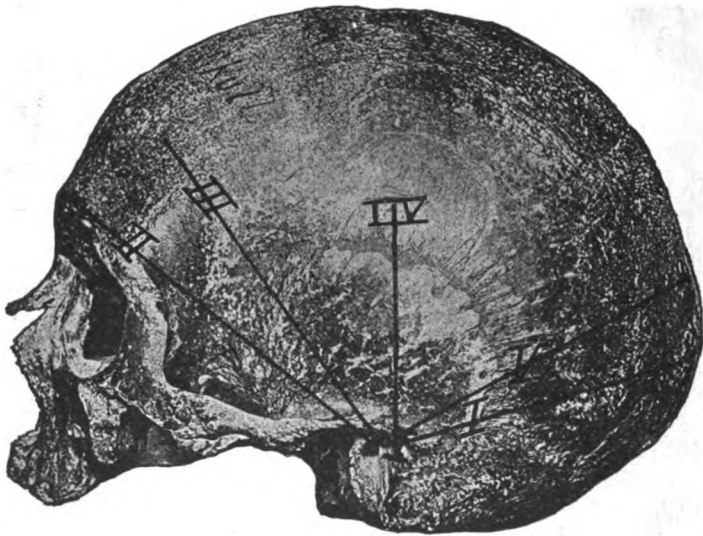
From the reptile in his ooze to the philosopher in his study, the successive gradations of power are meas-

ured by its development and culture. THE BRAIN THE IMPORTANT FACTOR.

Now, if the brain is the most important part of our nature in its contour, volume, and quality, how necessary is its study to the comparative anatomist to aid his scientific investigations. Shall we compare the nude skeletons of the Aboriginal with the beautifully balanced structure of the Caucasian? Shall we wax eloquent over the foot, and be dumb on the brain? Shall we collect crania from all ages and countries, to define them

tal diversities are to be estimated and accounted for. It is by this that the enduring characteristics of nations are to be explained, and through this that the intelligent voyager and traveler can most accurately convey to us the impressions which he derives from a sojourn amid the rude tribes and undescribed nationalities of distant and imperfectly known countries.

The earth had thus its well-defined nations five thousand years ago as it has now. Some were civilized, some barbarous, some savage. Some were



THE IRISH SKULL. THE CAUCASIAN RACE.

in anatomical language that was used before the only science which has yet satisfactorily connected mind with organization? Without Phrenology as its guide in estimating the relative intellectual rank of the various races of mankind, Ethnology is simply child's play, which is gratified by the collection of a museum of rare curiosities, but neither knows nor desires to use them for reliable data for thought. It is through this that men-

black, some were brown, some were fair.

These nations must have had a history, now, unfortunately, lost. Who can measure the gulf of time which separates the high-featured Iranian from the woolly-haired and thick-lipped Africans? and both seen in juxtaposition on the tombs and in the temples of the Sheban Pharaohs. Even from that remote Egyptian point, there is obviously a preceding

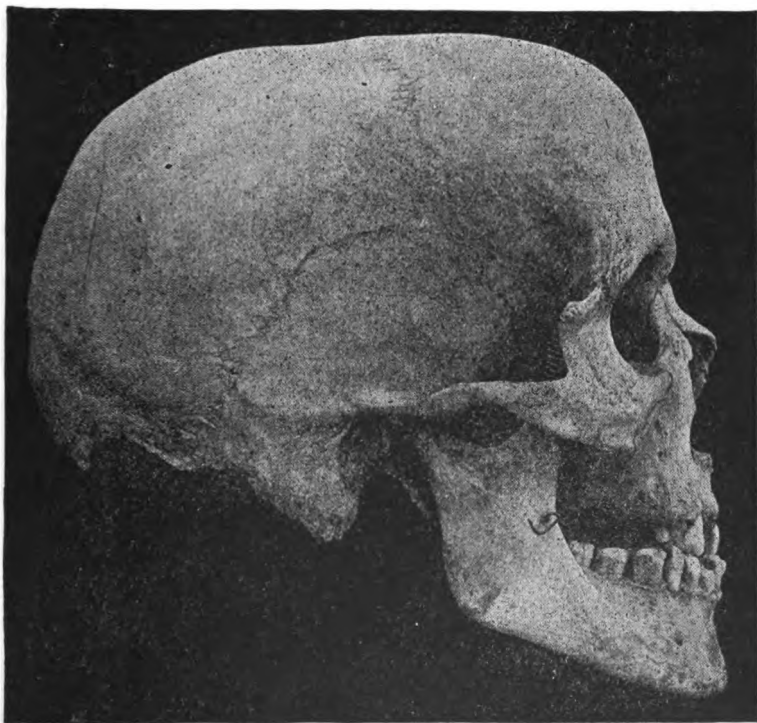
period of ethnic emergence and development whose successive centuries no plumb-line of ours can accurately estimate. There was an antiquity beyond that of Egypt which even then defied calculation.

THE FIVE RACES.

It seems most probable that the five races as distinguished by their colors—*i.e.*, white, black, brown, red, yel-

HERBERT SPENCER ON LIFE.

Life has been described by Herbert Spencer to be "the continuous adjustment of international relations," and this, if not life, is at least the condition of its existence; and if we consider that this "adjustment" has been going on in man and other animals for perhaps a million years, before the forces that constitute the bodily



THE GERMAN SKULL. THE CAUCASIAN RACE.

low, or the Caucasian, Negro, Malay, American Indian, Mongolian—were not derived from one stock, but each had a separate origin, the cause that could produce a single man being quite equal to produce all the varieties.

and mental constitution of man could be brought to act in their present persistence and harmony, we may then get a slight idea upon what the stability of type and race depend. It takes a long time to make any two forces act unconsciously or automat-

ically together, and the forces that constitute the harmony of the human system are infinite forces made to act together to effect a definite purpose, and are not easily disunited.

If, then, the different races of mankind had a separate origin, and the forces of which they are composed were brought together and associated by the different environment, "the structure of an organism being the

that now inhabit Europe, are crossed with advantage; but we obtain only mongrels, inferior perhaps to either origin, from the crossing of distinct races.

WHAT DARWIN SAYS.

"The first meeting of distinct and separate people generates disease." He also says: "If we look at the races of men as distributed over the world we must infer that their charac-



THE CHINESE SKULL. THE MONGOLIAN RACE.

product of the almost infinite series of actions and reactions to which all ancestral organisms have been exposed," as Herbert Spencer says, then such races could not be expected to mix with advantage. Automatic actions would clash, and there would always be the tendency, as in fact exists, to return to the original types. Thus, races which had probably the same ancestral types, such as those

teristic differences cannot be accounted for by the direct action of different conditions of life, even after exposure to them for an enormous period of time. The Esquimaux live exclusively on animal food; they are clothed in thick fur, and are exposed to intense cold and to prolonged darkness; yet they do not differ in any extreme degree from the inhabitants of Southern China, who live on vegetable food,

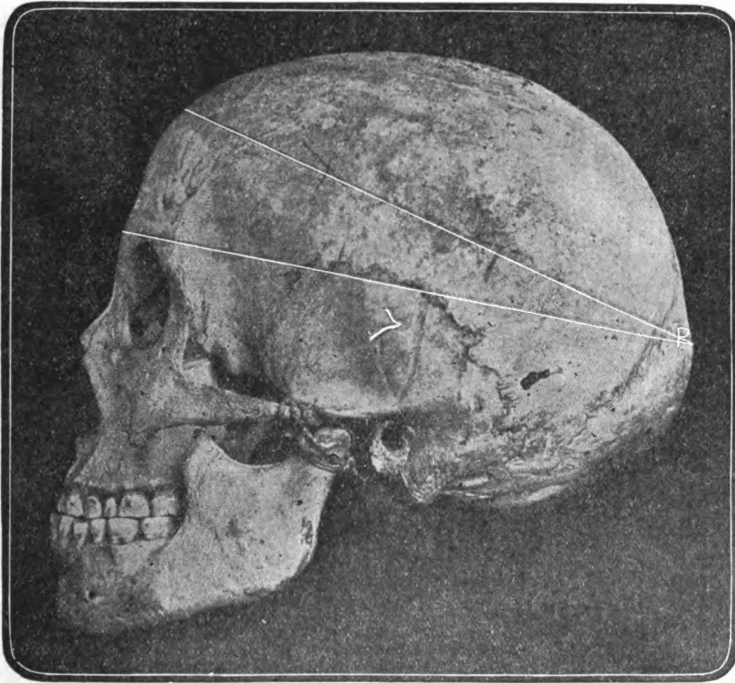
and are exposed almost naked to a hot, glaring climate. The unclothed Fuegians live on the marine productions of their inhospitable shores; the Botocudos of Brazil wander about in hot forests of the interior, and live chiefly on vegetable productions, yet these tribes resemble each other so closely that the Fuegians on board *The Beagle* were mistaken by some Brazilians for Botocudos. The Botocudos,

Darwin, however, nevertheless hangs to the opinion that we had but one ancestor.

WHAT ALFRED R. WALLACE THINKS.

Wallace, on the other hand, holds that man passed through more than one channel of derivation, or transitional form, from the class of the inferior mammals.

Such primary differences as those of Negro, Caucasian, or Australasian,



THE ESQUIMAU SKULL. THE MONGOLIAN RACE.

again, as well as the other inhabitants of tropical America, are wholly different from the Negroes who inhabit the opposite shores of the Atlantic, and are exposed to a nearly similar climate, and follow nearly the same habits of life." ("Descent of Man," Vol. I., pages 239-246).

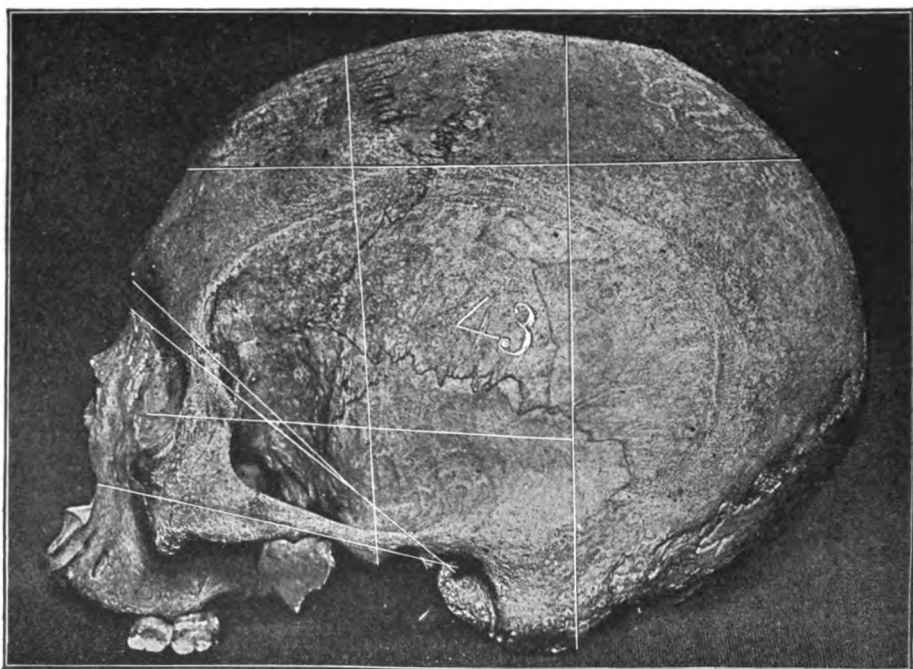
denoting the special strain or breed of quadrumana from which each is supposed to have risen to the dignity of man, the color of the skin, depends on race more than on climate. It depends on the pigment excreted from the blood and interposed between the cutis and cuticle, and, like

the cuticle, is extravascular. It is as thick as the cuticle in the Negro, and, by nice manipulation, can be detached as a separate membrane, according to dissection made by Soemmerring and Hunter. The texture of this intermediate lamella between the cutis and cuticle exists in the fairest of Europeans, but the pigment is not deposited, and hence the color de-

in this lamella. ("Physical Man," page 129, Hudson Tuttle).

WHAT MALTHUS SAYS.

As Malthus has shown, the world may be filled from the good stock with which now it is everywhere inoculated, and the inferior races, although they at present represent five-sixths of mankind, on the principle of natural selection will probably be "civ-



THE SKULL OF A SANDWICH ISLANDER. THE MALAY RACE

pend on the transparency of the skin, revealing the blood in the capillaries beneath. From white to black every conceivable shade is produced by the amount of coloring matter deposited

ilized" off the face of the earth.

That he is a progressive animal is the characteristic distinction of man, but several of the inferior races of man seem quite incapable of progress.

The brown and red do not appear to have advanced very fast. From ages of locomotive hunting-habits, the vital and muscular forces are so predominant in the American Indian that any lengthened rest would be to him painful; whereas ages of patient industry have as much fitted the Chinese to do the work of the world as constant locomotion has disqualified the Indian.

In the East, civilization seems to have considerably progressed and then to have become stereotyped. He who discovers the cause of this stereotype, and by removing it sets civilization going again, may perhaps save one-third of mankind from extermination. Cæsar's description of the people of his time, contrasted with the little change their descendants have undergone during the last thousand years, remarkably illustrates the permanence of type, and proves that in the institutions the first thing we would give the people to consider is Race.

PRIMITIVE MAN.

What was the brain development and mental capacity of primitive man? The foundation of the Darwin theory is that the brain of the first man was but a shade above that of the highest ape—a difference so small as to make it difficult to determine where the ape ended and the man began. And, irrespectively of this theory, the idea extensively—nay, almost universally—prevails that the size of the human brain, and as a sequence the mental capacity, varies to the extent of the distance which now separates savage and civilized races. On the other hand, an influential portion of the ethnologists maintain that primeval man, whether of one or of several distinct creations, was but removed in brain capacity from the ape, and that such capacity has gradually increased in those communities which

have become civilized.

WAS ADAM THE FIRST MAN.

Thus, while one class adheres to the idea that Adam was not only the first man, but the representative standard of cerebral development and mental perfection from which his descendants have fallen, and to which they can be restored by civilization, the other class are quite sure that man started with the cerebral and mental development of the lowest modern savage, and that by culture such capacity has been gradually increased until it has reached the condition of the present civilized races, and that it only needs a similar training to bring the savage up to the same standard.

When we examine the facts furnished by archæological researches, it must, I think, bring us to the conclusion that the size of the brain and the mental capacity of any given race of men remain permanent—at least, that they vary only within fixed limits above and below a certain average.

THE CAUCASIAN RACE.

The Caucasian race is, and always will be, at the head of creation while it maintains and preserves the peculiarities which now characterize it.

Their power is in the type and tone of organization, which is as plainly marked as the color of the Negro's skin.

The Temperament is a predominance of the Mental, though there is a good degree of the Vital and Motive—sufficient to produce balance of power.

The Mental Temperament gives to the race intensity, activity, ardor and enthusiasm. The osseous system is symmetrical; the general contour and outline of the muscles are smooth and regular; the features are distinct but uniform; the walk is commanding; but the strength is not so much in the body as in the brain.

The brain is developed in the frontal and coronal regions. The moral and intellectual faculties have a pre-dominance over the basilar portions, though, as a race, Destructiveness and Combativeness are not as pronounced as with some nations.

The Caucasians rule the world by the size and moral power of their brain. We need not wonder that Pizarro conquered Peru with only 164 soldiers, as is stated, because the contest of physical force could not compete with the superiority of the Caucasian brain, which was much larger and better in quality.

THE ANGLO-SAXON OR THE ENGLISH.

The Anglo-Saxon is considered the strongest type of the Caucasian. They have an admixture of the elements of all the races, and we need not be surprised to find them successful merchants, mechanics, manufacturers, bankers, seamen, and statesmen.

They make conquests from Colonies; have strong domestic attachments to their kin and country; enact rigid laws, which they obey as well as enforce. Their huntsmen are superior in skill and speed; their boxers have muscle to endure the hardships of the ring; their seamen are in all lands and on all seas; their soldiers are vigorous and powerful in the use of bayonet, enduring and courageous on the battlefield.

Their judgment in mercantile matters is sound, and their enterprise and philanthropy are unequaled by any other nation.

The Anglo-Saxon has every temperament; the framework of body is solid; the brain is well developed in the anterior and coronal lobes.

Firmness, Cautiousness, Acquisitiveness, Conscientiousness, and Benevolence are prominent.

They can learn science and philosophy, make inventions, and apply the rudimental ideas of the other races.

There is enough impulse and ar-

dor in their temperament to give versatility of talent and an enterprising spirit.

THE SCOTCHMAN.

The Scotchman has a predominance of the bony and muscular structures, with more of the Motive than the Vital Temperament, hence he is characterized for action and thought, is a



THE AUSTRALIAN SKULL. THE MALAY RACE.

plodding, persevering, enduring, hard-working individual; is slow yet strong, steady and firm. He does not receive new ideas quickly, but when he is once called out, he holds on tenaciously, and likes to accomplish his plans and purposes.

He has large Causality and Comparison; his coronal brain is also high, and he is strongly inclined to think and agitate subjects of a theological nature. His Conscientiousness and

Causality work together, and make him rigid in maintaining the truth. A Scotchman would prefer to die a martyr rather than to yield a point where duty and sense of moral obligation convinced him he was in the right. He has Firmness and Cautiousness, which give him general circumspection, steadiness of conduct, integrity of mind, and wisdom in action. He is suspicious, reserved, and non-committal. He looks ahead, provides for future contingencies, and guards himself against the changes of weather. He is industrious, economical, strongly attached to his friends and to his clan and circle, but has a great degree of prejudice, dislike, and aversion, whenever these traits are called out. The full-blooded Scotchman is characterized by thought, caution, circumspection, sense of justice, power of will and endurance, ambition, and strong domestic feelings.

He has Cautiousness, Causality, Conscientiousness, and Firmness, and is tenacious, economical, strict, thoughtful, and industrious.

THE WELSHMAN.

The Welshman is energetic, thrifty, economical, enthusiastic, musical and practical. Has large Perceptive faculties, Sublimity, Acquisitiveness, Destructiveness, and Combativeness.

THE IRISHMAN.

The Irishman has a predeminance of the arterial portion of the Vital Temperament, with a full degree of the digestive power; hence he is fond of eating and drinking; breathing the fresh air, and of excitement of every kind.

He is impulsive, easily affected by surrounding circumstances, and while under the influence of excitement will work hard and accomplish much, whether he is on the battlefield or in an ordinary occupation. He is fond of social enjoyment and of polit-

ical agitation, and does not like a quiet life. His motive muscular organization is not very prominently developed, yet he has a good constitution, and speedily recruits when exhausted.

His Mental Temperament is active but not predominant. He has large Language, and a remarkable gift of natural eloquence and ability to use words by which to express his thoughts and feelings. With ordinary culture, Ireland should produce the orators of the world. The Irishman has large Mirthfulness, and he is witty in common conversation, without intending to be so. He is quick of observation, readily gathers knowledge from passing occurrences, has a fully developed social brain, is very social, companionable, friendly, and very affectionate. Approbativeness is large, and he is very fond of display, is affable, polite, desirous to entertain, to please, and secure approbation. Benevolence is large, and he is liberal and kind-hearted among friends. Secretiveness is small, and the full-blooded Irishman acts without deception, and shows out his unfavorable phases of character as well as his favorable qualities. His Self-Esteem and Veneration are not large, and he is frank, open-hearted, wanting in dignity, and puts himself on a par with "all the world." Some may give him credit for possessing Combativeness, but the excitable temper and irascible disposition that he often manifests arise mostly from his peculiarly susceptible temperament. He is less plodding, thoughtful, imitative, and steady than the Englishman, and is more impulsive, excitable, ardent, warm-hearted, loquacious, witty, entertaining, and social.

THE TEUTON, OR GERMAN.

The German ranks high in the intellectual scale when compared with other nations. The German is celebrated for strength of mind, origin-

ality of thought, tenacity of purpose, power of execution, versatility of talent, musical ability, a tendency to intellectual pursuits, more especially to the study of philosophy, speculative theories, and metaphysics.

The German head is above the average in its circumference. The Ger-

man has a strong social nature, but his aversions are as strong as his friendships.

The German blood, stock, and constitution are of a healthy type, owing, doubtless, to the blending of the strong and healthy blood of other nations with its own.



THE INDIAN SKULL. THE INDIAN RACE.

man has a broad head above the ears, a high and broad forehead, a full basilar lobe, and is high in the crown of the head in the region of Firmness and Conscientiousness.

The coronal brain in the region of Veneration is not prominent, and the German is not so religious and devotional, as skeptical and speculative in faith and spiritual matters.

He has a predominance of the Motive and Mental Temperaments, which give him physical and mental

THE CELT, OR FRENCHMAN.

The Frenchman is fond of Science, and shows versatility, clear-headedness; pliability; impulsiveness; great ambition; brilliant imagination; exquisite taste; politeness; affability; invention; and is witty; lively; and less stable and domesticated.

The Frenchman is characterized by a predominance of the Nervous Temperament with a less degree of the Vital than the Englishman. He is sprightly in his movements, delights

to have things well arranged and systematized, is ingenious and artistic in doing everything. He has large Ideality, Constructiveness, and Approbativeness, and the social faculties are prominently developed. He has large Combativeness, rather large Destructiveness, is quick to resent an injury, spirited in opposition, and resolute in overcoming impediments. He is affable, anxious to please, very fond of things that are beautiful and ornamental. His mind is not so philosophical as scientific, and he does not pursue a plodding investigation of a subject, but readily devises ways and means to accomplish his ends. He is ambitious, imaginative, polite, and readily adapts himself to different phases of life.

THE SPANIARD.

The Spanish type presents distinct characteristics. The framework is compact, the stature tall and erect, the frontal lobe high but not broad. The organization gives intensity, will power, dogged determination, cruelty, pride, positiveness, passionateness, and conservatism. The Spaniards have been in days past more enterprising, self-reliant, and possessed of more intelligence, industry, and energy of character; but during the last century they have displayed more arrogance, self-satisfaction, and love of ease.

He is remarkable for a high head in the crown; is proud, and has large Self-Esteem, Approbativeness, and Conscientiousness. He is austere, distant, dignified, and ambitious; his passionate nature is large, and he is characterized for love of music and powers of oratory, rather than for philosophy.

THE ROMAN.

The Roman, as he was many years ago, was a fine variety of the Caucasian race, not so much for his enthusiasm and brilliancy as for his determination to carry out his projects

when conceived. At one time Rome was the mistress of the world, and had the purest Caucasian blood in her veins. She not only conquered all before her, but carried civilization wherever she bore her arms. The native Roman was born to command, and his ruling elements were Ambition, Courage, Perseverance, Self-Esteem, Firmness, and Combative-ness.

THE ITALIAN.

The Italian is different from the old Roman. The latter was remarkable for his compact, muscular structure, etc.

The present Italian is musical, affectionate, loving, ambitious, fond of the emotional, sensational, and the beautiful; but less executive, less muscular, less original and forcible than the old Roman.

THE POLE.

The Pole is strong, tough, muscular. His head is large, peculiar in shape, very broad in Destructiveness, Alimentiveness, Secretiveness, Acquisitiveness, Combativeness, and Cautiousness; he has large perceptive faculties, is fond of variety and change, and very tenacious of his rights.

THE GREEK.

The Greek is another interesting variety of the Caucasian race. Greece has always been recognized as a nation distinguished for excelling in art, literature, and philosophy, painting, architecture, and sculpture; and at the present day the Greeks are almost faultless in their works of art. The skull of the Greek is of medium size, well proportioned and remarkable for its fineness and quality of texture; his temperament is of the highest type of the nervous or mental, and gives great intensity and activity of thought and feeling.

THE HINDOO.

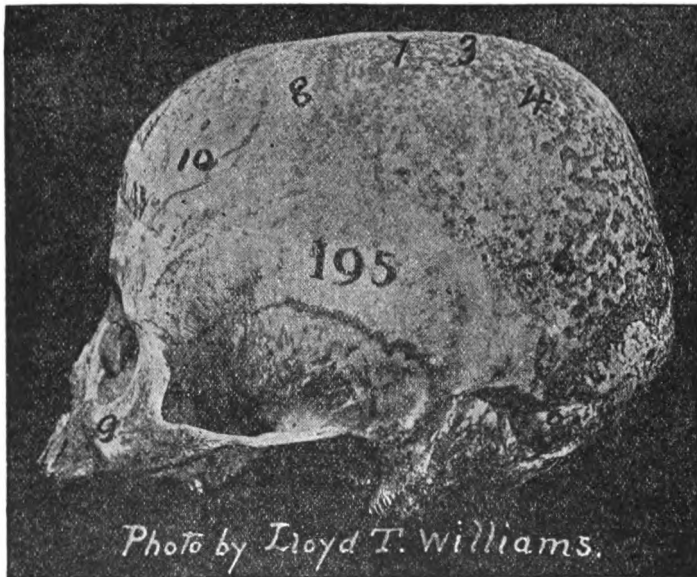
The Hindoo has a small brain about the size of an European child of four-

teen. His central lobe from Veneration and Spirituality is large. Ideality and Imitation are small, and Mirthfulness is deficient. The Hindoos have literary taste, a refined mind, literary power, but not great grasp of mind.

THE DUTCH.

The Dutch are characterized for their hardiness. They possess the Motive Temperament and are indus-

possessing an individuality of his own. He has a Motive Temperament, is active, executive, rough, off-hand, often uncouth, and perceptive in intellect. He is not a deep thinker or reasoner, but likes to see the usefulness in everything. He is highly religious in his own way, believes in forms and ceremonies, and is tough and hardy in organization; is very economical,



THE NEGRO SKULL. THE ETHIOPIAN RACE.

trious, active, energetic, and executive. They are exceedingly conscientious, and their moral qualities are strongly represented. They are very sincere, upright, and just, and expect others to be the same.

They are frugal in their habits and do not waste anything. They have large Acquisitiveness, Conscientiousness, Veneration, Conjugalitv, and the Perceptive faculties. They are very orderly and neat in their habits, and ways of doing work.

THE BOER.

The Boer is from Dutch ancestry,

and the women are allowed and expected to do about as much hard work as the men.

THE FINNS.

The Finnish skull has a square or angular appearance. The anterior posterior diameter is comparatively short. The forehead is broad, though less expansive than the German type. The face is longer and less broad than in the Mongolian head, while the lower jaw is larger and the chin more prominent. Hence the lower part of the face is advanced, somewhat in the manner of the Slavonian face. The

whole head is rather massive and rude in structure, the bony prominences being strongly characterized and the sutures well defined. The general configuration of the head is European, resembling the Mongolian on the one hand and the Sclavonian on the other.

THE SWEDE.

The Swedish head or form of skull bears a family resemblance to the Norwegian, and in several respects is not unlike the Anglo-Saxon. They are a sturdy nation, and are energetic, plodding, and conscientious. The Swedes are well built in physique and have muscles like iron.

THE NORWEGIAN.

The Norwegian has a tough organization and a prominent overhanging brow. The facial angle is good, and the whole head is strongly marked.

THE DANE.

The Dane is much like the Swede, and has an active organization and a more practical turn of mind than the German.

THE RUSSIAN.

The Russian has a marked individuality of his own and is characterized for his broad shoulders, broad chest, and thickset and muscular organization.

The Northern Russians are fair, with light hair. Further south they are darker. Mentally, as well as physically, he is distinguished for his self-poise, solidity, soundness, and capacity for persistent effort. He is an apt scholar and inclined to the pursuit of agriculture, but is not so quick to grasp a situation as other nationalities. The race sentiment is very strong.

THE MONGOLIAN RACE.

The Mongolian race includes the Chinese, Japanese, and Esquimaux.

Those of the Mongolian race have high cheek bones, flat faces, broad heads, and eyes set obliquely. As

types they are particularly interesting. The Chinese as a class have not large domestic faculties. They do not care for their young, their daughters they sell without regret.

CHINESE AND JAPANESE COMPARED.

We observe that the Japanese have more evenly developed heads than the Chinese. The heads of the Chinese are high in proportion to their length, while those of the Japanese are long in proportion to their width.

The heads of the Chinese are nearly straight in the posterior occipital region; in character they care but little for their young, for society, or for their wives, but they are fond of their country in a superstitious way.

The Japanese, on the contrary, are very domesticated, exceedingly fond of their family circle; they protect their wives and families, and are disposed to put the former more on an equality.

The Chinese are high in the top of the head, and very patient, persevering and determined, and when once roused are courageous, but it takes something to rouse them.

The Japanese are broader above and behind the ears, and they are large in Combativeness (or courage) and Destructiveness (or energy), hence their pluck is easily kindled, they are quickly on the defensive, and they place honor before the preservation of life.

The Chinese have a proportionately broader head in the posterior lateral portions where the experimental scientists have located The Center for Fright; they are more cautious than the Japanese.

The Japanese are high in the crown of the head, are proud of their attainments, and they show their Self-Esteem in their independent spirit and consciousness of their own importance; their large Approbativeness or their ambition, vanity and desire

to make a good appearance and stand high in the eyes of the world.

The Chinese, having large Secretiveness, are reserved, secretive, and retiring; keep much to themselves, and are uncommunicative.

The Japanese, having large Imitation, called the "Imitative Center," are well able to copy the ways and manners of others, and adopt what they see others do, and are very ingenious in their work.

The Chinese have large Veneration, and are most conservative; and their religion, their customs, their old stereotyped ways of doing things are less liable to change.

The Japanese have less Veneration; are willing to introduce education, variety of work, progress, etc.

Phrenologically, the Chinese have a smaller posterior brain than the Caucasian; they are sarcastic, cautious, and suspicious, and have a great reverence for their own mode of worship. They have not so much attachment for their young as most nations, but make rigid laws, which their children have to obey, the infringement of which brings a heavy penalty—even death, when a child raises its hand to strike a parent.

The Chinese are shy in disposition, do not easily become acquainted with strangers, and, for many years, have kept the walls of their city practically closed against the admission of strangers.

The authentic history of the Chinese commenced about 3,000 years before Christ. The reign of Fohi commenced B. C. 2207. The people are described as a wandering horde, living in the forests of Shen-see.

THE ESQUIMAUX.

The Esquimaux are not generally linked to the American type, but possess characteristics which seem to ally

them to the Mongolian race. The Esquimo's skull is long, narrow, and pyramidal. It presents in a greater or less degree most of the characteristics of the Mongolic cranium, and leaves little doubt in our mind in regard to the origin of the people to whom it belongs. The Esquimaux possess but a moderate degree of skill in manufacturing utensils for the real wants of the body. He is neither a philosopher, poet, or statesman. At best he is little more than a simple child in mind. He must work all the time, and with him the price of life is eternal vigilance.

THE LAPLANDER.

The Laplander belongs to the Mongolian race, and his characteristics differ from the Caucasian type through the difference of head, breadth at the base, narrowness at the top, which distinguishes the Mongolian head. Combativeness, Destructiveness, Acquisitiveness, Secretiveness, Cautiousness, and Constructiveness are generally full or large, while Ideality, Mirthfulness, and Causality are more or less deficient. These organic causes give to them their half-blind but persistent mechanical activity and tireless, patient industry.

THE MALAYAN RACE.

The Malayan, or Polynesian, race is confined mostly to the Indian and Pacific Oceans, and is also found in Asia and the East Indies, in Australasia, New Zealand, Borneo, Madagascar, the Sandwich Islands, Malacca, and New Holland.

The Malay is similar to the Mongolian—active, bold, hardy, crafty, vigorous, enterprising; but has not the moral power of the Caucasian. He does not excel in the arts and sciences, but has large Cautiousness, Secretiveness, Combativeness, Destructiveness, and perceptives, and is dark skinned.

THE PHILIPPINES.

Our attention of late has been attracted to the natives of the Philippines and the Ladrones.

The natives of the Philippines are of various origin. The chief savage tribes occupying the mountain districts are the Negritos, who are doubtless of the African race and primitive inhabitants of the archipelago. Long before Europeans had reached these islands the primitive natives had been driven into the mountains by the Visayans and Tagalas, the leading nations of the group. They have brown complexions and are classed with the Malay race.

THE AUSTRALIAN.

The Australian native shows a strong personality. The skull is coarse and irregular, and has a sugar-loaf top, or slanting roof, which leaves the organs of Firmness, Veneration, Human Nature, and Comparison more strongly developed than Conscientiousness, Hope, Imitation, Agreeableness, Ideality, and Causality. They are a perceptive race, and live by the strength of their practical intellect; hence they excel in fishing, hunting, and outdoor sports of all kinds. They lack refinement and polish and the culture of the Caucasian race.

The Malayans of New Zealand differ materially from the natives of Australia, and are higher in type and capacity, both of a physical and mental kind. Their bodies are strong and powerful, and their heads correspond in size and massiveness. They are, however, a truly perceptive and scientific rather than a philosophic type, and in this respect they resemble the native Australian.

THE INDIAN RACE.

The Indian has a large basilar region, and Firmness, Veneration, Cautiousness, Secretiveness, and Destructiveness. Is intuitive, but not ingenious, mirthful, musical, or sympa-

thetic.

The American-Indian is a contrast to the Negro in several respects. He is bony, tall, spare, muscular, sharp-featured, with high cheek bones; has a brain of average size, from 22 inches in circumference; is usually broad in the region of Destructiveness and Cautiousness, but is less developed in Acquisitiveness, Ideality, Imitation, Mirthfulness, and Constructiveness.

He is forcibly strong in temper, and in his resentments; is very suspicious, and always on the look-out for danger; is very guarded and cautious, and has great tenacity of will and ability to execute his purpose. He has not much passionate love; treats his wife more like a slave than an equal; but he loves his children, and has strong local attachments. Self-Esteem is larger than Approbativeness; and he has manliness, dignity, and independence. He is wanting in perception of wit, love of poetry and music, and has a little ingenuity. I have examined the heads of many Indians, especially Indian chiefs, and I have found only one Indian in whom Veneration was small. The Indian's regard for the "Great Spirit" is proverbial; and his sense of independence is so prominent that he would prefer to die at the stake rather than to be enslaved by the "pale face," while the Negro, with less Self-Esteem, is more readily made a slave.

THE ETHIOPIAN RACE.

The African is susceptible to social enjoyment, and has a large social brain.

The African is known under many different types of character. As a class, the Caffres take the lead in size of brain and in the height of forehead, as well as in the development of the Mental Temperament. They are more industrious, original, inventive, and ingenious as a nation than those of

other African varieties. Some of them are finely formed, well-proportioned, and appear to have good command of their powers. The Negro, as a class, has not so much volume of brain, and not so high and full a forehead, as we find among other nations; but the Perceptive faculties are generally large, and the Negro has more memory and power of observation than originality of thought. The moral brain is not sufficiently developed to give a very high degree of religious feeling, and his religion is of the emotional kind. The social brain is large, giving strong affections, domestic

feelings, and a gregarious spirit. The executive brain is full, while Firmness and Approbativeness are large. The Negro manifests strong prejudices, is particularly tenacious in carrying plans and purposes into execution, is fond of display, can imitate very successfully, and, under favorable circumstances, develops mechanical talent and good powers of ingenuity.

He is spontaneous in feeling, and often indolent; has a large mouth, thick lips, flat foot, pug nose, and small brain.

CHAPTER III.

HEREDITY.

FACTS AND LAWS APPLIED TO HUMAN IMPROVEMENT.

The great law of heredity is summed up in the arrangement that all things shall bring forth "after their kind." The product of the oak is the acorn, which produces another oak; and thus of all animals and human beings. But for this law of resemblance of products to their parentage, the farmer might plant corn and reap thorns, might sow stones and raise cattle, and the offspring of human beings would be as liable to resemble beasts or trees as their parents. But this institution causes children to inherit the natures of their parents, and all their constitutional peculiarities.

Heredity, then, is the law through which the individual receives from his parents by birth his chief vital forces and tendencies, his physical and spiritual endowment, or stock in trade. In fact, there are practically two laws which govern the transmission of life—the law of uniformity, and the law of diversity.

Parentage perpetuates our race. It

plants its seed of humanity everywhere, even upon solitary islands, and fills them with busy occupants. It sends its hardy progeny to the icy poles to multiply in spite of all that is terrible in cold. Again, it takes possession of the tropics, still urging the process of propagation amidst scorching heat. In fact, wherever life can be sustained thither does this prolific principle send its warming offspring.

Parentage also ushers in the connubial, parental and filial affections, together with all the domestic ties. But for the delightful relations of husband and wife, parents and children, all the heaven-born pleasures of domestic life would have no existence. Annihilate parentage, and you blot out all the tender yearnings of connubial love, all the fond delights of parental endearment, all the pleasures of infantile and juvenile provision and guardianship, and thus extinguish a cluster of the holiest and happiest emotions that mortals can experience.

The immutable law governs the reproductive process, which is never left to chance, in common with every other department of nature. Our world would be a perfect bedlam were this not the case, and but for this uniformity, some might have been born with feet, and some without; some might have heads, hearts and muscles, while others might have been born without. As it is, however, every member of the human family is alike in the same general appearance, and has the same number of bones, muscles, limbs and organs, or a kindred physical and mental constitution.

But, along with this law of uniformity, comes the law of diversity, which allows a beneficial arrangement of form, stature, character and capacity, so that some persons are born with certain organs larger, and certain faculties stronger than others, and although all have hands, feet, eyes and ears, and although all have reason, affection, and all the primitive mental elements, yet no two are exactly alike either in shape or character.

The same can be said of the leaves of trees, no two of which are exactly alike.

Ribot says in his excellent work on Heredity, that "heridity is that biological law by which all beings endowed with life tend to repeat themselves in their descendants. It is for the species what personal identity is for the individual. By it a groundwork remains unchanged amid incessant variation; by it nature ever copies and imitates herself."

Another great authority on Heredity, namely Weismann, in his "Essays on Heredity," says: "It is the process which renders possible that persistence of organic beings throughout successive generations, which is generally thought to be so well understood and to need no special explanation."

It is well for us as students of human life and character to make ourselves acquainted with the laws pertaining

to heredity and environment in the human species, just as the farmer applies the known laws of climate, soils, atmosphere and country to his seed planting, manures, and the chemical improvement of land; or the stock breeder, when he wishes to produce or preserve certain strains of cattle and domestic animals. Since those same laws that govern transmission throughout the brute creation govern human transmission, may not man apply them to the production of whatever physical or mental qualities in offspring he may desire, so as to render his prospective children strong, healthy, sprightly, beautiful, intelligent and moral beings, and prevent their being revengeful, proud, coarse and selfish.

Thus people can so unite in marriage, and so conduct themselves as to a great extent to render their offspring short or tall, diseased or healthy, deformed or well formed, long lived or short lived, peaceful or pugnacious, timid or courageous, honest or unjust; ingenious, mechanical, musical, artistic, witty, talkative, economical, poetic, logical, oratorical, profound, ambitious, or whatever else they may desire. Those who doubt this either deny that laws govern this matter of transmission, or else deny that man can see and apply those laws; and to deny either is to deny our senses.

Ribot says: "Suppose all the facts of the physical and moral universe reduced to a thousand secondary laws, and these to a dozen primitive laws, which are the final and irriducible elements of the world; let us represent each by a thread of peculiar color, itself formed by a collection of finer threads; a superior force—God, nature, chance, it matters not what—ever weaving, knotting and unknotting these, and transforming them into various faculties. To the ordinary mind there is nothing besides these knots and these patterns; for it, these are

the only reality; beyond them it knows nothing, suspects nothing. But the man of science sets to work; he unties the knots, unravels the patterns, and shows that all reality is in the thread. Then the antagonism between fact and law disappears; facts are but a synthesis of laws and analysis of facts."

Phrenology has been ever ready to acknowledge these patterns and

racés, each of the members of which are characterized by physical peculiarities which distinguish them from their fellows in every other race, and we find that all these peculiarities are inherited. Of this, the well known characteristics of the American Indians, or Red, the Africans, or Black, the Mongolian or Yellow, the Malayan, or Brown, furnish examples of heredity.



MONGOLIAN RACE.

Educated Chinese.

Arrows indicate large Causality and Destructiveness.

threads spoken of by Ribot, and is constantly unraveling the problems which are before us on this interesting subject.

HEREDITY AND THE RACES.

The question of the races comes into this subject with signal force and pertinence, and we find that human beings are divided into five distinct

Not only does the color of the race serve this purpose, but also their mode of living, moving, walking, their tones of voice, laughter, their expression of face, their form of nose and mouth, the color of their eyes and teeth, and other peculiarities. For instance, among the Africans we find a marked difference discernible between them

and the Caucasians, as the latter have a division or furrow in the gristle of the nose, while Africans and mulattoes have no such separations. Among the Indians the mental, physical and physiognomical characteristics are seen in their red colored skins, high cheek bones, wide mouths, straight black hair, prominent bones, sunken eyes, and Indian aspect which all descend from father to son, and appear in proportion as the Indian elements remain unmingled with other nations.

When races are kept distinct from each other, then you do not find the curly haired negro boy appear in the

find the tanned skin, a strong Motive Temperament and irregular features.

The Negro race is distinguished by its flat pug nose, dark or black skin, protruding jaw, flat foot, powerful stomach, enormous mouth, and a passionate and affectionate nature. While the Caucasian race, and head of creation, is noted for its white skin, its regular features, its symmetrical osseous system, and the Mental Temperament, and is distinct in these features, which are all held intact and repeated generation after generation through the laws of inheritance.

NATIONAL CHARACTERISTICS.

If we examine closely into the national types, we shall find that every nation, the Irishman in the Emerald Isle, the Scotchman in his highland home, the Celt, Teuton, Spaniard, Dane, Russian and Egyptian have all their distinguishable characteristics, for even if a child is born out of his parents' country, he will partake of the features of the parents much more strongly than those of the country in which, he was born. We know that however well a Jew may try to conceal his nationality, he almost invariably displays some resemblance to every other Jew, however much he may strive to disguise himself by dress or style of hair.

HEREDITY IN FAMILIES.

From national types we pass through family picture galleries, and discover the same characteristics through many generations. We have only to make a study of the Webster, Hopkins, Franklin, Folger, Alden, Topin, Brevort, Warren and Whitman families to see that the peculiarities of each have been handed down generation after generation. This would not be the case if environments only were accountable for the appearance of likenesses in families.

TWO THEORIES CONCERNING HEREDITY.

There are two theories concerning heredity that should be explained before we go further into the question,



BOOKER T. WASHINGTON

family of the Indian, or the Indian's face in a Caucasian family, or Malayan features on a red man's form.

The Mongolian characteristics are plainly seen in their broad shoulders, their large basilar and perceptive brain, their Motive Temperament and their yellow complexion, and are different from the Malayan in whom we

in fact, the controversies concerning which are still raging. One is supported by Herbert Spencer and Charles Darwin; the other is led by Augustus Weismann, Professor of Freiburg University, and supported by Hackel. The one school believes that personal characteristics are transmitted; the other that the individual traits are due to their environment.

Up to a certain point they agree as to the influences of heredity, but they differ in some general points, namely those expressed by Darwin concerning cell life. He says that infinitesimal particles collect in the reproductive cells, and hence any change arising in the organism at any time during its life is represented in the reproductive cells.

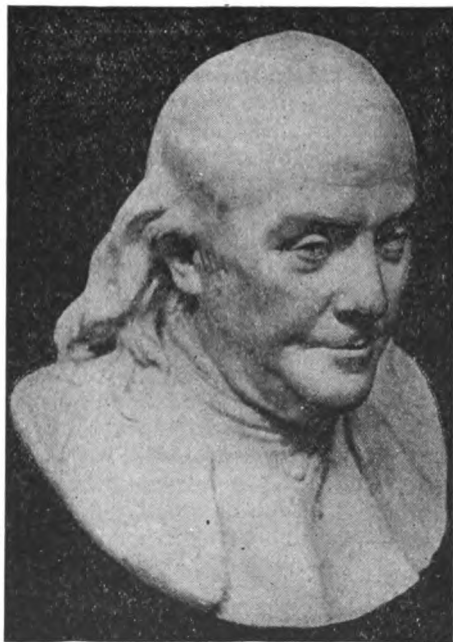
While the other school, represented by Weismann and Hackel, varies from the former in theory mainly. Thus Hackel regards heredity as an overgrowth of the individual, with which view Weismann agrees. They deny that characteristics are transmitted, as the other school are prepared to assert, and insist that variability is the result of organic changes in the reproductive cells, which changes are the result chiefly of the fortuitous combinations of certain elements in the germ cells. They concede, however, that during formative periods of the individual, environment may affect the germ cells directly.

Thus the one school of scientific thought and enquiry on the principles of heredity believes that acquired characteristics are transmitted from parent to child, while the other school would have us believe that environment is the accountable agent for the tendencies, good or bad, that make up the sum total of persons' lives.

He who forms his own character is at the same time helping to form the character of subsequent generations. We are not simply ourselves; we are also products of the past.

Heredity influences the internal organism, the heart, the osseous, muscular and nervous systems, and the size and form of the cerebra. convolutions.

But we would like to enforce the thought upon our readers that it is not the inherited thing itself, but the tendency that we have to deal with. We inherit a tendency toward a certain form of character, and it rests with ourselves whether we care to increase or decrease it, whether we accept or decline to accept the tendency toward that attribute of the mind or not.



BUST OF BENJAMIN FRANKLIN

Heredity, then, is first a transmission of the tendency through certain characteristics and mental qualities.

Secondly, we find unmistakably that physical and mental qualities—including moral and intellectual, social and executive, are inherited, but we can change the attitude of our minds just the same as we can strengthen our physical qualities and toughen our muscles by exercise.

Thirdly, the tendency to various dis-

eases is transmitted, especially in the case of consumption, insanity, cancer, dipsomania, dyspepsia, heat affections, kidney disease and liver trouble. These diseases stamp their tendency on the constitution of offspring more permanently than such diseases as measles, scarlet fever, typhoid and diphtheria. But all of the above diseases can be eradicated, even when handed down to posterity, through the individual taking proper thought and cultivating the right environment for the life germs to grow in; and it is for this reason that the subject should be studied from a scientific and phrenological point of view, in order that there may be no accentuation of the evil tendencies, and only the stronger, better, and healthier inheritances preserved.

FAMILY RESEMBLANCES.

What do we learn by examining the physiognomical and mental characteristics of such families as that of Daniel Webster, for instance, whose eyebrows were long, thick and heavy? We find the same characteristic in a sixteenth cousin of Daniel.

Or in the Rogers family, distinguished for red hair, we find that their descendants in this country have the same characteristic stamped upon them, and the force of this hereditary fact is apparent.

Or we might take the Franklin and Folger families. The likeness and form of body of Franklin were peculiar. Some of the characteristics showed themselves in large, deep chested and round shouldered forms. Benjamin Franklin's mother was a Folger, from Nantucket, and descendants of her brothers show a marked resemblance both in the general structure of their bodies and in their family likenesses to Franklin. The portrait of Walter Folger compared with that of Franklin, the son of his grandfather's sister, affords a striking example. George Folger, of Nantucket, is another instance of the same Folger

likeness. William Holmes, of Boston, bore a striking resemblance to his uncle, Dr. Franklin. So did John Tappan, of Boston, show the same Franklin likeness and structure, and his mother, Sarah Holmes, a granddaughter of Franklin's sister, whose mother was, of course, a Folger, possessed the same characteristics.

The maiden name of Lucretia Mott, so widely known as a Quaker preacher, was Folger, and she was from the same Folger stock from which Franklin inherited his mental and physical peculiarities. Her forehead, like his, and those of John Tappen and Walter and George Folger, was high, broad, projecting, expansive, and indented in the middle, and her face, like theirs, had that same square-cornered aspect which all Franklin's front likenesses show him to have possessed.

HEIGHT AND STATURE INHERITED.

We might also mention many instances where height of stature, or shortness of the same, have been preserved generation after generation. One very evident fact is illustrated by the Scotch, who were formerly ambitious to have large and tall sons for warriors, and so they selected tall and well built women as wives for their sons, so that small women, whatever their excellence of character might have been, were doomed to live a life of single blessedness. May we not infer from the above fact that it is through the inheritance from their mothers that most Scotchmen are above the average height? Outside of Scotland, however, the reverse taste in regard to the height of women prevails in many parts of the world, and small women are now preferred as wives. If this fad prevails, we may expect that the children of the future will be under rather than over the average size. Exceptions exist, however, where children take after their fathers who are tall, instead of their

mothers, and there are rare instances where large parents have small children; but as a rule we find it to be a fact that small parents have small children. Some children take after their grandparents, and a generation is skipped where the influence of such a grandparent was particularly strong.

WEIGHT INHERITED.

Not only do we find that height of stature is inherited, but also weight and muscular strength. Families of giants have been known to inherit their strength, height and weight from their parents and grandparents. One case might be given here of a Belgian giant who was seven and a half feet in height, four feet two inches around the chest, twenty-eight inches around the thighs, twenty inches around the calf of his leg, and three hundred pounds in weight. He was twenty-five inches long when he was born, and weighed twenty-six pounds. When twelve years of age he was five feet ten inches in height, and at fourteen over six feet. He could lift eight hundred pounds, and straighten himself under two tons. What is interesting in his heredity is that his parents were both athletic, and his paternal grandfather was nearly as large and strong as himself. So was his great-grandfather on his father's side.

Another case proves the same fact. Mr. D. H. Lewis, once Speaker of the Lower House in Congress, weighed four hundred and thirty pounds, and had to have a chair made expressly for him, and always filled three seats in a stage coach. His brother weighed four hundred pounds, and his sister over three hundred.

A gentleman in Salisbury weighed four hundred pounds, possessed large hands and fingers, and had a sister who weighed three hundred pounds.

A family in Southboro, Massachusetts, was composed of two brothers and three sisters. Together they weighed twelve hundred and fifty-

eight pounds, or an average of two hundred and fifty pounds each.

We have read that the Patagonians of South America are generally gigantic in stature, while a Mexican gentleman, who was a giant himself, had a son who measured seven feet three inches and three-quarters, and was well proportioned. In Germany a Mr. J. H. Reichart was eight feet three inches, and his father and sisters were both gigantic in stature. Frederick William I. had giant body guards who left a large race in Potsdam, where they lived.

As we have said, shortness of stature may also be transmitted; hence dwarfs are found in some parts of the world, and it is said that in Africa a whole nation of dwarfs have been discovered.

Everyone knows that the Esquimaux seldom attain the height of more than four feet eight inches, while the Mongul Tartars are only four feet nine inches in height.

A Polish gentleman, who was well proportioned, attained only to the height of twenty-eight inches. He had a brother who was thirty-four, and a sister who was only twenty-one inches tall.

In Auremburg, a Miss C. H. Stoberin was found to be only three feet high, and her parents, brothers and sisters were also dwarfs.

Again, we might refer to many cases in Maine which have come under our personal observation; one family in which the father was six feet seven, and two daughters over six feet. General Fessenden, of Portland, who was one of the first lawyers in that State, was a remarkably strong man, and as a hereditary mark we find that his father and uncle were also tall, strong and powerfully built.

Scotch history shows that the Douglasses were remarkable for their great physical strength. In battle a Douglass was generally found to perform

some superhuman feat of strength, and in times of peace some of the same clan were generally able to successfully eclipse all other competitors in games of throwing heavy weights, wrestling, etc.

Another family in Massachusetts, of the name of Gerrish, was known for several generations to have remarkable height and weight. Two brothers and two sisters weighed together thirteen hundred and forty-four pounds, giving an average of three hundred and thirty-six each. In duels, the brothers were always able to come off victors through their strength and skill.

It is stated that Jonathan Fowler, of Coventry, Connecticut, was the son of a large woman who weighed about three hundred pounds. She was endowed as well with extraordinary strength which her son Jonathan inherited, and many are the stories told of his prowess.

The Stuart family were also originally endowed with extraordinary muscular strength, one of the clan being so remarkable that he was given the nickname of "Gemmy Strength." At one time two boys of the Stuart clan were on exhibition in this country, who weighed between them seven hundred pounds, and who were remarkable as well for their strength. Our readers can probably multiply these instances ad infinitum, but sufficient has been said to show that inheritance is certainly demonstrated in the height, weight or diminutive size of whole families of well known people.

INHERITED LONGEVITY.

Another very interesting phase of our subject shows itself in the length of life of a large number of families, and many cases could be cited which would prove the inheritance of long life which has presented itself in every case. One is related of a Scotch woman who lived at Glasgow, and at-

tained the age of a hundred and thirty years. Her father died when he was a hundred and twenty, and her grandfather lived to be a hundred and twenty-nine.

A woman died in the west of England who lived to the age of a hundred and two, having four hundred and fifty descendants.

A man named Mr. Garville, in Scotland, lived to be a hundred and eight years of age, and his son still longer, and all his grandchildren attained a great age.

It is related of Thomas Parr that he lived to be a hundred and fifty-two years old, and he had a son who lived to be a hundred and nine, and a grandson a hundred and forty-three, while a great-grandson was aged a hundred and twenty-four.

In the Library of Health for 1840, some facts were given connected with the life and death of Donald McDonald, who was of quarrelsome character. He was sent to the House of Correction when about a hundred and five years old, and enjoyed excellent health about that time. His father lived to be a hundred and twenty-seven, and the story goes that no one knows when he would have died had he not been accidentally killed.

The Hon. John Alden represents a family who lived to a great age. He was one of the first to step upon Plymouth Rock, and when sent by Captain Miles Standish to get the consent of Priscilla Mullins and her father to a marriage with Standish, he was asked why he did not speak for himself. He took the hint, and soon afterwards they were married. He had nineteen children, sixty-two grandchildren, a hundred and thirty-four great-grandchildren, and seven of the fifth generation. He lived to be about ninety, and most of his descendants attained a great age. One lived to be ninety-two; a great-grandson a hundred and three.

The Franklin, Folger, and also the

Fowler families have lived to a good age. For instance, Franklin's father lived to be eighty-nine and his mother eighty-three. Neither of them were ever sick. Benjamin Franklin lived to be eighty-four, and his son eighty-two. Walter Folger lived to be over eighty. The great great-grandfather of O. S. and L. N. Fowler died at the age of ninety-three, and their grandfather over eighty; in fact, at that age he was able to do a considerable amount of hard work. Eliphalet Fowler and his wife lived to be eighty-four, and nearly all her brothers became very old. One died at ninety.

The Coffin family also lived to a good old age.

PECULIARITIES.

Peculiarities, such as early baldness and gray hair, are hereditary. Numerous cases have come before our notice concerning this peculiarity.

We also find that another strange peculiarity is often inherited, namely, that of a person possessing six fingers and toes. Were we to believe only in the theory of environment as causing this peculiarity, we would hardly find any cases where such a thing was handed down to posterity. Different authorities state the following facts: For instance, several giants are mentioned in the Bible who possessed six fingers on each hand and six toes on each foot.

Pliny describes a similar peculiarity that existed in his day.

Reaumur traced a like malformation in three generations. Four generations were observed to possess this formation by Thomas Carlyle. Among other instances, the Hobart family presents an interesting case; also Zera Colburn, the celebrated mathematician, which peculiarity he inherited from his mother. Mr. B. B. Newton, his father, and two out of three of his children furnish still other examples. Mr. French, Sheriff Butterfield, and Mr. Blanchard, were other instances of the above-named peculiarity, and,

singularly enough, though many of them had them amputated at birth, they still appeared in their progeny.

Who has not seen cases of inherited flaxen locks?

DISEASE INHERITED.

With regard to diseases that are inherited, many cases could be cited of consumption, gout, cancer, scrofula, dyspepsia, and heart affections, as well as insanity and idiocy. But these we need not enlarge upon here.

THE TENDENCY TO INHERIT ENDURANCE OF HEAT AND COLD.

This tendency has been traced in whole families, some feeling the cold, and being only able to live with comfort in warm climates, while others who live in northern countries, like the Esquimaux and Russians or Canadians feel the exhilaration of cold weather, and wilt when they go to hot climates like India and other tropics.

Though we pass over this subject with but a few words, we do not fail to see the importance of it, especially when selections in marriage are made.

THE TENDENCY OF THE INHERITANCE OF MENTAL FACULTIES.

This part of the subject of heredity is a very important one for us to consider as a racial one, in the study of the Chinese, Japanese, Hindoos, Jews, Germans, French, Irish, Scotch and English, and Phrenology takes notice of the various inherited faculties more distinctly than any other. In fact, though the physical peculiarities are very important, yet the mental characteristics are so intimately allied with phrenological considerations, that we would like to give as much space to this part of our subject as to the other.

Do we not find that people are constantly comparing the shape of the heads of their offspring with the parental stock, for character corresponds to shape, and every form of head and body accompanies certain mental instincts and characteristics. Thus every

parent is anxious to trace in an offspring what peculiarities have been inherited.

If a child is quick to catch sounds, and loves to sit at the piano or play some instrument which the parent has been wont to do, the fond parent is prone to think that he has inherited his talent for music.

We could cite Patti as an instance, whose mother was a beautiful singer, and sang in opera until just before her daughter was born.

Joshua Coffin and all his children have possessed musical voices and an ear for music which they inherited from his grandfather Coffin and he from his mother Moss. This grandfather had twelve children and over forty grandchildren, all of whom sing, as do all their children and grandchildren. This musical talent has already descended six generations.

We find that memory is also inherited. Elihu Burritt is an example of this fact. It will be remembered that he understood over fifty languages, his memory for which he probably inherited from his maternal grandfather Hinsdale, who was a remarkable man in this respect. Though every faculty has its memory, Elihu possessed a remarkable degree of Individuality, Eventuality and Form.

The reasoning powers have been inherited, and Benjamin Franklin, one of the world's greatest men, is a strong example of inherited mathematical talents, which showed through his large Causality, Constructiveness and Comparison. All young people should read his life in which he describes his parents.

We find the organ of Order has also been inherited from one generation to another. For instance, in Elias Hicks. Few persons have shown a larger development of this organ in their work than he did in his. His business, religion, everything, in fact, was done by him with perfect clock-work regularity. This peculiarity is

equally conspicuous in his grandchildren and great-grandchildren.

Calculation is another talent which is largely inherited. Zera Colburn is an example of inherited talent for mathematics, for at the age of six years he could solve mentally almost any problem propounded to him and astonished the great men of his day, and was probably related to the author of Colburn's Arithmetic. Both probably derived their extraordinary mathematical genius from one common ancestor. Zera's father also possessed large Calculation and showed a remarkable gift for computing figures. Zera's younger brother and a nephew have this organ largely developed. A son of the author of Colburn's Arithmetic, (which is a standard work because vastly superior to the old method of teaching figures, and shows its author to have been endowed with very large Calculation) has this organ also large, together with a literal passion for this class of studies. He is a surveyor and civil engineer.

Constructiveness, poetic genius, Conscientiousness, Spirituality, Benevolence and Philoprogenitiveness are also other faculties of the mind that could be enlarged upon if space permitted.

OTHER AUTHORITIES ON HEREDITY.

Schopenhauer says of Heredity: "The most ordinary experience teaches that in generation the combined seed of the parents not only propagates the peculiarities of the species, but also of the individual, as far as bodily (objectives external) qualities are concerned, and this always has been recognized."

Dr. Despines, in his "Genealogy of the Christian Family," leaves no room for doubt that criminals inherit their tendencies as distinctly and as surely as other people inherit an instinct for music or poetry. Mr. Girard, in his work on "Our American Mother of Criminals," is another authority on the

fact that criminal instincts are inherited.

Brierre du Boismont, Voltaire Moreau of Tours, Lucas, Esquirol, all recognized this tendency.

Esquirol saw at the Salpêtrière in Paris an idiot woman, the mother of two daughters and a son, all idiots.

Haller quotes two noble families where idiocy appeared in the fourth or fifth generation after its first appearance.

Ribot, in his work on Heredity, defines heredity as "that biological law by which all beings endowed with life tend to repeat themselves in their descendants; it is for the species what personal identity is for the individual."

Magnus Huss says: "A frequent effect of alcoholism is partial or total atrophy of the brain; the organ is reduced in volume, so that it no longer fills the bony case. The consequence is a mental degeneration, which, in the progeny, results in lunatics and idiots."

Morel, in his "Fraits des Dégénéralités," speaks of insanity in the offspring resulting from the fixed disease of inebriety in the parent.

Dr. Von Kraftebings describes atavism as the law by which the bodily and mental organization and character can be transmitted from the first

to the third generation without any necessity that the second and intermediate one should exhibit the peculiarities of the first, which is synonymous with what Darwin calls "Reversion to Type."

WORKS WHICH SHOULD BE STUDIED IN RELATION TO THIS SUBJECT.

The works which should be studied in relation to this subject are "Principles of Biology" (Spencer); "Natural Inheritance and Hereditary Genius" (Galton); "Heredity" (Ribot); "Darwin and After Darwin" (Romanes); "Science of the New Life" (Cowan); "Creative and Sexual Science" (Fowler); "The Law of Heredity" (Brooks); "Heredity and Personal Responsibility" (Wright); "The Man of Genius" (Lombroso); "The Divine Pedigree of Man" (Hudson); "The Degenerate" (Nordau); "The Growth of the Brain" (Donaldson); "Mind in Matter" (Hemstreet); "Heredity and Christian Problems" (Bradford); "The Evolution of Man" (Häckel); "The Germ-Plasm" (Weismann); "Foot Notes in Evolution" (Gordon); "The Origin of Species" (Darwin); "Heredity and Creative Science" (Fowler); "Darwinism and Race Progress" (Haycroft); "Heredity" (Fowler).

CHAPTER IV.

THE CORRELATION BETWEEN FOOD, BRAIN AND OCCUPATION.

Over twenty years ago we published an article in the English Phrenological Magazine on "Food in Relation to a person's Character, Occupation and Health," and year by year we have become more and more conscious of the importance of studying the question of diet in relation to character, health and disease, and many have consulted us on the question.

The most essential knowledge for every one to possess is to know how to live. To live properly we should live simply, and if we live simply we shall certainly live happily. Life having been given to us, it is our duty to make the best possible use of its privileges. Comparatively few people know how to eat, sleep, or take exercise in the proper way, because they know so little about their own organizations, the needs of the brain and brain cells, and the necessary conditions under which life is kept in health.

It is a fact worthy the attention of

every mother that the doctor would have fewer patients if every family kept a physician in the kitchen who made a record of the proper wants of the inner man of every member of the family, taking into account climate, health, age and occupation. The prevention of disease should in a large degree begin in the kitchen where so many "ills that flesh is heir to" arise. But when so comparatively few persons know how to select heat-giving, flesh-producing, muscle-making and brain-forming food, is the above to be wondered at?

CARBONACEOUS AND NITROGENOUS FOODS.

The elements of all foods are simple, such as the carbonaceous, carbohydrates, or heat-giving foods; the nitrogenous, proteids, or flesh-forming foods; and minerals or bone-forming foods. These, together with hydrogen and oxygen, form the bulwark of our physical being. Carbon forms the solid bulk of wood, seeds, fruit and oil; hydrogen combines with

oxygen to form water, and with carbon and oxygen to form oil, starch, sugar, etc. Nitrogen enters into the composition of vegetables, seeds, fruit, eggs, fish and flesh. Lime, soda, potash, magnesia, phosphorus, sulphur, etc. (which enter into the composition of the blood and are furnished by it to the brain, nerves, bones and muscles), are found in vegetables, and secondarily in animal substances such as milk, eggs and flesh. The primary elements of food, namely carbon, hydrogen and nitrogen, are the same the world over wherever they exist. Thus it has been truly said that every portion of an ox, his bones, sinew, muscle, nerve, fat and skin—is made from grass, grain and turnips, their ordinary food. Milk has flesh-forming, bone-forming, nerve-forming and heat-producing material in the exact proportion required by the above-named animal, and whether we eat butter, milk, cheese, beef or mutton, we eat grass at second hand. The vegetable and animal kingdoms are full of food productions, and we live on leaves, such as cabbage, lettuce, etc.; the stalks of plants, such as rhubarb and celery; roots and bulbs, such as carrots, potatoes and parsnips; seeds, such as oats, rice, peas, etc.; fruits, such as apples, pears, peaches, etc.; nuts, such as walnuts, peanuts and hickory nuts; flowers, such as cauliflowers; and an endless variety of other delicious foods. Therefore every kind of food we take has a direct or indirect influence upon the building up of our brains and bodies.

WHAT EVERY HOUSEWIFE SHOULD KNOW.

Every housewife knows, or should know, that motion and warmth are two essential conditions of life; even when the body is quite still there is continual movement going on in every part of it. The blood is constantly being pumped by the heart and carried

to all parts of the body; the lungs move with every breath, and a change is caused in the brain by every thought. To produce movement, some force or exertion is used, and all force involves wear and tear. This wear and tear takes place in the flesh and blood, the fat, the bones, and other materials of which the body is composed. If these used up materials are not replaced, the body will wear away and the animal existence become exhausted. It is of vital importance that a certain amount of heat be kept up in our bodies, which in a healthy person is about ninety-eight degrees.

QUANTITY OF FOOD.

Constitutions differ in regard to the quantity of food necessary for daily consumption in repairing the waste; consequently where there is greater energy used there is greater waste of matter, and hence such persons need a large supply of food. In keeping up this heat, something is used up, and it is this that requires replacing. Food is to the body what coal is to the fire. The body requires good food to give necessary life and heat, just as the grate needs the best coal to burn brightly without making a quantity of cinders. By good food we mean, first, rightly selected materials; secondly, its use in proper proportions; thirdly, cooking or preparing it in such a manner as to make it digestible or capable of replacing the waste of the body; and fourthly, the adaptation of food by the different circumstances of age, employment, climate and state of health.

Thus the person who works in the open air, who is strong and healthy, and who is engaged in active, executive work like engineering, building, farming, etc., can eat very different food from the person who is fleshy, plump, short in stature, and who has a quick circulation, lives indoors, and is occupied as a bookkeeper, stenographer, office clerk, musician, indoor

salesman, etc. The former, or those persons who live out of doors, require a substantial diet made up of beans, oatmeal, eggs, milk, wheat, butter or oil in the shape of nuts, sub-acid fruits such as sweet apples, mellow peaches, pears, etc., and a more liberal combination of heat-giving and flesh-forming foods; while the latter, who are engaged in sedentary occupations, should not eat sweets, oils, fats, butter, fat meat, pastry or chocolate. They do not work where there is sufficient oxygen to counterbalance these kinds of food, but they can take with benefit, hominy, Quaker oats, crushed wheat, codfish, and acid fruits, such as oranges, grape fruit, lemons, limes, and berries, like currants, strawberries, cranberries, gooseberries and sour cherries.

In the preparation of food the first consideration should be healthfulness. Each person should study himself or herself to know what his or her physiology requires. Some physicians are content with giving directions as follows: "Be careful of your diet, eat what you find agrees with you, take plenty of good nourishing food, and drink a glass of ale, stout, port or sherry occasionally." But this kind of prescription is calculated to do much harm as it is not specific or individual.

HOW TO SELECT OUR FOOD.

The three classes of food, namely heat-producing, flesh-producing, salts and water, must be represented in our diet if the body is to be kept in a healthy state, but before a man decides on what kind of food he wants to eat, he should first consider which class his body and brain principally require, whether (1) heat-producing, such as fats obtained from cream, oil and butter; starch obtained from rice, potatoes and flour; sugar obtained from honey, fruit and milk; (2) flesh-forming, such as obtained from lean meat, fish, skimmed milk, cheese and

white of egg; or vegetable food from peas, beans, lentils, oatmeal, maize, etc.; or (3) inorganic food, such as water and a few chemical elements.

The office of food, then, is to form blood, and the office of blood, under the direction of the life forces, is to nourish, strengthen and vitalize the whole system and supply the waste that is continually going on. There can be no reparation of any organ unless there is good blood. Good blood depends upon good nutrition, and good nutrition depends upon good digestion, which in its turn depends upon life, air, cleanliness, exercise, recreation and good food, as well as good water. Food in connection with nature's finer elements constitutes the best medicine. The tissue forming foods consist of the proteids and gluten, or the tough parts of the grain. Then we have albumen and fibrine, the gelatin and muscle of flesh-formers, as well as carbo-hydrates or heat-giving foods. All of the above foods are the basis of strength, and are the most nourishing of all fat, muscle and brain producing substances.

FOOD THAT IS COMPLEMENTAL.

We must have variety in our combination of food in order to build up the brain and produce the right elements of character. The true economy of food is to understand the quantity of gluten, fatty and mineral substance to eat, and so mix them that they may be agreeable and wholesome, and come the nearest to our needs. The arts of the kitchen have chiefly to do with the heat-giving and flesh-forming foods; and it will be observed that inclination leads us to couple foods together so that one may supply the other's wants or lacks. For instance, veal and poultry are considered flesh-formers, but are deficient in heat-giving material; therefore bacon is taken with them. Pork is very fat; therefore beans, peas and lentils are taken with it. Meat or eggs re-

quire some starchy food, such as bread or potatoes, to supplement them. Lentils range the highest as flesh-formers, and peas the highest as fat-formers; so instead of taking meat to give flesh or fat, if we will but take lentils and peas, we can obtain the same results with less tendency to receive into the system a quantity of uric acid and disease, and children who have never taken meat are not known to have become subject to appendicitis, while most persons who suffer from this disease have been accustomed to eating meat.

To cornflour milk is added as an essential. Turnips make good mutton, and are eaten with this kind of meat. Potatoes are rich in heat-producing element, and are eaten with meat, or with foods that are less so. Cabbage is rich in nitrogenous elements, and is eaten with cornbeef. Lettuce contains a quantity of opium, and is eaten with eggs, potatoes and beets in salad. Carrots, parsnips and beets contain sugar and albumen, and should be thoroughly cooked with food that does not contain these qualities. Fish contains more of the muscle-forming principle than flesh. Cream and butter furnish our stores of fat, and we find cheese is precisely the same in its flesh and tissue forming qualities as beef, but in a purer form.

It is a fact generally known that the great force of the elephant is built up on simply vegetable diet. Gorillas and monkeys, whom Mr. Darwin believed to be our progenitors and near relatives, live almost wholly on fruit and nuts. The camel, which carries heavy burdens across the sandy desert, feeds upon hard shrubs, and donkeys have strong muscles from the coarsest food. Dr. Nichol says that the best of all food is wheat, which is the king of grains; it contains the elements of nutrition, flesh-forming, nerve-producing, bone-making, brain-building and fat-creating elements. The gluten

of wheat is the same kind of matter as the albumen of eggs, the casein or curds of milk and the fibrine of the blood and flesh of animals; while the starch is convertible into sugar and fat. Bread is the staff of life, and wheat is the perfection of bread. Bread made from crushed wheat ground in one's own mill at home, makes the best kind of nourishment. Maize or Indian corn is scarcely known in England, but is served daily upon American or tropical tables, either as hominy, porridge, or in the form of meal from which johnny cake, and delicious puddings are made with the addition of eggs and milk. It contains more oil, but less gluten than many other foods.

We find that bread and cheese go well together, for bread is principally heat-giving and starchy, while cheese is flesh-forming. Bread and meat, or bread and beans can be eaten together, for bread is the heat-giving and meat or beans the flesh-forming food. Rice and cheese should be eaten together; rice is the heat-giving and cheese the flesh-forming food. Potatoes and lentils or meat should be eaten together, for potatoes are the heat giving and lentils or meat are the flesh-forming foods. Fat bacon and liver are eaten together, for one is the heat-giving and the other the flesh-forming food. Bacon and beans are eaten together, for bacon is heat-giving and beans are flesh-forming. Fat meat and peas are eaten together, for the fat meat is heat-giving and peas are flesh-forming. Rice, milk and eggs are eaten together, for rice is heat-giving and milk and eggs are flesh-forming foods. Inasmuch as one pound of cheese contains three times as much, and a pound of haricots beans, peas or lentils about twice as much flesh-forming food as one pound of beefsteak, costing double, or three times as much, we advise the adoption of vegetable food instead of meat. In the winter cran-

berry sauce is eaten with roast turkey and apple sauce with pork. It is not generally known that cereals should not be eaten with acid fruit, but prunes combine well with cereals, while pine apples are excellent with brown bread.

THE TEMPERAMENTS.

As Phrenology has much to say concerning the building up of brain cells and brain tissues, we submit the following suggestions for the benefit of our readers.

THE VITAL TEMPERAMENT.

The Vital Temperament naturally selects carbonaceous or heat and fat-forming foods; but to counteract too large a supply of these elements, a person should take more nitrogenous food and a less starchy or heat-giving diet. Therefore eggs, milk, oranges, grape-fruit, apples and grapes, fish and farinaceous articles, graham bread, oatmeal, rice and tapioca are useful, while a person of this Temperament should avoid watery vegetables, fat meats, rich gravies, pastry, sweets, or sugar in tea or on porridge, and vinegar.

THE MOTIVE TEMPERAMENT.

The Motive Temperament naturally takes more pleasure from, and interest in, nitrogenous food, but as such persons do not want to accentuate or increase the Motive elements, but rather add flesh and fat, they must encourage the taking of oils in the form of nuts and butter, or fruit like bananas, muscatel grapes, prunes, figs and dates. Maize and cereals are also beneficial when taken with cream, while olive oil or milk can be taken plentifully.

THE MENTAL TEMPERAMENT.

Persons with this temperament generally have a delicate appetite, and are prone to eat the very things that are not beneficial for them. They should take some carbonaceous foods that are nutritious and fat-forming, such as oil found in nuts, as peanut butter, starch which is found in

potatoes, and heat-giving material which comes in parsnips, carrots, beets, etc. But only a little of the above articles should be encouraged, for as the Mental Temperament is not given very much to outdoor exercise or sports, there is small chance to get rid of, digest or assimilate such starch or heat-giving properties. Therefore eggs lightly boiled, milk taken with a third percentage of hot water, and fruit with farinaceous food such as graham bread, oatmeal, rice and tapioca are excellent. Fish used to be considered a great brain food, but much depends on the kind of fish whether there is much nourishment to be derived from it or not. If we wish to secure oil, we must select salmon, mackerel, Massachusetts herring and bass; while turbot, bluefish and scollops are much more nourishing and substantial than place, sole, fresh cod or brill. Vinegar, acids, malt liquors and tobacco are disturbing elements which should be eliminated from the diet.

Children who naturally are full of life and excitement should not take such stimulating food as meat, tea, coffee, chocolate, fat, mustard, horse radish, spices, pepper, or high seasoning of any kind; nor should persons who have irritated stomachs take this kind of food. They had also better avoid corn bread, buckwheat, strong acids, sweets and especially liquors and tobacco.

FOOD ACCORDING TO THE SHAPE OF THE HEAD.

A person should select his or her food according to the shape of his or her head. This advice comes from Phrenologists and Psychologists because they know better than anyone else what food will help to build up the mental powers that are deficient, and equally important is it for every one to know what food will help to allay the highly stimulated powers that are already too strongly represented.

Phrenology also helps us to understand that there is a mental faculty called Alimentiveness, known to scientists as the Gustatory Center, that plays an important part in the human brain. This Gustatory Center stands in the same relation to the brain that the kitchen does to the house. Some people are ruled by their Alimentiveness, and eat just what they want; others are guided by it with reason, and eat what they need; some people lose their temper when their Alimentiveness cannot be appeased, and so closely does this faculty affect the mind that many business men will not do important business until they have taken their clients out to lunch and selected certain kinds of food and drink for them. Alimentiveness is so closely connected with the stomach that the brain, through the pneumogastric nerve, is conscious of any stimulus or nourishment taken into the system. If the stomach is so easily acted upon by the brain, and the brain easily influenced by the stomach, then the brain and the stomach rule the organism, and some writers even go so far as to say that the stomach rules the world.

Persons with broad heads, as well as animals like lions, tigers, leopards, dogs, etc., prefer the meat and solid diet, and are carnivorous; while persons with narrow heads, and animals like the sheep, camel, elephant, monkey and gorilla, prefer a vegetable diet, soups and delicacies, and are herbivorous, also animals that are known for activity and speed, as the deer and hare, have narrow bodies and heads.

High headed people are generally philanthropic, religious and sympathetic, and are generally light eaters, and care little for solid food; persons who possess a low head and prominent brows are executive people, and generally like solid food and strong drinks; and persons who possess well developed back heads like

fat, sweet and starchy foods, and are naturally social, convivial and friendly; hence like company and good things to eat.

To counteract this kind of preference, the broad-headed people should eat wheat, oatmeal, hard crackers, and such vegetables as carrots, turnips, parsnips, onions, and should avoid meat and stimulating foods. etc. Narrow-headed people should live principally on cereals, corn meal, prunes, salads, poultry and game if meat at all, and sweet fruits. High-headed people should select a nourishing diet, such as lentils, brown bread, lightly boiled eggs, warm milk, apples and bananas. Low-headed people, and those with heavy brows, should select wheat, beans, peas, cabbage and potatoes, also oranges and limes; while people with the full back head should select force, Quaker oats, milk puddings, fish, and nuts well chewed, and grape nuts.

FOOD AND OCCUPATION.

From the earliest times down to the present day, food has been an incentive to work, and a scientific relation has always existed between food and occupation. Hence we should select our food according to our calling and position in life, as our occupations require certain brain developments. Thus outdoor workers as engineers, builders, seamen, excavators, and farmers can eat oysters, raw food, and animal food, with more immunity than those who follow sedentary occupations, such as writing, dress-making and banking, though we would not advise them to do so, as Destructiveness and Combativeness are generally well developed and do not need further encouragement.

NATIONAL FOODS.

When traveling round the world, as well as from many books on the subject, we have learned that different nations have adopted foods which apparently suit their tastes,

their occupations, and their characters better than that of their neighbors. For instance, John Bull, or our English cousins, like roast beef, stuffed goose, Bass', Stout, and Guinness' Ale; and while we do not agree on the wholesomeness of any of the above articles of diet, we realize that the damp and heavy climate inclines people to enjoy these foods. If we go across the Channel, we find that Frenchmen like soups, café noir, rolls and light wines. In sunny Italy, the Italians like macaroni and fruit. Further north in Germany, the Germans like beer, sauerkraut, potato salads, etc. In Southern Spain the Spaniards like garlic, onions, etc. Further East, the Hindoos are brought up to believe that fruits contain all the elements that sustain life, and they eat no meat at all. In Australia, especially in Queensland and some parts of India and Ceylon, the colored population live on bananas, pineapples and melons.

Elderly people in a negative condition generally can stand a more stimulating diet than young people. Those who have too much soft adipose flesh should exercise much in the open air, avoid fatty and starchy foods, and adopt the proteids more generally, or tissue gluten foods. Thin or lean people should use more of the amyloids such as starch, gum, sugar, and some fatty substances.

Costiveness should be treated by the coarser foods and mushes with fruits, especially prunes; while boiled milk, tea, white sugar, and white bread are less appropriate. Vinegar, being fermented, is less healthy when an acid is required, than lemon juice, and olive oil and cream are more digestible than butter or lard. The fruits of the earth are in many cases nature's true medicines, and here we invite the attention of dyspeptics and invalids to the most delicious of continental cures—the grape cure. It

consists of living entirely on bread and grapes during August and September. With a moderate portion of bread—twelve or sixteen ounces—patients eat from two to four pounds of grapes a day. They walk about among the vineyards breathing a pure air, enjoying the sunshine and rest from all toil and care. Such pure food makes pure blood, and pure blood builds up a healthy brain and body, and a healthy brain produces pure and healthy thoughts.

Substitutes may be found, though not of equal benefit. The strawberry cure may be nearly as effective, while there is considerable virtue in ripe gooseberries. Oranges are of almost equal value in a medicinal way. Plums, pears and apples are healthy fruit cures for many ills. But apart from substitutes in other fruits, how can we have the grape cure at home without going abroad and spending an Autumn in the Tyrol or along the upper Rhine or Rhone? In this way: the richest grapes in the world grow along the shores of the Mediterranean. These large luscious grapes are dried in a nearly tropical sun, and then packed up in boxes and kegs and sent to us as raisins. We put a few of these grapes into puddings or cakes, but that is not the curative way of eating them. They used to be Sir William Gull's favorite lunch. We get a few at dessert with almonds after a full dinner; but that is not the grape cure.

How then? Well, try this way. It is the very best substitute for the fresh grape cure we know of. Any one can buy some good pudding raisins. The water has been mostly dried out of them. Wash them well with plenty of water, and pick out any imperfect ones; then put them to soak all night in as much water as they will absorb to swell them out to their natural size; then bring them slowly to the boiling point and let

them simmer half an hour. You have then a most healthful dish. Live on brown bread and these plump delicious grapes, and you have the continental grape cure in another form in perfection at home. Many have tried it and know that it is good. It has the peculiar advantages of being procurable everywhere and at all seasons, and there are very few curable diseases which such a diet will not benefit.

A healthy brain and good health depends upon five essentials: pure air, personal cleanliness, clean and well ventilated houses, pure and healthy food, and pure water. Purity being the condition of health, the pure body is a healthy body and brain.

Let us as a rule follow nature as she points out to all the members of the animal kingdom their proper food. She will also assist us in our selection. We would do well to remember this motto in eating: A light pure diet makes a clear active brain.

A PRACTICAL INCIDENT.

A gentleman once gave a dinner to twelve of his friends who were all specialists in diet. One ate nothing but fruit; another raw food; another cereals; another vegetables and cereals and no meat; another meat, but no bread or vegetables; another milk only; another fruit and nuts; another no animal food at all; another suncooked foods that grow out of the earth; another bulbs, or those foods that grow under the earth. Thus he collected together at one table vegetarians, meatarians, fruitarians, sunitarians, bulbarians, antifermentarians, milktarians, and granitarians. The gentleman supplied each guest with courses to suit his own particular taste, while he himself selected what he considered the best food of all his guests; he afterwards asked each person to give his reasons for selecting the food he ate,

whose speeches formed a very valuable contribution to diatetics.

AUTHORITIES THAT SHOULD BE STUDIED ON THIS SUBJECT.

The works that should be studied in relation to this subject are "Glutton or Epicure," "Nature's Food Filter," "What Sense in an Economic Nutrition," "Menuculture" (by Horace Fletcher); "The Royal Road to Health, or The Secret of Health without Drugs" (by Chas. A. Tyrrell); "How to Live Forever" (by Harry Gaze); "Science of Health" (by Samuel and Helen Fallows); "Perpetual Health" (by F. M. Huebner); "The Philosophy of Fasting" (by Edward Earle Purinton); "Our Digestion" (by Dio Lewis); "The New Doctor, or Health and Happiness" (by S. M. Biddle); "How to Make a Man" (by A. T. Story); "The Rudiments of Cookery" (by A. C. M.); "The Hydropathic Cook Book" (by R. T. Trall); "Health in the Household" (by Susana W. Dodds); "Homo Culture" (by M. L. Holbrook); "The Health Miscellany"; "Hydropathic Encyclopedia"; "Hygienic Cook Book" (by Mrs. Mattie M. Jones); "The Diet Cure" (by T. L. Nichols); "Diseases of Modern Life" (by Benjamin Ward Richardson); "Fruits and Farinacia" (by R. T. Trall); "Fruit and Bread" (translated by M. L. Holbrook); "Dyspepsia" (by E. P. Miller); "Dyspepsia and Its Treatment" (by James C. Jackson); "Eating for Strength" (by M. L. Holbrook); and works by Dr. Dewey, Mr. Haskell, Dr. Carpenter, Dr. Lancaster, Dr. Buckmaster, Dr. Parry, Dr. Parks, Mr. M. A. Church, Professor Chittenden, and many others, all of whom have thrown much light in their practical books on health and by lectures upon food and its chemistry, and the relation of the food we eat to the brain and its requirements.

CHAPTER V.

THE CHOICE OF PURSUITS

OR HOW TO SUCCEED IN LIFE.

By making a right choice of pursuits, a man is generally able to succeed in life; but when a person does not know what to do or how to prepare himself properly, then he is liable to make a failure and wonder why he does not succeed like his fellows.

Phrenology has much to say to a young person just starting out in life, and every one who cannot step into his father's shoes (either girl or boy), should consider for what he is adapted, and when he has decided upon his pursuit he should follow it earnestly and with concentration of mind.

Every faculty of the mind is a letter in the mental alphabet, and represents its distinctive ingredient of thought force. Each thought and each act is a word in the language of life, because it represents its own peculiar combination of letters. True character building is to so combine the thought ingredients of

human character that they will express themselves through the natural faculties in that comprehensive and orderly perfection which faithfully represents the completeness of their underlying cause and effect. As each thought and each act is a word in the language of life, so each letter has its own peculiar vibration. In the study of any branch of learning or line of business, if the square peg is not in the square hole, it is lost. Unfortunately, very often the round peg gets into the square hole and remains there all its life, while the right adjustment of a person's mental vibration would have enabled him, with a knowledge of Phrenology, to get into the right groove.

In this question of choice of pursuits as discussed by Phrenology, it is necessary for us to study the importance of business training; success and its meaning; how Phrenology helps to bring success; the



Photo by Rockwood

MR. FRANK TILFORD,
Prominent Business Man.

characteristics of the business man, such as the merchant, and all classes of business men; the characteristics of the professional and semi-professional men, such as engineers, lawyers, physicians, ministers, artists, musicians, politicians, etc.

BUSINESS TRAINING IMPORTANT.

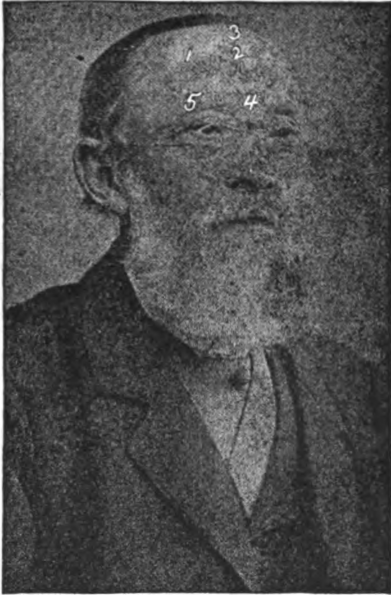
Business applies to all those commercial interests in which trade can be opened up. It consists of channels for advancing commerce; even every profession has its business as well as its professional side. So the two are linked together.

It is the business of every medical man to keep accurate accounts, to send out his bills for professional

services and to collect them regularly. The business side of the legal profession is not only to charge for advice, but to collect fees for professional work. The dentist is busy from morning till night, but what does his profession amount to if he neglects to total up his accounts and attend to the financial part of his profession? The minister is the only professional man who is not supposed to do any business outside of his ministry, but what pastor makes his work a success who has not a head for the finances of his church? It is to him the church looks to unlock the pockets of the members of the congregation. He may preach eloquent sermons, but the church has to be sustained by good collec-



LORD KELVIN, the Celebrated Electrician.



**PROFESSOR VIRCHOW, the well known
Physician and Pathologist.**

tions, and business has to be transacted in various ways.

Every young person has first to make up his mind whether he is going to train himself or herself for a professional or business life. A person may have good parentage, wealth, position, and every advantage possible, and yet not be truly successful or elevated in mind or character. To be successful, or rise in the world, in the true sense of the term, is to emerge from the physical condition into the mental; from the animal and material to the moral and spiritual.

SUCCESS AND ITS MEANING.

Some persons do not succeed because they meddle with other persons' business more than they mind their own; others fail because they

leave their tasks half done for someone else to complete; some attempt too much, others too little. In order to succeed we need to put our whole nature—talents, strength and love—into what we do. Some live so fast that their lives are too short to finish their work. Others work beyond their strength and break down in the midst of their task, not knowing how to economize their strength. For examples we have Lord Byron, Robert Burns and Pillsbury, the champion chess player. The majority of people do not know the amount of strength they have, so as to work to a good advantage. Weston tried his strength in walking tests; Captain Webb lost his life by swimming the rapids of Niagara; he had been successful in



Photo by Rockwood

**HON. JOSEPH H. CHOATE, Lawyer
and Diplomat.**

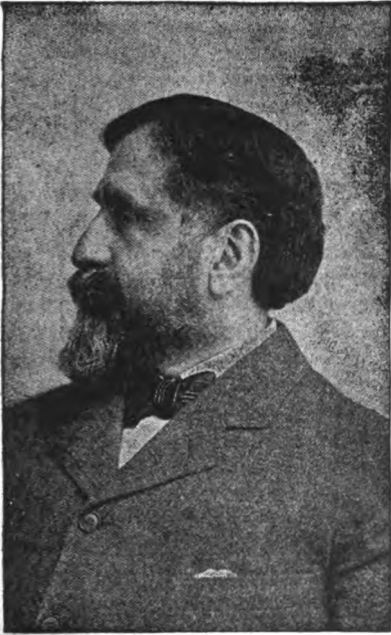


Photo by Rockwood

HON. E. LAUTERBACH, LL.D.,
A well known Lawyer.

many other contests, but he overreached his strength in this one. Prosperity more frequently leads to ruin than adversity, while adversity often leads to effort, and brings out the energy that is in a man, and comparatively few talented men make the most of their abilities. Because a man is a genius, that is no argument that he will be successful; facts often prove the other way. Talent sometimes makes a person conceited and careless, while moderate talent often works hard and succeeds. Yet persons wonder why it is that many successful men and women have not the finest shaped heads, or the best developments and the brightest talents. When we take into account that Edison has

worked early and late to accomplish his many ingenious inventions, we can understand that, although talented, he has what very few persons possess, namely, persistency as well as availability of talent; perseverance as well as versatility of mind. When the standard of a man is higher than his actions, there is reason to expect that he will succeed.

In order to succeed a nation needs people, and in order for people to succeed they need brains which require to be properly used. A teacher needs learning and wisdom; a minister needs a good moral brain and a love for his calling; a business man needs honesty; a mechanic needs industry; a student needs application; a lawyer needs logic and an analytical mind, and a doctor needs intuitional judgment and sympathy, keen perceptsives and hopefulness.

A man should not depend for his success on the voluntary aid of others or on borrowed capital. If a

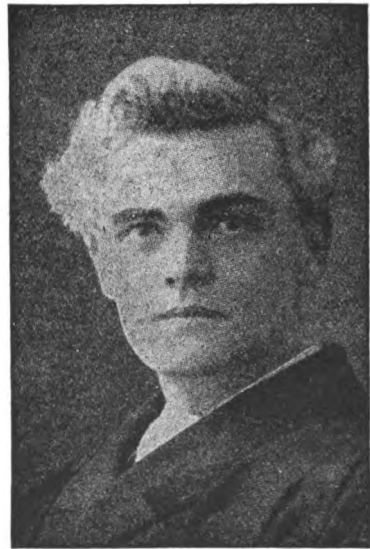


Photo by Rockwood

REV. R. J. CAMPBELL, of London.



REV. THEODORE CUYLER,
of Brooklyn.

person has no special genius, then he should select a business that does not require any particular talent. There are enough clerks; the professions are full; while farmers are finding that the more education they have concerning the chemistry of soils and the raising of stock, the better they will succeed. A person should do his work so well that it will advertise itself; he should do his work at the right time, that it may be appreciated. In order to succeed, a person should not break his promises, and he should not be so long about his work that it is not wanted when it is done. He should leave his impress upon his work and make it a pleasure rather than a necessity, and a person, to succeed, should spend less money than he receives.

In order to succeed, a person must be honest. One of the largest paper warehouses in New York City was begun by a ragpicker who always sorted his rags honestly and sold exactly the kind he labeled; hence

dealers had confidence in him, and the business is carried on to-day as honestly as when he had only a basketful of rags to sort out.

The Rev. Dr. Hillis once said: "Success represents the rule of three. Multiply one's talents by one's opportunities, and divide by circumstances and limitations, and you have the career. Unfortunately the divisor, called circumstances, is often made too large. Strictly speaking, everything depends upon the man. Every day I hear some youth exclaim: 'If I only had a chance'; another: 'Give me his place'; and similar expressions indicating an over emphasis of opportunity and an under emphasis of self-reliance."

DOES A KNOWLEDGE OF PHRENOLOGY
HELP TO BRING SUCCESS?

The answer to this question unravels a great deal of inquiry concerning the usefulness of Phrenology. Many business men do not know that they are using their keen intuitional gifts in selecting their employées, assistants and partners, yet they are constantly judging of the characteristics of their clerks as well as customers, through these faculties, while their Comparison is employed in selecting materials, such as silks, velvets, plushes, cottons, muslins, woolens, etc., etc., and their faculties of Ideality, Color,



DWIGHT L. MOODY, Evangelist.

Weight, Calculation and Acquisitiveness are constantly exercised, and the benefit of knowing something of Phrenology is shown in this way.

THE EXPERIENCE OF SOME WHO HAVE TRIED IT.

A man was connected with a large dry goods house, and after he attended the class at the American Institute of Phrenology, a man came into his store and ordered a large amount of goods. The clerk considered that he was not an honest man, and told the head of the firm (Clafin & Co.) what he thought. This idea was respected, and it was found to be the true character of the man. The firm was saved a great loss, for he would probably have served this firm as he had others. Phrenology came to this young man's aid, and can be used in hundreds of similar cases. It is put to the test unknowingly, for every man is a private detective over his neighbor.

Another young man who was in an agency line of business in which he could measure his power for success, increased his facility as a salesman a hundred and twenty-five per cent. after taking the course of instruction at the American Institute of Phrenology, and in six months' time, beside the six weeks' term of tuition, he had made more money, beside paying for his tuition and the loss of time, than he had ever made in six months; and if so much aid were given to the business man, what might not the teacher or professional man expect, the instruction being exactly in a line with his professional work?

A quarter of a century ago commercial enterprise was not looked upon in the same light that it is today. If anyone would take the trouble to examine the question he would see at once that formerly the leaders of thought and opinion were professional men, and that in all lo-

cal matters the clergyman held well nigh undisputed sway over his neighbors. In the broader field of state and national affairs the lawyer was chiefly called upon to represent the community, and guide its affairs, but to-day the foremost men in a community—those who make public opinion and wield social power—are the leading business men of a town or city. This is owing to the fact that business is based on a different footing to-day, and commercial education takes a higher position. Thus our colleges prepare men on a broad and comprehensive basis in order that they may take charge of problems they were never confronted with before.

When business was associated mainly with retail trade, it did not develop broad-gauge men, but the larger enterprises of the age demand foresight, prudence, boldness and broad views of men and things. Hence the greater respect in which business leaders are held to-day. Therefore under modern conditions, banking, transportation and manufacturing demand as high an order of ability as any professional line of work.

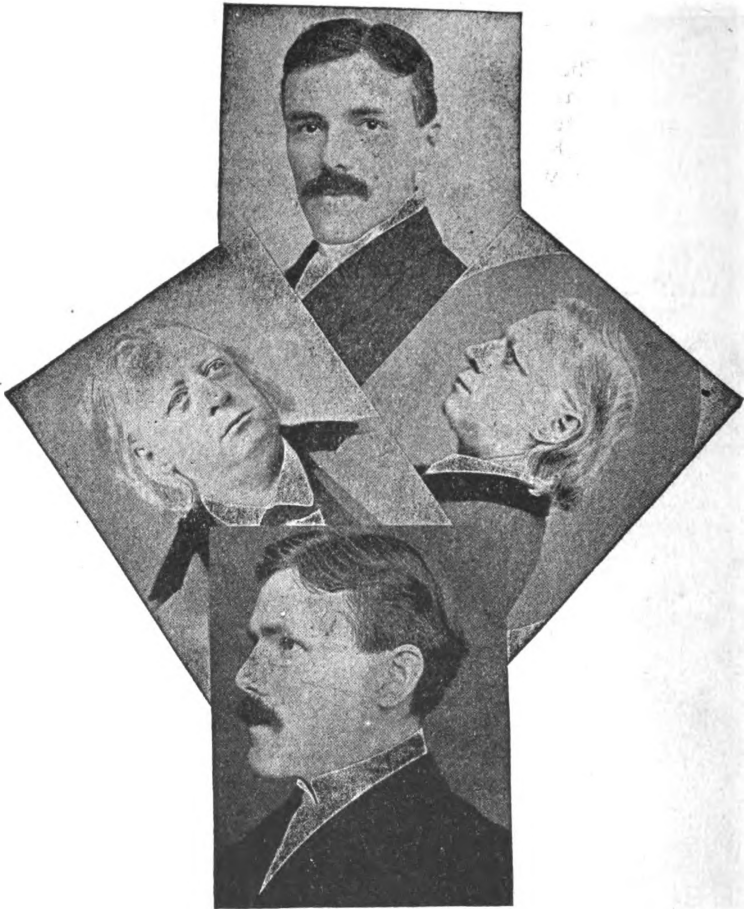
The public even recognizes this ability and honors it with responsible positions of trust. It is not mere wealth that takes railroad men, bankers and manufacturers into the United States Senate, but it is the recognized fact that they are the leaders of their respective communities.

Even church organizations call prominent business men into their administrations, and in the gathering of religious bodies the prominent layman is frequently a factor as important as the clergy. Colleges and Universities deem business abilities as an essential qualification of their Presidents.

When the church and the bar contained all the leaders of thought. the

colleges, of course, wisely furnished a type of education which fitted men for legal and theological studies; but a different type of education is required to-day to train these new leaders of thought and opinion, namely: the banker, the merchant, the manufacturer and the railway President.

good business men are Calculation, Acquisitiveness, Destructiveness, Combativeness, Comparison, Human Nature, Agreeableness, Conscientiousness, and a full degree of Cautiousness, Ideality and Imitation, for the reason that keen calculations have to be made on the probable profit and loss on business



Photos by Rockwood

REV. HENRY WARD BEECHER and REV. NEWELL DWIGHT HILLIS.

THE BUSINESS MAN.
The faculties that are large in

transactions, an acquisition of and economy in laying out money; en-

ergy to hustle and courage to clear away difficulties; Comparison to make a suitable selection of goods; Intuition to understand human motives and character; geniality to meet business men agreeably; a conscientious regard for equality and fairness in all transactions; a full amount of prudence, foresight, taste and adaptability of mind.

A commercial man requires a knowledge, first, of accounting and business practice; secondly, business law; thirdly, banking; and fourthly, commerce and transportation. Thus one sees how the various faculties of the mind are called into action by men of Mr. Frank Tilford's experience, for he has not only large retail and wholesale grocery stores, but he is also connected with corporations, gas companies and banking enterprises.

AN ACCOUNTANT.

The Perceptive faculties are necessary to the making of an excellent accountant who has to record business transactions; therefore clear penmanship, neat figures, proper rulings, accuracy and speed in calculations are necessary characteristics for a bookkeeper.

THE MERCHANT.

The merchant buys to sell again. He has a certain keen look, an exceedingly interesting face, and a sharply developed intellect. Some have the planning and outlining to do for all the employées of a large business; others do the buying, while still others the selling.

In every department, however, the keenest intelligence is required in order to cut competition down fine. Brains count in the battle for business as in everything else. It is the well trained brains that see that the business methods adopted some thirty years ago will not answer now; that new designs, new

schemes of advertising, new goods have to be the order of the day, or else old firms are left behind, break up, or pass into fresh hands.

THE DRY GOODS BUSINESS.

Thirty years ago the dry goods business was content to sell goods that came under that name only, but to-day storekeeping is not so individual in its type as to exclude any item from the selling of a white elephant to a yard of ribbon. Many include a variety of articles for sale which, properly speaking, touch a multiplicity of trades besides dry goods; groceries and stationery are to be found, and all kinds of hardware, photography, dentistry, etc., are included in their interests. It is therefore more difficult to separate the various branches of business now than formerly; hence the need of practical men to superintend the whole commercial interest of not only wholesale and retail trade, but the stock that covers so many branches.

The great difference that marks out one man from another shows itself in the long list of successful business men to-day, such as John Wanamaker, dry goods merchant, Frank Tilford, wholesale and retail grocer, Dr. Funk, of the Publishing Firm of Funk, Wagnalls & Co., Scribner, Harper and MacMillan, Waterman, of the Fountain Pen Co., McCreary, Altman, and Tiffany, the latter of the celebrated Jewelry Business, among hundreds of others.

THE PROFESSIONAL MAN.

To pass to the professional and semi-professional man, there are many classes that we would like to describe, as follows:

ENGINEERS.

Persons who wish to become engineers should select the kind of engineering for which they are adapted. For instance, Civil; Electrical; Mechanical; Locomotive;



Photo by Rockwood.

DANIEL HUNTINGTON.

The well known artist.

Stationary; Mining; Constructive; Naval and Army.

To become a Civil Engineer a person should have a Vital-Mental Temperament, and large Constructiveness, Form, Size and Imitation. This kind of engineer has often to combine indoor office work in making plans and drawing designs, with outdoor work, such as surveying for railroads and building viaducts.

An Electrical Engineer requires a Mental Temperament, and must possess a keen mathematical mind. He has considerable indoor work to do in the laboratory in connection with chemistry, physics and mathematical calculations, and, in conjunction with the Mechanical Engineer, works out electrical inventions, like the automobile, the air ship, the submarine boat, wireless

telegraphy, etc. He requires large Causality, Constructiveness, Ideality, and Spirituality, to give inventive talent and inspirational imagination, in order to consider new ideas, as Lord Kelvin.

The Mechanical Engineer—which includes the Practical, Stationary and Locomotive Engineer—requires a Motive Temperament, and has principally outdoor, active work to do. He requires large Perceptive faculties, Destructiveness, Combativeness and Constructiveness. His work is connected with mechanical appliances, engines, locomotives, etc.

The Mining Engineer requires the Motive-Mental Temperament, a strong constitution, an active organ-



Photo by Rockwood,

IGNACE PADEREWSKI.

The gifted musician.

ization, and large Constructiveness, Combativeness, Destructiveness and Perceptive faculties. He has to prospect, and know everything about Ores, Metals, etc., and compare them.

The Constructive Engineer may include in his work many of the above lines of engineering, for he is called upon to construct bridges, breastworks, aqueducts, sky-scrappers or forty story buildings, locomotives, steamships, etc., etc., so that he has to adjust himself according to the class of work he is called upon to do, and fit himself for that particular line. If the construction is with electricity or with steam, he has to classify or specialize accordingly.

The Naval and Army Engineers require tough constitutions, and generally the Motive Temperament, for they must be wiry and physically strong. They need large Perceptive faculties, very large and active Constructiveness, executive ability and courage, which come from Destructiveness and Combativeness combined, as they have to do with the construction of war vessels, torpedo boats, as well as heavy Artillery work.

LAWYERS.

If a young man (or young woman) selects the profession of law, he must consider whether he is adapted to the work of a Barrister; Commercial lawyer, which will include Corporation and Business Law; Criminal lawyer; Real Estate; Solicitor; Patent lawyer; Insurance lawyer; or to become a Judge, Magistrate, or Justice of the Peace.

A Barrister has to plead his case before a Judge and Jury, and requires a Mental Temperament. The faculties requisite for his success are Language, Comparison, Self-Esteem, Combativeness and Wit, and also a full degree of Sublimity, Human Nature and Conscientiousness,

for he has to be self-possessed, witty and independent, as the Hon. J. H. Choate.

A Commercial lawyer has to attend to business affairs, understand contracts, make out specifications, settle disputes out of court, and examine investments for large Trust Companies; hence he requires a well balanced temperament, joined to large Acquisitiveness, Constructiveness, Tact or Secretiveness, and Human Nature, as aids in his profession.

The Criminal lawyer requires a Mental-Vital Temperament. He has to search out crime, get hold of facts that are difficult to discover because they are often covered up and surrounded with all kinds of perplexing environments. He must therefore have large Human Nature and a full degree of Agreeableness, Imitation, Secretiveness and Firmness, and take pleasure in dealing with personality.

A Real Estate lawyer needs a Mental-Motive Temperament, for he has to do with property, and is generally an active man. He has much outside work to do, and requires a large development of the following faculties: Locality, Form, Size, Calculation, Comparison, Conscientiousness and the Perceptives. He has to transfer property, look up titles, select residences for people, and make large deals in property suitable for business purposes.

The Patent lawyer is a specialist, and ought to have a well balanced temperament, with a predominance of the Mental, if any. He has to compare patents and analyze points very closely, and look after and preserve the interests of the patentee. He has to know what patents have been brought out and what points are infringements, and what are not. Hence he needs large Comparison, Causality, and the Perceptive faculties.



RUBINSTEIN.

The Masterful Composer.

A Solicitor requires a Vital-Mental Temperament, as he has indoor, head work to do. He has to busy himself with looking up records, consulting Blue Books, and making Wills, &c. Hence he needs the faculties of Causality, Constructiveness, Human Nature and Agreeableness.

For Insurance law, a man should have a Motive-Mental Temperament. His work is to make people see the benefit of investing in insurance policies in relation to property or personality, and it is essential for him to be a glib talker, a witty debater, and possess a ready mind to answer all the objections against his policies. Hence he must have large Language, Human Nature, Comparison, Mirthfulness, Agreeableness, and Self-Esteem.

A Judge, Magistrate and Justice of the Peace have similar work to perform; hence they all need a Mental Temperament in predominance. If the Vital Temperament comes next in development, the person will

be a duplicate of Judge Fitzgerald, who is one of the presiding geniuses of the Criminal Court. If the Motive Temperament combines with the Mental, he will be more like Judge Gaynor, or Justice Brewer or the late Chief Justice Field. As a Presiding Elder of the Court, he needs to have great patience, power to deliberate carefully and conscientiously both sides of every case under consideration. He must not let prejudice or feeling bias him in the judgment that he gives in summing up a case, and must be willing to weigh facts and sift evidence, and be able to get hold of the kernel of truth wherever it is to be found. It is his business to point out to the Jury the evidence that has been brought out by the trial, or if insufficient evidence is at hand, and he must guard them against forming any precipitate judgment in coming to a conclusion as to whether a prisoner is guilty or not guilty. The decision of a Justice of the Peace and



BEETHOVEN, Composer.

Magistrate is final, as they have no Jury to advise. Therefore numerous petty crimes have to be considered by these two individuals. All these persons, however, have to possess large Causality, Comparison and Conscientiousness, with a full degree of Language, Self-Esteem and the Perceptive faculties.

It will be readily seen that law is a very analytical subject, and no person should study it without possessing a large share of this quality of the mind.

PHYSICIANS.

Before a person decides to be a doctor of any kind, he should make up his mind whether he is adapted for the work of a specialist; a family physician; a surgeon; a consulting physician; or medical missionary.

For a Specialist a young man (or young woman) requires a Mental Temperament, a well balanced intellect, large Human Nature and Comparison, and a full degree of Constructiveness, Cautiousness, and Benevolence. He may be an Eye, Ear and Throat doctor, in which case he should combine the Vital with the Mental Temperament; or were he an Osteopath he would require more of the Motive Temperament.

An ideal Family Physician requires the Mental-Vital Temperament, combined with strongly developed social faculties, large Human Nature, Benevolence, Hope, and only a full development of Combativeness, Cautiousness and the Perceptive faculties, for he has to adapt himself to all classes and conditions of people, young and old. He must be a good judge of human nature so as to apply the proper treatment to all his patients.

For a Surgeon, a person requires a Motive-Mental Temperament, though under certain conditions the

combination of the Vital is most essential with the Motive, for it adds delicacy and feeling. The faculties required for this department of medicine are large Perceptive faculties, Combativeness, Vitativeness, Destructiveness, Locality, Hope, Self-Esteem, and Conscientiousness.

A Consulting Physician should have a well balanced temperament. He does not need large Language, Agreeableness, Imitation, Benevolence, or the Social faculties, but he must have large Comparison, Human Nature, Constructiveness and the Perceptive faculties, with an active development of Causality. He has to be a kind of medical judge, and consider the pros and cons concerning the treatment given to the patient, and is called upon to decide whether an operation is required to facilitate a cure. He does not perform operations himself, but precedes a surgeon and gives a special diagnosis to the family physician.

A Medical Missionary is one who has decided to take up primarily missionary work, but intends to attend the sick either at home or abroad, and is generally sent out by some Missionary Society to superintend a hospital, to care for the natives who perhaps know nothing about medicine, and it largely depends on the country that he goes to what kind of temperament he should possess. If he were going to Alaska he would need more of the Vital-Mental Temperament; if to the tropical regions of Africa or India, he would be able to do his work better with the Motive-Mental Temperament, and should possess large Vitativeness, Human Nature, Benevolence, Veneration, Hope and Conscientiousness, large Perceptive faculties, and a full degree of Spirituality, Combativeness, Causality and Destructiveness. This kind of med-



Photo by Rockwood.

THE LATE WILLIAM MCKINLEY.

ical man has to be very versatile, and adapt himself to every contingency or change that may arise; he has often to build school-houses and residences to live in, and teach the natives all kinds of practical work.

MINISTERS.

If a person wishes to become a minister, and train himself (or herself) to become a pastor of a church, he (or she) must consider what form of theology he is going to preach, for nearly every form of belief requires a special conformation of head. This we find to be true among the following: the Episcopalians, Presbyterians, Catholics, Methodists (or Wesleyans), Congregationalists, Baptists, Universalists, Unitarians, Quakers, Swedenbor-

gians, Salvationists, Disciples of Christ, etc. For instance, the Mental Temperament, with large Veneration and Ideality, should be possessed by the Episcopalian and Presbyterian. The Methodist Episcopal or Wesleyan minister and the Roman Catholic Priest require the Vital-Mental Temperament, with a large development of the social brain, an emotional nature, with Benevolence and Agreeableness well developed. The Baptists and Salvation Army Captains generally possess a large degree of the Motive-Vital Temperament, with large Conscientiousness, Firmness, Sublimity and Destructiveness. The Unitarians and the Swedenborgians generally possess the Mental Temperament, with large Causality or reasoning capacity; while the Congregational



Photo by Prince, Washington.

HON. WILLIAM H. TAFT.
Secretary of State.

minister and the Disciples of Christ generally possess a well-balanced or harmonious temperament, with large Benevolence, Spirituality, Hope and Conscientiousness; and the Universalist generally possesses the Mental-Vital Temperament, with large Benevolence, Hope and Conscientiousness.

ARTISTS.

If a person wishes to become an artist, or sculptor, he must again differentiate and decide whether he will become a portrait painter or a painter of animals, or of landscape; a designer; an artistic house decorator; a scenic or stage artist; an architect or an artistic photographer. All require to possess large Human Nature, with perhaps the exception of the china, landscape and stage artist. For portrait, animal and photographic work one needs to possess the Mental-Vital Temperament, though a harmonious temperament is the ideal condition for this work. Among the faculties that should be large are Ideality, Color, Form, Size and Constructiveness; also Order, Conscientiousness and Imitation, as in David Huntington.

MUSICIANS.

Different kinds of musicians require a different combination of the temperaments and faculties, and this is what gives us our great diversity of musical artists. Among instrumentalists, we have performers on the piano, organ, violin, 'cello, harp, etc., besides vocal music, which again is divided into the work of specialists, such as tenors, sopranos, contraltos, bassos, mezzo-sopranos and baritones. We again have to differentiate in the kind of music that is studied, such as classical music, which calls for a development of the fore brain; sacred music, which calls for a development of the upper or superior faculties; ballad and folk-songs, which require a large de-

velopment of the social brain; patriotic and band music, which requires a development of the side, basilar or executive faculties. Examples are found in Rubinstein, Beethoven, Paderewski, and others.

POLITICIANS.

If a person decides to become a politician, he must differentiate as to whether he will become a Republican, Democrat, Independent, Prohibitionist, Tory, Whig, Conservative or Liberal. Each requires a training along certain views and lines of thought, but all, more or less, require a knowledge of law as a foundation for the working out of individual principles. Republicans have the Mental-Motive Temperament, while Democrats have the Mental-Vital; Tories have the Motive Temperament, and Whigs the Vital; Conservatives have the Mental-Motive Temperament, and Liberals have the Mental-Vital Temperament. Examples are found in McKinley, Taft, Roosevelt and others.

Occupations for Teachers, Gardeners, Builders, Dressmakers, Office Employéés, Housekeepers, Blacksmiths, Farmers, Contractors, Shoemakers, Bankers, Editors, Writers, Publishers, Druggists, Grocers, etc., are of equal importance with those already mentioned, but they must be omitted from this present article.

Other works that should be studied in relation to this subject are: "Choice of Pursuits; or What to Do and Why" (by Nelson Sizer); "How to Do Business"; "How to Keep a Store" (by Samuel H. Terry); "How Six Girls Made Money; and Occupations for Women" (by Marion E. Roe); "Ready for Business; or Choosing an Occupation" (by Geo. J. Manson); "Phrenology, Its Use in Business Life" (by J. A. Fowler).

CHAPTER VI.

DIFFERENTIATION IN BRAIN STRUCTURE IN MEN AND WOMEN

WITH SOME OF THE LATEST SCIENTIFIC DISCOVERIES

GENERAL PRINCIPLES.

Shakespeare, Swedenborg, and the Bible all agree in saying that, underlying every phenomenon of the natural world and psychological occurrence, there is found a fixed causative relation of two principles, different in function, yet of such a difference and such an equality that, like man and woman, who constitute the type of the whole of nature (both visible and invisible), each is the complement of the other; one being gifted with energy to act, and the other with equal energy and aptitude to react. All phenomena, alike of matter and of mind, resolve into this duality, whether physical or spiritual, animal or vegetable; life always presents itself as communicated through one single formula, the reciprocal action and reaction of complementaries.

BINARY CAUSES.

Binary causes lie at the base of all things. The sun and moon cast their light upon us; the rain falls and the waves roll; the spheres perceive their

rotundity, and preserve in their motions all of these as the result of underlying dual forces. The fabric of nature, like its phenomena, resolves everywhere into qualities. Land and water, male and female, the straight line and the curve, do but express prominently a universal principle in that admirable adaptation of things to act and react.

No other source of phenomenon, either in the animate or inanimate world, shows so distinctly the purpose of God, as that man and woman should keep the equilibrium of life by being counterpart to each other. The entire brain and nervous system, with their wonderful appendages of muscles and bones, are alike on both sides of the body.

The crowning act of creation was the production of two human forms, each external to the other, each a microcosm embodying all the mysteries of nature, and yet with their relative properties and affinities so propor-

tioned that each should be the ideal, the life of the other.

MAN AND WOMAN COMPLEMENTARY
TO EACH OTHER.

Man and woman are bisexual in themselves, but in relation to each other they are complementary. In man, the masculine element is the positive principle, the feminine element is the negative; while in woman it is exactly the reverse.

One immortal writer has said: "Every object in the universe is masculine or feminine; therefore, it is that in every created form, male or female, the elements stand opposite each other, holding each other in place, inspiring, impelling each other to use, binding up from invisible bases the material containants of life." We find there are sympathies and unions between organ and organ; between function and function; between the nervous fluid and the blood; between the heart and the lungs; between the cerebrum and the cerebellum, which are too abstruse for popular comprehension, justifying the remark of Galen, that "the anatomy of the human body is a sublime hymn in honor of the Deity."

THE SEXES EXIST IN EVERYTHING.

We find that the sexes exist in everything. Swedenborg says that Divine Goodness and Divine Truth are the recognized sexes in God, and are drawn together by magnetic affinities. As most objects in the universe are masculine or feminine, the attractions between the complementary forms produce all the motions and organizations of spirit and matter.

The union of these elements is the vital principle of creation, the secret cause why one thing coheres to another, as atom to atom, which the philosopher calls attraction; between congerie and congerie, which the chemist calls affinity; between iron and loadstone, which everyone denominates magnetism. Spirit and matter hold to each other the relation

of positive and negative, or masculine and feminine, spirit being the living, active, impregnating element, matter the passive and receptive.

The sun and the earth are positive and negative to each other. The sun impregnates the terrestrial atmosphere with his masculine qualities, and the earth conceives and brings forth all the forms of vegetable, mineral and animal life.

Heat and light are the positive and negative solar elements. Heat is the feminine principle which expands and opens; light is the masculine element which penetrates and illumines. They co-operate in the creation of all earthly things. Magnetism and electricity are their counterparts or analogies in other fields.

Land and water under different forms are repetitions of the same eternal truth. Water is the male or positive element from whose substance the land or female element was deposited, which recognizes the reason why man has always called the earth his mother, and the corners of the earth his daughters, Europe, Asia and Africa; while water has always been called by the most ancient philosophers the father of all things, the luxurious crops, the joyous groves, the races of men, and all living tribes.

In minerals the masculine and feminine elements are found by their relation to the electro-positive or electro-negative pole. So in plants this sexuality is apparent.

In the letters of the alphabet we also see the sexes distinguished, the vowels being feminine and the consonants masculine elements of speech.

Words, again, are both masculine and feminine. Speech and music are again relatively male and female, music being the organization of sound, while speech is of words. Bass is the masculine, and Soprano the feminine element in music, which must be united to produce harmony of effect.

In human life, either sex without the other would be incomplete, and as lifeless as one part of the body would be if separated from the other. Sectional work could go on in separation, but not complete work.

THE PROPORTIONS OF THE AVERAGE
MAN.

The scientific measurements of the average man are approximately as follows:

His height is five feet eight inches; his weight is a hundred and fifty pounds; his chest measurement is thirty-five inches; his shoulders forty-two inches; his circumference of head measures twenty-two inches; his height of head is fourteen and a half inches; his length of head is fourteen inches; the width with calipers is five and a half, and the length is seven inches. Size of hat, seven. His weight of brain is forty-nine ounces, or thirteen hundred and ninety grammes.

PROPORTIONS OF THE AVERAGE WOMAN.

The scientific measurements of the average woman are approximately as follows:

Her height, five feet four inches; her weight is a hundred and twenty-five pounds; her chest measurement is thirty-one and a half inches; her shoulders thirty-eight inches; her circumference of head is twenty-one and a half inches; her height of head is fourteen inches; her length of head is thirteen and three-quarters; the width with calipers is five, and the length is six and three-quarters inches. Her weight of brain is forty-four ounces, or twelve hundred and fifty grammes.

These are facts which are simply typical of large averages taken by scientists, such as Fritsch, Munk, Hitzig, Horsley, Schaffer, Ferrier,

Bastian, Haverlock Ellis, Comb Sizer and Fowler, among others.

BRAIN WEIGHTS.

H. Charlton Bastian, M.D., in his "The Brain as an Organ of Mind," on page 353, says: "The mode of weighing the brain has not always been similar by different observers.

"Thurnam says: 'My own observations fully confirm those of other writers, such as Tiedemann, Sir William Hamilton, M. Broca, etc., as to the average weight of the adult male brain being about ten per cent. greater than that of the female. As Professor Welcker expresses it: 'The brain weight of the male (1,390 grammes) is to that of the female (1,250 grammes) as 100 : 90,' that is about 49 ounces and 44 ounces respectively. Slight variations are observable in the brain weights of the two sexes as given by different observers, but it will be seen that the average difference is expressed with much accuracy by these figures.'"

COMPARISON BETWEEN WEIGHT OF
BRAIN AND BODY AND STATURE.

"Some think, with Tiedemann, that the less size of the brain of the female is due simply to her less stature.

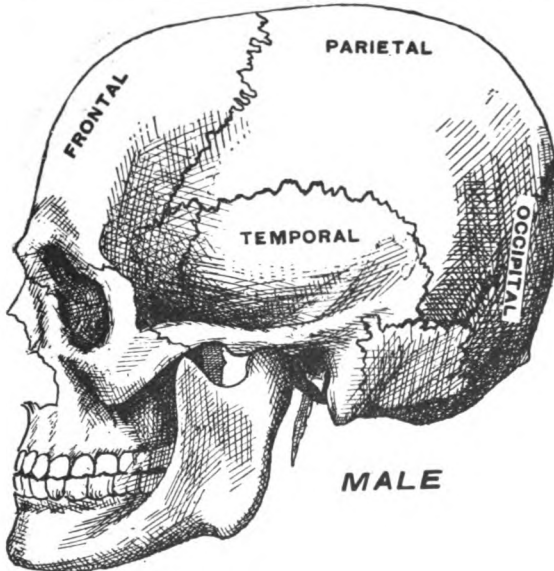
"The ratio of brain-weight to body-weight follows almost precisely the same laws as have been found to hold for lower animals; that is, the ratio diminishes with increasing weight and stature of body, so that, as Tiedemann observed, 'the human brain is smaller in comparison to the body the nearer man approaches to his full growth.'

"It varies also with his degree of obesity. In lean persons the ratio is often as 1:22 to 27; in stout persons as 1:50 to 100.

"Thurnam says: 'Though it may be questioned whether many useful physiological inferences are to be deduced from the ratio of the brain weight to that of the body in the two sexes, the comparison of the brain-weight with the stature may yield more valuable conclusions. . . . Parchappe inferred that, other things being equal, the weight of the brain in both sexes is relatively greater in tall persons than in short ones, the difference between the two being at the rate of five per cent. ; i.e., the brain of a tall man being represented by 100, while that of a man of short

COMPARISON OF BRAIN WEIGHT WITH HEIGHT OF STATURE.

When we look at the matter in this way, the advantage is certainly in favor of man's superior craniological power; but if we look at the facts in another light, the advantage is rather on the other side, for relatively to the weight of the body in the two sexes, the difference, what there is, is in favor of woman: her body is shorter, and weighs less than his. Thus in man the weight of the brain to that of the body has been found to be an average of 1 : 36.50, while in woman it is 1 : 36.46, a difference of



A MALE SKULL

stature was 95. The difference in women was a little less.' This agrees pretty closely with Marshall's more recent computations."

The comparative sizes and measures of the heads and brains of both men and women as shown by M. Broca, of Paris, place the lowest limit of brain-weight with human intelligence at thirty-seven ounces in males, and thirty ounces in females.

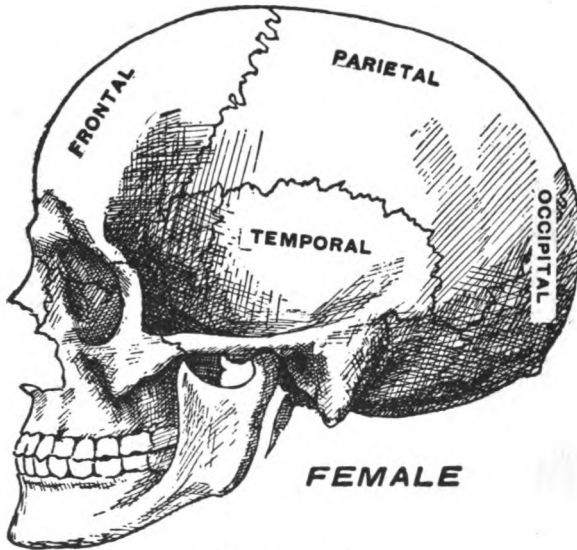
.04 in her favor. It is the absolute, rather than the relative, amount of gray matter (lying on the outside of the brain) that is to be considered in determining the brain power. It must, however, be borne in mind that the quantity of gray matter cannot always be positively affirmed from a determination of the size of the brain, though in general it can. A person, for instance, may have a large head and a large brain, and the cortical (or

outer) substance be very thin; and another person, with a smaller brain, may have the cortex so thick as to more than compensate for its smallness, which bears out Bastian's theory and that of all Phrenologists. These are of course exceptional cases, and generally the larger the brain, provided the quality is good, the greater the mental power. We have already seen that the power of a man's brain lies in a different locality to that of a woman's (when we describe a purely masculine man and a purely

noticed that there is a gradual increase of mental and physical power establishing itself in both men and women. During one week we recently measured, among others, the following sizes:

MEN.

Three heads measured twenty-three inches in circumference; one measured twenty-three and an eighth; two measured twenty-two and three-quarters; and one measured twenty-four inches, which gave us a total of the seven, of a hundred and sixty-one and



A FEMALE SKULL

feminine woman). In man, the frontal and basilar regions are more developed than they are in woman, while hers is more developed in the occipital region, and narrower laterally. It has been estimated that if we take the entire length of the brain as = 100, there will be found in woman 31·3 parts in front of the fissure of Rolando (which divides the brain into two unequal parts), while in man there will be 43·9 parts.

During the past ten years we have

five-eighths inches, or an average each of twenty-three and a fraction. The weight of these gentlemen amounted to twelve hundred and thirty-four and a half pounds, giving an average each of a hundred and seventy-six and a fraction pounds. The total of their ages amounted to two hundred and forty-seven, giving an average each of thirty-five and two-sevenths.

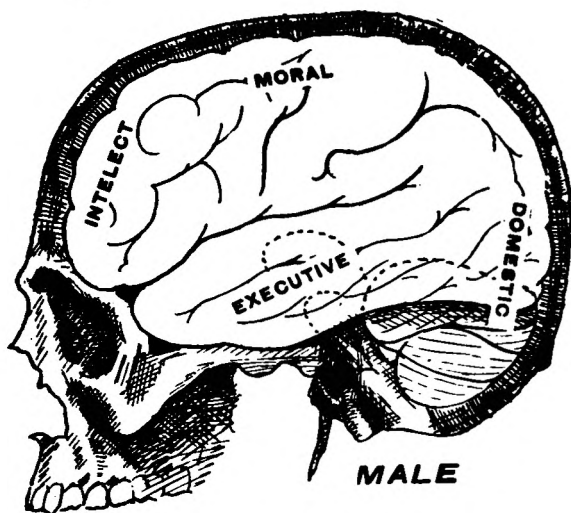
WOMEN.

In the measurements we recently made of the heads of nine women we

found the following advance above the average measurement of the female head: Four measured twenty-two inches; two measured twenty-two and a half; two measured twenty-one and three-quarters; and one measured twenty-two and three-fourths, which gave us a total of a hundred and ninety-nine and a quarter inches, or an average of twenty-two and a fraction for each.

So far as the constitution of the brain elements in themselves is concerned, there is nothing that warrants opinion regarding any defect as such

sex difference, but as should be expected, no precise standard has been obtained. Huschke's conclusion is a mean difference of 220 cc. Weissbach's, also predicated of German skulls, is about 200. Topinard, the eminent French anthropologist, finds a difference in weight of 200 grammes. Wagner, Krause, Vany, Broca, vary from 117 to 180 grs., or, expressed in ounces, from 3.8 to something under 6. Using Prof. Broca's ratio, the size of the male to the female brain is as 11 to 10. Wagner makes the difference somewhat great-



A MALE BRAIN IN SKULL

to be set to the account of woman. Using language of Prof. Ludwig Buchner in the *New Review*: "Neither chemical nor physical examination of the brain by means of the microscope has yet shown any real difference between the two species of brains by which any distinction of functional capacity can be discovered."

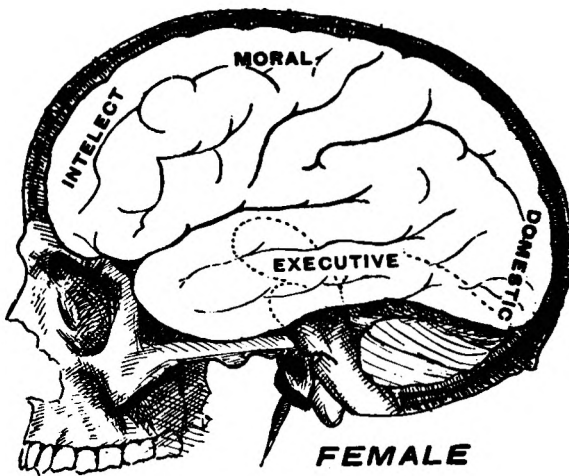
In this country and in Europe there has been much weighing and measuring of crania to determine the ratio of

er. Drawing a general average of the male brain at 49½ oz., the feminine would be placed at 45 oz.

It is a fact of not uncommon experience that a relatively small brain of superior structure, especially if the development of those parts that appertain to the intellectual faculties be greater proportionally than other parts, can accomplish more of creditable work than a large brain lacking

in such advantages of structure. This more conspicuously appears when the intellectual parts have been developed by education and exercise. In reference to this point, we may take the words of Buchner that "it is the less to be wondered at since the gray substance of the brain in which alone psychical processes are brought about presents in the smallest brain—by means of the vast quantities of nerve globules and cells which it contains—a more than sufficient basis for the

Explained in terms of function—as the brain is the centre of the whole nervous system, as well as the organ of mental function, so its volume must have a correspondence to the size and power of the nerve trunks that converge into it from all parts of the body. In connection with this very important fact, we must take into account the character, quality and peculiar elements of nerve structure in man, as well as the general superiority of his entire physique, when com-



A FEMALE BRAIN IN SKULL

most extreme physical activity."

Prof. Bruhl, of Vienna argues for woman's equality of brain structure on the line of relative proportion mainly. He points to the fact that several animals, notably the whale and the elephant, have brains much exceeding the size of the human, but, nevertheless, stand far below man in intelligence, this fact being explained by the relation of brain quantity to body, that in the case of the elephant being as 1 to 500, and of the whale as 1 to 3,000, while the human brain to the human body is as 1 to 35 or 37.

pared with that of any of the lower animals. Carrying the application of the principle to woman, we recognize the fact that in typical womanhood the general physiology is smaller and finer, the nervous system especially being more delicate and symmetrical. In proportion to her weight, however, the brain of woman is somewhat heavier, so that putting the two things together, it may be claimed, as a reasonable conclusion, and not a concession of gallantry, that woman, so far as the brain and nervous systems are concerned, is very near if not absolutely

upon the same plan with her masculine counterpart.

Observers of the feminine head who are of the Buchner type, must needs find differences in the proportions of the feminine head as compared with the male. For instance, the greater relative development of the crown region, and of the posterior region in the feminine cranium and brain appears to be regarded as a disadvantage. Buchner says very truly that "if one looks at a woman's skull from above, its outline approximates to that of two cones with blunted ends joined together at their bases, whereas a man's skull presents from a similar point of view an egg-like appearance, expanding in the middle and toward the back." Their very difference in outline shows the special differences in organic structure and mental function that appertain to typical sexhood, a fact that Buchner does not fully appreciate, it would seem. We are as fairly warranted in saying that the male head has its disadvantages because of its characteristic shape, including its comparative defects in coronal and posterior development, as in attributing to woman any disadvantage because her anterior brain does not appear so big comparatively as that of man.

THE COMPARISON BETWEEN CIVILIZED AND UNCIVILIZED RACES.

We find that in savage nations, the native Australians, the bushmen, the negroes of Africa, and other low races, the skulls of men and women are much more alike in size than they are in Europeans.

Vogt truly says, the lower the state of culture, the more similar are the occupations of the two sexes. Among savages there is not that dissimilarity in mental work (as women have not only the care of the offspring, but have also to share—and that largely—in the husband's occupation and toil) that is found among civilized nations, and that hence there is not the same neces-

sity for a difference in brain-development.

In examining the mental calibre of uncivilized nations, especially the aborigines of the Australian bush, I have found that the habits, works and thoughts of women are almost identical with man's, and the difference in size and mental development is less than it is with civilized people. In civilized nations, however, we find a great variety in taste, in work, in general occupations and in manners, and a difference between the sexes is more noticeable. This is owing, I believe, to the general advantages which man has grasped, while woman has been left some way behind, and consequently has much to make up. The two sexes move through paths that approach parallelism at some points of their course, but we cannot expect them to travel the same road unless their brain and nervous systems reach a parallel in quality and educational advantages. The theory of the five ounces less in the woman's brain-weight looks an insurmountable barrier, but when woman by the intensity of her mind is capable of absorbing the whole of man's wisdom so that she shall appear equal to him in all labors of the understanding, she may reach the higher masculine standard in astronomy, mathematics, science and literature.

DIFFERENCES IN THE SHAPE OF THE MALE AND FEMALE SKULL.

The shape of a man's skull indicates that he has a larger anterior development from the opening of the ear to the frontal arch, and a smaller portion posteriorly from the opening of the ear backward, and shows a brachycephalic or broad head, as compared with a dolichocephalic or long head. While a woman has a longer proportion of skull posteriorly than a man, and therefore shows a larger development of skull from the opening of the ear backward, and a less extended development of skull or head

from the opening of the ear to the frontal arch.

Those parts which are most extensively developed in man are the seat of the intellectual attributes, creative and volitional, as opposed to the emotional and sensory, which have their seat in the posterior and lower region; and those parts of the brain which are most extensively developed in woman are the seat of the emotional, domestic and affectionate attributes.

Thus man, as a result of this brain development of a differentiated character, shows a mind endowed with judgment, creative power and philosophic reasoning ability; and woman, on the other hand, shows an insight into the domestic relations, home life, and the social well being of mankind.

This does not mean that man has no affection and woman has no reasoning powers, but that the above named attributes predominate as a prerogative in each sex.

For what is man organized?

The Creator's designs for man were evidently for him to subdue the earth and till it. To be lord of creation, as woman is queen of it. He was organized to take the lead, to be the responsible partner, and the father of the race. Having a predominance of the positive qualities, he is specially organized to cultivate land, raise stock, build ships, houses, bridges, railway docks, fortifications, to navigate the ocean, invent and make machinery, and do wholesale trading. To make and execute the laws. To study, write and explain philosophy and science, and teach mathematics, astronomy and chemistry. To try experiments, make patents and organize general business.

For what is woman organized?

Woman is organized to act the gentler part of man's life-work, so as to be the counterpart to him as he is to her. Although she can invent and teach, she was designed to take a feminine view of subjects, to see the opposite side; to be a helpmate, to pacify, ally and exert a persuasive influence,

and be a mother to the race. For her to lose a degree of this—her nature, would be the destroying of the most beautiful attributes that the Creator could design and organize for her.

What are the Phrenological developments that characterize a man?

He has large Amativeness, Destructiveness, Combativeness, Firmness, Self-Esteem, Causality, Constructiveness and Sublimity. Hence he has energy, spirit, determination, originality, pride, generating power, and inventive and constructive talent. His large perceptive and central faculties give him his scientific mind.

What phrenological developments characterize a woman?

She has strong parental attachment, connubial love, and domestic feeling. Patience, prudence, pliability, and sympathy, help her to carry out her work. Large Approbativeness and Benevolence, which make her desirous of pleasing and making others happy. The elements of sagacity, economy, intuition, neatness, taste, and musical talent are large. She has prominent Observing faculties, large Individuality, giving Memory of Persons and Things; large Language, giving Conversational power; large Agreeableness and Ideality, giving refinement and chastity; large Spirituality, giving faith, sentiment and emotions; large Hope, giving buoyancy of mind. She regards man as her helpmate and protector, and, having larger Veneration than Combativeness, she expects him to take half the load and shoulder part of the responsibilities.

What are man's physiological and physiognomical peculiarities?

The first are seen in his strong, bony and muscular system, and his adaptability for action and locomotion. Physiognomically, he has a strongly-marked outline of person, a large chest, broad shoulders, a square built, has high cheek bones, with a confident, firm, energetic walk, and commanding look.

For what is woman characterized physiologically and physiognomically?

She has a predominance of the mental, arterial, and nutritive temperaments; hence, is organized on a higher key, and is more ardent, intense, susceptible, warm-hearted, impulsive, and excitable than man. Physiognomically, she has sloping shoulders, rotund form and face, penetrating eyes, with a kind, anxious, affectionate expression. She is smaller and more slender in every way, but finer and superior in quality of organization and nervous power. Her powers are finer, her nerves more delicate, her muscular strength and capacity for hard work, less.

In what does man show his power, and when is he in his element?

Man is in his element when he is doing the harder, bolder, rougher, outdoor work of life, as a builder, farmer, machinist, explorer, hunter, miner, surgeon, surveyor, engineer, driver, wholesale merchant, sailor, officer, soldier, manufacturer, and overseer; and shows his power when protecting and defending his family, home and property.

How does woman show her power, and when is she in her element?

Her power lies in her refinement, elevation of mind, gentleness of manner. She is certainly in her element when she has her family around her, is giving them advice, and is superintending domestic work. She is queen of her house and household. She makes a capital nurse, doctor, musician, milliner, dressmaker, artist, writer, singer, speaker, and club president.

We have been told regarding women, first, "that her intellectual light is borrowed, just as the light of the moon is the reflected light of the sun; that she can originate nothing, not even in musical composition, in which her organization would lead us to think she would excel;" but what about Fanny Mendelssohn, who composed many of the pieces attributed to her brother?

Secondly, that "the office of woman's brain is not to organize, but to utilize and make fruitful in her own field the stores of wisdom which man has accumulated in his;" but what about Mrs. Roebling, who continued the stupendous calculations in the building of the Brooklyn Bridge over the East River during her husband's illness, without which work the bridge would not have been carried on? Thirdly, "that a woman cannot grasp great theories;" but how about Isabella of Spain, who comprehended and sympathized with the plans of Columbus, and aided him to accomplish his discoveries? Fourthly, that "women have not truly scientific brains;" but what about Caroline Herschel, who performed drudgeries and calculations to help her brother, and also made independent discoveries, as did Mrs. Somerville and Maria Mitchell? Fifthly, that "women have no planning genius;" but what about Anna E. Carroll, who planned a vast campaign during the Civil War in America, which threw victories into the hands of our northern generals and virtually saved the Union? Sixthly, that "women have no executive power;" but what about Mrs. Livermore, who planned and did priceless work at the head of the Sanitary Commission? Seventhly, that "women have no financial ability;" but what about Mrs. Frank Leslie, who paid off a \$50,000 debt in less than six months after assuming control of the great publishing business left by her husband? Eighthly, that "women have no inventive genius;" but what about the elder Mrs. Butler, wife of the senior partner of the Germantown woolen mills, who invented an improvement to a machine after her husband's death, which he and others had given up as impossible? Ninthly, that "women have no organizing power;" but what about Miss Frances E. Willard, who superintended for years the working of the most gigantic and finely-organized society in America,

wielding more influence for good than nine presidents out of every ten? Tenthly, that "women have no literary talent of any sterling worth;" but what about Mrs. Stowe, who did more to abolish African slavery by her pen than any ten men by their speeches? Eleventhly, that "women can only think of one thing at a time;" but how did Charlotte Bronte write her immortal novel, *Jane Eyre*, while toiling in the gloomy kitchen at Haworth? Twelfthly, that "women are incapable of manifesting courage, but are faint-hearted, run from danger, and are weak-minded;" but how about Grace Darling, who faced the storm when all the sailors said no boat could live on such a sea, and shamed her father into going with her by saying she would go alone if he did not care to accompany her? And thirteenthly, we have been told that "literary and intellectual work do not agree with women; they wear out too soon under it." But what do facts prove? Hannah Moore attained the venerable age of eighty-eight. Joanna Baillie lived to see her eightieth year. Mary Russell Mitford was seventy, and Agnes Strickland seventy-four, when they died. Mrs. S. C. Hall lived to be eighty, Madame de Sevigne was seventy, and George Sand attained the age of seventy-two. Mrs. S. Siddons was seventy-six, and Fanny Kemble seventy-three. Mrs. Elizabeth Cady Stanton and Miss Susan B. Anthony both lived to be over eighty-six. Of scientific women, Mary Somerville lived to be ninety-two, Caroline Herschel was ninety-eight. These are representative names, all of them intellectual workers, some of them scholarly women, whom all the world is proud to honor. The average life among the eleven is nearly eighty years. Where among any other classes of women can a better, or, indeed, as good an average be found? Certainly not among farmers' wives, mill or factory oper-

atives, clerks in stores, or the purely domestic or social types. These last never boast of longevity, and the claim is rarely made for them. An average of eighty years among any eleven persons devoted to literary work or hard intellectual labor offers convincing proof of the healthfulness of that occupation. That these persons happen to be women, makes a strong argument in favor of permitting women to follow intellectual pursuits without fear of a premature "shuffling off" or failure from sickness because of their sex.

Educate woman up to the masculine standard of thought, and fire her soul with the love of God, husband, children, neighbor, home, country, and the world will find in the expression of woman's opinion on every subject a new fountain and oracle of wisdom hitherto unknown. This psychological truth is beautifully illustrated by Schiller in the character of Thekla, in his *Wallenstein*.

The reason why the western nations have advanced so much farther in civilization than the eastern is, that the women of the former have been placed more on an equality with men than have the women of the latter. In proportion as the remaining inequalities of the sexes are removed a still higher civilization will be reached.

THE DISCOVERIES OF DR. MANOUVRIER
OF PARIS.

The transmutation theory, founded by a Frenchman (Lamarck), and completed by an Englishman (Darwin), having made great strides during the last thirty years, the problem of the comparison between man and the monkey tribe, most closely allied to him, has therefore acquired great importance, and a considerable amount of work has been accomplished in order to solve this question. Many writers, as ignorant as unscrupulous, have made use of this information to re-assert the superiority of man over woman, pretending that from an ex-

amination of the various anatomical types submitted to their investigation, there was a nearer affinity in the woman than there appeared to be in the man. But this mere assertion was soon upset, chiefly owing to the scientific investigation carried out by Dr. Manouvrier, attached to the Laboratory of Anthropology of Paris, and one of the most promising pupils of the late Professor Broca. Taking into consideration all the heads of information, which are very numerous and difficult to unravel, Dr. Manouvrier has proved unmistakably that an investigation of the chief anatomical characteristics in question, far from demonstrating the inferiority of the woman, on the contrary compels us to recognize in her even superior powers. Thus, for example, from the study of the skull capacity, we find, as placed in order, 1st, woman; 2nd, man; 3rd, monkey. A comparison of the greater number of the remaining characteristics gives nearly always the same favorable results to woman; and all these facts are contained in a publication, on which M. Manouvrier has been engaged for many years, with unremitting industry, and for which the Faculty of Medicine of Paris have awarded him their silver medal, the highest award of that learned body.

TESTIMONY OF AGRIPPA.

In a well-written treatise, Cornelius Agrippa, in 1509, maintained the superiority of woman over man, and proved his arguments by the choice of her name in the first instance, her order of creation, the material of which she was created, and the dignity that was given to woman over man by God; and further by nature, by human laws, by various authorities, and by reason—all of which were demonstrated by examples. In one sense woman has been considered superior to man because she is the central highest figure in the creation. The last created being receiving first the

divine life, she intervenes, as it were, between man and heaven.

Agrippa further explains that as to soul the man and woman are alike, but as to everything else the woman is the better part of creation. In the first place, woman being made better than man, received, or was given, the better name. Man was called Adam, which means earth; woman, Eve, which is by interpretation, life. By as much as life excels earth, woman, therefore, excels man.

Things were created, too, according to their rank. First, indeed, corruptible matter; but, afterwards, out of that matter, more or less incorruptible things—beginning with minerals; then herbs, shrubs, trees; and then zoophytes; then brutes in their order—reptiles first; afterwards fishes, birds, quadrupeds; lastly, the human beings; out of these, first the male, finally the female, in which the heavens and the earth and their whole adornment were perfected. The Divine rest followed, because the work was consummated; nothing greater was conceived.

DISSIMILARITY NOT SUPERIORITY.

Taking all these things into account, it will be seen that there must be some dissimilarities in the minds of the two sexes. Nor do we wish to point to one as necessarily superior, but that they are different. And on this point every one will agree with us—at least every one who will take the trouble to reflect upon the matter.

But it would be a sad state of things for mankind if the mind in the two primary divisions of the human race were the same. It was not the Creator's intention that they should be. However, where the blending of points or circumstances calls out in the one or the other a superiority, we say, let that superiority be acknowledged.

In short we wish to direct special notice to the wise dissimilarity

observable in mankind. We have seen in the barbarous nations that the habits, work, and thoughts of women are almost identical with man's, and the difference in size and mental development is less than it is with civilized people. In civilized nations, however, we find a great variety in dress, in taste, in work, in general occupations, in manners, etc., and a difference in the lives and a distinction between the sexes is more noticeable. Admitting this difference, we believe that, although the education of a man and a woman for different purposes in life cannot be the same, still, the one is just as important as the other, and should be just as thorough. The two sexes move through paths that approach parallelism at some points of their course, but we cannot expect them to travel the same road, unless their brains and nervous systems reach a parallel in quality and proportion. When organization becomes of paramount importance, girls and boys will be educated according to their constitutions, rather than by the pet ideas of fond parents. Some girls are sent to Vassar, Wellesley or Radcliffe because it is fashionable, and considered the thing, whether they have the capacity or inclination for a scholastic course or not. And boys are often crammed with mathematics, because the latter are in the curriculum of the school, whether they understand the principles explained or not. Precious time will continue to be wasted until we can convert public opinion, school committees, commissioners of education, doting parents, and, above all, blind and ignorant persons who insist upon "the pound of flesh" and the "worth of their money," without first consulting or examining the mentality in question that has to be worked upon. The world is, or professes to be, against cramming, but the system still goes on, worse and worse every year, and children are expected to

know now what only maturer manhood and womanhood knew before.

How do men and women compare with each other in the general work of life?

Man and woman compare with each other by man being able to block out the work of life better than woman, but she can finish it better. Man can break the way, woman makes it smooth. Man can do wholesale business better than retail, while woman can do retail business better than wholesale. Man has more bone and muscle, more physical strength, more brain area and grasp of mind, more inventive talent and originality of mind, than woman. Woman has more susceptibility, fineness of texture, readiness of thought, availability of mind, prophetic vision, and intuitive perception of truth, than man. All work is better done where the united efforts of both are given.

Mr. L. N. Fowler once made this comparison between the sexes. "Men and women are alike as far as original powers are concerned, and differ mainly in quality and quantity. Man is strong, woman is elastic; man is thoughtful, woman is emotional; man is inventive, woman is intuitive; man is positive, woman is negative; man is firm, woman is tenacious; man is liberal, woman is kind; man loves power, woman loves admiration; man wishes to be looked up to, woman wishes to look up to; man is methodical, woman is tasteful; man knows or thinks he does, woman believes and is sure; man thinks, woman considers; man respects, woman adores; man has pluck, woman has fortitude; man wholesales, woman retails; man has push, woman has patience; man rules by commands, woman rules by love; man is philanthropic, woman is sympathetic; man has judgment, woman has sagacity; man has talent, woman has tact; man makes the money, woman should take care of it; man fathers

the race, woman bears and takes care of it; man takes the lead, woman guides; man conquers by blows, woman conquers with smiles; man is dignified, woman is affable; man has passionate love, woman has conjugal love; man has a strong temper, woman has a quick temper; man speculates, woman calculates; man was made in the image of God, woman was made in the image of both man and God; man was created first and was made capsheaf of creation, woman was made last and is capsheaf of man; man feels his superiority, woman feels her equality; woman can do man's work and adapt herself to his sphere in life, as well as he can do her work and adapt himself to her sphere."

In the foregoing remarks we have tried to prove (1) that duality is found in all things; (2) that the masculine and feminine elements exist throughout nature; (3) that man and woman are bisexual in themselves, but in relation to each other they are complementary; (4) that one sex is not superior to the other, and that the statements of the latest scientific authorities open the way for further discoveries concerning the similarity and the equality of the brains of men and women, yet as each one is complementary to the other, each has his or her functions to perform, and consequently each has a predominance of certain structural areas or skull development.

In the phrenological organs the differentiation in the sexes shows in the following way:

In Amativeness, man has the creative love, and woman love of the opposite sex.

In Congugality, man has the desire for marriage, woman has constancy.

In Philoprogenitiveness, man has love of animals, and woman love of children.

In Friendship, man has gregariousness, woman love of family.

In Inhabitiveness, man has patriotism, woman has love of home.

In Continuity, man has application, woman has connectedness.

In Combativeness, man has courage, woman has defence.

In Destructiveness, man has power of extermination, woman has executiveness.

In Alimentiveness, man has desire for solid food, woman has desire for dainties.

In Acquisitiveness, man has desire to acquire, woman has desire to save.

In Secretiveness, man has policy, woman reserve.

In Cautiousness, man has vigilance, woman solicitude.

In Approbativeness, man has ambition, woman love of display.

In Self-esteem, man has pride and self-reliance, woman has independence.

In Conscientiousness, man has sense of justice, woman circumspection.

In Hope, man has hope in the present and speculation, woman hope for the future.

In Spirituality, man has sense of wonder, woman faith.

In Veneration, man has love of antiquity, woman love of worship.

In Benevolence, man has philanthropy, woman sympathy.

In Constructiveness, man has ingenuity, woman dexterity.

In Ideality, man has expansiveness, woman refinement.

In Sublimity, man has sense of the terrific, woman sense of grandeur.

In Imitation, man has mimicry, woman adaptability.

In Mirthfulness, man has wit, woman humor.

In Individuality, man has physical observation, woman has mental observation.

In Size, man has sense of bulk, woman has sense of form.

In Weight, man has sense of gravity, woman grace and balance.

In Color, man has sense of shades in colors, woman has power to arrange colors.

In Order, man has system, woman has neatness.

In Calculation, man has power to make estimates, woman expertness in figures.

In Locality, man has love of exploration, woman has memory of places.

In Time, man has punctuality, woman has memory of dates.

In Tune, man has sense of harmony, woman has modulation.

In Language, man has verbal memory, woman has verbal expression.

In Causality, man has power to reason, woman power to plan.

In Comparison, man has power to compare, woman power to criticize.

In Human nature, man has foresight, woman intuition.

In Agreeableness, man has suavity, woman ease of manner.

In Repose, man has inclination to sleep, woman lacks it.

The illustrations in this chapter are by F. Koch.

CHAPTER VII.

THE PROBLEM OF MARRIAGE IN THE LIGHT OF PHRENOLOGY

There are many people in the world who think that marriages are made in heaven. Therefore whatever arrangements are made between parties here below they recognize as endorsed by the Supreme Being above. The question of how much of a free agent man is in this matter is what we would like to discuss in the present article, and decide as far as within our power lies what part Phrenology plays in this problem.

That customs have changed very much during the past decade is noteworthy. But from time immemorial no topic has occupied so much thought and attention as that of marriage. Yet it is a topic of so much importance that it is a wonder it is so lightly considered, and one might imagine that all parties contemplating marriage would endeavor to find out more seriously what are the real characteristics of each before they run so much risk. We may safely say that hardly any day in one's existence has fuller anticipations of a bright, joyous, roseate

fulfilment than one's wedding day. Would that the wedding bells could be always ringing in the lives of all wedded people.

It is the law of nature and the design of our Creator that marriage should exist, and the human mind is made up of those qualities that go to prove that the social instincts, if rightly exercised, are a factor for good in the commonwealth of the great human family.

No picture in human life is more beautiful than that of a properly mated pair, harmoniously developed, though differently organized, who have weathered the storms of life together; who have reared their children and sent them out into the world fully equipped in their turn to bear the burdens of life.

In all animal life we see the same law applied as in the human, for horses unequally yoked together are a menace to the burden they have to carry.

So in chemistry, the qualities that have to be combined to produce certain results have to be thoroughly studied and understood before the compound is put together.

In all construction work, the same laws of association and adaptation have to be studied; otherwise there would not be harmony, and failure would be the result.

In this question of marriage, as discussed by Phrenology, it is necessary to make a study of the origin of marriage customs; the problem of marriage as it is viewed to-day; causes for inadequacy of marriage; the remedy that can be applied to the above problem; rules for choosing a husband and a wife; how to preserve each when chosen; temperamental differences and affinities; the establishment of schools for engaged couples where diplomas can be obtained by efficient young men and women for the marriage state; health before marriage; the sanctity of marriage; early and late marriages; the making of successful husbands and wives; trivial causes for divorce; national traits or national combinations; the length of courtship to enable parties to understand each other; the moths of modern marriages; how to get married and to stay married; why men and women are ceasing to marry; the failure of some marriages; the practical side of courtship; which benefits most—marriage or divorce; ideal traits of a wife and husband; why beauty does not always win happiness in marriage.

TEMPERAMENTAL CONDITIONS.

The problem confronts us how Phrenology can help in giving advice in regard to marriage; especially in relation to temperamental conditions, affinities and adaptations. There are three primary and constitutional conditions that go to make up every human being. These conditions are embodied in the quality of temperament which determines the degree of vigor, activity and endurance of the bodily

and mental powers. We recognize them by external signs, such as the build, complexion and texture, as well as the mental development recognizable in each person. If we can see the same in a large herd of stock, in horses and dogs, should we not be able to equally discern them in mankind?

Phrenologists have called them by the following names: the Motive, Vital and Mental. We refer our readers to Jacques' work on "The Temperaments" for a fuller explanation of them, while we apply a knowledge of them to wedlock.

TO ORGANIZE A FAMILY.

In order to organize a family on a sound basis, the parents need a suitable balance of the three above named temperaments, and there should be a certain relation between them that will enable each to fit into the other's life, for instance, certain tastes, ambitions and capabilities.

Some people say that the tastes of husband and wife should agree; that it is not dissimilarity that makes them harmonize.

We believe that there should be certain constitutional endowments in order that sympathy and love may grow out of their association; but we do not agree with those who believe that these endowments should be entirely alike.

Other people believe that there should be a direct opposite, or a difference in the constitutional elements between husband and wife to give room for variety and prevent mental stagnation and sameness.

It is not our idea that great extremes will bring harmony in marriage. What, then, should we seek, if persons are not to be exactly alike, or diametrically opposite from each other?

There is a middle course that we should seek to bring about perfect companionship and constitutional economy of strength, vigor and health.

If a gentleman possesses the Motive or Motive-Mental Temperament, the lady should have a predominance of the Vital, or Vital-Mental. It is perfectly logical to see that within a given radius the temperaments should be alike, inasmuch as both parties should possess the Mental Temperament. But the difference should be apparent in the predominance of the Motive or Vital, the Motive being more suitable to the masculine side of the family, while the Vital is a very fine distribution of quality for the lady to possess; and a combination of these elements will produce compatibility, adaptation, or a proper blending of sentiments, interests and aims in life.

It can be readily seen that the Mental Temperament alone, unaccompanied by the Motive or Vital, if strongly developed in each, would not answer the purpose of producing harmony in a family, and therefore the necessity arises in the fact that the Motive and Vital elements are necessary as a fitting combination to give sturdiness, strength and vigor of body, as well as of mind.

The same logic applies to the Motive Temperament. It would not do for two persons to possess a strong fusion of the Motive, without the additional charm of the Mental or Vital.

So, equally, we would say if two persons possessed the Vital Temperament in predominance, they would lack the salutary influence of the Motive and Mental qualities. Phrenology can suitably point out the difference in temperamental power in two individuals, and predict the likelihood of suitable companionship, as well as the likelihood of a union of those elements that would make successful parenthood.

There should be a sufficient dissimilarity in each to make them harmonize, while there should be certain constitutional endowments in order that sympathy and love may grow out of

their association. There should be a sufficient difference to give room for variety, and to prevent mental stagnation and sameness. Companionship is perfect inasmuch as unity is secured, and unity is not necessarily similarity. But there should be in each a similarity in tastes and quality of organization. Harmony should be the result of marriage; that is, harmony of thought and feeling.

Womanly characteristics should predominate in woman, and masculine traits should predominate in man, that each may find in the other what is necessary for perfect companionship. Two persons whose intellectual and moral motives differ cannot associate with each other in perfect harmony. There should be adaptation, compatibility and a blending of feelings, as well as interests in the purposes of the companionship of each, and a mutual desire to perform those interests for a practical result.

MENTAL FACULTIES.

Phrenology helps us to understand what faculties will blend and harmonize and what will not, and how active one faculty should be in comparison with the development of the same faculty in the other party. For instance, two persons having an equal development of Firmness would be inclined to exercise this faculty in such a way as to create an obstruction and prevent a yielding on the part of the one or the other, as both would desire to follow out their own aims, purposes and opinions; while if one possessed a less degree of this faculty, and more suavity and persuasiveness of manner, that one could influence the dominating will of the other in a tactful, beneficial way.

Two persons having a large development of Cautiousness would be liable to fear, tremble and quake, feel solicitude, and show timidity in undertaking any new enterprise. They might have good ideas, but not

enough force of character to overcome the fear of failure. One, at least, should be able to grapple with difficulties, clear away obstructions, and trample obstacles under foot.

Two persons having an equal development of Causality would be inclined to argue and debate, query and question, theorize and contemplate on a subject so long and interestingly that other considerations would have to be set one side. Even the dinner would be allowed to grow cold before it was eaten if the right conclusions had not been arrived at. Therefore one of the parties should have a perceptive intellect and a practical mind to be able to turn to account the plans, theories and ideas of the one who was not able to get down to bed rock and utilize the ideas in a tangible way.

Two persons with an equal amount of Hope, if the faculty was large, would be inclined to speculate on too large a scale. Success would always be anticipated, but never actually brought about. Speculations would be indulged in, and the best results contemplated without sufficient allowance perhaps being made for failures.

Enough has been said so far to show that even where marriage has taken place between two parties who are very similar, there is a chance for each to moderate his or her characteristics sufficiently to allow of mutual consent and agreement, and avoid incompatibility of temper. The mind is capable of taking on new activities. Were it not for this fact, we should be largely fated by our organization. But as changes do take place, for better or sometimes for worse, there is an opportunity given to each to make the change in the right direction.

WHAT ARE THE TRUE OBJECTS OF MARRIAGE?

(1) The union of well-developed physical and mental organizations.

(2) There should be a desire to have the domestic relations gratified, and the home and social circle are the

legitimate centers for the gratification of the social faculties.

(3) Marriage gives self-government and discipline. It brings out the highest qualities in men and women. One cannot, or ought not to be selfish if married; while one can be self-centered and exceedingly selfish if unmarried and unattached.

(4) Marriage tends to industry and good habits. Industry tends to exercise all the faculties of the mind; at least, the essential ones. A man who is married is called upon to be more scientific. He works with an object because he is anxious to see his family progress and to give his children an education. The mother does her share in arranging the affairs of the home by leading a life of industry and encouraging good habits for herself and family.

(5) As a rule, people live longer when married. The reason for this is that they are settled in life, and that is a satisfactory condition. It is conducive to health. Loneliness is opposed to good digestion. When a man goes home and realizes that his wife has arranged a good meal for him, he digests his food better than when he has to take it alone. A person who seeks company outside of home by visiting friends all the time does not find a means of increasing vitality. It is laying out instead of taking on that important force. Married people live longer because home is made inviting. There is nothing to equal the contentment and beauty of a home, however humble it is. That is what it should be.

The influence of the affections on the mind is another reason why married people live longer, and is a true object for marriage. Home life helps to modify the influence of business strain. Persons in business have many perplexities to meet, and when they go home they find that the social element tends to soften the activity of the intellect. We ought, of course, to

use all parts of the brain every day.

(6) Marriage is an incentive to the cultivation of all our better feelings, as it develops Benevolence, Conscientiousness, Friendship and Philo-progenitiveness, and having a well-developed and a well-poised character, we ought then to live longer; and a healthy development of all our powers, physical and mental, gives a laudible and beneficial object in life. It is said that most of the terrible crimes that are committed are due to loose society, and the more happy homes we have, and well-mated people, the fewer crimes we will have.

QUESTIONABLE OBJECTS FOR MARRIAGE.

(1) Some marry for a home. This applies to both men and women. Home is an institution which is a privilege and right for all to seek. But simply to marry for a home, without the right environments, is certainly a questionable object.

(2) A great many people marry for money that they see will come into the family. We could mention many poor lords, dukes, marquises and titled noblemen who have sought the hands in marriage of American heiresses, who have lifted them out of their financial embarrassments. But in many cases the result has not been the one anticipated. True it is that the line of argument that is sustained in regard to the exchange of endowments, such as a title for wealth, is considered a sufficient reason why the two should join hands; yet in the main it is a questionable policy or object for marriage.

(3) Marriage is often contracted on account of family interests, either for political or business considerations. While many good results have accrued from the studying of these points, yet they are insufficient reasons, unless the parties are well adapted. No one should be expected to marry a family. It is a sufficiently difficult problem for two people to suit themselves to each other, and they

should not at the same time be expected to arrange all the affairs of the families they marry into. Therefore this reason is also a questionable one.

Many other minor objects suggest themselves to our minds, though they cannot be enlarged upon here.

MARRIAGE CUSTOMS IN DIFFERENT NATIONS.

The arrangement for marriages is different in almost every country. In China it is considered a duty for people to marry. Arrangements are made when they are infants.

In Africa, a man gets his sister to ask permission to pay his addresses.

In Hindoostan they consider it a religious duty to marry at eleven. They live shorter lives and develop early, but as they are becoming more accustomed to European ideas, their chance for living longer is greater and their ideas concerning marriage are changing.

The North American Indians believe in subjecting women to be under the control of their fathers in regard to their choice in marriage.

Among the Calmucks the ceremony of marriage is performed on horseback.

The Romans recognized three kinds of marriage: Conferration, Coemption and Use.

In ancient Syria all the marriageable girls in a province were assembled once a year at a Fair, and after being exhibited and inspected by the men wishing wives, they were put up at public auction.

In northern Europe the highest existing ideas of marriage and the rights of woman in that relation had their origin. From the earliest antiquity these nations practised the strictest monogamy.

In Ceylon the marriage proposal is brought about by the man first sending to the one whom he wishes to become his wife a request to purchase her clothes. These she sells for a

stipulated sum, generally asking as much as she thinks requisite for them to begin the world with. In the evening he calls on her with the wardrobe at her father's house. The next morning, if mutually satisfied, they appoint the day of marriage.

A Greenlander, having fixed his affections upon a young woman, acquaints his parents with the state of his heart. They apply to the parents of the girl, and if the parties thus far are agreed, the next step is the appointment of two female negotiators, whose duty is to approach the young lady on the subject.

In Italy the former custom used to be to systematically barter and sell girls to their lovers by their parents, and young people were frequently married who never saw one another before.

In France, especially among the higher classes, marriage is looked upon not so much as a matter of affection as of interest, and the sacredness of the tie is proportionately slender.

In England marriage is looked upon much in the same light as in this country. It is generally celebrated as a religious ceremony.

In Scotland, though marriage is often considered a civil contract, yet it generally takes place after the publication of the bans in the parish church, as in England.

Marriage in the United States is by a civil contract based on the mutual consent of the parties, or as in most cases, a religious service is held in the home of the bride or in a church, sometimes with great pomp and ceremony.

The Jews have a regular and uniform marriage ceremony.

In Greece, when the bridegroom arrives at the church he sends and informs his bride-elect, and the moment she enters the church the singing of a psalm is begun.

A Quaker marriage forbids young

persons associating together with a view to matrimony without the consent of parents.

INTERNATIONAL MARRIAGES.

A great deal could be written on the question of international marriages. The combinations of the English and American results in a successful union for both, as the Americans give vivacity, keen intellect, ingenuity and intuitional power; while the English give substantial physique, sincerity of motive, honesty of purpose, slowness of action, and a strong conjugal home-loving element.

The marriage of the White and Negro races is not highly beneficial; neither is a union between the White races and the Mongolians often successful in bringing about true happiness.

RELIGIOUS CONSIDERATIONS.

It is well for all contracting parties to consider the matter of religious preferences, for although some people can get along peaceably together when of different religious views, yet where children have to be considered, the question of religious belief is somewhat difficult to decide upon in their early training. Thus Roman Catholics should marry Roman Catholics, and Protestants should marry Protestants. The same theory often applies to other denominations, even among the Protestant churches.

DIFFERENCE IN AGE.

One hears of persons of such a diversity of ages contracting marriages to-day that one feels that advice on this subject is of little service. If Adam and Eve were married before they were a year old, and the veteran Parr joined his lot with a widow at the age of 120, it would seem as though bachelors and spinsters might wed at any age they liked, and find shelter under great names for either early or late marriages. But it is generally conceded that the most happiness will result between parties where

the man is thirty and the woman twenty-five. At these ages both are supposed to know their own minds, instead of at an earlier age; and as a lady matures earlier than a gentleman, it is logical to reason out the advice that is offered by all sober-minded and rational thinkers in regard to this side of our subject. We do not say that happy marriages are not to be found among those who have departed from this rule, but the nearer the approach to these ages the better will be the result among average marriages. There are exceptional cases where a lady has been a year or two older than the gentleman; while some, like the Baroness Bourdett-Coutts, have married where there has been a difference of thirty years or more. Some persons do not meet their affinities until late in life. We have known of old people, or elderly persons, who have passed the meridian of life, uniting for the first time, and who have been quite happy. But, as a rule, persons well on in life do not find it easy to change their habits and ways of life. Therefore a young girl of twenty-one who marries a man of matured life will not generally find that he can adapt himself to her wishes, aims and ambitions and she may be expected to adapt herself to his views of life. Shakespeare was 18 when he married; Ben Johnson, 21; Benj. Franklin and Mozart, 24; Keplen, Fuller, Johnson, Burke and Scott, 26; Byron, Washington and Bonaparte, 27; and Nelson, 29.

THE MARRIAGE OF COUSINS.

We have often been asked if the marriage of cousins is compatible with common sense. The only view that we can take upon this question is that the relationship between cousins is generally productive in marriage of too much sameness. Thus there will be an intensity of desire along certain lines and a continuation of certain diseases which are inherited from the

same stock.

There are exceptions where cousins are different in temperament, and where no greater happiness could have resulted between those of different family stock. For instance, Queen Victoria and Prince Albert were cousins, and there is no better example in history among monarchs where the marital vows were more sacredly observed, where greater affection existed, or where happier marriage relations were the result. But in all marriages of cousins there should be a striving for a distinct difference in the complexion, temperament, and constitution of each, so that new elements, influences and blood may be combined and infused into the family life. John C. Calhoun married his cousin and their children were neither diseased nor idiotic. But imbecile children are often the result of too much sameness in the mental and physical powers of the parents, and this is one of the strong claims that Phrenology makes with regard to a proper study of this subject.

MARRIAGES OF CELEBRATED PEOPLE.

If we consult history, we find much to aid us in regard to our arguments on this subject. Washington married a widow with two children, and they lived in perfect harmony together.

Thomas Jefferson married Mrs. Martha Skelton, a widow lady who brought him a large fortune in real estate.

Benjamin Franklin married the girl who laughed at him when he was a poor lad, but she was happily conscious that he was a good and great man.

Edward Lytton Bulwer, the English statesman and novelist, married a girl much his inferior, and found her a shrew.

Horace Greeley married a school teacher whose sense and goodness satisfied him.

General Houston became enam-

oured with a squaw, and contrary to usual experiences under similar circumstances, he lived happily with her.

Edward Forrest, the great tragedian, married a beautiful actress, but the marriage did not prove a happy one.

General Fremont married the daughter of Thomas H. Benton, and the union proved a happy one.

General Sherman married the daughter of Thomas Ewing, of Ohio, which was a suitable match.

General Grant married Miss Dent, of St. Louis, and she proved a good sensible partner.

Byron married Miss Milbank for her money, but they were not suitably mated.

Robert Burns married a farm girl, but he was irregular in his life.

Shakespeare loved and wed a farmer's daughter, and she was more faithful to him than he to her.

Peter the Great married a peasant girl, and she made an excellent wife and a sagacious empress.

Humboldt loved and married a poor girl in humble circumstances, and they were both happy.

John Howard, the philanthropist, married his nurse, and although there was a great disparity between their ages (he being fifty-two and she twenty-five), they were exceptionally happy. But she lived only two years.

Theodore Parker once wisely said that "it takes years to marry completely two hearts." But men and women do not know this when they start out in married life, and often have to learn, by sad as well as by comical experience, this now recognized axiom. Love is the oldest institution on earth, and in order to make marriage a "lifelong falling in love" we need to impress everyone with this idea.

The old and new styles of making love are interesting from a psychological point of view, and while in the

past, years were taken to accomplish the art, to-day the telephone and telegraph are used for such important work.

HOW TO BE HAPPY THOUGH MARRIED.

The Rev. E. J. Hardy, author of "How to be Happy Though Married," advises young people *to get married, to marry early, if possible, and to keep married.*

It is often said that married life is what we make it, and there is considerable truth in this statement, and also in the following assertion: that men are what women make them. As Mr. Hardy says, "there is every chance to make married life a heaven here below, but there is every possibility that we may make it hell instead. But, like Hindoo eternity, there is no purgatory, no middle course, and there is no short cut to the conjugal heaven. If you rush into matrimony as you rush for trains, and dash through shops, and swallow your food, it is not to be wondered at that you will get matrimonial indigestion. The conjugal heaven is only reached by weeks, months and years of patient toil, self-sacrifice and unselfishness."

Phrenology points out that the honeymoon that we hear so much about is far removed from heaven, and Mr. Hardy is right when he says that "it is a passageway lined with explosives, an initial state or step for the fall that is bound to come, the fall from the ideal to the real, the realization that the wife you have promised to take for better or for worse, for richer or poorer, for good or ill; that she, we say, to whose eyes we wrote sonnets, and he, about whom we spread the mantle of god, are ordinary human beings possessed with human faculties, false and human weaknesses."

It is always a terrible shock to one to find out these weaknesses that we had glided over before, but it is better to make the honeymoon short, and to

find out these weaknesses at home than when away from all congenial circumstances, and the inconveniences of travel are no help to sweeten the temper.

The sooner, therefore, persons become disillusionized the better, and when a man finds that his wife is not an angel, and a woman finds her husband is not a god, they will be glad, because if she remained an angel, her husband's faults would stand out much more glaringly, and if he were a god, the woman would never reach up to his equality.

Real love in married life is not the article that is blind, but it is the article that continues to live with all the colored lights turned down and all the frills cut off. Real love is conjugal love that has passed the stage of the ideal and made itself firm as a foundation of facts, of mutual forbearance and compromise, and an unselfishness that governs alike great events and merest details.

It is often true that the bride has been bought and the bridegroom sold, and r. Harriet Keating, of New York City, has given twelve excellent rules for choosing a husband. Dr. Keating very properly believes what we have advocated for a number of years, that there should be a graduate course provided for every young man and woman, consisting of a series of lectures on marriage, on domestic life, and the marital bonds, to prepare young people for what lies before them. Not perfection, but human virtues with human faults understood, is what we want.

HOW TO PRESERVE A HUSBAND.

If women want to learn the great mystery of how to keep husbands in the wedding-day spirit for aye and forever, they should write out the following recipe:

"Be careful of your selection. Do not choose one who is too young or too old, and take only such varieties to choose from as have been reared in a

good moral atmosphere. When once the selection has been made, let the past remain forever settled, and give the entire thought to the future. Some insist on keeping the husband in a pickle, while others prefer hot water. It does not seem to be generally known that even poor varieties may be made sweet, tender and good by garnishing them with patience, smiles and affection. They should be wrapped in a mantle of charity, and kept warm with a steady fire of devotion. Thus treated, they will keep for years, as when first selected. Sometimes they improve with age."

DO TALL MEN OR SHORT MEN MAKE THE BEST HUSBANDS?

To answer this question briefly, we would like to point out that a tall man is generally a generous one and makes a lavish and indulgent husband as long as he has money. But he does not, as a rule, look out for the rainy day. He is a man who will present his wife with a diamond necklace, a pearl and ruby ring, a champagne supper, and a box at the opera, but he will die without leaving her a penny of insurance after he is dead. If he is unkind for a moment, he will regret it and make amends. He will think that he has done his whole duty by his wife if he loves her and works for her, though he will not stop by the way to show her any of the little attentions that women so often like.

The short man, on the other hand, may be somewhat penurious about money, and may require his wife to give an account of every penny she spends, but he looks out for the rainy day and sees that she and the children are well provided for and put beyond want if he dies. He is impulsive, and will make a great deal out of little things which are often of no importance. He may break her heart a million times over little spiteful criticisms, but he will seldom be desperate. He will understand the importance of little things, and will never forget her

birthday, or the day they became engaged. The little man is supposed to have more self-confidence, and holds up his head with more self-conceit or assurance than the tall man, and while the big man is seldom a tyrant, the little man is nearly always so.

THE BISHOP OF RIPON'S IDEA.

One of the latest ideas on the question of marriage has been recently brought out by the Bishop of Ripon, in England, who wants to establish schools for engaged couples, and the idea he gives is a practical one. Why should not a girl have a marriage diploma, as well as one in Euclid, Greek or Mathematics? In Chicago they are already giving girls housewives' certificates. She must be a good cook, and learn to keep household accounts, study how to buy economically for a household, and she must take lessons in practical millinery.

If the experiments that are being tried are as successful as they apparently deserve to be, we may soon hear of the weddings of properly paired young graduates from the school of engaged couples, and of graduates from colleges of matrimony where the winning of a diploma will be a positive guarantee of the holder's fitness to manage a household in the most economic and expert fashion; and if, added to this knowledge is given a phrenological synopsis of the person's real character, then there will be less work for the lawyers to do in the divorce courts.

HEALTHY MARRIAGES.

We do not think the day is far off when true sanitary marriages will become the rule, instead of the exception, for the need of such a thing is made more apparent every year. In this country we are developing from the amaigamation of many strains, a race wholly new to the world. Our immigrants, as they intermarry with those who have preceded them, produce descendants of a quicker and more aggressive type than their own,

and it has been noticed by Darwin that the bodies and limbs of these descendants are noticeably longer than those of their ancestors.

When we shall have learned to apply the laws of proper selection in marriage, the American race ought to be second to none in health and physical development, and that means also intellectual advancement. There is a promise that it will yet have the highest place in the curriculum of education which it deserves.

Another thing which young men and maidens must remember is that true beauty is founded only on perfect health. No matter how richly nature has endowed them with outward charms, they can retain them only as long as they enjoy good health. They may also be assured that beauty founded on good health continues into old age.

THE SANCTITY OF MARRIAGE.

The first object of the Mothers' Union of England is to uphold the sanctity of marriage. This is made the starting point for the following reasons: (1) They recognize the danger that threatens domestic life from the disintegration introduced by the divorce laws. (2) They recognize that where the sanctity of marriage is denied or ignored, homes will be ruined and family happiness destroyed. (3) They are aware that an irrevocable moral downfall must be the fate of nations which lightly or scornfully regard the holy state of matrimony. The trial marriage would hardly have a place of recognition in this Mothers' Union. If the trial marriages were to come into vogue, or become fashionable, they would soon break up marriages and home life, and without a recognition of a marriage tie and without the sanctity of home, what would be left to hold together a government of bachelors and ununited maidens? There would be a country of anarchists uninterfered with by the police. The children, if there were

any, would be provided for by the State; they would know nothing about parental love, devotion or control. There would be no home training or discipline, no good and noble example. Life would be simply a theory, but not the indwelling of love and heroism. Therefore if the home goes, the State goes, and if the State goes, all social order goes with it; and with the going of social order goes the right to acquire property and enjoy it, and make honestly all that is possible by honest toil and honest effort. If social order goes, all security goes, and there will be safety for neither property nor life. We cannot go back to the savage and the brute creation and cull our ideas from them.

For husband and wife to continue lovers all their lives is a great achievement, but it will surely be un fait accompli if the beginning of married life is taken responsibly and seriously.

THE REV. T. DE WITT TALMAGE.

In a famous sermon on Marriage, the Rev. T. DeWitt Talmage made some very practical remarks on this question, and warned young people against marriage for worldly success, without regard to character.

THE MAKING OF A SUCCESSFUL MARRIAGE.

The best way to make a successful marriage is to put the honeymoon on ice and keep it there as long as you live. The popular idea of the honeymoon is a period of a few weeks immediately following the wedding, during which the couple skylark around over the country making spectacles of themselves for the amusement of everyone who happens to be observing them. It is a period of unrestrained billing and cooing, at the end of which they are supposed to have become satiated and return home to settle down to a practical every-day life in which love and its outward expectations are not supposed to figure to any great extent. The honeymoon should not be sub-

ject to limitations of place or time. As a mere outing it should be made brief. As a sentimental condition, modified by the activities and necessities that demand bread and butter at regular and frequent intervals, it should continue until death breaks the bonds.

One married man writes: "I have been married for thirty years, and I am still in the midst of my honeymoon, and I hope to see this moon in its meridian for many years to come."

SOME TRIVIAL CAUSES FOR DIVORCE.

It is surprising what trivial causes are brought forward for divorce. If all persons were equally careful to defer marriage until a proper understanding had been arrived at, there would be fewer divorces as a result. Is there not merit in Judge Ryan's plea for a probationary form of license? If we consult the divorce records, we will see that twenty per cent. of the divorces granted at St. Louis last year were to people who had married on an acquaintance of less than a week or so, while a similar ratio had been the result of elopements, with those convenient cloaks, incompatibility of temper or desertion, as the basis for the application.

MIXED MARRIAGES AND GENIUS.

Mr. Francis Galton and Mr. Havelock Ellis, among others, have examined this question of mixed marriages and genius, and the parentage of great men quite exhaustively from various standpoints, and if they have not furnished us with a recipe for the making of great men, they have shown us that one of the most important factors is a right blending or mixture of blood. So important is this factor that it almost seems as if it could produce Shakespeares and Napoleons by a process of cross breeding. Many examples could be cited on this point. Among the great men we would mention the following:

Browning was a compound of five strains; Rosetti of four; Tennyson

of three; Swinbourne of two; Thomas Hardy of two.

HOW TO PRESERVE A WIFE, OR WHAT
CONSTITUTES A FORTUNE IN
A WIFE.

Fortune, in money or beauty, counts for little with the man who really seeks happiness. It is better to have a fortune in your wife than with her. The elements that constitute a fortune in a wife are womanliness and all that stands for tenderness, thoughtfulness, solicitude, candor and obedience, according to the old-fashioned idea; but the modern way of looking at this subject cuts out the word "obey" or "obedience." No twentieth century woman thinks of voluntarily acknowledging her inferiority to man, because she knows and has proved herself man's equal, and sometimes his superior. No American girl, at least, is expected to obey her husband in the sense of the promise to do so in the marriage service, and women have not lived a few thousand years without learning that the man who is fit to be entrusted with despotic power, if he has been born at all, at least hasn't entered the marriage class.

The only true marriage is based on perfect love. Love cannot be perfect without equality. A real marriage is the union of two lives, each incomplete without the other. Freedom of thought and action for husband and wife alone gives marriage dignity. The very essence of true marriage is that true love which casteth out fear. We shall hear less of the divorce courts, and celebrate more golden weddings in the future which follows the reconstruction of the words of the marriage service and the teaching also of the true meaning of that deep and unselfish love which unites husband and wife who share the joys and sorrows of a united life. Imperialism in the home is more dangerous to the race than imperialism of the man to the nation.

MOTHS OF MODERN MARRIAGES.

Marriage to-day is with too many people a garment lightly donned and carelessly worn, instead of a right royal robe. Hence the air of our every-day life is all aflutter with the wings of invisible moths—moths whose name is legion and whose power of destructiveness is appalling.

A wife should interest herself in all her husband's pursuits, and insist upon not doing what a large number of women constantly do in the summer, namely, leave their husbands to brave out the summer heat alone in the cities, while they go off to the seaside or mountains with the children and enjoy themselves. They should do as one wife did, namely: she arranged for a tried and trusty woman to take the children to the seaside, while she converted her city home and porch or veranda into a summer garden, where they had their meals and sat out during the evenings and enjoyed each other's company by the light of lanterns, and at the close of the summer the wife received from her husband the gratifying remark that he had never enjoyed a summer so much since their honeymoon. A little thought for the comfort of each during the summer time is what will bring about a continued amount of good faith, good cheer, peace and happiness in every family, and the proper understanding of character is the basis of these little attentions.

The authorities that should be studied on this subject are: "Wedlock" (Wells); "Right Selection in Wedlock"—Human Nature Library (Sizer); "Marriage" (L. N. Fowler); "Marriage and Parentage" (O. S. Fowler); "Maternal Impressions" (Bayer); "Marriage and Disease" (Strahan); "Creative and Sexual Science" (O. S. Fowler); "How to be Happy Though Married" (Rev. E. J. Hardy); "Hereditary Genius" (Galton); "The Temperaments" (Jacques); "New Physiognomy" (Wells).

CHAPTER VIII

The Development of A Child

A Scientific Problem, How to Solve it.

EDUCATING BRAIN CELLS.

A celebrated scientist and psychologist, who has been for years attached to the Smithsonian Institute, Washington, has found out not only how the mind may be built to order, but also how character and disposition may be improved at will, so as to develop good traits and do away with bad ones.

It is all a matter, he claims, of educating the cells of the brain which are the physical units of the mind. The brain, like any other part of the physical mechanism, can be built up, he asserts, and beginning with the child it can be developed bit by bit.

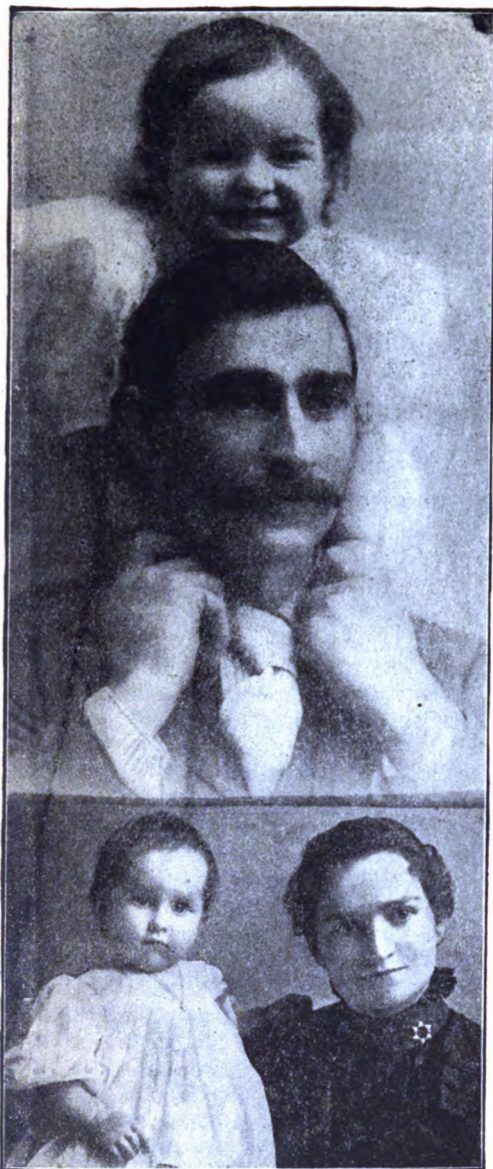
It is natural, therefore, that he should apply his system of development to his own children, and it is his theory that repeated psychological tests, properly made, increase mental skill, just as repeated gymnastic trials develop greater physical skill.

TESTING FACULTIES BY MACHINERY.

Many faculties of the mind might be tested by cleverly arranged ma-

chinery, and we think of having in our studio apparatus that will test (1) the sense discrimination of color; (2) accuracy of the arithmetical skill of a child, or the stimulus given to the organ of Calculation; (3) the accuracy, speed and expertness of a child in spelling; (4) the speed with which words are typewritten; (5) the quickness with which change is given; (6) expertness in remembering words of foreign languages, and then the degree of accuracy could be noted. A comparison could afterwards be drawn between the above named mechanical tests and the size of the organs of Color, Calculation, Individuality, Form, Eventuality and Comparison, which represent the faculties that would be used in the experiments.

But these tests would not utilize discrimination in judgment, as the reasoning faculties would not be exercised, nor would the imagination be put to any test; neither would the sense discrimination in images be called upon to respond in the above tests.



ELINOR L., MUSICIAN.
FLORENCE L., LAWYER

If, however, the muscle-energy-feeling-measure were to be used, we should have to apply the "Myerges-

thesiometer." Attention could be tested by an instrument which would register the brain speed in responding to the signal after hearing it. A mechanical device could also be made to register the size of the organs, and another instrument to register the heat of various parts of the brain.

The great advantage in knowing about the localization of the faculties would be in developing the deficient faculties and restraining the strong ones.

THE IDEAL OR PERFECT CHILD.

One of the latest societies that has been organized is for the development of the ideal or perfect child. This society has been formed in Chicago (or the "windy city" of the mid-west). It has been started by a German physician who has taken his medical, legal and theological degrees, and has reduced the philosophy of life to a very simple formula. He has formed a colony to which anyone, rich or poor, is welcome, provided certain regulations and rules are lived up to.

When a man or a woman joins the colony, a full record of his or her past life, and the exact measurements of the physical proportions are taken. These are open to the inspection of members of the colony. If, after the candidates have learned to lead the simple life and join in the cooperative policy of the colony, a man and woman think they would like to become engaged, the matter is made known to the president, who in turn informs the other members of the colony of the proposed match, and the matter is debated and a vote taken. If the vote is favorable and the matrimonial candidates pass the rigid inspection to which they are subjected, they are put on a six months' probation.

The number of children allowed to each couple is limited strictly to two, one male and one female, no more, as this is sufficient to allow the reproduc-

tion of a perfect specimen of both sexes.

As a conscientious observer of the mode of life laid out by the president, he believes, as many more do, in the possibility of the determination of sex.

The law of suggestion is also encouraged so that if a parent desires in a child a great artist, inventor, or explorer, they are encouraged to enforce the thought upon the mind by thinking about it for six months.

His object is the reproduction of the perfect man or woman, which he thinks is a sufficient object to balance all the preparation and thought of his simple life tenets. His rules of life are that every person should work eight hours a day; then take eight hours for rest and study, and eight for recreation, otherwise sleep. Tobacco is forbidden; so is alcoholic drink, and the simple liver must say good-bye to meat, for, as the good doctor says, his followers should not believe in eating "our cousins." The diet is confined to vegetables and fruit, divided into three courses, first a vegetable from under the ground; second a vegetable or fruit grown on the ground, or sun ripened, and the third is plucked from trees.

It is possible that there are many people who already live this simple life and eat the simple diet, but there are some persons who can only follow out a strict regime by living under the discipline of rules laid down by a society, and for such a colony of this kind is a panacea.

THE ANCIENT WAY OF TRAINING.

The ancients had a wise proverb, namely: "Only in a sound body dwells a sound mind." This was the basis of Froebel's work, and like the Grecians and Romans, he directed his methods of education to the forming, strengthening and preserving of both parts of the human being.

The Egyptian, Israelite and Indian

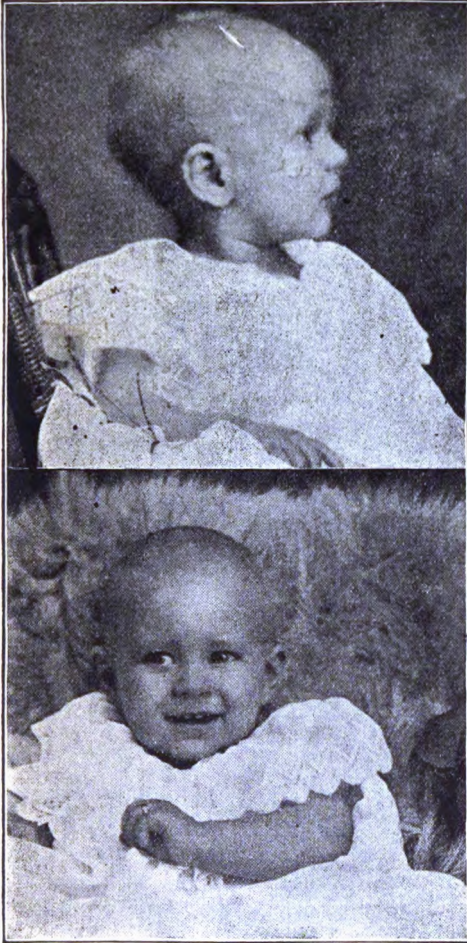
racers had rules in relation to the bringing up and education of children as well as of adults. The Greeks were superior to all other nations in their knowledge of health and hygiene. The Spartans educated all children (who were not killed at birth on account of infirmity) carefully but with severity, so as to prevent enervation. All children were educated by the State after the seventh year. The food and dress were of the plainest, and physical training was required.

The Spartan idea was to accustom their bodies to every kind of hardship to render it insensible to pain.



THE FAMILY PET.

Has a comparative, analytical mind, an excellent memory, and will make a fine speaker.



EDWARD CARTER ALUMBAUGH,
GREENVILLE, TEXAS.

A SMART LITTLE FELLOW, A "DRIVER."

The education of the young by the Greeks in Athens was directed to the establishment of harmony between the body and mind, because "only in a sound body dwells a sound mind."

Their idea of beauty and goodness gradually blended into one and finally one word stood for both, which was "goodness." The love of the beautiful prevailed, and the object was to unite

vigor and elasticity with beauty and grace.

Music, drawing and the sciences were taught in order to train the mind for the good and beautiful. Both boys and girls remained in the care of women up to the sixth year, and were educated by the mother or nurse. Education proper began with the eighth year. The boys were sent away from home, while the girls remained under the paternal roof.

Hippocrates taught of the treatment of children; how to distinguish between a healthy and an unhealthy condition; also of the laws of growth and how to cure diseases.

Socrates, Plato and Aristotle often went to the gymnasiums and gave their advice quite freely. Plato only wanted men who were highly developed alike in body and mind; and he regarded gymnastics as the best educational methods for this purpose. He wanted the child to play up to the fifth year, and then for two years more to observe and investigate, and, later, the elements of science, music, and more difficult physical exercises were to be given.

Aristotle shared Plato's views regarding the healthy effects of games and bodily exercise as a relaxation after serious study.

With the decline of the Greek nation, these beautiful educational principles were adopted in part by the Romans, whose educators were Greek slaves. In the early days of Rome, the mothers nursed their children themselves, and personally directed their education through their early years; but when customs became more luxurious at Rome, the children were left to nurses for their care and education. Education had to be private, as the Romans had no public gymnasiums; still they aimed to educate mind and body alike. With the corruption of the Roman people, as with the Greeks, the education of the youth

tended to effeminacy.

Claudius Gelinus, in the second century, the greatest physician of the ancients after Hippocrates, made a special study of the food, clothing and dress of children, and also of gymnastics and their beneficial effect upon health. He taught that the foundations of health and morals were laid in childhood.

Athenæus, at the end of the second and early in the third century, gave wise counsel in regard to food, bathing, exercise and sleep, and believed that teaching the child should not begin till the seventh year, and that work and recreation should alternate and be specially guided until after the twelfth year, and never fully excluded.

THE GERMAN MOTHERS.

In the year 1000, Rhazes, Avicenna, and others, gave excellent hints about diet and exercise for children, as well as for adults, and the latter thought that the teaching of the young should not commence until the seventh year.

In the fifteenth century, the Humanists, through their study of the ancient methods, were led to the introduction of gymnastics as a part of education into the schools of Italy. At Mantua and Urbino, gymnastics, fencing, wrestling, riding, archery, and ball playing were a part of their school curriculum. This system spread from Germany to Italy and Switzerland, and at Nuremburgh and Cologne gymnasiums were provided.

Towards the end of the fifteenth century interest in the healthy development of children again began to revive. In 1563, Wuertz published a book giving his experiences with children. Sadolet and Camerarius also wrote on hygienic science for the young.

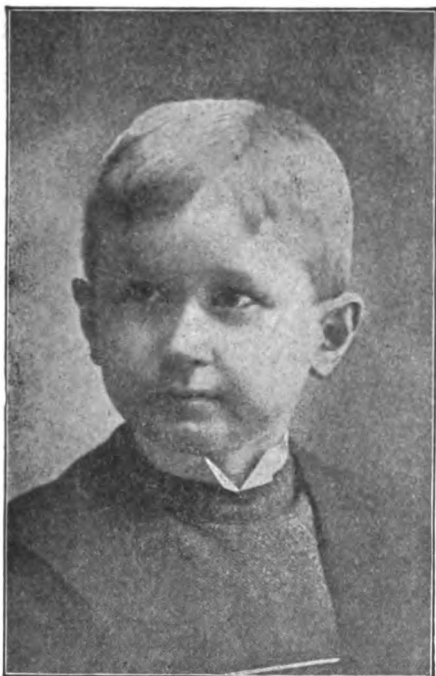
In the seventeenth century physical exercise lost its popularity in the higher schools, although during this

period Sommer, Riedliu and Lamperti gave discourses to mothers on the importance of exercise as a part of education, and John Graunt published statistics of mortality, with observations on the natural aspects of the subject.

After the eighteenth century popular essays were written on the health of infants and of children in the schools, and late in the century Stoll, Essig and Hufeland wrote on the physical training of children. One of the principal topics in periodicals was the training of children. J. P. Frank also wrote a stirring book on the education of children, which broke away from all prejudices and taught sound principles for the education of children from birth.



LAUGHING EYES
A NURSE
A merry, happy child.



SAMUEL V. HULSE
A FINANCIER.

Infinitely more than the eighteenth century, the nineteenth century advanced in the knowledge of medicine, chemistry and hygiene. Important works of men and science educators have spread this knowledge among all classes of people. Prominent among the writers were Jean Paul, Rousseau, Pestalozzi, Froebel, and others.

DISCIPLINE OF PARENTS AND TEACHERS.

Out of the family life there should go with the children into the school a sympathy with the teacher. For parents and teachers should, as far as possible, work in harmony the one with the other. Nothing is more disastrous to a child's mind than to have one kind of discipline at home and another—the reverse—at school. The child is not supposed to form a code

of discipline for himself, and thus he becomes confused through the contradictory treatment of parent and teacher. This, however, seldom happens when both sufficiently understand Phrenology to regulate the action of the faculties by the individuality of the child. The differences we meet with in large schools aid us in detecting the great development theory, that differences of external form are the result and measure of pre-existing differences of internal character which correspond with organization and function. We do not doubt that everything in nature has its form. And when we enter a school we find the same theory presents itself there. It is because the heads of children are not all flat or all round; not all high or low; not all broad or all narrow, that we aim at finding out differences in character, formation and function.

CHILDHOOD AND YOUTH.

These are looked upon as a period when personal pleasures are of more importance than working habits, play being considered the natural prerogative of childhood; but both work and play are necessary for the formation of a symmetrical character.

CHARACTER BUILDING.

Character building must commence as soon as the child begins to breathe; in fact, its education commences with it's mother's milk; therefore every mother should be a teacher, and a phrenological one, of course.

HOW PSYCHOLOGY AND PHRENOLOGY COINCIDE.

Professor Sully, the English psychologist, admits that "Individuals differ considerably in their power of abstraction. Some minds are much quicker in seeing similarity amid diversity, in noting analogies among things, and in bringing to light the common aspects of objects. These differences turn partly on inequalities in power of attention, of drawing off the thoughts from what is attention,

of drawing off the thoughts from what is attractive, and fixing them on what we desire to note. They depend too, in part, on inequalities in the mind's assimilative power. As already remarked, it is probable that some persons have a special bent of mind to the detection of similarity, whereas others lean to the perception of differences. What is called a good power of abstraction shows itself in a general facility in detecting the common qualities and relations of things. At the same time we commonly find the faculty manifesting itself in a special form in some particular domain of precepts and ideas." Here we find some of the phrenological powers described, but not named. He goes on to say: "Thus one boy will show a special power of abstraction in classing natural objects, as minerals and plants; another in analyzing physical processes; another in constructing the ideal notions of mathematics; and another in seizing types of human character and classes of motive which use the perceptive, reflective and intuitive faculties." He even goes on to say more particularly that "these differences, again, clearly depend in part on native peculiarities. Children are not endowed at the outset with the same degree of assimilative power."

A phrenologist detects this difference in power before the psychologist, for the latter has to wait for test work, while the former knows as soon as he sees the child where its power lies. Therefore, a phrenologist sees all that a psychologist does, and much more besides. Prof. Sully continues: "A child at three years will often display a marked quickness in tracing out similarities in the forms of objects, manners of persons and so forth. Moreover, the peculiar mental constitution and individual tastes may give a special bent to a definite form of conception. Thus, other things being



Photo by Rockwood.

STELLA

A WRITER.

This child has a gifted intellect, and a highly developed imaginative and literary mind.

equal, a boy with an eye closely observant of the forms of objects, will show a special readiness in dealing with the concepts of geometry (the organs of Form and Size), while another, with abundant muscular activity and a strong bent towards practical contrivance, will naturally occupy himself in forming notions about nature's processes, the notions with which mechanics specially deal." Here we have a fine admission that school children are not all alike, which has *always* been observable to me. Therefore, let me say to teachers who have studied Psychology and not Phrenology to grasp the principles of the latter as soon as possible. The psychologist corresponds in medicine



LESLIE FULENWIDER
A PHYSICIAN.

This child will show a strong personality, make friends easily and have influence over others. Hence as he is intuitive and scientific he will make a good physician.

to the doctor, who only diagnoses a case, while a phrenologist not only diagnoses, but is able to give advice regarding the most practical treatment. The psychologist points out the subjective and objective methods of work, while the phrenologist not only shows these two mental forces, but more too—what they mean and how they are used; the subjective being, of course, the employment of the Imaginative faculties, such as Spirituality, Ideality and Sublimity, while the Objective powers use the Intellectual faculties, such as Individuality, Form, Size, Weight, Color, Order, Calcula-

tion, Comparison, Causality, and Human Nature.

HEALTH VS. BRAIN WORK.

When Phrenology is at work in the school room, it has much to do. It not only has to decide the peculiar temperaments, constitution and disposition of each child, but it has to decide which are the key-notes of each character played upon the most wonderful of organs—the brain. Though, in some respects, the toughest organ in the body, and capable of expansion and remarkable development, yet the brain needs the most study of any part of the body to keep it in a healthy condition. We may say here that work is a necessity to promote the health of the brain, but how much should it be encouraged in the early years? A man works to live, not lives to work, therefore he must do what will agree with him, in order to live well, says Herbert Spencer, and we agree with him. "Take care of your health," is a warning which comes from another scientist. "There have been men," he continues, "who, by wise attention to this point, might have risen to eminence, might have made great discoveries, written great poems, commanded armies, ruled States; but who, by unwise neglect of this point, have come to naught. Imagine Hercules as oarsman in a rotten boat, what can he do there but by every stroke expedite the ruin of his craft?" Take care, then, of the timbers of your children's boats.

Phrenology cannot be properly introduced into the school-room without its taking into account all the conditions connected with the materials with which it has to work. Therefore it is just as anxious to prevent "over pressure" as to prematurely exhaust the mental powers. And in order to make school life a success, and preparation for after work, Phrenology and Physiology—its twin sister—teach us how to educate one power to be in

harmony with another, and not bring prominently forward one talent which is strong at the expense of another which is weak. The study of the lives of distinguished men and their early habits enables us to conclude that we are not mistaken in our idea that early mental culture is not necessary in order to produce the highest powers of mind. They show us also that "the survival of the fittest" means here a good stock of vitality to prepare the way for a useful life. Our entire aim in the development theory of Phrenology in schools is this "survival of the fittest" in each child, and the *gradual* development of the whole mind.

BODY AND BRAIN EXHAUSTION.

As teachers become interested in mental science they will realize how important it is to understand physiological and hygienic laws which regulate the bodies and brains of their pupils.

The child fatigues much more readily than the adult; that is, his organism is more quickly depleted and poisoned during the period of most rapid growth.

The average boy has his most rapid growth between the ages of fourteen and sixteen.

The average girl between the ages of twelve and fourteen.

In these two years they increase in weight as much as they did during the entire six years previous to these periods. At this time the brain loses in weight, because of the fact that the usual blood supply is lessened by a portion's being withdrawn to nourish other organs undergoing rapid revolutionary changes during this period. While the weight of the brain is but one forty-fifth that of the whole body, it requires one-eighth of all the blood to nourish it.

At no time in their whole school career are boys and girls so deserving of sympathy as at this time of most

rapid growth. In all learning two features are involved: Proper presentation of material by the teacher and proper attitude of mind on the part of the pupil. Seldom, if ever, can the latter conditions be supplied by the girl or boy in the midst of the physical and mental revolutions and evolutions of the rapid-growing period.

The great curse of this age is the demand for rapid education. Parents and teachers feel impelled by the force of the times to crowd their children through a long, hard year's work, whether they are feeling quite equal to it or not. Health is so often sacrificed for promotion. "Harry will



A TEACHER.

This child shows a thoughtful, serious and studious brow.



A TEACHER. AN ORGANIZER.

This picture indicates two bright, intelligent children.

lose his place in his class and have to begin over again if he stays out of school *this term*," said a fond parent to me. But what is learned when a child is fatigued is soon lost, the mind's forces being equally dissipated. Vital force is required faster than it is generated. The work of to-day is done on to-morrow's credit, and the system of the child is wholly at a loss to protect itself against disease and accident. The phrenological teacher of the twentieth century will not only be paid his \$1,000 or \$1,500 salary to draw out the intellect and fill it with suitable knowledge, but he will be ex-

pected to keep an eye on the working capacity of the brain and report when it needs *rest* as well as when it needs more work.

THE SCIENCE OF CHILD CULTURE.

So many people have a wrong impression of child-life, and imagine that unless a child will be obliged to WORK it is not particularly necessary for him to learn to do so, at least for the first decade of his life.

It is a wrong idea to impress upon a child that there is no need for him to prepare for anything special in life; that he will always have a sufficient income that will support him, never thinking that the activities of life help to develop his manly character, and for this reason, if for no other, he has a right to demand an education adapted as near as possible to his talents.

HOME LIFE A PREPARATION FOR SCHOOL LIFE.

School life and training should begin long before the child goes to school. They should begin in the nursery.

It will not do to wait till the child is even of school age before beginning this training in industry. The most impressionable period of a child's life is before the age of seven years. The child who has not learned to love work before that time will very likely never learn to enjoy it. The earlier children are given little duties to perform, the sooner their time is laid out in regular periods of useful work interchanged with play, the more firmly will a love of work become fixed in their characters. Much, however, will depend upon the teacher and her methods of training. If she desires the child to love work, she must make work pleasurable to him by patiently teaching him the best methods of accomplishing his tasks; by bright, animated conversation about his work; by providing him good facilities to work with; by making his surroundings while at work as pleasant and

congenial as possible; by adapting his work to his physical, mental and moral ability; by arranging such periods of relaxation or changes of occupation as his age, strength, and the nature of his tasks demand; and by hearty appreciation of his every honest endeavor. She should insist upon the work being thoroughly done, for there is no real satisfaction in work which is not well done. Habits of promptness and continuity are also essential to a love of work.

THE RECOGNITION OF TIME.

If a child is allowed to grow up in a sort of haphazard way, idling and dawdling away the greater portion of his time during his earlier years, the habit of so doing will become firmly fixed in his character, and can never, or only with the greatest effort, be eradicated. "Oh, that mothers and teachers would realize that it is safer to form character right than to reform it; that though it does take trouble and time and patience on their part to train a child in right ways in his early years, it takes no more time and no more trouble and no more patience than it will take to untrain him in wrong ways in later years."

HOW TO CULTIVATE ORDER AND CONTINUITY.

Another matter of the utmost importance is to teach the little ones to finish their work. This involves not only the completion of the work in hand, but the putting away in their right places and in good condition of all materials and utensils used in performing the work. "Anything completed, rounded, full, exact, gives pleasure; anything done in a slovenly, slipshod way, is discouraging. There is a feeling of content which comes with any task finished. A man who has learned to do anything well enjoys doing it. This is the lure which wise nature uses to lead us to finish our work."

Both boys and girls should be

taught domestic work and both boys and girls should learn the use of tools, gardening and similar occupations. Infuse into the children's mind the idea that no honest work is degrading; that it is neither unmanly to wash dishes or darn stockings nor unwomanly to drive a nail or weed the garden; that their ability to do the work and the need of its being done should determine whether or not they shall do it. Make the distinction of sex as small as possible in the home training of the boys and girls, and there will be less of a feeling of inequality to contend with as they advance in years.

THE GREATEST GENIUSES WERE BOYS ONCE.

I am not alone in stating that there



A MECHANIC.

Photo by Rockwood.

is hardly an instance of a great man who has won the admiration and gratitude of mankind and has accomplished great results, and performed wonderful labors who in early life was educated by a *hot-house culture*; but, like towering oaks, grew up amid the storm and the tempest of peculiar environment.

The greatest geniuses; the greatest actors in life's playhouse, such as statesmen, philosophers, writers, warriors, have been men who have been allowed to grow first, and think and act afterwards. Julius Cæsar, Napoleon, Wellington, Cromwell, and Frederick the Great, are striking examples of this fact. Many of our orators and statesmen, as Gavazzi, Cicero, George Whitfield, Daniel Webster, Count Cavour and Daniel O'Connell, received a simple education when boys; and thus, being allowed to mature and gradually develop their greatness in after years, were not prematurely stunted by over brain-work in youth. Many are like Sir Isaac Newton, who, as a boy, according to his own statement, was "inattentive to study, and ranked very low in the school until the age of twelve." Or like Napoleon, who is described by those who knew him intimately when a child, as having "good health, but in other respects was like other boys," and did not owe his greatness to early mental culture.

SIR WALTER SCOTT.

Of Sir Walter Scott, we learn that he was, as a boy, lying about in the fields when he should have been at his Latin grammar; reading novels when he should have been entering college; spearing salmon instead of embellishing a peroration. Yet he came out of this wild kind of discipline graced with the rarest combination of qualifications for enjoying existence, achieving fame, and blessing society; deeply learned, though neither the languages nor the philosophy of the schools made part of his acquisi-

tion; robust as a plow-boy; able to walk like a peddler; industrious as a handicraftsman; intrepid as the bravest hero of his own immortal works. Here is enough, says Harriet Martineau, to put us to inquiring, not whether learning and even school discipline be good things, but whether the knowledge usually thought most essential and esteemed indispensable, be in fact either the one or the other. In this very sensible idea we run the risk of differing with one class of teachers who, when they have a precocious pupil, like to make much of him without taking into account his weaker powers. But if Phrenology were introduced into a school where one or more precocious children attended, the object of the teacher would be to so modify and direct the early school training of such minds that no bias or strain would be allowed. Huxley points out that the vigor and freshness of young children, which should be stored up for the practical struggle of life, "is often washed out of them by too much and too early book gluttony and lesson bibbing." "Their faculties," he thinks, should have more intellectual rest in youth than in age; and further, that the cheerfulness and tenacity of purpose, the power of work which has made so many men successful, is not so much due to close attention to books and college studies in childhood as is generally supposed.

THE FIRST THIRTY OR THE LAST?

One object in life is seeing how much the system will yield in a healthy condition. Are our best efforts to be secured from the first thirty years of life or the last thirty? We may urge on our Byrons and Shelleys to do their work under the burning furnace of early intellectual culture; but the hoar frost chills them, and they are gone, never to return to their work. They, alas! cannot say "thanks to a vigorous constitution

gained by outdoor exercise, ball playing in youth, walking and lifting in later years, we have been able to eat and digest and keep up sufficient mental and bodily friction, and employ all our powers to a venerable old age." Some teachers, who do not understand Phrenology, cramp the minds of their scholars into a strait-jacket, and educate them according to *their* own plan and not according to the natural abilities of the material they have to work with. We bias our children's minds, and wonder afterwards that men can be so narrowminded and bigoted. Children are the raw material at hand to be worked upon gradually, for they are not born angels as some are foolish enough to suppose, and only become so by being trained, drilled and disciplined.

There are, however, many ways of disciplining children. Some parents and teachers spoil the dispositions of children by governing them too much. They think every time for them instead of teaching the children to think for themselves, and think if they continually correct the faults of a child that he will be the best of the bunch, believing that "to spare the rod is to spoil the child." It is not so much a duty to govern a child as it is to teach him to govern himself. This is where Phrenology can be of immeasurable good in studying the characteristics of children. It is a tedious process for a teacher to watch the result of his discipline when he gives the same correction, the same amount of kindness, severity and encouragement to the tender-hearted, the ambitious, the proud, the sympathetic, the hopeful, the easily discouraged, the cautious, the mirthful, the conscientious, the energetic, the slothful, the indolent, the sullen, the obstinate, the thoughtful, and the observant. If he understood Phrenology, he would make a study of each child before he tried to discipline them at all.

MORAL TRAINING.

To do right because it is right should be the underlying principle upon which all right conduct is based. There are two counter inducements to right conduct largely employed in the training of children in school and out of it. One is the fear of punishment, the other the hope of reward. At first thought it seems a much easier thing to reward children than to punish them, and it is pleasanter for teachers to do so; but the indiscriminate use of rewards is productive of quite as much harm to the child as indiscriminate punishment. Neither incentive is, however, the best motive to encourage right-doing. It is the wrong-



Photo by Rockwood.

A LITTLE NURSE.

The picture of the above child indicates that she is thoughtful and loving.

doing rather than the punishment that we want children to fear. It is well enough to sometimes work through fear of punishment or by hope of reward, still, the underlying principle should be to do right because it is right and to so train him that he will wish to do right at all times. Is not goodness that is paid for by rewards an artificial virtue? What child is not bright enough to work for the stick of candy or the lump of sugar, when it cares nothing for the duty it has to perform? And is not right conduct that is bargained for cheapened into a kind of stipulation or bribery? Such methods do not appeal to the Conscience—or Conscientiousness, but it makes the child feel that it is simply optional whether he shall do as he is bidden and gain the promised reward, or do as he likes in the matter. It is the following of the latter that has led many a child to ruin, and has weakened rather than strengthened moral fiber. Little Johnnie is rewarded for being generous, polite, or truthful in turn, until he can be neither unless he is rewarded for being so, and the happiness that naturally follows the consciousness of having done right is lost—perhaps forever.

Froebel says: "How we degrade and lower human nature, which we should raise, how we weaken those whom we should strengthen, when we hold up to them an inducement to act virtuously." But we strengthen a child's moral character when we teach him to depend upon the happiness that comes from right doing.

A LAW TO THEMSELVES.

Children, as soon as possible, should be taught to become a law to themselves, instead of being made to feel that the responsibility of their conduct rests with their teachers; and they can

be enlightened in such a way, about the size or activity of their faculties, as to avoid either discouragement or pride. Some are too hopeful while others are gloomy. Some are entirely observant and not sufficiently thoughtful, while others are entirely absorbed and not sufficiently perceptive. Some delight in danger and run many risks, while others are too mindful of results and will not venture. So in turn each condition of mind has to be taken into account, and he is a wise teacher who knows how to draw out, or hold in check, these diversities.

WHAT DIFFERENCES DO WE FIND?

Phrenology so helps the teacher to understand the use of the mental powers, their legitimate action, and the best mode of cultivating and directing them, that he perceives at once the difference between them, and how each one is adapted to the wants and the relations in life.

Some children lack self-respect, others lack decision and patience. Some are disobedient, others are wanting in prudence. Some lack sympathy, others need more conscientiousness. Some are wanting in politeness, others are too selfish. Some need to cultivate language, while others are too talkative. Some need to cultivate affection, while others need to check it. Some are too liberal, while others are too stingy. Some are too vain, while others are too modest. Some are too reserved, others are too free. Some are too timid, while others are too careless. Some are too witty, while others are too sober.

HOW TO CONTROL TEMPER IN CHILDREN.

With some teachers the word temper is quite a favorite expression. Every naughty act is considered a specimen of temper, and, unfortunately, each act is magnified.

CHAPTER IX.

Phrenology as an Aid to Teachers

PHRENOLOGY IN THE SCHOOLROOM.

A phrenologist going into a school-room can help the teacher by telling him the faculties that need the most

care and attention in each child. Temper is nothing but the expression of certain faculties that have a superabundance of activity, whose spirit is uncontrolled, unchecked, unrestrained.



WEIGHING THE BABY



TEDDY B.

An Enthusiastic Speculator.

When Firmness, Destructiveness and Self-esteem are not regulated by Veneration and Benevolence, Cautiousness and Secretiveness, then the dispositions of children are no pleasure to themselves or anyone else. But when a teacher knows nothing about a child's mind and the difficulties it has to contend with, except the knowledge of him that he picks up from day to day, then he stands a poor chance to materially help the little creature.

Someone has wisely told us of an un-failing test of a teacher who has control of her pupils. If the teacher's voice is raised as her pupils become mischievous, then you may be sure that she cannot control them. If, on the contrary, her voice gets lower, you may be sure that she can. She has learned the true art of handling the faculties and influencing them. The age of the child is of no account. I well remember paying a delightful visit to "Whittier House," Jersey City, and as we entered the kindergarten room the children were preparing to leave the room after the morning's exercises. They were playing a game of bending their heads on the table, and the teacher passed round and touched one here and another there. As she did so each one took up his chair and helped to make a circle round the room. When this was done by all and a sweet parting song was sung together, then the teacher bowed to each one separately, which was an indication to that one that he or she might go and shake hands with her and leave the room, but there was no noise, even when some impatient child made a sign by raising his hand that he wanted to speak. The teacher placed her finger on her mouth, expressed her surprise by raising her eyebrows, and in this case not a word was necessary. I never saw better control of little children, belonging to the roughest classes and of all nationalities, than I here witnessed. She not only made a business of her work, but she bent her keen perception and intelligence of child-nature to her work, and her success resulted in perfect control of a large class of over thirty children. The point of learning the art of true discipline is simply this: no one can control others who cannot first control herself; and, of course, also, the rule applies to all who look after the young. I know as a teacher, myself, if in any unguarded moment

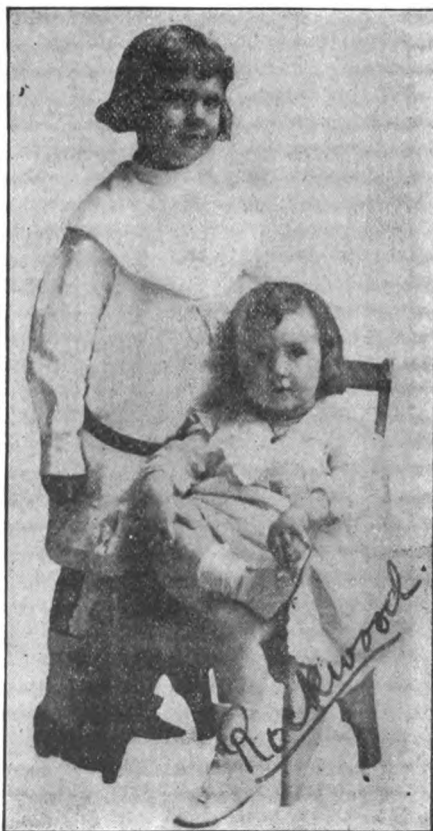
I have raised my voice to gain attention, the effect of the command has lost half its potency. Dante punishes the violent by immersing them in a sea of boiling blood; the sullen are covered over their heads with putrid mud, whence slow bubbles arise as they breathe. This is only the poet's picture of what is the actual state of the angry person, not after death, but now, and so long as he is angry. We recognize the familiar saying, "I was so angry that my blood boiled within me." When a child's Destructiveness is very large and active, and the head is very hot in this region (over the ears), as I have often known it to be, then the surest way to control the child is to call off the activity of this faculty by influencing the activity of another, as, for example, by some active work of benevolence or the exercise of Ideality in admiring that which is beautiful; in this way, very often, a teacher may change the melody of a child's mental music, and yet allow the mind to play as sweet a tune, simply by knowing the notes and combinations of the instrument.

One word to young and often discouraged teachers on this difficult subject. There is one practical rule to follow: When your muscles grow rigid and your lips thin, when you feel a hot flush creep over you; or, if you shut your jaws hard and feel very dignified and silent, and think that your stubborn child is mastering you, then leave him; do not trust yourself to punish, rebuke, or chastise him then; when you feel strengthened, sweetened and humbled it will not be long before he will also feel so, owing to his strong imitative faculty, and then you will return to him in a better state to help him to gain a victory over himself. Many times children do not want or mean to be naughty when they are given the credit for being so, but they are irritated, frightened or fretted into disobedience. Oftentimes

the so-called naughtiest child at school becomes the best man or woman in maturer growth.

HOW TO USE THE SUPERFLUOUS ENERGY OF CHILDREN.

When we consider that the energy of a child must be utilized somehow, some way, we shall wisely set to work to put it to practical service and not punish the child for using it in his own way when we have done nothing to help him direct it aright. All work that a child can be taught to do well has an educating effect upon his character. It is, however, heart-rending to



FRANKIE H. A Business Man.

WILLIE H. A Physician.



MILDRED G.
A Devoted Mother.

hear children ask: "Mamma, what can I do now?" And be told, "Oh! don't bother me now, go out and play." This is not the way to help train the energy for the teacher, and it shows that the child is not anxious to live a life of purposeless inactivity or idleness. Evidently such parents, who will not take the time to suggest work for their little ones when they are asked to do so, may wish very earnestly for the privilege, when habits are being formed which are objectionable.

Parents can help teachers very

much in this respect if they will only direct the energies of their children, instead of leaving them to their own devices, often, for a whole day, except when they see them at the table, for such a thing is very disastrous. Children will find as much leisure to hang heavily on their hands out-of-doors as in-doors, although it may not annoy their mothers so much. Industry is not alone confined to the hours devoted to lessons and tasks. Children may be idle at their play, and it is as important that the time devoted to relaxation be properly employed in hearty, happy, vigorous play as any other. Is it not easy to see that the way to make life burdensome to your children as they grow older is this very plan of allowing them to grow up through the years of childhood and youth with plenty of unoccupied leisure?

MANUAL TRAINING.

Much of the danger which threatens the boys and girls of to-day lies in the lack of training in industry. This is where the manual training in evening schools is so beneficial to young people, and Phrenology is the shorthand to make the most of the opportunities.

Let a love of work for work's sake be instilled into a child's character and idleness will not be pleasurable. Habit is a controlling force in human nature. If this habit for work be formed early in a child's life there will be very little inclination towards a love of unoccupied leisure as the years go by.

Phrenology teaches that each faculty can be cultivated by proper use, and, as Miss Peabody says: "We can learn goodness by being good, so industry becomes a permanent trait of character by training a little child in this virtue."

We can train the organs of Firmness and Continuity to so influence the character that whatever is attempted is carried through with perseverance

and determination, but if a little of everything is attempted, then nothing permanent is accomplished. There can be no question as to the value of a love of work in a child's character. But this fact is overlooked at an age when it is most important, for this element, like all other elements of character, must begin very early in the life of a child, and grow with the child's strength and years, being fostered and developed by employments and occupations suited to the conditions of the child. The great problem of child-life lies in individual necessity, hence the need of individual training.

ETHICAL GROWTH IN CHILDREN.

Have we not noticed that under certain conditions a seed will germinate and become a tree? We have observed what these conditions are, and we follow them. We plant a seed, water it, and feel sure that a tree will in time be found growing in that spot.

Character is likewise the result of conditions; it is not something one can force in on a child, but the seed has to be planted, then watered, tended, watched, pruned, nourished and loved into a beautiful growth. The last-named condition is particularly necessary.

The school-room is the place where there is a jostling of human beings, a tendency to friction, hence the need to know the philosophy or principle on which each character is built, and a philosopher is one who knows how to work out the conditions of the philosophy. The best way to teach ethics is to call attention to the incidents that come up in daily school life.

We must bear in mind that there is an ethical atmosphere, principle or element that will grow if the opportunity is given to it—if the conditions are favorable. Just so is it with the life principle in the grain of wheat that will separate if heat and moisture

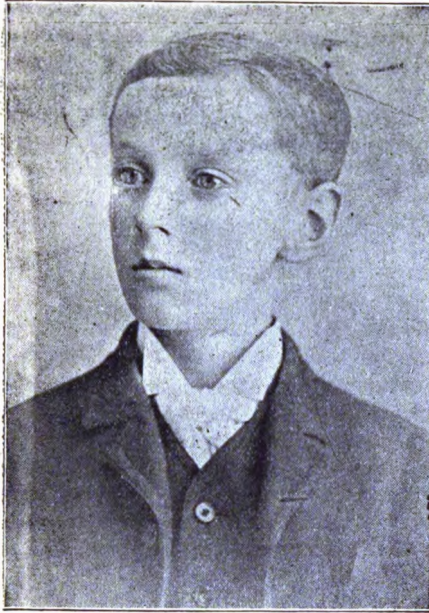
are applied rightly, so there is an ethical principle waiting to grow in the human being, and ethical culture should not wait until the soul is sixty years of age. It should begin with the germ and grow with it. To manage the common incidents of life so as to insure ethical growth is a greater and a nobler task than to hear a recitation in the division of fractions, or in spelling of words of different formation.

EVOLUTIONARY METHODS IN TEACHING.

When Phrenology is universally introduced into school discipline, then there will be a system of education adapted to each mind according to individual needs and requirements; there will be a true understanding of the extremes either of the natural ex-



A Well Balanced Boy. Divisions show Perceptive, Reflective and Moral Groups.



A Mathematician and Inventor.

cesses or deficiencies of our children, and the influence of different studies and modes of stimulating their minds will be carried into effect. Children's minds can be aided beneficially by explaining to them the general principles which control their own bodies and minds, as well as the laws which control nature, in no better way than that suggested by William Jolly in his estimable work on education. In one chapter he treats upon education in things illustrated (page 450), where he mentions how a friend of his educated his boy in geography by asking him to read from the newspaper on a Winter's night the list of ships which had arrived in port during the past few days, specifying the places from whence they had come, and the nature of the cargo. On a map the places were found, with the latitude and longitude. Questions were asked with regard to the reasons why such goods

were imported from such a port, and this led to an explanation of the climate, soil, and natural productions of that particular part of the world. One way a child's mind may be made practical is by the study of anatomy, geology, mineralogy, botany and agriculture. Jolly also mentions the way German teachers instruct their pupils, and I may add that in England a similar excellent plan has been introduced, namely of making numerous excursions in the fields, woods and mountainsides, where plants, insects and minerals are found and examined, and preserved for future study. In mining districts the methods of examining, the working of shafts, and the ventilating and draining of the mines, the means of separating the ore from the sulphur, and the silver from the lead, are all explained. This knowledge, of course, makes the coining of money the next interesting study. We have also known of instruction being received in a similar way from iron works, where the large furnaces are steadily melting, casting and molding the iron ore.

A CHILD'S MIND TAUGHT TO ANALYZE.

Again, a child's mind may be taught to analyze, compare and discriminate by the study of composition, chemistry, the art of coloring, mechanics, and the combining of raw materials in the manufactures, as well as by the study of the combination of the various mental faculties. Sometimes teachers can take excursions to large manufactories, sometimes to large printing and publishing establishments, where every department of work is carried out, from the compositors' room to the marbling of the edges and the glazing of the paper, the folding, stitching and binding of the book. Sometimes the visit is made to a paper mill, where the boy's attention is first called to the rags, or other fibre, next to the pulp, then the formation of the paper, the sizing and dry-

ing. and the ruling and the cutting of writing paper. Sometimes they are taken to large india-rubber works, where the material is brought in its rough condition, then washed, pressed, and put through its various refining processes, until it comes out in its numberless polished and useful shapes. Or to the turning mills, where there is exquisite machinery for every kind of wooden contrivance from the cotton spool to the carpet loom, box-wood skate, wheels, etc. As a practical teacher of Phrenology, I have taken the opportunity of examining all of the above methods, in order to possess the requisite knowledge to advise parents in directing their boys in entering different departments of work. And is it more wonderful that similar laws should govern the mind that control nature? It is a wonder to some that an Owen has been able, by seeing one bone of an unknown animal, to construct an entire osseous system. Yet it is much easier for a teacher to read the phrenological developments of his pupils, for he has to construct no theory or supposition, yet there are people who think it cannot be done.

SYSTEM.

Another important point in a child's education is to teach him to be methodical mentally, as well as orderly and neat materially. This can be done by the study of drawing, figures, mathematics, by his planning and arranging work and time, and by systematizing his thoughts.

HOW CAN A CHILD BE TAUGHT TO THINK?

You may teach him to *think* through the study of grammar, philosophy, the languages, cause and effect, and elementary politics.

SENSE OF HEARING.

You may cultivate his mind through his sense of hearing by attending several good debates and hearing the best eloquent speakers of the day, and

question him afterward on what he heard.

EXECUTIVENESS.

He can be taught executiveness by seeing workmen at their trades in the open fields or in the manufactories he has been over; at the same time the different faculties called into exercise should be pointed out. Thus we might continue to illustrate the many ways by which the young mind can be fed without drudgery. As it is, he is brought face to face with nature, and learns its dependence upon a higher power than human will or talent.

BOOK KNOWLEDGE NOT ENOUGH.

One of the greatest drawbacks in our educational system is the tendency to depend too much upon mere book knowledge in theory, and not a sufficient application of that knowledge in the practical walks of life; hence, many children leave school with their hands full of certificates, who are perfectly bewildered when they come to



No. 1. A Musician

No. 2. A Nurse



An Artist and Designer.

enter business; and parents find fault with them because they expected them to be able to "take hold and help" the day after they leave school.

FIRST ONE THING THEN ANOTHER.

How often we hear of children being educated first for one thing, then for another. As a young man, Herbert Spencer began as a civil engineer, but at twenty-five left it and devoted himself to literature. Thackery first chose art as a profession, but relinquished it after traveling and studying on the Continent, and devoted himself to letters.

THE GREATEST GOOD THAT RESULTS
FROM EDUCATION.

Every teacher and parent should feel that the greatest good that can come from an education is the discipline of the mind. That discipline, unfortunately, is not always gained by children in our schools, but has often to be secured years afterwards, when much of their book knowledge is wasted, on entering the practical walks of life. This is simply owing to the want of phrenological knowledge on the part of parents in their families,

and teachers in their schools. A father cherishes a fond idea that when his son comes home from college he will relieve his hard-working days by slipping into his business, which is a wholesale grocery; but the lad has a taste for music, and a strong ambition to become a musician and composer. Another father is manager of a bank; his son is just home from college, and much to his surprise he finds the first desire of his heart is to become an agriculturist; he hates indoor life, and does not fail to say so. Another father is a celebrated surgeon, and he is looking forward to his son's coming home from school, in order to finally decide what he is to make his life-work, and fondly cherishes the hope that as he is his only son he will take up his profession; but, alas, he shows quite another talent, namely, an artistic taste. The father might easily have found from the formation of his son's head that he had not the slightest qualification for a surgeon. Another father wishes his son to enter his business, which is a lace manufactory, but the lad has no taste or genius for business, neither could he succeed in it. He is bent on becoming a barrister, a member of Parliament and statesman. The gift of oratory would be thrown away in superintending the manufacturing and commercial interests of his father's business. But, alas, his father did not know the faculties necessary to make a good business man, or, at least, did not perceive that his son had them insufficiently developed.

Another boy with full Veneration, large Conscientiousness, very large Benevolence, and prominent intellectual brain, with little worldly ambition, wanted to become a philanthropist, and he became one, for he was Gerrit Smith. Another boy was large in Individuality, Eventuality, and all the Perceptive faculties, with full Comparison, moderate Order, average Causality, large Human Nature and

Language, full Agreeableness and Mirthfulness; he wanted to study physiognomy, and became the celebrated Lavater. The parents of Dr. Gall intended him for the Church, but the young man felt no inclination for that profession, but he was drawn to medicine and he made a better physician and scientist than he would a minister.

PUT BRAINS INTO YOUR WORK.

Nothing so repays a workman as to use his brains in his work. A child may learn to do a thing mechanically, but there is something wanting. What is it? Brains. The interest of the little life has not been born into the work; but just let a child for the first time become fervent and put his life into his work, and *it lives*, it blossoms, it grows, it becomes a different thing altogether.

I know of a large toy shop in New York city, the owner of which once said, "Do you see that little girl? I took her on as an 'extra' two months ago. She was hopelessly diffident and clumsy, so I set her to arrange a shelf of dolls which had hitherto stood in unmeaning, straight rows. When I came back I found every doll in a characteristic attitude. One was at a mirror, another was rocking the cradle; some were dancing a quadrille; others were at the washtub and cooking-stove. A crowd surrounded them. They sold rapidly. I saw I had secured a valuable assistant. She put her brains into her work."

This illustration shows what can be done in every branch of study as well as business, and it is the work of the teacher to so *touch the central spring*, the life interest, that nothing that is learned need be dull or mechanically done. To do this a teacher needs to understand himself or herself first and be rightly attuned to the work of teaching so that his brain may be in full evidence in his work.

An old German writer once said, "Do not be miserly of yourself." Such

work does not wear one out, it is only the mechanical work that wearies. It is well for us in every way to put our best thought and best feeling into all our work, however small or trifling, for how do we know whether this seed or that which we plant will bear fruit for all time. Phrenology teaches us that the faculties develop with use, just the same as those engines are the most usable ones that are kept the brightest and freest from rust and dust, so work will not hurt a child or man, if it is kept within its limitations, but rust and worry will kill both.

SILENT FORCES.

Phrenology teaches that through many faculties we learn without the aid of language; that the mind is *taking in* all the time; that imitation is useful, for it can reproduce what it has seen done—in fact, the greatest forces in nature are silent ones, and it is of the utmost importance that every teacher should study the under currents of each child to know how to apply this silent instruction to moral and spiritual, as well as intellectual and social life. Nature can be helpful to us in many ways by illustrating



A Minister.

to the young what we want them to understand. Show them that their minds are like the dew in the night time, that is said to be of greater worth to the dry and parched land than the rushing tempest that sweeps over it. Silent growth is again illustrated in the murmuring rill that gives its clear water as freely to the vegetation upon its banks as does the great restless river sweeping in its majestic pride to the ocean. Then, again, there is no element so needful to the world as the sunlight, and yet its golden wealth falls as silently upon the earth as do the shadows. When Springtime comes with all its transforming power, we never hear the sound of its footfall, and when Summer and Autumn leave their tints of gold upon the ripening grain we catch no sound of the hand that does the work. No ear is so quick as to hear the sound of the growing oak. There is no stir among its creeping roots, or beating of its woody heart. But it grows on in eternal silence and becomes so strong that the tempests of a century cannot uproot it. Is there anything stronger than the mountains? Yet they are forever silent and smile on the same through all the changing seasons. There is power in the gleaming lightning, yet it makes no sound in its fiery descent. The loud thunder is the harmless element. So in character such elements as fortitude, perseverance, concentration, generosity, thoughtfulness, politeness are all silent forces which call into action the faculties of Combative-ness, Firmness, Continuity, Approbative-ness, Causality and Benevolence, and what teacher knows that his scholars have these qualities until he tests them, unless he makes a phrenological examination when the child

A PRACTICAL EXAMINATION.

enters school. *The time is coming* when every child will be given a practical and concise delineation of his

character when he enters upon his course of instruction, which will be filed for the teacher's use, and every year the changes in the developments will be noted down. Copies of these examinations can be made for the parents if desired, but we must first make it an educational principle, and then its usefulness will be recognized and handed down as the children leave school and settle down in homes of their own.

Teachers will then be able to crystallize talent on sound, scientific principles, for of their own accord they will perceive where this child is defective and where he is proficient, and help him accordingly.

When the Board of Education opens its eyes to this great need of the age, then all teachers will be duly trained and examined in mental science.

There are four things, said Dr. Skinner recently, in his address on "The Mission of the Teacher," that are not found in books, which the ideal teacher will teach—"How to study, how to think, how to value knowledge, and how to love mankind." Let us include these in our new methods of teaching.

Mr. Maxwell, as an authority on public schools, said: "Every public school should keep in view the three great departments of education, the physical, the mental and the moral.

"What concerns us is the use made of the curriculum. The teaching of various subjects should be so co-ordinated that one study shall reinforce another; the subjects should be so taught as to induce concentration of mind; they should call forth a pleasureable sense of activity." In this connection Mr. Maxwell spoke enthusiastically of the manual-training schools; they should develop the inherent powers of the individual; finally, all school work should develop character, repressing the vices

and unfolding the virtues.

The diamond has first to be taken away from the dust, and the cutting of the stone is necessary to give it its luster before it is set. So the child's mind has to develop and grow out of its limited surroundings: his Phrenology is the telegraph of his mind to others, as well as to himself. His character is the dial, while Phrenology is the sun shining upon it, and telling as truly the characteristics found thereon, as the sun of the universe revealed to the ancients the time of day.

When we take Phrenology into the school-room, we know whether a child is calculated to become a scientist or a divine; a philosopher or naturalist; an engineer or writer. In short, a Darwin or Guthrie; a Stuart Mill or an Owen; a Brunel or a Bronté.

It must ever be borne in mind that Phrenology does not originate organs to suit different cases, and hence a child has a temper, as well as certain other tendencies, before Phrenology says it has. Phrenology only points out what it finds; but does not make a child more destructive or quarrelsome than he is.

COMPARISONS SHOULD BE AVOIDED.

One thing should be carefully remembered, that a clever child should never be compared with one that is more backward. We believe much harm is done by a comparison of talents in unequal scholars; but each child should be compared with his own efforts from time to time. By following the former case the one child is spoiled and the other blunted. When Phrenology has pointed out the calling a child is most likely to succeed in, it must be encouraged to shine in that particular, and to concentrate effort. The words of the great sage of Chelsea should be engraven on every child's heart, "Be no longer a chaos, but a world, or even a World-

kin. Produce! Produce! were it but the pitifullest, infinitesimal fraction of a Product. Produce it in God's name." This idea does not conflict or contradict the one expressed at the beginning on watchfulness against overpressure. We may produce in so many ways that will not over-stimulate, but if there is no definite purpose to aim at even in small things, there is little result, and no great end achieved. To this end should our children be stimulated and educated.

WHEN SCHOOL LIFE SHOULD BEGIN.

Activity is the normal condition of childhood. It is, fortunately, Nature's wise provision for the growth and health of the child. Just here Phrenology steps in and helps the mother-teacher. In the constant doing of something the child's activity must find vent, and it rests with the parents, etc., as to whether it shall be guided aright or be allowed to run into mischief. It can be led step by step into broader and better things, or it can be left to the dictates of the child's own devices, and give vent in all kinds of mischief or naughtiness, as it is often called. Is it not undeniably true that those children who are universally called troublesome are generally those possessing a superabundance of life, energy, spirit, vivacity, activity or vital force that must be worked off somehow, some way, by exercise or work? When the life-element is turned in the right channels, then the activity causes no annoyance whatever. Naughtiness, therefore, can be called misdirected energy. It is, therefore, necessary in order to keep a child out of mischief to well direct its activities by the legitimate use of its impulses, desires, wants, talents or abilities.

How often a child is called.

"A BAD BOY,"

when, in reality, he is only a very active young fellow, full of animal spirits from the tips of his fingers to the

ends of his toes. Is it not, then, the business of the teacher to so interest him that, for the time being, at least, he shall forget his mischief in the pleasures of acquiring knowledge, and in doing the work of his class?

The morally incorrigible boy whose moral nature is all awry, who in spite of kind and skillful treatment continues to annoy teacher and classmate and defy the rules of the school, needs an extra amount of thought and study to reach and bring him into line. To hastily dismiss the so-called "bad boy" from school is often unnecessary and harmful, as one superintendent declared who had had an experience of forty years, and had only dismissed two boys from school for misconduct, and he now believes from what he has since learned that he need not have done so. By the aid of Phrenology the "bad boy" can be reached and reformed by a skillful teacher, principal and superintendent, and the result is worth all the effort it takes.

CHARACTER THE AIM OF EDUCATION.

The fiercest conflict, the most important contest waged throughout life, is that in which the prize to be gained is character. It is the solid groundwork upon which is wrought all the delicate and beautiful designs of the fabric of life. Character must be cultivated through youth to old age. Think of the little child just learning to walk. Think of the youth starting out on the rough pathway of life. Think, too, of the silver hair, the wrinkled face, and bowed form at the end of the journey, and ponder over the many conflicts which have been between childhood and age.

God teaches us to walk. We stumble, we fall. He forgives and starts our uncertain footsteps on the right path again. Each temptation overcome, each victory gained, makes for us a surer stepping-stone to something better. The oak must first be an acorn, the flower a little seed, the

stream be fed from numerous tributaries, to swell its waters to sufficient depth for commercial navigation, and manhood or womanhood must be developed through varied experiences of mind and soul, and the teacher has much to do in the molding process.

We are insignificant, helpless beings at the beginning, but the sunshine and rain of God's beneficence causes us to grow as the rose unfolds its beauty and fragrance. Hidden beneath its velvet petals are the thorns which prick and sting; they are there for a wise purpose. All the trials through which we pass are for a purpose—to broaden, to elevate, to educate, to make a character, one that is well worth the striving for. Life's battles end only when life ends. If character is formed early, rightly formed, the victory is certain. Build well from the foundation, ye mothers and teachers. See that the cornerstone of honor is well laid, and cemented to it, each in its own place, the solid blocks of integrity, sobriety, faithfulness and purity. Let no stone have in it a flaw. Perfectly formed and properly laid, there will rise for each a temple of character whose possessor will have earned the reward, "Well done."

AUTHORITIES.

The authorities that should be studied on this subject are: "Levana oder Erziehungslehre," by Jean Paul; "Emile," by Rousseau; Pestalozzi's "Wie Gertrud ihre Kinder lehrt," and his other writings on elementary education, and all Froebel's writings on pedagogy; "The Child, physically and mentally," by Bertha Mayer; "Infancy," by Geo. Combe; "Psychology in the School Rooms," by T. F. G. Dexter and A. H. Garlick; "Notes on Child Study," by Edward Lee Thorndike, Ph.D.; "Child Culture," by Newton N. Riddell; "Mother, Baby and Nursery," by Genevieve Tucker, M.D., among other valuable books.

CHAPTER X.

Measurements of the Head, and Brain Weights

Dr. Johnson says: "The truly strong and sound mind is the mind that can embrace equally great things and small."

When studying the dynamics of the mind, the idea dawns upon us that thoughts are forces, and every mind is a creative center from which vibrations or rhythms of quantitative energy are going out in all directions.

Through the imparting of thought force to the corresponding cords in other minds, a series of vibrations is constantly set up. Thus the need is established of determining to what extent that vibration is good or evil. If you throw a pebble into the water, the placid surface at once becomes vibrant with a series of ever-widening circles which go out to the utmost boundary. They are never quite lost or neutralized, though we may not be able to trace them to their final destination.

So every mind is a great centrifugal current which is generated and set free in the simple process of

thinking.

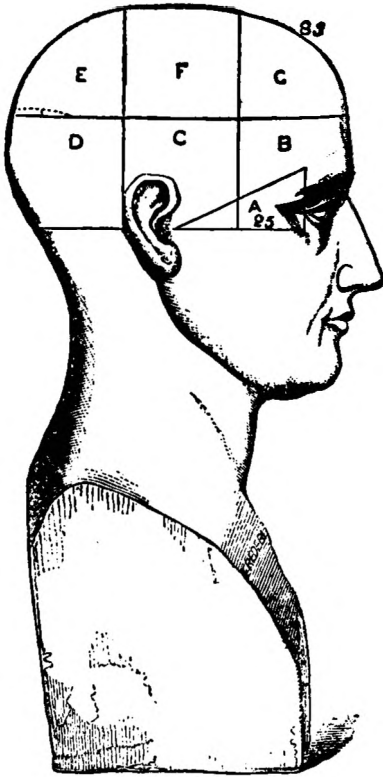
Every person is a battery of positive forces, even if he never utters a word, and it is a very interesting comparison to consider the normal and abnormal growth of heads and their corresponding characters, measurements and brain weights.

For many years past we have collected a number of facts on the relative form and size of heads and weights of brains, which we trust will prove interesting to all students of human character.

THE PERFECT OR MODEL HEAD.

The perfect human head is composed of equal quantities of cerebral matter in each section of the brain, in the following order, and for the purpose of illustration we will take a head the measurements of which are without fractions. The measurement of the head from the occipital bone to the center of the forehead is nine inches; the width of the head above the ears is six inches; the depth of the base of the brain from the

opening of the ear to the horizontal line drawn from the center of ossification of the frontal bone to the back of the head is three inches; the depth of the moral region from the line drawn from the center of ossification of the frontal bone is three inches, making the height of the head



THE MODEL HEAD

(A) Anterior basilar angle (B) Anterior frontal section (C) Middle basilar section (D) Posterior basilar section (E) Upper Posterior region, (F) Middle superior region, (G) Anterior frontal region.

six inches from the orifice of the ear; the lateral depth of the anterior lobe from the forehead to the center of the zygomatic arch is three inches; from the center of the zygomatic arch to the mastoid process is three inches;

from the mastoid process to the occipital bone is three inches, and the basilar phreno-metrical angle is twenty-five degrees.

It will be seen that these proportions are in harmony and constitute a perfect equilibrium. The size of the head is not the only standard by which one is to be guided in deciding on mental power, but one must take into account the relative proportions in geometrical quantities that one section of the head bears to another. Hence, quantity of brain in a certain location is the rule by which we are guided in estimating its configuration.

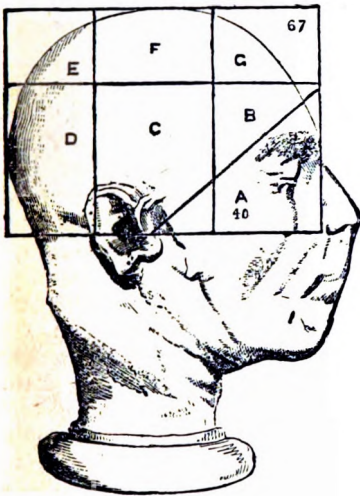
The late Frederick Bridges compared, in his work on "Phrenology," this perfect head with that of William Palmer, the murderer; in the latter, from the occipital bone to Individuality is eight inches; the width of the head above the ears, six and six-tenths; the depth of the base of the brain from the opening of the ear is four inches; the depth of the moral region is one and two-tenths, and from this deduct six-tenths for the thickness of the skull and the integuments, and there remain six-tenths for the depth of the moral region to contend against four inches of the base of the brain, and an angle of forty degrees, being fifteen degrees above the average for this region of the brain, as the accompanying diagram will show.

The head of Thurtell is another illustration of the same principle. The phrenological development of this head has been urged as an objection to Phrenology, and to this day some persons quote it as evidence against the science. We will see how far this is true. In the first place, we find the basilar phreno-metrical angle is forty degrees, and the depth of the base of the brain, from the orifice of the ear to the line drawn from the center of ossification to the frontal

bone, is four inches; the depth of the coronal region from the above line is one and five-tenths, but conical; hence, there is little absolute volume in this region. From Individuality to the center of the occipital bone is eight and three-tenths inches; the width of the head over the ears, six and five-tenths. It will now be seen that Thurtell had a basilar brain of the typical murderer's type. The fact of this head being pronounced a case against Phrenology is not so

lent negro, the height of whose head from the opening of the ear is the same height as that of Palmer, but the depth of the basilar region of Eustache measures only two and five-tenths inches, while Palmer's is four inches. The depth of the moral region of Eustache is two and seven-tenths inches, that of Palmer one and two-tenths inches; the width of the head of Eustache over the ears is six inches, that of Palmer six and six-tenths; the basilar angle of Eustache is twenty-five degrees, that of Palmer forty. The same excess of the animal feelings over the moral qualities we find in Thurtell; hence, instead of his head being a case against Phrenology, it is one of the strongest proofs in its favor. Many say he was a man of intellect—so he was, of the perceptive class—for his defence on his trial was a striking instance of his want of reflective faculties; but what of that?—a man may be highly intellectual, yet a most complete villain, as our police reports too amply attest. Palmer was considered by many a man of intellect; but let any one trace his career, and the miserable want of the reflective powers is visible in every step of his eventful life. There was, however, a popular notion in society about the time of his trial, that he was a remarkably clever man; there cannot be a doubt that he manifested great perceptive acuteness and remarkable cleverness in making use of people to serve his ends, but that does not show high-class intellect, but simply low, cunning cleverness.

Compare the head of Palmer with that of George Combe, and the difference in geometrical configuration and relative quantities in position will be found in exact ratio (all other conditions being equal) to the difference of their mental and moral manifestations. All the manifestations of Palmer were those of a low, unprin-



THURTELL

surprising when we remember that many persons, laying claim to a knowledge of Phrenology, judge of the moral qualities of the head by the height of the head from the opening of the ear, having no means of determining the relative size between the basilar and the coronal regions. According to this method of judging, Thurtell would seem to have a better head than persons whose moral qualities are of a higher order, but whose heads are less in height than his.

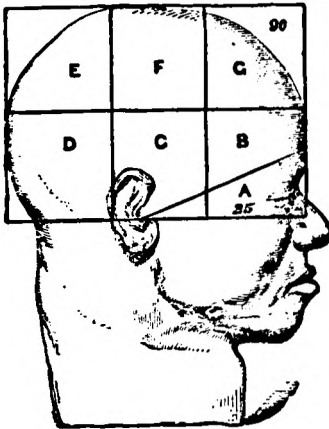
For example, Eustache, the benevo-

ciplid, selfish animal, while Combe manifested all the qualities of a high-minded, intellectual and moral philosopher.

TAPE MEASUREMENTS.

When measuring the head for practical purposes it is necessary to measure—

(1) The circumference of the head first by passing the tape around the basilar part of the head over the orbital arches in front, immediately over the ears on the side head, and over the largest portion of the middle back head.



EUSTACHE

(2) Take the height of the head by measuring from the center of the opening of the ear on the one side over the top of the head to the center of the orifice on the other. This is the trans-parietal measurement.

(3) Take the length of the head by passing the tape over the middle of the head from the glabella or nasal bones in the anterior part of the head to the occipital spine in the posterior region. This is the trans-occipital measurement.

(4) Take a measurement of the intellectual lobe by starting at the

opening of the ear on one side and passing the tape around the front of the forehead at its base to the opening at the other side. This is the trans-antero or trans-intellectual measurement.

CALLIPER MEASUREMENTS.

(5) The calliper measurements should be taken as follows: First, from the width of the head just above the ears. This is the diometrical measurement of the width.

(6) Secondly, the length with callipers should be taken by placing the points of this instrument on the glabella and occipit. This is the diometrical measurement of the length.

(7) It is well, thirdly, to take a measurement across the lower frontal area or from the outer corner of the eye on the one side to the corresponding point on the other side. This is the trans-orbital measurement.

(8) It is well to take a measurement across the frontal eminences.

(9) Across the parietal eminences is another important region to measure.

MEASUREMENT WITH THE HANDS.

Take four measurements with the hands—

(1) Draw the hands down from the top of the head to the base on either side to judge of the force of the individual, and stand at the back of the subject.

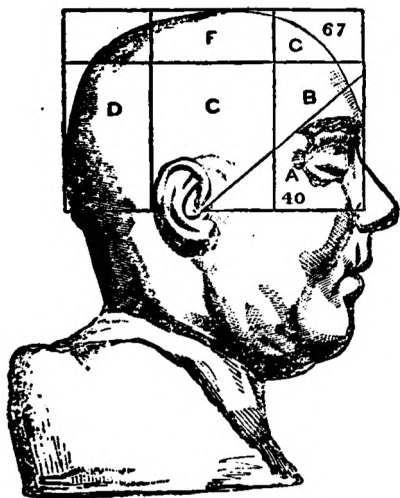
(2) Draw the right hand over the occipital region and place the left hand over the forehead to steady the head; in this measurement you will gauge the influence of the social and domestic brain, stand on the left of the subject.

(3) Draw the hands over the top of the head, to gauge the strength of the moral region of the brain; stand at the back of the subject; ascertain which hemisphere is the more active.

(4) Place the left hand over the posterior region, while the right hand examines the frontal region to judge

of the intellectual and knowing faculties of the brain; stand on the right of the subject and use the balls of the fingers for all the movements instead of the palms of the hands.

In order to substantiate the theory that the size of the brain alone is not the whole measure of power, we have many proofs which will indicate that this idea is founded on scientific grounds, and our observations go to prove that men with the largest brain are not those of the most talent, power or intellect; in fact, many have been only ordinary or inferior men,



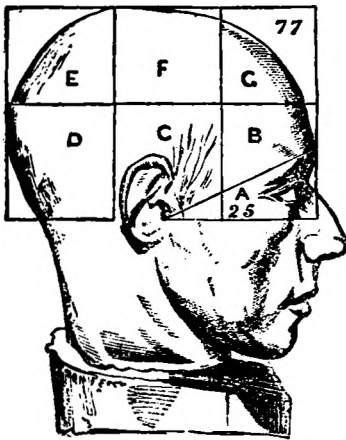
FALMER

or even idiots, while some men of most powerful and comprehensive minds have possessed average or small brains; though we do not go so far as Esquirol in his assertion that "no size or form of head or brain is incident to idiocy or to superior talent," for the form of the head and the development of the brain in certain parts, in our opinion, has a great deal to do with the indication of superiority of mind or idiocy and insufficiency of brain power.

From many sources we have collected a number of brain weights which we have been asked for repeatedly, and which we publish for the benefit of our readers in this condensed form. The following facts will serve as premises upon which to build up logical deductions proving what phrenologists have always stood for, that mere brain weight alone has no correlation with mental force, and that the mere size and weight of the brain bears no more proportion to the intellectual mind of its owner than does the size of any other part of the body, or the weight of the whole corporeal frame.

Where authorities could be obtained we shall give them, as we have chosen the most reliable sources because various false statements have been given and not properly corrected concerning the heads and brains of many philosophers, anthropologists, metaphysicians, surgeons, and eminent men, as, for instance, Cuvier, Byron, Napoleon, Schiller, Dupuytren, Daniel Webster, Gall, Gambetta, and others. We offset our remarks with the idea that many men with the largest brains and heads are not the most talented, powerful or intellectual; in fact, on the other hand, it appears that men with extremely heavy brains and large heads have been idiots, imbeciles, laborers, epileptics, murderers and degenerates. Articles have from time to time been published by persons who have been desirous of bringing ridicule to the subject of Mental Science and Mind Study by quoting what the late Dr. Oliver Wendell Holmes once said in his "Professor at the Breakfast Table," without stating what his corrected views were as his mind matured and he gave more study to the direct influence of the brain itself. Hence, our present remarks will be more practical and to the point in correcting these views.

With regard to the heaviest brain weights on record, we will first give the brain weights of men of acknowledged acumen and learning, and then compare them with those of indifferent ability and unintellectuality. The heaviest brain in the former list is of the Russian novelist, Turgenieff, whose brain weighed, at the time of his death, at sixty-five years of age, 71 ounces, according to the *Medical Times and Gazette*, London, Eng., Nov. 17th, 1883. He forms a class of his own, for among eminent men



GEORGE COMBE.

no one approached him nearer than Knight, the English mechanic and author, whose brain weighed at death, at the age of fifty-eight, 64 ounces. The Scottish physician, Dr. John Abercrombie, who died at the age of sixty-four, had a brain weight of 63 ounces, according to the authority, *Ibid*, 1870, Vol. I, page 592. General B. F. Butler's brain weighed 62 ounces; General Abercromby's, 62 ounces. Jeffrey, a Scottish judge and author, who died at the age of seventy-six, possessed a brain weight of 58.6 ounces, according to the *Edinburgh Medical Journal*, 1883; Thackeray's brain weighed 58.5 ounces at the time of his death, at the age of

fifty-two, according to Thackerayana, N. Y., 1875; the brain of the French naturalist, Cuvier, weighed 58.3 ounces at the time of his death, at the age of sixty-two, according to the *Lond. Med. Gazette*, 1832; the Scottish Anatomist, Goodsir, possessed a brain weighing 57.5 ounces at his death, at fifty-three years of age, according to the *Ency. Brit.*, 9th Ed.; the Scottish Author, Lecturer and Phrenologist, George Combe, possessed a brain weighing, at death, 57 ounces, being seventy years of age, according to *Gibbon's Life of George Combe*, London, 1878; Spurzheim's brain weighed 55 ounces at the time of his death, which was at the age of fifty-six years, according to the *Med. Times and Gaz.*, London, 1870; the American Politician, Atherton, possessed a brain weighing 56.5 ounces at the time of his death, at forty-nine years of age, according to the *London Lancet*, July 8, 1854; the Scottish physician, Dr. James Simpson, had a brain whose weight was 54 ounces at the time of his death, at fifty-nine years of age, according to the *Homeopathic World*, London, 1870; Dirichelt, the German Mathematician, possessed a brain weighing 53.6 ounces, at his death, at the age of fifty-four years, according to the *Medical Times and Gazette*, London, 1870; De Morny, the Statesman, aged fifty, had a brain weighing 53.6 ounces, according to *Ibid*; the brain of the Physicist, Wright, weighed 53.5 ounces, at the age of forty-five years, according to "Brain as an Organ of Mind," London, 1880; the brain of the Scottish Statesman, Campbell, aged eighty-two, weighed 53.5 ounces, according to the *Med. Times and Gaz.*, 1870; the brain of the American Statesman, Daniel Webster, who died at the age of seventy, was 53.5 ounces in weight, according to the *Edinburgh Med. and Surg. Journal*, 1853; the brain of the

British Poet, Byron, who died at the age of thirty-six, weighed 53.3 ounces, according to the London Lancet, 1826; the brain of the Swiss Naturalist, Agassiz, who died at the age of sixty-six, weighed 53.3 ounces, according to the Ency. Brit., 9th Ed.; the brain of Napoleon I, the French General, who died at the age of fifty-one, weighed 53 ounces, according to

English Mathematician, De Morgan, who died at the age of sixty-five, weighed 52.7 ounces, according to "Brain as an Organ of Mind," London, 1880; the brain of the German Mathematician, Gauss, who died at the age of seventy-eight, weighed 52.6 ounces, according to the Med. Times and Gaz., London, 1870; the brain of the Russian General, Skobe-

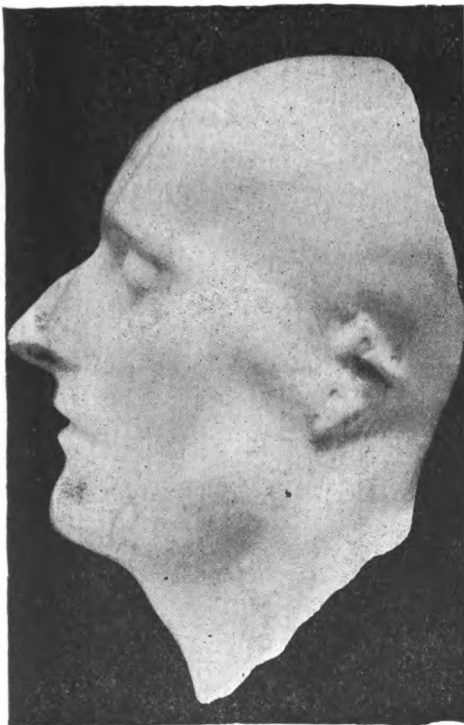


BARON CUVIER

"Notes and Queries," Dec., 1884; the brain of the Scotch preacher, Dr. Chalmers, who died at the age of sixty-seven, weighed 53 ounces, according to the Medical Times and Gazette, London, 1870; the brain of the German Pathologist, Fuchs, who died at the age of fifty-two, weighed 52.9 ounces, according to Ibid; the brain of the

leff, who died at the early age of thirty-seven, weighed 51.3 ounces, according to "Science," Cambridge, Mass., 1883; the brain of the English Historian, Grote, who died at the age of eighty-four, weighed 49.7 ounces, according to "Brain as an Organ of Mind," London, 1880; the brain of Babbage, the English Mathematician, who died at the age of eighty-one,

weighed 49.5 ounces, according to the Edinburgh Med. Jour., 1883; the brain of Whewell, Master of Trinity College, Eng., who died at the age of seventy-one, weighed 49 ounces, according to the Lancet, London, 1866; the brain of Schiller, the German Poet, who died at the age of forty-six, weighed 49 ounces, according to MacMillan's Mag., Lon., 1866; the brain of Hermann, the German



BUST OF NAPOLEON

Philologist, who died at the age of seventy-six, weighed 47.9 ounces, according to the Lon. Med. Times and Gaz., 1870; the brain of Bennett, the English physician, who died at the age of sixty-three, weighed 47 ounces, according to "Brain as an Organ of Mind," Lon., 1880; the

brain of Dupuytren, the French Surgeon, who died at the age of fifty-eight, weighed 46 ounces, according to the Lancet, London, 1835; the brain of Tiedemann, the German Anatomist, who died at the age of eighty, weighed 44.2 ounces, according to the Lon. Med. Times and Gaz., 1870; the brain of Hausmann, the German Geologist, who died at the age of seventy-seven, weighed 43.2 ounces, according to Ibid; the brain of Dr. Gall, the German Physician and Phrenologist, who died at the age of seventy, weighed 42.2 ounces, according to the London Med. Gaz., 1828; and the brain of Gambetta, the French Statesman, who died at the age of forty-four, weighed 40.9 ounces, according to the Med. Times and Gaz., 1883.

Taking these figures and noting the national localities of the subjects, we are led to understand that climate has something to do with the size of the brain, for the larger brains appertain to natives of cold climates, such as Turgenieff, of Russia; Dr. Abercrombie, of Aberdeen, Scotland; Sir Ralph Abercromby, also of Scotland; Lord Francis Jeffrey, of Edinburgh; General Butler, of Deerfield, N. H. The above compare well with the following, for instance, Dr. Josef Gall, who was born in Tiefenbrunn, in Southern Germany, and who spent or passed most of his life in Vienna and Paris, and being a student, spent most of his time indoors; Gambetta, who was born at Cahors, France, of Italian parents; among many others whom we have found in our experience, show that this climatological view of the size of brains is correct, and has been endorsed by several writers. It is confirmed by a paper called "Crania," of the Philadelphia Academy of Sciences, which gives as the average size in cubic inches of the cranial cavities of various nationalities, taking the results of many

measurements, as follows: Lapps, 102; Swedes, 100; Anglo-Saxons, 96; Finns, 95; Anglo-Americans, 94; Germans, 92; Celts, 88; Malays, 86; Chinese, 85; Egyptians, 80; Bengalese, 78.

Of others who have given their opinion on the question of brain weights of various nationalities, we might quote from the works of Topinard and Manouvrier and other standard anthropological publications, all of which illustrate the same tendency toward the greater brain weights being in colder countries. The colder air of the United States also has a tendency to produce larger brains in the negroes than the warmer air of Africa.

When we compare large brains with small brains, we have a long list of people who possessed heavy brains, yet who did not make much use of their mental capacity, which proves our theory that more depends upon the location of brain development than upon actual size. We will now give some brain weights of those persons who have not shown any great mental capacity, yet who possessed brains of unusual weight and heads of abnormal size. The heaviest brain weight in this list, and, in fact, the heaviest brain weight on record, is that of Rustan, an ignorant and unknown laborer, whose brain weighed 78.3 ounces, according to Dr. Bischoff, in his work on "Brain Weight of Man," published in 1880, in Bonn, Germany. The next illustration that approaches Rustan is that of a dwarfed Indian squaw whose brain weighed 73.5 ounces, according to the authority of the Medical Army Museum, Wash., D. C. The next is of an illiterate and weak-minded man who had a brain weight of 71.3 ounces, according to the record of the Pathological Museum in Munich, Germany. The next is that of a congenital imbecile person mentioned by

Dr. Ireland as having a brain weight of 70.5 ounces. The brain weight of a male negro, who was a murderer, and stupid as far as intelligence and learning goes, was 70 ounces, according to the Medical Times and Gaz., Lond., Vol. I. Dr. Halde- man, in the "Liberal," Sydney, June 30, 1883, mentions a mulatto who was not very intelligent, whose brain weighed 67.7 ounces. Bischoff, in



DR. FRANCOIS J. GALL

the "Leader," Melbourne, Mar. 24, 1883, mentions the brain of a man not famous, as weighing 67.9 ounces. Dr. Virchow mentions a child three years old whose remarkable brain weight amounted to 67.4 ounces. The British Med. Jour., Oct. 26, 1872, mentions the case of a bricklayer, aged thirty-six, who was illiterate, and whose brain weight was 67 ounces. Dr. Rudolph Virchow mentions another case of a person of common mind, aged fifty-four, who possessed a brain weight of 66.5 ounces. The Lancet of 1848 mentions a case of a private soldier whose

brain weight was 66.5 ounces. The British and Foreign Medical Review of Oct., 1839, mentions the case of a European man, unnoted, whose brain weight was 65 ounces. The Ency. Brit. mentions the case of an un-intellectual man, whose brain weight was 64.5 ounces. Flint's Physiology mentions a white soldier, undistinguished, whose brain weight was 64 ounces. The Zoist, London, of 1852,



DR. SPURZHEIM.

mentions the case of F. G. Manning, a murderer, whose brain weight was 63.5 ounces. The "Observer," Brisbane, Australia, 1883, mentions a case of a professional gambler, J. H. Maddon, whose brain weighed 62.2 ounces.

The above are selected out of more than a hundred similar cases from similar scientific sources, but which we cannot give here.

All of the illustrations given in the first part of this article again prove

that size alone is not a measure of power.

Dr. Boyd's table of "Average Weights of the Human Body and Mind," compiled from researches among the sane, and based on more than two thousand post-mortem examinations, gives 45.9 ounces as the average brain weight of boys from seven to fourteen years of age, and 40.2 ounces as that of boys and 40.1 ounces of girls from four to seven years of age. Yet Gambetta, with his small brain of 40.9 ounces, was said to be "a lofty, commanding mental figure, standing out in bold relief from the crowd of mediocrities which he dwarfs and shadows, the foremost Frenchman of his time who established his claim to be placed in the very front rank of European Statesmen, and whose untimely death was spoken of as nothing less than the sudden extinction of a powerful individual force, one of the most powerful, indeed, of such forces hitherto operating in Europe."

What, then, is our conclusion in this matter? It is this: First, that quality of organization has more to do with intelligence, when connected with a large or small brain, than mere size itself; and, secondly, that differentiation of brain power, and the development of certain topographical areas of the brain, serve to prove the existence of intellectual, moral, social and executive qualities that man possesses.

Thus the theory falls to the ground that so many persons have tried to substantiate, namely, that Phrenology supports the idea that size alone gives power and greatness. This is not the case, and the foregoing facts are given with the object of proving that as a person's brain is developed anteriorly, superiorly, or posteriorly, so he will show interests in these directions.

CHAPTER XI.

How to Delineate Character from Photographs.

When we look through a family album with a friend, we are generally asked for an opinion on the character of persons of special interest to the owner of the album. To be able to give an intelligent answer, and one that is at the same time reliable, we need to know certain rules regarding the development of the face and head; and before we can attempt to answer in any detail such a request, we must naturally consult the science of Phrenology, with its valuable assistant, Physiognomy, to guide us in our remarks. A knowledge of these two subjects, together with the Temperaments, is certainly a very great help in delineating a portrait.

In our work of this kind for over twenty-five years, we have endeavored to secure a good front, side and back view for the purpose of obtaining an accurate scientific estimate of character from a likeness or photograph. When correctly delineated nothing

adds more interest to an evening's entertainment, and hardly any subject is more profitable to the persons present, than to have an outline given of photographs which the delineator does not know anything about. In the following remarks we propose to give suggestions to those who are anxious to perfect themselves in this work.

Persons should use a magnifying glass so that they can bring out in detail all the finer points of the photograph, and when they have done this they must not expect to find from every excrescence, "bump," or rise of the hair, a phrenological organ, but must rather be guided by the development of the head in general. For instance, if they have a front, side and back view to look at, they must be guided by the height, length and breadth of the head from the base of the lateral portion, where the opening of the ear is seen, for if a line is

drawn from the opening of one ear to the opening of the other, it will pass through the spinal cord which is united to the brain, and just as a tree takes its strength from the root, so the brain gathers its strength from the base or spinal cord.

In picture No. 1 (Mr. Drowatzky) our readers will see that we have drawn a line across the head, passing through the base just above the ears.



No. 1—MR. W. H. DROWATZKY.
(Photo by Rockwood.)

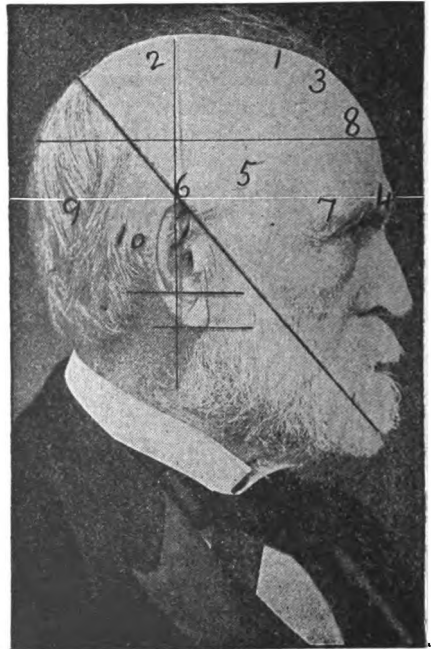
For an external study, if we measure the head from the opening of the ear to the outer surface, in whichever direction we wish to make our view-point, we start from where the spinal cord commences. Thus when we want to gain an idea of the intellect, we must measure the head from the opening of the ear to the center of the forehead, just above the root of the nose, and the distance from the opening of the ear to that point indicates length of fibre in the intellectual

brain, for if the head be fully developed anteriorly, the person will show strength of intellect and the perceptive organs will be large, as we see in picture No. 2 (Hon. Abram Hewitt).

If we wish to gage the breadth of a head, we take a front view and judge of the development of the organs along the lateral portion of the base of the head which gives energy, force and executive power, as in No. 3 (Mr. Drowatzky).

If the head be long from the opening of the ear backward, as in the case of No. 4 (Miss Farmer), we find that the domestic propensities are fully developed, and a person is friendly, social and patriotic.

If we wish to judge of the height of the head, we draw an imaginary line from the opening of the ear upward to the top of the head, and if the head is high we find that the moral and re-



No. 2—HON. ABRAM HEWITT.
(Photo by Rockwood.)



No. 3—MR. DROWATZKY.

ligious faculties are well developed, as in No. 5 (Mr. Henry George).

If we wish to judge of the reflective power of an individual, we must draw an imaginary line across the upper forehead, as in No. 6 (Mrs. C. Fowler Wells).

Thus the intellectual lobe will be found to be prominently developed in a person who has length of fibre from the opening of the ear forward; the moral brain is represented in height from the opening of the ear to the top of the head; a long occipital lobe, or fullness behind the ears, makes one warm-hearted, affectionate and social; width of the upper forehead shows reasoning, philosophic and reflective power; while breadth of the head above the ears indicates energy, pluck and spirit.

In the case of Mr. W. H. Drowatzky, whose front, side and back pictures (Nos. 1, 3 and 7) represent the idea which we wish to present to our readers in the desirability of having as complete a view of the head as possible, we see what is indicated in the

entire head. Having but little hair on his head, his pictures present no difficulty to the delineator; in fact, before we knew the gentleman we delineated his character from these photographs in the March number of the PHRENOLOGICAL JOURNAL of 1903. After our acquaintance with him we found—as he admitted—that the pictures truly interpreted his bent and direction of mind, and he forms a very suitable illustration of our present subject.

The lines on the side head are drawn to show the superior anterior force of his intellectual and artistic faculties. The line dividing the central part of the forehead indicates that there is a fine height of head, giving him strong views concerning moral and ethical problems. The

No. 4—MISS FARMER.
(Photo by Rockwood.)



No. 5—MR. HENRY GEORGE.
(Photo by Rockwood.)

front picture has lines to show the breadth of the forehead, giving particular scope in the organs of reflection and criticism. While the back view indicates a love of children and a devotion to them, and the line that passes across the width of the head indicates his energy and fearlessness in attacking work, which requires considerable labor, thought and energy. He is a successful Artistic Photographer.

No. 2 (the late Hon. Abram S. Hewitt, former Mayor of New York City), whose picture we have given, shows the following characteristics, and the numbers on the picture indicate the faculties and their location. (1) Large Benevolence. (2) Very Large Conscientiousness. (3) Large Human Nature. (4) Large Individuality. (5) Full Acquisitiveness. (6) Large Destructiveness. (7) Large Order. (8) Active Comparison. (9) Conspicuous Friendship. (10) Large Vitativeness. The diagonal line, from the point of the chin to the crown of the head, as well as the two lines enclosing the lower lobe of the ear, indicate longevity; while the line

drawn across the middle of the head shows the force of the superior region of the head. As a man among men, the key note of his character was seen through his consistent following out of his principles and his anxiety to benefit his fellow men; hence people learned to value his opinions because they knew he always spoke straight from his convictions. He lived to a good age, which his head indicates he was capable of doing. He had many schemes for doing good, and his aim in life was to fulfill his obligations in an honorable and satisfactory way. Such a head as his, from such a fine portrait, is easy to read, and a true impression of his character can be gained therefrom.

From the portrait of Miss Farmer (No. 4), we see by the anterior and posterior lines that she has a favorable development of both the intellectual and social lobes. Her head is above the average in size for a woman (being twenty-two and a quarter inches in circumference, by fourteen and a half in length and fourteen and a quarter in height), and the whole head strikes one as being well balanced in its various parts. Therefore



No. 6—MRS. C. FOWLER WELLS



No. 7—MR. DROWATZKY.

she should wield a distinct influence over others, and possess a personal magnetism which will enable others to be attracted to her line of thought. Benevolence is a large and permeating faculty, and she will live not for the wealth that perishes, but for the riches that lift not only her own soul above the materialism of the world, but she will show a desire to take with her, through her thoughts, the individual interest of every other human soul with which she comes in contact.

In the picture of Mr. Henry George (No. 5) we find a head that is exceptionally full in the superior lobes and he fully portrayed the characteristics of these two regions of his head, namely thoughtfulness for others; desire to benefit his fellow men and bend them to his way of looking at things; immense capacity for work; and ability to look ahead and search the future and predict what he saw was likely to transpire. His portrait makes a fine one for the novice to examine, as he can learn many lessons from the outline of his head.

The portrait of Mrs. Charlotte Fowler Wells (No. 6), who passed the eighty-sixth milestone, shows that she had a breadth of forehead calculated to reason out, from her large Causality, Human Nature and Comparison, scientific truths and intuitive and analytical principles. She was a busy woman, a constant reader, writer and worker; yet with all her multitudinous duties she found time to give counsel to those who sought her practical experience and wisdom.

Her forehead was broad and high, which enabled her to take a deep interest in psychological subjects and character as manifested in the head and face. She was logical, reasoned from cause to effect, and was a

No. 8— W. T. JEROME.
(Photo by Rockwood.)

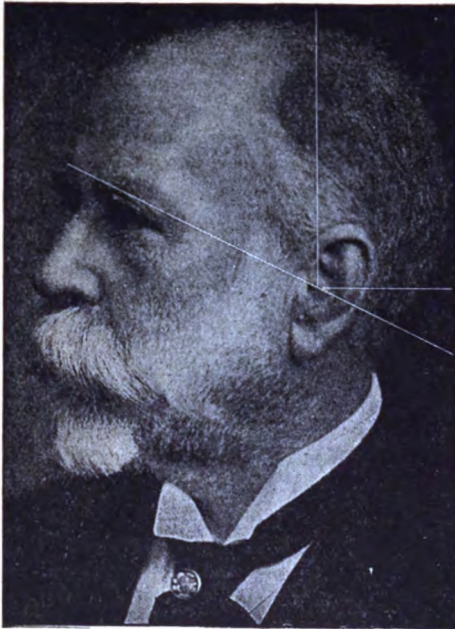


Photo by Rockwood.

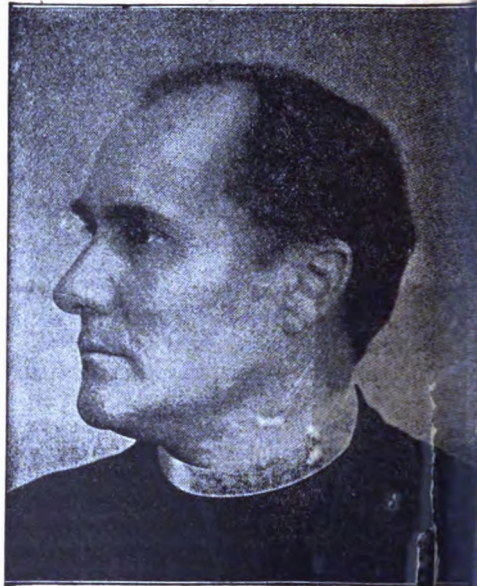
No. 9— GEO. G. ROCKWOOD.

keen observer of details. Her head was high and her moral brain was a sustaining element in her character; hence she was conscientious, sympathetic, kind-hearted, and an investigator along the lines of moral and spiritual truths, as well as interested in scientific truths.

No. 8, Mr. William Travers Jerome, District Attorney General, has become well known throughout the length and breadth of the land, and his portrait makes a very interesting study to the student of character, his strongest characteristics being marked with the figures 1, 2, 3 and 4. No. 1 is Firmness, which gives immense tenacity, will power and perseverance; No. 2 represents Human Nature, or an unfoldment of the characteristics of others; he sees intuitively as well as comparatively. No. 3 illustrates Individuality, or

memory of faces; and No. 4 Energy. Thus he will show a strong, earnest, enduring, and even pugnacious mind, one not daunted by difficulties nor in danger of being drawn away from his preconceived ideas or opinions. His Cautiousness and Intuition make him far-sighted and enable him to understand the characteristics of others. He has great wiriness of constitution; remarkable grit, together with combative force to cope with intellectual and comparative issues. He is a man who likes to be appreciated, though he often talks as though he did not care one iota for what people say concerning him.

Mr. Geo. G. Rockwood (No. 9), the well-known photographer of New York, presents a head and face that is also easy of interpretation. He represents a gentleman of talent and culture in the direction of art, as well as in music, and he excels in both.

No. 10—REV. HENRY BUCHEL, D.D.
(Photo by Rockwood.)

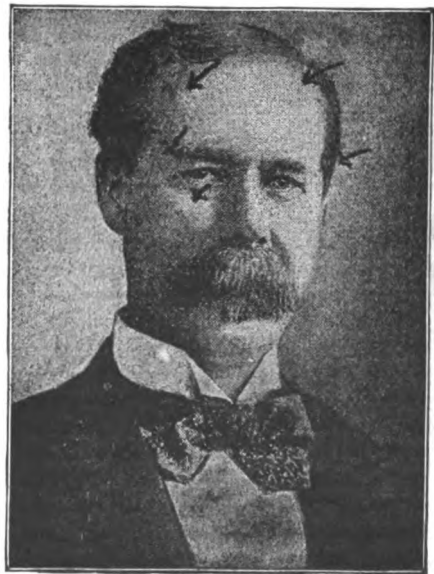


NO. 11—HON. GROVER CLEVELAND.
(Photo by Rockwood.)

We see in him a healthy, vigorous physique; a good flow of vitality, and a life rich in whatever belongs to friendly intercourse, executiveness, artistic taste, and a realization of the beautiful. There is a fine outline of head, giving harmony of character. From the ear backward the head is large, showing fullness of the social region; the altitude from the ear indicates self-reliance, reverence and sympathy; the length of the head forward from the ear, power of thought, clearness of mind, and quick perception; the fullness below the eye, excellent lingual capacity, which enables him to be a fine talker and a good public speaker. For many years he has made a specialty of children's photographs, obtaining excellent results because of his personal fondness for the children, linked to his artistic instincts. In his long career Mr. Rockwood has photographed many noted

persons; he has posed five Presidents, and made the last and best portrait of Henry Ward Beecher. Truly he has a genius for catching the best expression of even the most difficult person to pose.

The Rev. Henry Buchtel, D.D. (No. 10), Governor of Colorado, is a fine example of the Mental-Motive Temperament, and in this combination we find the mental stimulus, the vital energy and physical force that dominate his whole character. His superior qualities being active, they put him in touch with people and help him to understand their inner lives; they make him ever ready to obey the voice of his conscience which sometimes says: "Thy will be done, though Thou slay me," and "I am ready, send me;" they give him a trust in spiritual, reverential and elevating matters that makes him look up to "things not made with hands;" thus he apparently talks and walks with God.



NO. 12—SIR THOMAS LIPTON.

Intellectually his head indicates that he has the keenness of the eagle and the docility of the dove. His executiveness keeps him busy all the time; he must be a constant worker, and one who accomplishes something with his work. Plenty of men work, but do they accomplish all they ought with the energy they expend?

He knows when people are in trouble, even though they may say nothing to him; hence had he been a lawyer he would have understood exactly the best way to get hold of the facts of the case, and as a Judge he would have given justice to all parties concerned.

As Governor of Colorado, as Chancellor of the Denver University, and as a Methodist Episcopal minister, he has shown his wonderful skill, tact, and yet fearless outspokenness in every department of his work. In 1899 we had the pleasure of examining his head, and of interpreting his characteristics, which, when we submitted them to him, converted him to the truth of the gospel of Phrenology.

The Hon. Grover Cleveland (No. II) presents another typical head, of which it is not easy to miss the right interpretation when examining the photograph only. Through his experience as a lawyer and statesman he has deepened the lines around the nose, has strengthened the curve of it, which indicates power of resistance and analysis; perceptive power and ability to watch events in the concentration of the eye, as well as in the outer curve of the eye; fluency of language which is finely illustrated in the development of this faculty; and length of life which is clearly marked in the lower lobe of the ear, the length and breadth of the nose, and the development of Vitativeness. As a rule, a broad head indicates executive power, and in Mr. Cleveland we see this very strongly demonstrated, though it de-



No. 13—WILLIAM RUXTON.
(Photo by Rockwood.)

depends upon the development of the rest of the head how the executiveness shows itself. The crown of the head generally gives an independent spirit, and in Mr. Cleveland we see this characteristic finely illustrated; while Human Nature, which is the "third eye" to the mind, acts as a kind of general inspector, just as a searchlight is to ships passing through the Suez Canal. A person with this quality is able to look ahead and see much further into the future than is generally supposed to be possible. Thus he shows forensic power, keen observation, administrative ability, self-reliance, and an intuitive mind.

After noting our remarks on his photograph, he wrote: "I did not suppose it was possible to estimate so clearly and fully one's characteristics from a photograph."

In the portrait of Sir Thomas Lipton (No. 12), we notice some characteristics that do not show themselves so prominently in the previous pictures. He is essentially Irish in the outline of his head and face, and through the sociability of his nature which manifests itself in his expressive eyes and the width of the upper corner of his forehead, are seen those qualities for which the Irish are particularly noticeable. He is a good type of a successful merchant, and shows energy of purpose, acquisitiveness and power of amassing property, and an appreciation for the material side of life; keen perceptive faculties, which enable him to enjoy good sport and be able to take it in good part whether gainer or loser; and repartee, which is finely represented in his true Irish characteristics of Language, Combativeness and Mirthfulness. Thus the arrows on the portrait indicate the location of large Causality, Wit, Executive Ability, Order and Language. He is genial, companionable, friendly, ambitious, systematic and loyal, and

by a careful examination from photographs, these qualities will be noticeable.

Where it is possible to have a front and side-view, like No. 13 (William Ruxton), it is greatly to the advantage of the delineator. Every child's head is not as fully developed as is that of this lad; still, if we take this as a type to guide us in our researches, we shall gather valuable information therefrom. The numbers on the two portraits indicate (Fig. 1) circumference of head, $22\frac{1}{2}$ inches; height, 15; length, $14\frac{1}{2}$; (V) Vitativeness. In Fig. 2 (1) is large Order; (2) large Constructiveness; (3) large Causality; (4) large Comparison; (5) large Human Nature; (6) large Imitation; (7) large Benevolence; (8) large Weight.

All of these faculties are easily recognized, and enable him to show the



NO. 14—ELBERT W. MILLER.

following characteristics. He will make good use of a box of tools in an inventive and mechanical way; he will use a pencil and make many novel designs; he will work out his originality of character in ways that are new and suggestive, if his originality is not stricken out of him by too much formula, which is the bane of original thought; he will be thoughtful and considerate of those around him, and will make an affectionate, friendly and companionable child, one full of wisdom if rightly trained.

No. 14 (Elbert W. Miller) is another illustration of the way that photographs should be taken for the purpose of delineation of character, and while we have marked Causality on the upper forehead which, broadly speaking, will enable him to enjoy study, we realize that it is not the only characteristic that is distinctive. He is a boy who has a strong will, and if he will divert it into the right channels,

persevere with his studies, bend himself to his work, and overcome impediments in his way, he will find it a most valuable faculty to possess. He will make an excellent teacher, investigator, logician, chemist, or literary critic, and will be quite magnetic and stimulative to others wherever he is.

When sending home a sketch from photographs the other day, we had in response the following reply:

"I do not think the value of such a reading can be easily over-estimated." Which shows that the mind is mirrored in the head and face if we will but take pains to see its manifestation.

A parent writes, "the delineation of my daughter's character from a photograph is just right," and "her teacher wrote recently and endorsed the same things you said about her, only the teacher had had a chance to study her from week to week, while you have never seen her."

CHAPTER XII.

Modern Phrenology;

or

The Advancement Made in Mental Science During the Last Century.

There is an increasing number of scientific men who are constantly writing and supporting the doctrine of Dr. Gall, though prejudice still keeps them from testifying to the truth of phrenology, a word which was first suggested by Dr. Thomas Forster, London, in 1816. Dr. W. R. Gowers, F.R.S., however, sums up the latest researches on the functions of the brain by scientists in his "Diseases of the Nervous System," by saying, "Doubt" was formerly entertained as to the differentiation of function in various parts of the cortex, but recent researches have established the existence of differentiation which has almost revolutionized cerebral physiology, and vastly extended the range of cerebral diagnosis."

Very early in the history of the world the intellectual faculties were located in the brain, and the brain being composed of cells and fibres, each distinct element of the mind must, to carry out the hypothesis, possess a group of these cells and fibres. It was, however, left for the modern scientist to discover and thoroughly test by experiment an hypothesis of mind laid down by Dr. Gall through observation and examination.

It is interesting to note that Alexander Ecker in his work on "The Cerebral Convolution of Man," says,

"If, however, as we think is undoubtedly true, definite portions of the cerebral cortex subserve definite intellectual processes, there is a possibility that we may some day attain a complete organology of the brain surface, a science of the localization of the cerebral functions. Such a science that is a knowledge of the psychological organs of the brain in all their relations is certainly one of the most important problems for the anatomy and physiology of the next century, the solution of which will work no small transformation in psychology."

What we have to examine now, is whether the psychological researches that have been made during the last twenty years regarding the topography of the brain, agree in the least with the observations of earlier Anatomists and Physiologists.

To substantiate the fact that an approximate relation exists between the conformation of the skull and the known mental development of men and animals, and that the discovery of the centres for voluntary movements and conscious sensations in the cerebrum demonstrates the necessity of a renewed examination of the old system of Mental Science—important opinions have been expressed by the following:

Prof. Alexander Bain, in his "Mental and Moral Science" and "The Study of Character;" Prof. Cesare Lombroso, M. D., Professor of Medical Psychology of the University of Turin; Dr. Wm. R. Gowers, F. R. S., in his "Diseases of the Nervous System;" Dr. D. Ferrier of London, in his "Functions of the Brain;" Prof. G. H. Humphrey, in his "Treatise on the Human Skeleton;" Prof. Galton, in his "Inquiries into Human Faculties" and "Hereditary Genius;" Prof. G. H. Lewes, in his "History of Physiology;" Herbert Spencer, in his "Principles of Psychology;" Dr. Carpenter, in his "Physiology;" George Combe, in his "Constitution of Man;" Sir Charles Bell, in his "Anatomy of Expression;" Charles Darwin, in his "The Expression of the Emotions;" Prof. R. Ramsey, in his treatise on "Color-Blindness;" Prof. McKendrick, in his lectures on "The Centre for Tune;" Prof. Mattieu Williams, in his "Vindication of Phrenology;" Prof. Ballet, in his work on "Amusia;" Dr. Maudsley, in his "Brain and Mind;" Dr. Benedikt of Vienna, Dr. Broca of Paris, Dr. Vimont, Sir Henry Holland, Dr. Fritsch, Prof. Hitzig, also by Sir James Paget, Dr. Crook of London, Dr. Hoppe of Copenhagen, Dr. Brown, Dr. Caldwell, Prof. S. Exner, Dr. Voisin, Dr. Mantegazza, Herr Mobius, Dr. Preyer, Dr. Penheim, Prof. Kussmaul, Dr. Charcot, Prof. Meynert, Sir William Turner, Sir Frederick Bateman, Sir John Forbes, Dr. Guy, Dr. Abernethy, Dr. Solly, Dr. Laycock, Dr. L. Forbes Winslow, Dr. Havelock Ellis, Sir John Batty Tuke, Dr. S. Weir Mitchell, Prof. Horsley of London, Dr. Peterson of New York City and Professor Henry James of Harvard, among others.

The prophecy of Alexander Ecker is being fulfilled in as much as experiment and observation coincide. Few would care to contradict the statement of Prof. G. H. Humphrey (in his "Treatise on the Human Skeleton")

that "the skull is moulded upon the brain, and grows in accordance with it." He says, "No scientific man, even if he does not altogether agree with Gall, disputes the doctrine that the construction of the skull is remarkably proportionate to the whole anthropological organization in brutes and in man, and the whole of craniology, as it is understood by anatomists and anthropologists, would have no meaning if this idea were not the leading one."

We must on this question, however, examine the works and experiments of every English and foreign scientist in order to gather evidence on the comparisons and correlations between the experimental mode of ascertaining the functional topography of the brain in craniological and anthropological research, in order to carry out Alexander Ecker's programme in the twentieth century.

The question has been asked us, "What will be gained by the study of functional topography on physiological grounds?" We reply that the physiological correlative of a psychological manifestation will be established, as well as the outward and visible signs of our mental faculties with their physical expression; the movements which correspond to certain emotions and desires; the excitement of muscles and limbs which are called into action by applying the stimulus of galvanic currents on definite regions of the cortex; will enable us to ascertain and prove that certain muscular movements and elements of the mind depend upon definite areas of the brain.

The physiological proofs that the old and new methods of investigations are being worked with this view are shown in the works of modern scientists.

Fritsch and Hitzig in Germany, and Prof. Ferrier in England, have found that the stimulation of various circumscribed areas on the surface of the convolutions (which till lately was be-

lieved to be insensible to irritation) is followed uniformly by movements of particular limbs; for instance,—if a mild current of electricity is applied to various parts such as the trunk, legs, arms, hands, the facial muscles, tongue and eyes, it gives rise to definite movements. Dr. Ferrier has by patient inquiry mapped out the various areas which he holds to be centres from which, in the phenomena of voluntary movements, influences pass to special groups of muscles, and he has continued his investigations in the direction of destroying these centres, and has found that destruction of the centres is followed by paralysis of the muscles which they dominate.

The experiments of Dr. Ferrier support the idea that perceptive centres limited in area and topographically distinct from one another exist in the cortex of the cerebral hemispheres. On examining Dr. Ferrier's works we find much in support of Dr. Gall's theories. He says: "We have therefore *many grounds* for believing that the frontal lobes, the cortical centres for the head and ocular movements, with their associated sensory centres, form the substrata of those physical processes which lie at the foundation of the higher intellectual operations." That is what Dr. Gall, the anatomist, claimed, and what he began to teach in 1796, over a century ago. He further explains his belief that "there are centres for special forms of sensation and ideation, and centres for special motor activities and acquisitions in response to, and in association with, the activities of sensory centres, and those in their respective cohesions, actions and interactions, form the substrata of mental operations."

If the above communication can be proved to be true, then we have the opening of a wide range of cerebral evidence from experience and observation. There can be little doubt that a relatively high development of the visual centres will be associated with

faculties in the domain of visual sensation and ideation; and similarly in the case of the centres for hearing, touch, and the other sensory faculties. So it is probable that a high development of special cortical motor centres will be found associated with special motor capacities and powers of acquisition.

Intelligence and mental power, as a whole, will, however, largely depend on the relative balance or development of one part as compared with another.

What are we to understand by this, other than that the various psychological functions possess separate physiological organs?

It is to pathological observations with regard to disease or mental weakness, as explained by Dr. Gowers, Sir James Paget, Dr. Peterson, etc., etc., that we look for evidence that will establish other facts on the health and disease of certain motor centres of the brain.

Let us for a few minutes examine the researches of modern physiologists which have been directed towards defining distinct areas for motion and sensation through experiments made on the brains of animals. These have been done, 1st, by exciting a definite portion of the brain by means of electricity; 2ndly, by watching the movements which have followed; and 3rdly, by destructive lesions and observing the loss of movement.

GUSTATORY CENTRE.

One of the localizations which physiologists agree has opened the door for cerebral topography, is the gustatory centre or a mental craving for food. This is naturally supposed to exist only as an impulse in the alimentary organs, and the nerves of the tongue and stomach, and not as a cerebral manifestation at all. What has been the collected evidence on this point?

Researches prove not only that there is an alliance between mind and body, but also the fact that nerve cen-

tres are the condition for the manifestation of thought, and that psychological functions require separate physiological organs.

From 1819 to 1824 this organ was demonstrated, and in 1824 this faculty was called the gustatory centre, and recognized by Dr. Cook, of London, Dr. Hoppe, of Copenhagen, and Geo. Combe (Dr. Brown had also previously observed its existence), and they all located it in the same Phrenological organ of Alimentiveness. Situated on the lower second temporo-sphenoidal convolution towards the lower extremity, from where the muscles of the tongue, cheek and jaw are affected.

Electrical irritation of this centre in animals causes movement of the lips, tongue, cheek, pouches and jaw, which are physical demonstrations of an excited gustatory sensation, and have been proved by experiments which coincide with observations previously made of the same centre.

Dr. Caldwell expressed an opinion in 1832 in the *Transylvania Jour. Med.* that the passion for intoxicating liquors arises from derangement of Alimentiveness. Instead of remonstrance with the drunkard, therefore, he recommends seclusion and tranquility, purging, cold water, low diet, etc., as a means of cure. These, he states, have been found successful by the physician of the Kentucky Lunatic Asylum. Dr. Caldwell's view is confirmed by the first case published by M. M. Ombros and Pentelithe—that of an old and confirmed drunkard, in whose brain they found a distinct erosion of the left organ of Alimentiveness. There are cases of morbid voracity on record where post-mortem examination has showed disease in the brain and none in the stomach. (See *Monro's "Morbidity Anatomy of the Gullet,"* p. 271.)

By the careful study of the brain centres a clearer understanding of Inebriety and Dipsomania will be arrived at, and a more rational method of

cure be effected than is often tried at present. It was a diseased condition of the gustatory centre, and there alone, that a patient was suffering from, in the Edinburgh Infirmary, Geo. Combe tells us, and all he could mutter was "hunger, hunger, hunger, it's hunger."

It is of this centre that Dr. Ferrier, in his "Functions of the Brain," page 321, says, "We have reasonable grounds for concluding that the gustatory centres are situated at the lower extremity of the temporo-sphenoidal lobes, in close relation with those of smell, with the olfactory bulbs and tracts which are very large in dogs, cats and rabbits."

I am myself acquainted with a lady who has no sense of smell, and her gustatory centre is very defective.

THE SPEECH CENTRE.

It is the speech centre which was localized by Gall in the third frontal convolution. In the posterior and transverse part of the orbital plate, pressing the latter, and with it the eyes more or less forwards or outwards, which localization was afterwards subjected to further proof by Bouillaud as early in the century as 1825, who brought forward further pathological light upon the subject. It was, however, the illustrious Broca, in 1861, who considered the proofs sufficiently clear to establish the speech centre in the lower left frontal convolution, when universal recognition was then given to it.

He thus demonstrated that one faculty of the mind may be lost almost independently of any other cerebral disturbance. Dr. Ferrier says that "inability to speak is not due to paralysis of the muscles of articulation, for these are set in motion and employed for the purposes of mastication and deglutition by the aphasic individual. It is only when the centres of speech are destroyed on both sides that total inability to speak is the result.

THE IMITATIVE CENTRE.

On this most interesting case Prof.

S. Exner and Dr. Ferrier have supplied the electric current, and it is to that part of the brain of animals which affects the facial muscles. They have excited the area which gives expression to the power to manifest gesture, and ability to mimic, and as the instrument of a mimic is his facial muscles, it is clear that experiment and observation have touched the same part of the posterior second frontal convolution where Gall located Imitation or the organ of Mimicry.

THE CENTRE FOR FRIGHT.

This centre is one which is suggested by Sir C. Bell (*Anatomy of Expression*, p. 168) as that which influences the muscles of Fright when excited by electricity, and causes retraction of the corners of the mouth which are drawn down, and the platysma myoides muscle is strongly contracted by fear. The portion of the brain influenced is the lower extremity of the parietal convolution under the parietal eminence. It is stated that when a whip was shown to a dog—before any experiment was made—he was frightened, but after that part of the brain was destroyed he showed no fear of the whip and even fell off the table. (Report Royal Society by Prof. Munk.)

Darwin in his work on the "Expression of the Emotions," says, "When a person is suddenly frightened, the muscles contract and draw down the corners of the mouth, and that is what is expressed when these muscles of fright or the sense of fear is exercised." Drs. Gall and Spurzheim termed this organ Cautiousness, and when it is prominent or active it gives an acute perception of danger.

Dr. Ferrier has observed through experiment that after the destruction of this part of the brain, the animal has lost the perception of danger.

CENTRE FOR EXPRESSION OF CHEERFULNESS (OR HOPE).

The centre which when excited causes the movement of the Elevator

muscles, gives the muscular expression of Cheerfulness, and the muscles of the corners of the mouth and eyes are drawn up. This centre is the one which Dr. Ferrier has shown to be the physical expression of the emotion of joy. Disease attacks this portion of the brain, which is noticeable both in paralysis through the twitching of the corners of the mouth, and a change of character from a very cheerful disposition to a despondent one. It has been found recently that this disease starts from the posterior region of the frontal brain. In the *Journal of the Phrenological Society*, of Paris, 1835, Dr. Voisin, one of the greatest living authorities on paralysis and idiocy, reports some observations made on defective brain developments. He also noticed that persons who are very changeable in their dispositions—very excitable one day and very despondent the next—have generally a diseased state of the brain in the particular region above mentioned. I agree with Sir C. Brown in that he says that "In this malady there is invariably optimism, delusion as to wealth, rank, etc., and insane joyousness," which I myself have also noticed when visiting asylums.

THE CENTRE FOR THE EXPRESSION OF WONDER (OR SPIRITUALITY).

The centre for the expression of wonder has been experimented upon by Dr. Ferrier, and when electrified caused movements of the hand, head and eyes—the latter to open widely, the pupils to dilate, and the head and eyes to turn to the other side. This area gives the physical expression of wonder, the conception of sudden or new ideas and impressions. Herbert Spencer wrote several articles on Phrenology in which he demonstrated his interest in Gall's system, and inculcated many of the latter's ideas in his works on Psychology.

Speaking of the faculty of Wonder or Imagination, he says, "If then the faculty be capable of effecting so

much under the influence of its ordinary stimulus, we may reasonably assume that its unnatural actions will be accompanied by a difficulty in distinguishing revived impressions from real perceptions. Numerous cases of mental illusions from a slightly disordered state of the brain might be quoted. Similarly may be explained the mental action that gives rise to the seeing of ghosts and apparitions. . . . Persons will, of course, be subject to such illusions in the ratio of their endowment of the faculty of Reviviscence." . . . To show that Spencer believed in the practical difference in the shape of heads, we quote what he says: "Reviviscence creates mental imagery, love of ghost stories and witch-craft, affording scope for imagination. It has been maintained that Reviviscence is the parent of imagination, that imagination is but a revival and putting together of impressions previously received by the perceptive faculties, and that upon the efficiency of the reviving agent must mainly depend the vividness of ideal images. Poets, therefore, who are in a great measure distinguished by their powers of imagination, may be naturally expected to possess a large endowment of Reviviscence. That such is the fact may be seen by reference to the heads of Milton, Shakespeare, Tasso, etc. In all of them the organ is large, in some very large." In short, Mr. Herbert Spencer sums up his views in these words: "That the faculty entitled 'Wonder' by the phrenologists has for its ultimate function the revival of all intellectual impressions; that it is the chief agency of imagination, and that it affords a tangible explanation of mental illusions, either when due to disordered states of the brain, or to unusual excitement." It is interesting to note that Dr. Ferrier confirms Herbert Spencer's views, for the location of the faculty—"Wonder," or "Reviviscence," corresponds with one of his brain-areas, "the excitation

of which causes the eyes to open widely, the pupils to dilate with movements of the eyeballs and head. It gives the appearance of attention, and the movements indicated are essential to the revivification of ideas." This centre has more recently been termed Spirituality.*

FIRMNESS AND THE LEG-CENTRE.

"The crown of the head is prominent in persons endowed with Firmness; while it is level or depressed in the feeble or irresolute." This sentiment of Firmness Gall located just in front of the central fissure, close to the median line, in a part of the brain now known as the "paracentral lobule." Gall says, "Such persons plant the legs firmly on the ground."

This is the recognized "Leg-Centre" of modern physiologists.

To express firmness, we hold the leg stiff and put the foot down. Children when obstinate extend their legs and kick with their feet against the floor.

Dr. Luys describes the case of a man, 53 years of age, who had exercised great authority and indomitable will all through his life.

Post-mortem.—The right paracentral lobule was found enormously developed.

Dr. Luys goes on to say that he found men with a poorly developed paracentral lobule of little energy, submissive, obedient, with a want of independence; whereas he has seen women energetic and self-asserting with this lobule highly developed. (L'Encephale, 1882, p. 569.)

THE CENTRE FOR THE EXPRESSION OF ENERGY.

The centre which is the physical expression of energy Dr. Ferrier has excited by electricity, and caused animals to spring forward and lash the tail, some bounding forward as if suddenly startled. It is the middle temporal lobe that is thus affected, which

* (See Herbert Spencer's articles in the *Zoist*, in 1844 and 45.)

part of the brain Dr. Ferrier has noticed to be large in murderers. This area, according to Dr. Gall, is observed to give energy and executive ability, and when very large to give severity and hardness of character, or proneness to destroy when excessive.

**THE CENTRE FOR THE EX-
PRESSION OF CONCENTRA-
TION OF ATTENTION.**

The centre known as that of Concentration of Attention is situated in that portion of the brain which is crossed by the parieto-occipital fissure.

As the visual centre is situated in this area, there must be some psychological reason why sight is essential for accurate memory. It appears to me a remarkable fact that Spurzheim and Combe (especially the latter) observed that this centre should be called Continuity or Concentration. One often needs a pictorial representation to remember accurately, and the impressions made through the eyes are stored in this visual centre, which is the medium for Concentration of Attention.

**THE CENTRE FOR THE EX-
PRESSION OF SUBMISSION.**

This centre is one which Darwin and Mantegazza have referred to as the "Expression of patience, submission, and the absence of any inclination to resist."

The muscles influenced when excited from this centre are those which, according to Dr. Ferrier, cause the "rising of the shoulders with extension of the arms, flexion of the thighs and toes, and rotation of the leg," and are influenced through the parietal convolution, and which correspond with Gall's Organ of Veneration or feeling of respect, and which Geo. Combe, L. N. Fowler and others have enlarged upon.

**CENTRE FOR THE RECOGNI-
TION OF SOUNDS (TUNE).**

Quite recently at the Royal Institution a scientific lecture was delivered on the sense of hearing by Prof. Mc-

Kendrick, who pointed out that the sense of hearing depended less on the physical organ, the ear, than upon the impressions made upon the brain itself, and the capacity of the brain to retain these sounds, and in Mental Science we recognize Tune as the register for such sounds.

At present the investigations and researches have only been fragmentary compared with what they will be before a bi-centenary of Dr. Gall takes place. By then we may reasonably expect that the cortical centres of all the senses will be fully established, and thus prove their physical power as well as their motor or outward expression.

**AN IMPORTANT CONFIRMA-
TION.**

As Dr. Drayton, Dr. Hollander and others have pointed out, the studies in the department of neurology pertain to the production of new phases of life on the side of its practical activities, and now and then their results furnish evidence that not only show the truth of old principles, but place in fresher and clearer light application of those principles.

Among the faculties whose organic centres are accepted is that of Tune, or the recognition of musical sounds. Probably there has been no student in Phrenology who has not been puzzled in his determination of the tone-centre at times. There has been no doubt, however, in the minds of phrenologists, since the time of the discovery of the organ, that such a centre exists in the anterior lateral area of the brain.

It is with no little interest, therefore, that we have taken account of some recent investigations bearing upon the musical centre. Preyer, Penheim, Kussmaul, Charcot, and others, have demonstrated that the musical faculty is older than that of speech, on the ground that music has in itself more of the primary or simple elements of sound expression than speech. Animals of all kinds give ex-

pression in sound more or less musical to feeling, while man alone has the power of original speech, or the expression in verbal terms of thought, feeling, etc. On this line of discussion it is that observers predicate their views of the priority of the musical centre.

We know that children can sing before they can speak. Preyer states that children between eight and nine months old can sing a tune if played on the piano. There have been child musicians who could play or produce harmonious tones on instruments. Once a small child in the house of a celebrated violinist went to the piano, and reaching up, struck upon the keys, producing a simple melody with which everyone was familiar. The child was so small that he could not see the keys.

In that very interesting field of aphasia many instances are given by observers that have a marked bearing upon this subject. For instance, the faculty of speech may be entirely absent, while the faculty of music, which includes the understanding of notes and melody, and the ability to use an instrument, may be quite perfect. There have been idiots carried about the country for the exhibition of their musical powers. Who does not remember "Blind Tom," for instance, whose capacity for imitating pieces of music played in his hearing was marvellous. Seguin mentions an idiot who could reproduce on the piano any melody sung for him but once. Then, too, lack of power to produce or comprehend music shows that the musical faculties do not depend upon the speech faculty. As a writer in the "Journal of the American Medical Association" states: "Just as aphasia represents various forms of articulating defects, viz., the reading and writing of notes, singing and playing on instruments, and the comprehension of musical works."

"Wallascheck and Ballet were the first to classify amusia. Lasague ob-

served a musician suffering from aphasia who was unable to read or write, but could read and sing musical sentences with ease. Lichtheim reported a case of speech-deafness who could hear whistling and singing well, but was unable to hear musical melody. Brazier has described a patient, suffering from apoplexy without paresis and aphasia, but deaf to musical tones. The Marsellaise, played by the regimental orchestra, seemed to him like simple noises, while he himself could play the same and other tunes with ease. Charcot reported the case of a cornetist who lost the ability of using his buccinator muscles. Ballet describes the case of a professor of music who certainly lost the ability of reading."

THE MATHEMATICAL CENTRE.

Another Confirmation.

From German sources there comes a report of recent observations bearing upon the centre of Calculation, or as the observer terms it, the mathematical centre.

According to the Kölnische Rundschau, of Vienna, Herr Mobius has been making investigations and gathering data from upward of 300 persons, for the purpose of ascertaining whether or not there are indications for special talent for mathematics. The results he has obtained appear to be satisfactory, to the effect that in the left frontal angle of the brain, corresponding to the external angle of the eye, is the location for the faculty which is chiefly active in mathematical computations. When that part of the brow is prominent, says Herr Mobius, it corresponds to an unusual capacity in this direction, and this prominence depends upon the development of the anterior end or margin of the third frontal convolution.

The observer's conclusions have a bearing upon the old views respecting the Language centre in that its location was chiefly related to the left hemisphere, and he assumes that the mathematical centre is located on the

left side. We may easily accept this theory from the generally accepted point of view, that the left hemisphere of the brain is the more actively concerned in mental operations.

CONFIRMATIONS BY OTHER MODERN WRITERS.

DR. HENRY MAUDSLEY, F. R. C. P., late Professor of Medical Jurisprudence in University College, London, writes:

"All broad-headed people are very selfish, that is to say, all who have a broad head in proportion to its length . . . and an undue preponderance of the breadth of head throughout the region in which the phrenologists place the propensities, indicates with certainty an animal love, which can scarcely be trusted at all times to adopt only fair means for its gratification."

Of a noble head he says: "From the forehead the passage backwards above should be through a lofty vault, a genuine dome, with no disturbing depressions of vile irregularities to mar its beauty; there should be no marked projections on the human skull formed after the noblest type, but rather a general evenness of contour."

On the brutal head he remarks: "The bad features of a badly formed head would include a narrowness and lowness of the forehead, a flatness of the upper part of the head, a bulging of the sides toward the base, and a great development of the lower and posterior part; with those previous characteristics might be associated a wideness of the zygomatic arch as in the carnivorous animal and massive jaws."

CUVIER wrote:

"Certain parts of the brain in all classes of animals are large or small according to certain qualities in animals."

PROF. CARPENTER, who accorded with the phrenological ideas, though he did not pose as a phrenologist, said in one of his lectures:

"When the brain is fully developed

it offers innumerable diversities of form and size among various individuals, and there are as many diversities of character. It may be doubted if two individuals were ever exactly alike in this respect." (Medical Gazette, Sept., 1841.)

FLOURENS was supposed to have given the death blow to Phrenology or to Gall's doctrines, and yet there is not a man to-day who believes in or holds to his deductions or experiments. He was asked to make experimental investigations, whereupon he proceeded to destroy the brains of pigeons in successive stages, and as a result declared that nothing prevents the functions of one part from being transferred to another, and that it would not be contradictory to anything we already know, if after the entire destruction of the hemispheres, the intellectual faculties or Consciousness, should still remain. Flourens' report was accepted by the French Academy, and it was regarded as a fatal blow to Gall's position, but his experiments were in their turn set aside sixty years later, having been wrongly conducted and only on animals too low in the scale of organization to show the highly complex functions with which the human brain is endowed.

Abernethy invited Dr. Spurzheim to give a series of lectures, and demonstrations on the brain, to the pupils of St. Bartholomew's Hospital and resigned his chair to Dr. Spurzheim on several occasions.

GEORGE HENRY LEWES has said in the "History of Philosophy":

1. That the gray matter of the convolutions is the organic substance of all physical actions.

2. That no other part of the nervous system has any essential connection with the mind.

3. That each distinct faculty has its distinct organ.

4. That each organ is a limited area of gray matter.

DR. L. LANDOIS, German Physi-

ologist; in his "Text-book of Human Physiology," wrote:

"The discovery of the centres for voluntary movements and conscious sensations in the cerebrum demonstrate the necessity of a renewed examination of Gall's doctrines."

"If, however, as we think is undoubtedly true, definite portions of the cerebral cortex subserve definite intellectual processes, there is a possibility that we may some day attain a complete organology of the brain surface, a science of the localization of the cerebral functions."

SIR JAMES PAGET says:

"Year by year facts have been accumulating in the line of accurate research and the application of electricity and other factors necessary to the study of the nervous system. One of the fruits of the investigations has been the localization of the several faculties of the mind."

PROFESSOR R. HUNTER:

"Phrenology is the true Science of the Mind. Every other system is defective in enumerating, classifying and treating the relations of the faculties."

ROBERT CHAMBERS, of Edinburgh:

"Phrenology appears to be true. It assigns a natural bias to the mind. By this Science the faculties of the mind have been, for the first time, traced to their elementary forms."

HERBERT SPENCER:

"Whoever calmly considers the question cannot long resist the conviction that different parts of the cerebrum must in some way or other subserve different kinds of mental action. Localization of function is the law of all organization."

DR. SAMUEL SOLLY, Lecturer on Anatomy and Psychology in St. Thomas's Hospital, London:

"I do not see it (Phrenology) as otherwise than rational, and perfectly consistent with all that is known of the functions of the nervous system."

SIR CHARLES BELL in his

"Anatomy of Expression":

"The bones of the head are moulded to the brain, and their peculiar shapes are determined by the original peculiarity in the shape of the brain."

RÉV. HENRY WARD BEECHER:

"If a man wishes to know practically what he is made up of, if a man wishes a knowledge of human nature for definite practical purposes, there is no system which will aid him in acquiring that knowledge like the system of Phrenology."

In "Forty-Eight Sermons," page 303, Vol. I:

"All my life long I have been in the habit of using Phrenology as that which solves the practical phenomena of life. I regard it as far more useful and far more practical than any other system of mental philosophy which has yet been evolved."

DR. ABERNETHY:

"I readily acknowledge my inability to offer any rational objections to the system of Phrenology."

DR. D. FERRIER:

"Other things being equal—if such a postulate can ever be reasonably made—there are grounds for believing that a high development of certain regions will be found associated with special faculties of which the regions in question are the essential basis. Thus animals possessed with an extraordinary faculty of smell have a relatively abnormal development of the hypo-campal lobule, the cortical centre of smell."

PROFESSOR TYNDALL:

"Given the state of the brain and the corresponding thought may be inferred."

SIR G. S. MACKENZIE, F. R. L. S., President Royal Society, Edinburgh:

"Phrenology is establishing itself wherever its immense value has been rightly understood."

DR. J. MACKINTOSH, M. D.:

"The more I study nature the more

I am satisfied with the soundness of Phrenological doctrines."

DR. ALFRED RUSSELL WALLACE, F. R. S.:

"I am still a firm believer in Phrenology. It is ignored by modern physiologists, chiefly, I think, because it is thought too easy and simple, and was seized upon by popular lecturers who were often ignorant men. It is, however, a true science, founded in the only true way—step by step, the result of observation and of the connection between development and function."

SIR WILLIAM ELLIS, late Physician to Lunatic Asylum, Middlesex, Eng.:

"I readily 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."

DR. GUY, Prof. of Forensic Medicine, King's College, London:

"Phrenology is the simplest and by far the most practical theory of the human mind."

REV. DR. LYMAN ABBOTT, Editor of "The Outlook," and successor to Henry Ward Beecher as Pastor of Plymouth Church, Brooklyn:

"Phrenology may be regarded under two aspects,—as a physical system of classification of faculties, and as a craniological system based on the doctrine that each faculty has its appropriate place in the brain, and that the capacity of the brain can be adjudged by the shape of the skull."

REV. JOSEPH COOK:

"Phrenology is, or ought to be, the consummation of seven sciences, Physiology, Hygiene, Physiognomy, Craniology, Heredity, Ethics and Anthropology. They are the Pleiades of the mental mariner who sails in search of a correct knowledge of men."

REV. DR. AMORY H. BRADFORD, Author of "Heredity," and "Christian Problems," and "The Art of Living Alone," etc.:

"I am glad to acknowledge myself

a debtor to what, if this world was not so busy, I should be glad to study more carefully."

DR. D. FERRIER:

"So far, the facts of experiment and disease favor the views of the Phrenologist."

DR. CARPENTER:

"You all know that the brain is the organ of the mind."

DR. JOHN ELLIOTSON, F. R. S.:

"I am convinced that Phrenology is true, and as well founded, in fact, as the science of Astronomy and Chemistry."

C. OTTO, M. D., Prof. Medicine, University of Copenhagen:

"I not only consider Phrenology as a true science of the 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."

"Upon the whole, I consider Phrenology one of the greatest benefits that of late have been bestowed upon mankind."

PROFESSOR SOLLY:

"The skull is modelled in its form and shape by the brain, though it is not uncommon to hear the opponents of Phrenology ridicule the idea of a soft brain producing any impression on the hard skull."

DR. HUFELAND:

"It is with great pleasure and much interest that I have heard this estimable man (Gall) expound his new doctrine. I am fully convinced that it ought to be considered one of the most remarkable phenomena of the eighteenth century, and one of the boldest and most important advances that have been made in the study of Nature."

HORACE MANN:

"I declare myself more indebted to Phrenology than to all the metaphysical works I ever read. I look upon Phrenology as the guide to Philosophy and the handmaid of Christianity.

Whoever disseminates true Phrenology is a public benefactor."

HENRY DRAYTON, M. D., Author of "Human Magnetism," "Brain and Mind," etc.:

"The gospel of Phrenology teaches man the virtue of purpose, and as clearly demonstrates to each individual that he has a part in the great theatre of life."

JAMES SCOTT, Med. Supt. Royal Naval Lunatic Asylum:

"As I have been for nearly ten years the medical attendant of the Lunatic Asylum in this great hospital, my opportunities, at least of observing, have been great indeed; and a daily intercourse with the unfortunate individuals intrusted to my care and management has firmly, because experimentally, convinced me that mental disorders and mental delinquency can be rationally combated only by the application of Phrenology, and that the man who treats them on any other system will much oftener be disappointed than he who studies the manifestations of the mind and traces effects to their secondary causes by the almost infallible beacon of Phrenology."

REV. HENRY WARD BEECHER:

"If I have any success in bringing the truths of the Gospel to bear practically upon the minds of men, any success in the vigorous application of truths to the wants of the human soul and where they are most needed, I owe it to the benefits which I have gained from this science, and I could not ask for the members of my family or of the Church any better preparation for religious indoctrination than to put them in possession of such a practical knowledge of the human soul as is given by Phrenology."

A. J. DAVIS, author of "The Physician":

"Phrenology has done more to advance the human race than any single thing of modern times."

REV. THOMAS CHALMERS, D.D.:

"Phrenology has added a new and verdant field to the domain of the human intellect."

Rev. P. W. DREW:

"To a Phrenologist the Bible seems to open up its broadest and highest beauties."

HON. JOHN NEAL:

"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 become 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."

JOSEPH VIMONT, M.D., of Paris, Physician and Author:

"Phrenology is true. The mental faculties of men may be appreciated by an examination of their heads."

SIR G. S. MACKENZIE, President Royal Society, Edinburgh:

"While unacquainted with it I scoffed at the new philosophy of the mind, by Dr. Gall, known as Phrenology, but have become a zealous student of what I now conceive to be the truth, and have lived to see the true philosophy of the mind establishing itself wherever talent is found capable of estimating its immense value."

ROBERT HUNTER, M.D., Professor Anatomy, University Glasgow:

"For ten years I have taught Phrenology publicly, in connection with Anatomy and Physiology. It is a science founded on truth, and capable of being applied to many practical and useful purposes."

JAMES SHANNON, President Bacon College, Ky., Professor Mental and Moral Science:

"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."