

FOR THE STUDENT OF THE SCIENCE OF LIFE

The Book of Life

Biblo
Pes Zwns



Discoveries
of 1859 to 1878
Revision - 6024 M

The
Spiritual
and
Physical
Constitution
of Man

By Dr. Alesha Sivarth

Seventh Edition

HOLMES W. MERTON
New York City

Published by

The Engravings made by the Author

PLAN

— OF —

THE BOOK OF LIFE

CHAPTER FIRST.—Historic Evolution—First Races of Men—
The Seven Civilizations.

CHAPTER SECOND.—Physical Life of Man—Functions of the
Body—Types of Life—The Brain.

CHAPTER THIRD.—The Trinity in Man—Sacred Numbers—Lo-
cation of Faculties.

CHAPTER FOURTH.—Celestial Mechanics—Geometry of the Brain
—Law of the Ellipse—Laws of Beauty.

CHAPTER FIFTH.—Crown of Life—Waves of the Forces—Spirit
and Matter—Spiritual Spheres and Influences.

CHAPTER SIXTH.—Law of Responses—Polarity of Faculties—
Spheres of Contrast—Laws of Gesture.

CHAPTER SEVENTH.—Phases of Life—Personal and National
Life—Evolution of Society.

CHAPTER EIGHTH.—Social Life of Man—Structure and Plan of
Society—Basic Laws and Constitution.

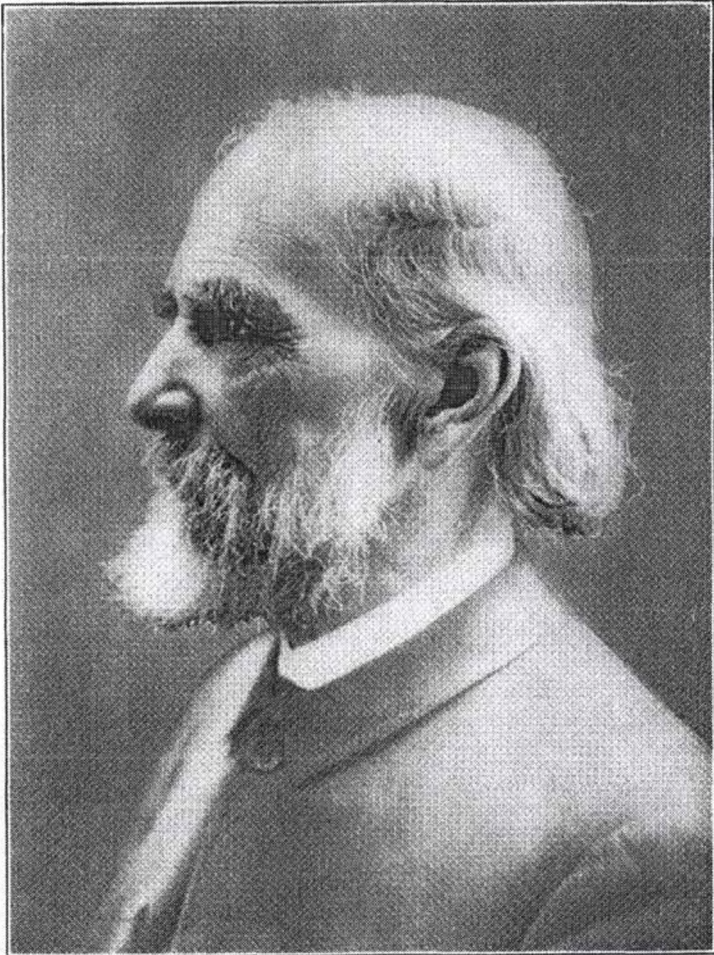
CHAPTER NINTH.—Seven Seals of Truth—Doctrines of Religion
—New Jerusalem—Tree of Life—The Messiah and Israel.

CHAPTER TENTH.—Universal Synthesis—Laws of the Universe
—Logic and Science—Universal Language.

CHAPTER ELEVENTH.—Integral Education—Methods of Culture
—The School, College and University.

CHAPTER TWELFTH.—The New Earth—The New Covenant—
Marriage, the Home and the Temple—Costume—Sym-
phonies of Sense and Soul—Destiny of Nations.

Copyrighted by the Author, 1884.
Recopyrighted 1912 by Alesha Sivartha.



ALESHA SIVARTHA





The Human Race has been marching upward from the first ages of history. Under what law has that mighty procession of the ages taken place? Science and history both answer that man has advanced step by step, from the ignorant and selfish rule of his lower brain organs up toward the beneficent dominion of his higher faculties.

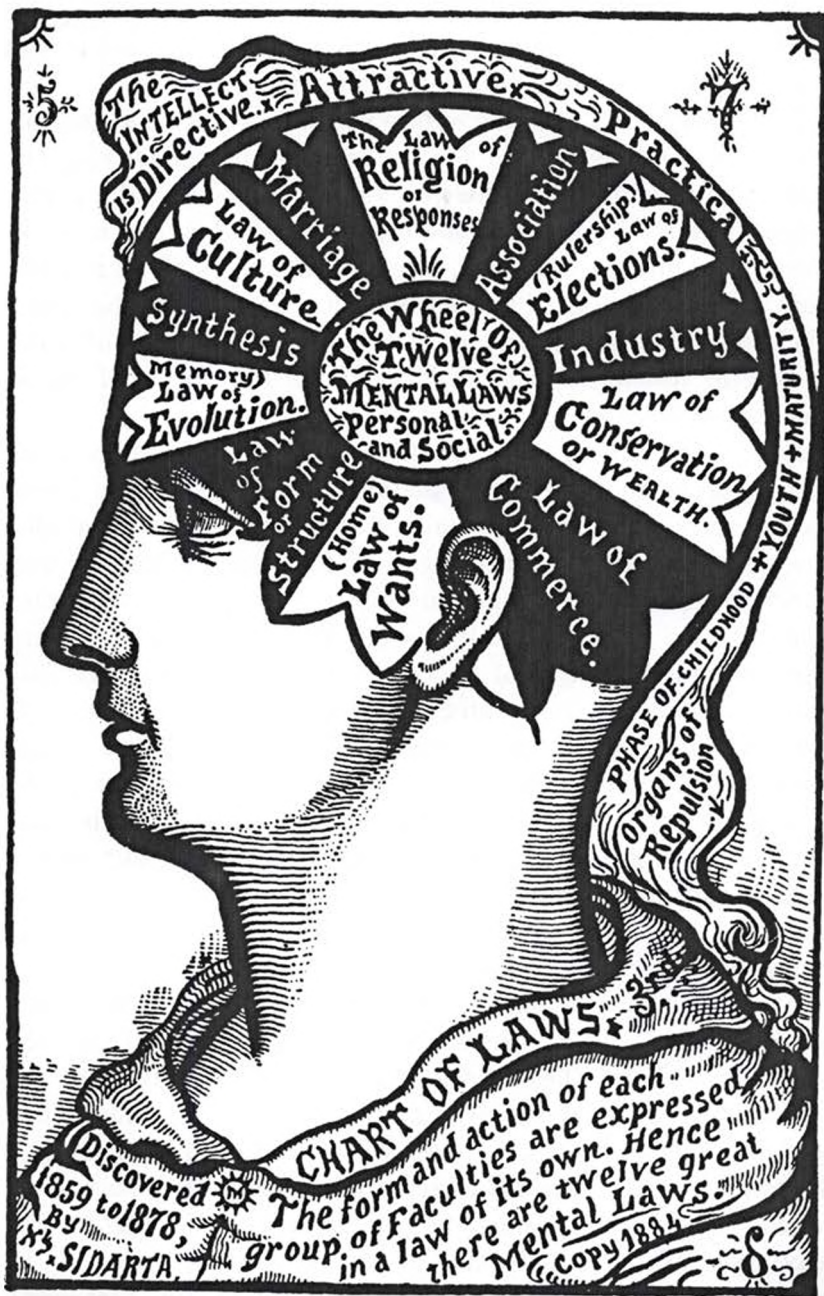
The laws which have controlled that vast upward movement are still in force. They are fixed in the very constitution of man. And they are of supreme importance at the present time, for they determine what new institutions and what social changes are now required to meet that higher growth of nations.

EVOLUTION REQUIRES CONDITIONS. But mere external conditions are not all that is required. A man needs ground on which to build a house. But the house is not generated and produced by the ground. The latter is only one out of several factors. At the end of each geologic age the conditions had become such as to favor a higher kind of life. By passing through the form of organized bodies, matter becomes more and more vitalized; it acquires a more permanent tendency to vibrate in unison with the living forces, and it thus becomes more capable of being molded into new kinds of plants or animals. At every step of this progress the internal or vital forces have acted in concert with the external conditions to produce the new results.

Evolution describes the great methods of growth which rule in the world of living forms. It deals with the past, but it also foretells the future. And this latter work gives its greatest value to man.

Seven great forces were concerned in those vast movements of early creation. Gravity marked elliptic orbits for the path of worlds. Electricity and magnetism polarized and thus rotated these worlds on their axes. Chemic force, heat, and light built up the solid rocks and arranged their wide spread layers. And the vital force crowded the sea and land with the myriad tribes of animal and plant life. These forces held the same relations to each other then as now. No new forces were either brought into existence or destroyed. The materials which were used had always existed in one form or another. For Matter, Ether and Spirit alike possess eternal forces.

GENESIS OF WORLDS. The universe is ruled by one system of laws. The same forces shaped the minute cells and the far-sweeping stars. The earth began its career as a revolving sphere of cosmic gas and dust, about thirty thousand miles in



diameter. At the center of this great sphere was the place of least mechanical movement and disturbance. And it was here that the work of solidification commenced.

The cosmic dust and gas entered into new chemical unions, and these became centers for gathering and condensing the surrounding material. This process went on until the earth-sphere was reduced to a globe eight thousand miles in diameter. As a mass it was solid, but in many parts of its interior were long lava-pools of molten matter. These were the result of chemical action, and many of them were hundreds of miles in length. Some of these still remain as the source of earthquakes and volcanoes.

A few substances were all that nature required to work those mighty changes in the primitive world. Oxygen forms 45 per cent., or nearly one-half of the earth's crust, and this gas also constitutes eight-ninths of its mass of waters, and one-fifth of its enveloping atmosphere. In the air, the other four-fifths is nitrogen, and this gas also plays an important part in the composition of rocks and of animal bodies. Hydrogen forms one-ninth of water. Calcium is the base of the extensive lime-rocks of the Silurian and other geological formations. Aluminum exists extensively in clays and other rocks. Silicon forms the vast masses of granite, gneiss and sandstones. Carbon is the great base not only of the coal beds, but also of animal and plant structures. Iron, copper, gold, silver, mercury, tin, lead, zinc, and a few other useful elements, exist in comparatively small quantities.

After the general surface was formed, vast areas of the primitive rocks were thrown up during the early periods. The materials of these were afterward worn down by the action of water, heat and the atmosphere. Nearly the entire surface of the earth was covered with water, and the sediment deposited in this formed the larger part of all the rocks known to us. The layers formed at the bottom of the sea in this way were afterward elevated above its surface, often to be worn down again and form new layers or strata. However vast the mountain ridges may seem, yet they are only lifted

above the regular curve of the earth about the one-fourth part of the known thickness of the stratified rocks. This is a very slight flexure when compared with the size of the earth.

While the process of formation over some areas was thus going on for centuries, other surfaces were at the same time above the water, and were accumulating nothing. Their hard minerals were simply crumbling into soils under the influence of heat and moisture. So that we do not find any one system of rocks existing in every part of the earth.

Many strata have been upheaved, dislocated, broken, contorted, and even quite inverted. The edges of the layers are thus in many places exposed, and we may walk over them and measure their thickness. Were all of the formations to be found in one place, and we could there cut a slice out of the earth, thirty or forty miles deep, we should find the various rocky strata arranged as shown in the first engraving of this chapter.

Beneath the stratified rocks are others which are unstratified. The latter were the oldest and formed the principal materials from which the others were produced. The unstratified rocks are chiefly granite, syenite, porphyry, greenstone, basalt, trachyte, amygdaloid and modern lavas.

The stratified rocks themselves form two classes. The lowest of these two classes contain no traces of ever having supported life. These include gneiss, mica-slates, clay-slates, hornblende slate, talcose slate, quartz rock, sandstones, conglomerates and limestones.

SEVEN AGES OF THE EARTH. The higher class of stratified rocks are distinguished by containing fossils or the remains of animals and plants which have turned to stone. These remains were imbedded in the rocks while yet they were in a soft state as mud or sand. These strata embrace the Silurian, Devonian or Old Red Sandstone, the Coal-period, Permian, Oolitic, Cretaceous, Tertiary, Drift and Alluvium. Each of these systems is supposed to include all those strata which were formed while the conditions over the earth were essentially the same.

We may quite as properly classify these formations according to the kinds of life which predominated in each one. This will give us the same divisions as before, except that the Permian, Oolitic and Cretaceous are grouped together as the age of Reptiles, and the Drift and Alluvium as the age of Man. We will then have seven ages; the Azoic or lifeless age, the age of Molluscs, of Fishes, Plants, Reptiles, Mammals, and of Man. These are shown on the left side of the engraving, as so many ascending steps in the pathway of organic life.

From the age of molluscs up to that of man, the climate, the atmosphere and the soil were constantly becoming more perfect, or better adapted to sustain the higher types of life. And through all of these ages there was a steady and resistless march of organic life toward more perfect forms. This is the most important law yet established in regard to the evolution of the earth. And it rests securely upon an immense array of carefully observed and collated facts.

The great branches of the animal kingdom were represented in the age of molluscs. But the higher types were there only in their lowest classes. For example, the first vertebrates were fishes, and not until comparatively recent ages do we find mammals, the highest class in this division.

It was a great change from the burning rocks of the granitic period to the wide seas in which the slates were deposited. Very different from this, again, were the many low islands and shallow seas of the silurian age, when life became possible for the first time. The animals and plants were then all marine. Countless molluscs swarmed in the ocean, with a few radiates, articulates, and, toward the end of the period, some fishes.

In the Devonian period, the aspect of the earth had not greatly changed. The area of the land was somewhat more extended, and its altitude was greater. Fishes were then the dominant life of the seas, and they perhaps reached as high forms as they ever have since.

The age of plants, or Coal period, seems like a transition to more modern conditions of life. Most of the lands were



still low, if not marshy, and covered with luxuriant vegetation. Gigantic ferns, thirty feet high, calamites and mosses of proportionate size, were among the forms which marked this great era of plant life. Their almost incredible abundance may be judged from the depth and extent of the coal beds which were formed from these plants. In some places single beds of coal are fifty feet in thickness.

Until the coal age, the hot and dank atmosphere had contained an excess of carbonic oxide, a gas noxious to the higher animals. Hence no mammals and birds had yet appeared. This excess of carbonic oxide was transformed into the solid plant-tissues of the coal period. The lurid air was now purified, it was fit to be breathed and to transmit the rays of the sun. The orb of day was scarcely visible before this period.

The age of Reptiles was now ushered in, and they were represented by the gigantic saurians, the iguanodon, a lizard thirty feet in length, with the ichthyosaurs, plesiosaurs, and their congeners. In this period also we find the first traces of birds.

In the Tertiary period the continents had assumed nearly their present outlines, and the huge mammals of that age, the mastadon, elephant and dinotherium, roamed through forests and along rivers like those which meet our eyes to-day.

The Alluvian and Drift succeeded the tertiary. The rich deposits of soil along river beds, and the accumulated vegetable mold on extensive plains, had prepared the fair earth for the abode of man.

The earliest ages of the earth witnessed the most violent storms and convulsions of nature. Rains came in torrents and floods. The uplifted rocks and hills were worn down far more rapidly than at the present time. We can discover very easily the successive order in which the layers of rock were formed. But it is far more difficult for science to decide upon the amount of time required for their formation. Science would now assign one solar cycle of 1,040 years to each of the great geologic ages. Six thousand years, or six creative days, elapsed from the first appearance of life on the earth to the

time when the Adami, the lords of the seas and the land, could appear and assume dominion.

At the present time, the deposits of sediment at the mouth of rivers are sufficiently rapid to account for the depth of all the geologic formations. Some of these deposits or deltas are hundreds of miles in extent, but many of them only cover limited areas. In the earliest periods of the earth's history the washings of the sea shores had an immense and widespread influence in these deposits. The matter from which the earth was at first formed was gathered from the cosmic matter which exists everywhere in the interstellar spaces.

Such is the account which science is now able to give of the steps of creation. Its main features agree with that account which Moses revised from the old Chaldean tablets. The latter probably date back to 2,000 years B. C., or nearly five hundred years before the era of Moses. These tablets themselves profess to be records of early traditions. Neither of these two accounts professes to have been given by direct inspiration.

CONDITIONS OF LIFE. The climatic zones of the earth were the primary conditions which favored the development of life in one place rather than in another. The extremes of heat and cold are almost alike unfavorable to the higher forms of life. The north temperate zone is best of all these belts of thermal power. If we take a ten-inch map of the world and draw our two fingers from the Yellow Sea westward to the Golden Gate of California, they will pass over those countries which have produced the highest thought and moral power of the world.

Next in the importance of their influence over life are the mountain chains, the altitudes above the sea, and the river courses through extensive valleys. On the Eastern Hemisphere, the trend of the mountains is east and west. In the Western Hemisphere it is northward and southward. The course of these chains exerts a modifying influence over the winds and the rainfall, and these in turn over vegetation.

The wide and fertile valleys of the Euphrates and the

Tigris offered most tempting fields for the nascent civilization of our race. And it was here that the eldest traditions placed the primitive man. Along the rich valley of the Nile, its annual overflow enabled them to dispense with instruments for plowing and planting. They needed but to "cast their seeds upon the waters" to insure the harvests with their abundance. These conditions foretold and made possible the development of an early Egyptian civilization.

In Eastern Asia the long valleys of the Hoang-ho and the Yang-ste-Kiang invited the hand of early races and lifted agriculture to the highest dignity of the empire. From the southern face of the Himalaya Mountains, the Ganges and the Indus rivers poured their stores of wealth through the lower lands of Hindoostan.

In America, the high table lands of Peru and Mexico gave a salubrious climate even under the fiery sun of the tropics.

Thus physical geography alone is sufficient to tell us where the early races of men would plant the seeds of civilized society. And when colonies branched forth from these primitive nations, they would naturally follow along valleys and settle upon river courses. The new modes of travel now used, the steamship and the railway, have enabled man to partly overcome those natural conditions which guided his earlier career. Yet these conditions still exert a mighty sway over his physical as well as his mental advancement.

FUTURE OF THE EARTH. The past achievements of science and art lead us to expect the most wonderful results in the future, from the modifications of the climate, the soil and the surface of the earth.

New chemical discoveries will unlock the icy zones of the north and the south, clothe them with verdure and cool the hot breath of the tropics to the freshness of temperate climes.

Under a system of combined industry, the civil engineers will reclaim the deserts and make them blossom as the rose. Vast industrial armies will be animated by a noble enthusiasm in making the earth a garden of beauty, the fit abode of a redeemed race.

The stability of the earth is secured by cosmic laws whose cycles sweep through millions and billions of years. Standing before that sublime vista, the human race may well ask itself if it is not eminently worth its while to place itself in harmony with those majestic laws of the universe. For those same laws reach to the very center of man's nature. Man is linked with past history, his actions terminate upon future generations. In the light of these truths, the study of his mental and physical constitution assumes a transcendent importance.

VALUE OF HISTORY. The study of History has a twofold value. It may stimulate us to noble endeavors by setting before us the illustrious examples of past ages. Or it may reveal the eternal laws of social life and national harmony. It is to the first of these objects that previous historians have commonly devoted their works. They have exhausted their skill in painting the pomp and pageantry of chiefs and kings, the imposing array of military conquests, and the succession of dynasties. But they have failed to penetrate the causes of national growth, prosperity and decline, and they have only made very meagre records of that vast but more quiet growth of art and morals in which national life manifests its most vital energies. Indeed it is only through the brilliant scientific discoveries of our own age that we have been enabled to study history in its twofold aspect—to rightly estimate the worth of its examples and to comprehend the majestic laws of which its individual facts are the expression.

The human race, like a single person, is subject to natural laws of growth and development. These laws determine alike its past career and its future destiny. The great civilizations of past times sprang forth in obedience to fixed laws within the constitution of man.

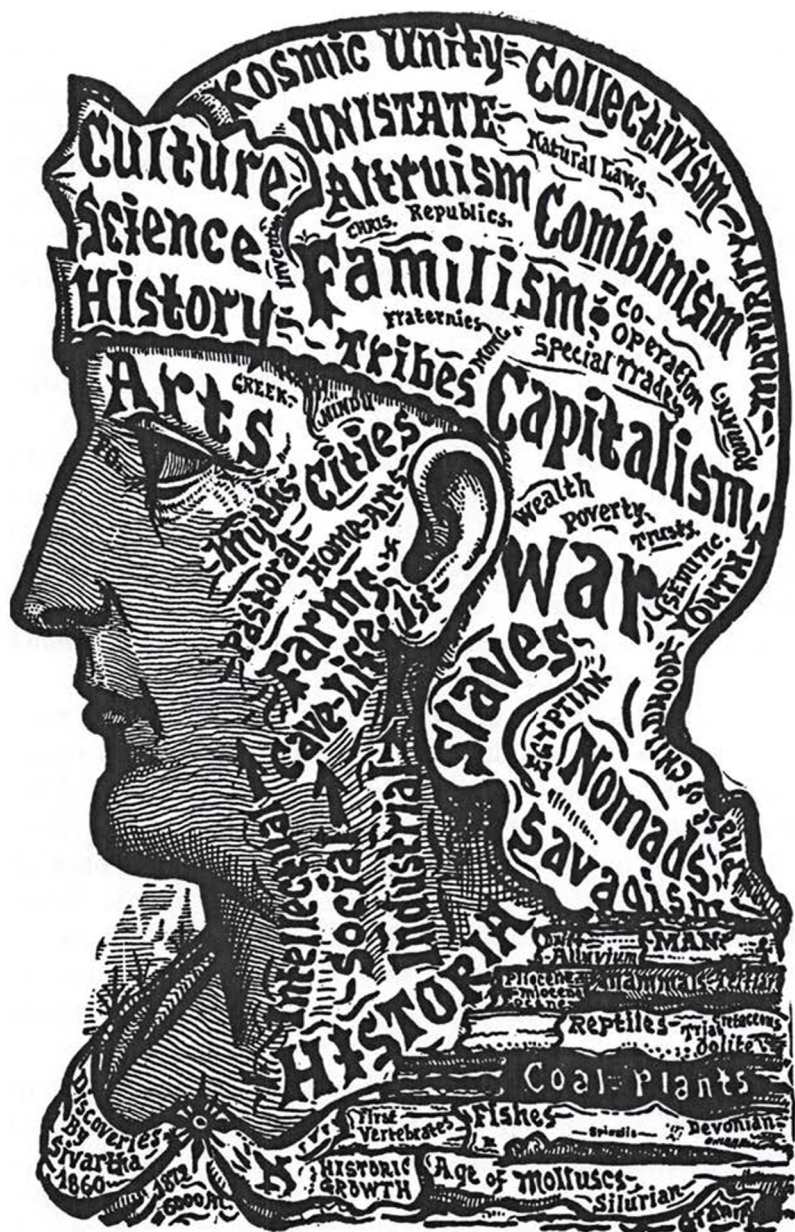
The mighty law of progress forces the race of man along the march of historic ages, step by step, from the base rule of his lowest brain organs upward to the beneficent dominion of his higher faculties. On a map of the brain we may trace the entire chart of human history. This we have shown in the engraved *Historia*.

From the geologic age of Fishes up to that in which man appeared, we may trace a succession of animals with higher and higher types of brain. At last we find the dominant brain of man. The nervous system and the brain have developed from the base to the top and from the back to the front.

On a chart of the human head we may trace the extended growth of man through the historic ages. On the Intellectual line, or front brain, we may trace the upward march through the ages of Myths, Arts, Dogmas, Science and Philosophy to the age of Harmonic Culture. In the middle brain the Social line passes upward through the phases of Savagism, Cafe life, Pastoral life, Walled Cities, Tribes, Republics and Fraternities to the twelvefold life of the Uni-state, or Harmonism, based upon the Constitution of Man and universal laws. In the back brain we trace the Industrial line upward through Hunters, Nomads, Slaves, Wars, Money, Wages, Poverty, Capitalism and Unionism, to end in Collectivism, where organized industries will secure wealth and equity for all classes of people.

The people of Europe and America have outgrown their institutions. Guided by the Science of Man they will organize new ones, which will represent, in a systematic way, all the higher as well as the lower wants and faculties.

PRE-HISTORIC AGES. The first ages of the human race were ignorant, sensual and nomadic. The physical wants of the body were the first to demand gratification. And only the rudest means existed to supply these wants. The primitive man did not bring with him into the world any store of knowledge or any acquired skill in labor. For many centuries the black and brown races used axes of stone, and tools of bone and wood. The bow and the arrow were soon invented as weapons of hunting and of war. In fertile regions, even a rude culture of the earth sufficed to make it productive. Copper and the compound bronze were used before men discovered how to reduce iron from its ores. Simple forms of weaving were among the early triumphs of human invention. Before that, the tanned skins of animals served for cloth.

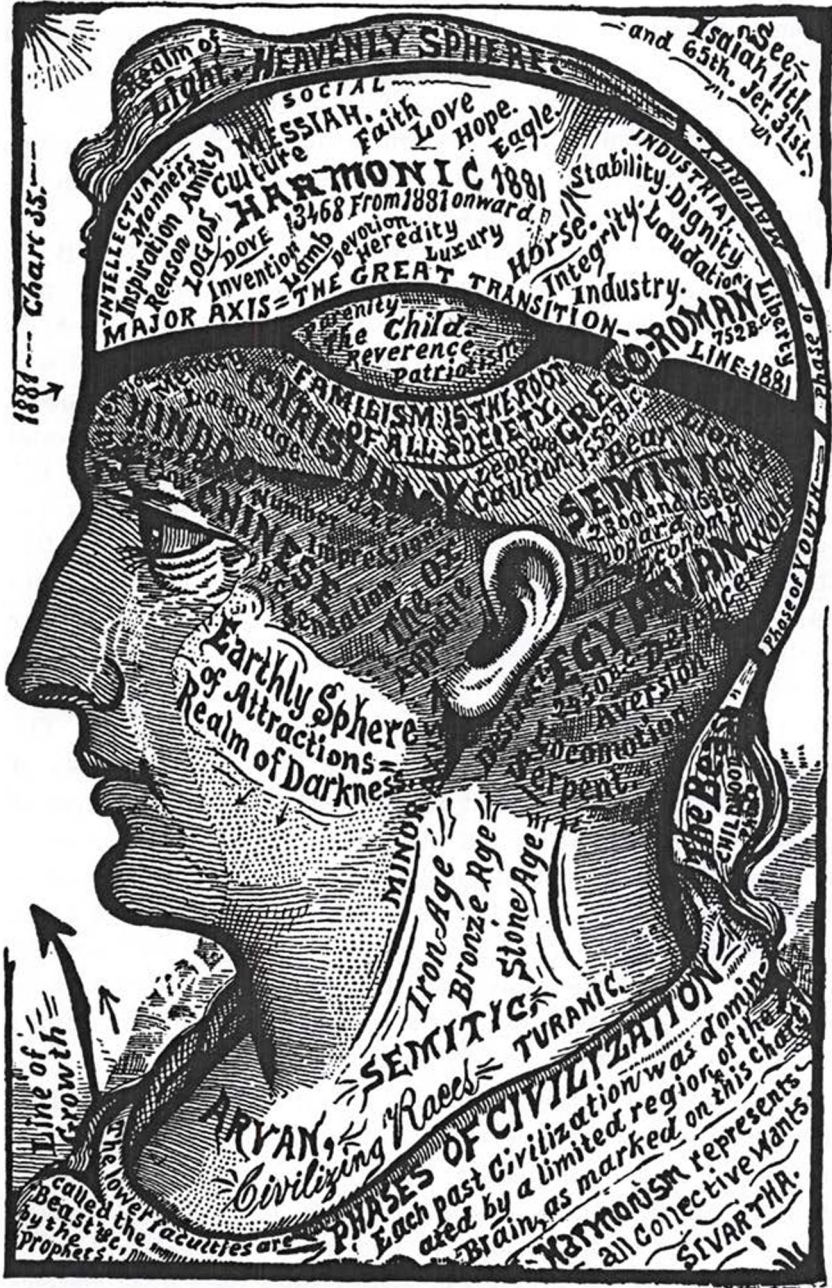


Long after the Christian Era whole nations of men had been found who had not advanced beyond the stone and the bronze age. Such were many of the tribes in America when discovered by Columbus; and many of the African nations, still later. Such also were the cave-dwellers of Europe often found by the later Japhetic immigrants. The brown races did not attain the art of recording events and of preserving dates until about 2300 B. C., in China. At about the same time the white race had invented hieroglyphs and partial alphabets, in Egypt and in Chaldea.

The African tribes had not raised themselves from the barbarism of the stone age after three thousand years of experience. But the Adamites quickly showed their fertility of thought and invention. In the seventh generation from Adam we find Tubal-Cain described as an artificer in bronze and iron. His brethren dwelt in tents, and his brother Jubal made instruments of music. Yet stone knives and other implements continued to be used to some extent long after iron and bronze had become common. We find them among the ruins of Chaldean and other cities.

SEVEN CIVILIZATIONS. A nation, or the entire human race, has its phases of childhood, of youth, and of maturity. Through these phases we may note the successive gain of the higher organs of the brain over its lower and animal side. On three lines of growth we may trace the upward path of the race. These are the lines of the Intellect in the front, of Affection in the middle and of Industry or the will in the back brain. It follows that society has three great roots or factors of growth, the intellectual, the social and the industrial, as marked on the engraved Historic Tree.

The central forces of every civilization were in the group of Familism, as marked on the Chart. From the mental faculties of this group arose the family, and the family gave origin to the tribe, the community and the nation. All critical historians now affirm that this was the case. From this center of brain growth these old societies spread their branches backward and forward. But none of them sent



their aspiring shoots upward into the lofty regions of the coronal faculties. That was left to be the complete expression of the Messianic or new civilization. Thus each great form of human society in past ages was dominated and took its cast of character from a limited region of the brain. Other regions of faculties were more or less active but did not rule or determine the course of development.

Maturity in Greece was ushered in by Aristotle, 384 B. C. He formulated the Inductive Method or Logic in science, and taught that organic beings form a connected chain. In physiology he thought that the brain is devoid of blood and of sensation. Euclid develops Geometry (300 B. C.) and Archimedes (287 B. C.) writes on the sphere, cylinder, endless screw and many other physical problems. Eratosthenes (276 B. C.) unfolds the first principles of geology, and Hipparchus discovers the precession of the equinoxes and catalogues 1,080 stars (160 to 145 B. C.). The Greeks had now laid the foundations of exact physical science. But they were not to rear the superstructure.

Others have sketched the fairest side of Greek life. On the other hand, they were warlike and ambitious. The conquests of Alexander tempted them to broader arenas of martial glory and they soon fell beneath the mightier arm of Roman warriors. It was Roman ambition that prematurely stopped the development of Greek intellect. Rome was a diverse beast, a compound of bear, lion and wolf, "with great iron teeth." Rome itself sank in the luxury gotten from the spoils of its warlike robberies. Its international roads were only extended war-paths. And its policy of national unity was summed up in two words—police and taxes.

Christian civilization planted its roots in the fertile soil of the Roman. Here it received the abundant endowment of literature, of art and of wealth. It started forth in the direction of spiritual life and culture, of universal brotherhood and peace. But it turned aside into the unfruitful paths of faith and dogma. By the greatest of misfortunes the Christian doctrines fell into the hands of monastic teachers. In their fierce

revolt from Roman luxury they forgot that faith meant fidelity to truth. They constructed elaborate and absurd systems of theology in place of a system of life. Under the influence of the Alexandrian school of Platonists, Christian theology turned its back on the promises of a righteous kingdom on this earth. It became an Egyptian sphinx, with riddles for doctrines. Its head was indeed human, but its body was a beast. Had Christian teachers accepted in good faith the teachings of Christ and the prophets, how widely different had been the development of modern Europe! Christianity was master of Europe, of western Asia and of north Africa. What did it show for this? It brought forth the Middle Ages, a thousand years of intellectual stupor, of moral twilight and of social degradation.

The instincts for science are strong in the Japhetic race. In the twelfth century, when the Christian crusaders came in contact at Jerusalem with Arabian civilization it stimulated them anew to the study of science. From the fifteenth to the nineteenth centuries the discoveries of Copernicus, Galileo, Kepler, Newton, Harvey, Dalton, Cuvier, Gall, Mayer, and a host of other great minds, paved the way for a new civilization. But this civilization could not take its definite and ultimate form until social science was discovered.

REFERENCES TO AUTHORS.

On Life in the Geologic Ages the Reader may consult Dana's or Lyell's Geology entire, with Le Conte's Evolution and its Relation to Religious thought. Also Draper's Physiology, p. 514, and his Intellectual Development of Europe, specially chap. 10, vol. 2.

On Seven Civilizations, see Draper's Int. Dev. Eur. entire; Rawlinson's Origin of Nations, Part II., chap. 1, 2, 3; Maine's Early Institutions, pp. 65, 79 and 116; Chas. Fourier's Social Destiny of Man, entire; Blackstone's Comm., Sec. 11, ¶ 46 *et seq.*

SEVEN FORMS.



THE SEVEN CIVILIZATIONS. Six great forms of civilization have thus far been masters of the world. But each of these was partial in development. It expressed only a few of the faculties and wants of man. Not one of them attained a high and symmetrical growth. This is shown by their places as marked on the charts of Historic Growth.

The vast temples and palaces of Egypt proclaimed the absolute power of kings, priests and nobles, along with helpless castes and servitude for the people.

In China the national life centered in familism, agriculture, education and the arts of peace.

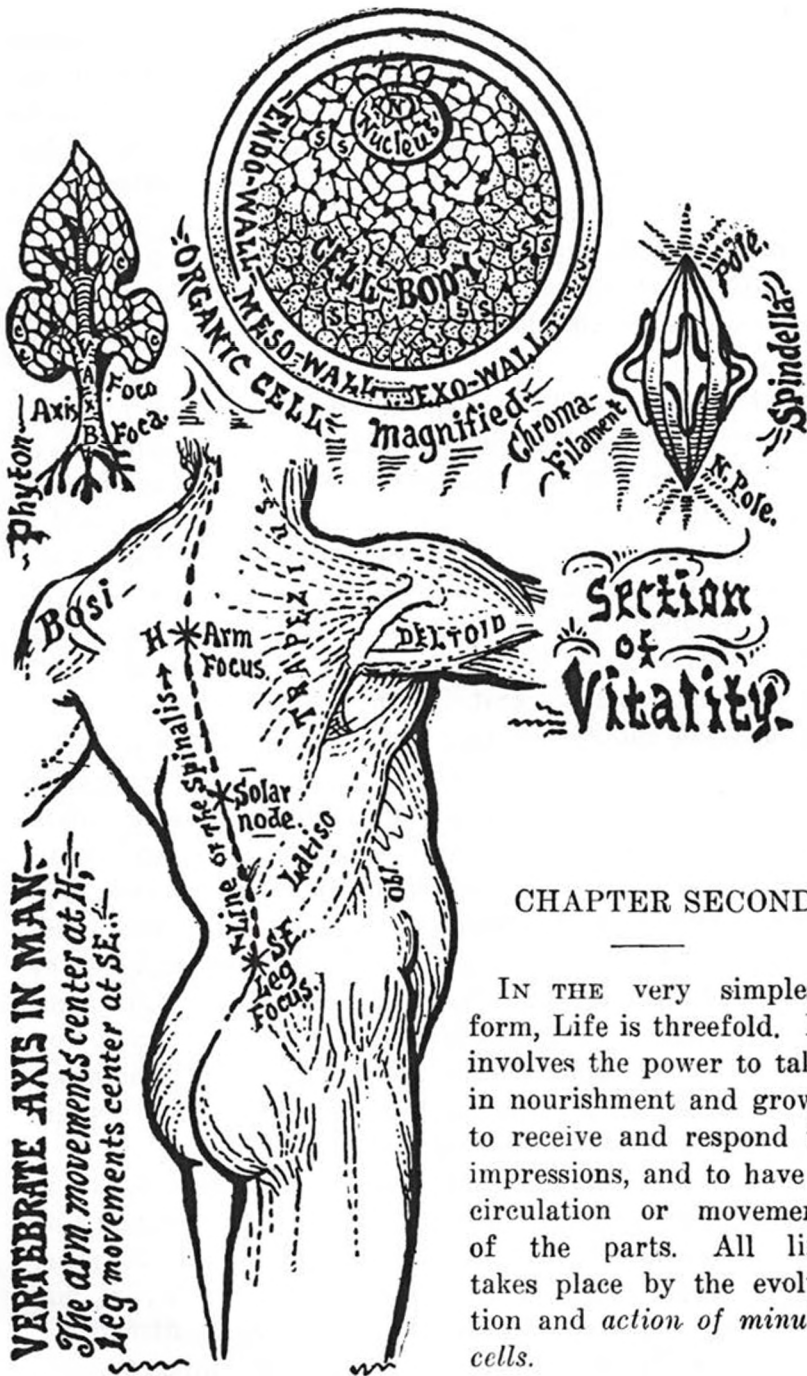
The Hindoo mind revelled in vast systems of idealism, but without the solid and enduring basis of science.

The branches of Semitic growth were the Assyrian, Chaldean and Hebrew. The leading ideals among these centered in war, wealth and power. Yet in prophetic visions the great Hebrew seers foretold a coming kingdom of universal wisdom, peace and justice.

The Greek and Roman civilization gave to the world enduring masterpieces of literature, architecture and sculpture. But ambition and war finally overshadowed these in both Greece and Italy.

The Christian civilization planted its roots in the fertile soil of the Greek and the Roman. Yet it soon turned aside from the high promises of the prophets and of Christ. After nineteen centuries of growth, the Church in 1896 stands helpless before the vital problems and great evils of society.

The age of Harmonism, the seventh great form, will fulfil the lofty ideals of past ages through the definite and certain plans of science.



CHAPTER SECOND.

IN THE very simplest form, Life is threefold. It involves the power to take in nourishment and grow; to receive and respond to impressions, and to have a circulation or movement of the parts. All life takes place by the evolution and action of minute cells.

In its most complete form, a cell has an exterior wall or ectoderm. Within this may be an internal membrane or endoderm. The vital forces are focalized in the nucleus or in the point within this, called the nucleolus. In the earlier stages of a cell's life there is a continual circulation of its liquid contents. This is produced by the force of a circular polarity, as shown by the arrows. The aggregate forces of the entire plant or animal display this same circular polarity; we always find a circulation of blood, or sap, or of nutritive liquids.

In the mineral or lifeless world we find the unit of structure in the Crystal. The masses of the rocks, the solid walls of the earth, are vast aggregations of crystals, some of them complete, but many of them ground to dust. The crystal is bounded by straight lines, and its poles or lines of force point outside of itself, as shown in the dynamic chart. It is wholly dependent upon external conditions. If a piece of stone, or any crystalline body be broken off, it can not repair itself. Nor can one crystal generate another.

In striking contrast to this, the organic cell has power to multiply itself in three ways. First, new cells may develop within the parent cell. The parent cell then opens or bursts, and the new cells escape. This is increase by Subdivision. Second, a cell may divide itself by constriction into two, four, or more parts, each part becoming an independent cell. This is Segmentation. And third, new cells may be produced by budding, or Gemmation. These cells may be separated from the parent cell, or they may remain attached and form a row of cells. Or, the end walls between them may be absorbed and thus form a continuous tube. These actions require powers not known in chemistry.

In contrast to crystals, the organic cells have power to repair injuries that may be done to them. If a plant or an animal be wounded, the internal activities of the body are changed, proper materials are sent to the wounded part, and it is healed. In a state of health, every change of external conditions is instantly responded to by the internal ones.

Thus to maintain the process of thinking, the brain must constantly change and consume the materials of its structure, and new materials must be supplied through the lungs and in the form of food. Muscular movements must procure the food, it must be digested in the stomach and oxidized in the lungs before it can be sent to the brain to supply the loss that has occurred there. The bodily movements must be rightly adjusted to procure the food, and the force of the digestive organs must be properly adapted to its solution.

A series of internal relations is thus seen to be adjusted to the external relations, and the higher the type of the organism the more complex are these changes. In the lowest plant they are few and simple; in the highest animal they are numerous and diversified. To make these adjustments in all their complexity, it is necessary to have certain definite structures called organs, as for example, the lungs, the heart, or the brain.

THREEFOLD FUNCTIONS. In the human body three kinds of organs carry on the unceasing work of life. Some are engaged in taking the elements of Air, Water and Food, and, after changing the form of these, they carry them to the various parts of the body, to sustain its action and to build up its wasted tissues. The organs which do this work constitute the Nutritive System. These also include the power to produce an entirely new and independent organism, like that of the parents.

Another kind of organs consist of bundles of delicate tubules, which carry messages to and from all parts of the body and center in the brain and other collections of nerve cells. These organs form the Nervous System with its threefold functions of Thinking, Feeling and Volition.

A third class of organs are concerned in moving us about from place to place, in performing the many tasks of labor, and in the lighter movements of play. These organs are the muscles, bones and ligaments, or Motive System. The bones also form a frame work for the body.

All parts of the body are instruments for expressing the mind. They are united in relations of the closest sympathy.

MOTIVE SYSTEM. The four hundred and seventy muscles of the human body are disposed in layers. They consist of bundles of minute cells; as shown in Figure 1 of the Nervous System Chart, and in the engravings of the brain. They are attached to the bones as levers, and move them by contraction.

A current of nerve force is sent from the brain, or from other nerve centers, and this polarizes the muscle cells. The positive current is applied at the sides of the muscle and this expands the cells laterally and thus the entire muscle is contracted or shortened about one-third. When the charge of nerve force is withdrawn the cells return to their former position, and thus the whole muscle relaxes.

In the chart of the Nervous System the large muscles of the upper arm are shown. The nerve is seen at BR, and the Biceps muscle is drawn with the cells immensely enlarged. This muscle, attached to the radius at R, raises the forearm by its contraction. On the back side of the arm the triceps muscle straightens or extends the arm by its contraction.

The rectus muscle of the leg is attached by its tendon to the ilium above, and the tibia below. Its contraction throws the leg forward in walking. On the back of the leg, the biceps flexor cruris, attached to the ischium above, and to the tibia below, bends the leg at every step. The gastrocnemius raises the os calcis or heel bone, and this throws down the toes and raises the body in walking. The intercostal muscles raise the ribs, and the serratus draws them down in the act of breathing. A still more important muscle of breathing is the diaphragm, a broad curtain extended across the cavity of the body below the heart and lungs, and marked DIA in the chart of the nervous system and of the solar plexus.

The teeth form part of the exo-skeleton, so highly developed in some of the lower animals, like the chelanians. Including the teeth, there are two hundred and forty bones in the human body.



THE SKIN presents an example of the nervous, nutritive and motive systems, combined. Its protecting layers of the epidermis, and its elastic and contracting fibers, belong to the motive system. Its multitude of sensitive nerves are an important part of the nervous system. And its perspiratory, sebaceous and hair glands belong to the system of nutrition. The 5,000,000 of pores in the skin form an extensive system of drainage for the waste matters of the body, and justify the importance attached to bathing and cleanliness.

In the structure of plants we find no nervous system. The work of the plant is chiefly nutrition. It lays up stores of force to be expended by the nervous and motive systems of animals.

NERVOUS SYSTEM. In order to maintain life in its highest forms, it is necessary that all parts of the body should act in sympathy and unison; that all muscular movement should be under the control of a central power; and that there should be a special mechanism for the manifestation of thought, feeling and volition. All this is provided for in the Nervous System. This includes three parts: the Brain, the Nutro-nerves and the Sensi-motor nerves.

The large figure in the chart of the nervous system exhibits a side view of the brain and a back view of the body. On the left side the muscles of the back have been removed. This displays a part of the chain of twenty-four nerve-centers and fibers which form the great sympathetic or Nutro system of nerves. These lie back of the heart, lungs, stomach and other digestive organs, and are on each side of the body. They govern the action of all these organs. Each of these centers also sends a bundle of fibres to the spinal cord, and receives one in turn. The chief center of the nutro system is the solaris or solar plexus and ganglion back of the stomach.

SENSI-MOTORS. The spinal cord consists of a vast multitude of fibers and cells. The motor fibers branch off to the muscles of the body, and the sensory fibers to the skin. Other bundles of sensory and motor fibers, like those in the face, branch directly from the brain.

In the eye the nerves terminate in rods and cones 1-10,000th of an inch in diameter. These vibrate to the different waves of light, and carry the transformed motions into the brain as the picture formed on the black pigment of the eye. This is the vital part of vision.

The nerves in the ear are distributed to the otoliths or ear stones; to the ends of the semi-circular canals, and to the vibrating fibers of Corti in the cochlea. These parts perceive the intensity, quality and pitch of sounds. The ear of the lobster is of the very simplest type. It consists of a simple sac filled with liquid, and with floating ear stones. The ear of the fish is further complicated by adding the semi-circular canals. In birds and mammals there is a drum or tympanum, as in man.

The nerves of Touch terminate in the microscopical papilla of the skin.

CENTERS. In all the centers of nervous action we find cells and fibers associated. The structure of these may be understood from Figure 5 in the engraving of the Nervous System. This figure is magnified 350 diameters. Both the fibers and the cells in the brain have an average diameter of about 1-1500th part of an inch. This would give at least 3,000,000,000 in each hemisphere of the brain. The spinal cord has a lengthened series of nerve-centers.

The nerve cell has a nucleus, surrounded by layers of membranes and granules, and traversed by delicate prolongations of the fibers. Processes extend from the cell and connect it with adjacent cells.

The nerve fiber, or to describe it more accurately, nerve tubule, contains a conducting substance, the axis cylinder, or band axis. A membrane encloses this axis, and is in turn surrounded by an insulating sheath. A part of the sheath has been cut away so as to show the axis. The tubule is filled with a conducting substance, because it is a current motion or nerve force, and not a liquid which is to be carried along its channel.

The sheath insulates the nerve current as it flows along the cylinder so that no part of the current may escape to the tu-

bles which lie beside it. But when a current reaches a center, where the cells are, it may readily flow from one cell to another, both through the cell walls and through the processes which connect the cells with each other.

THE BRAIN. The highest of all living structures is the human brain. Yet it was the last one in nature to yield its secrets of action to the questioning intellect of man.

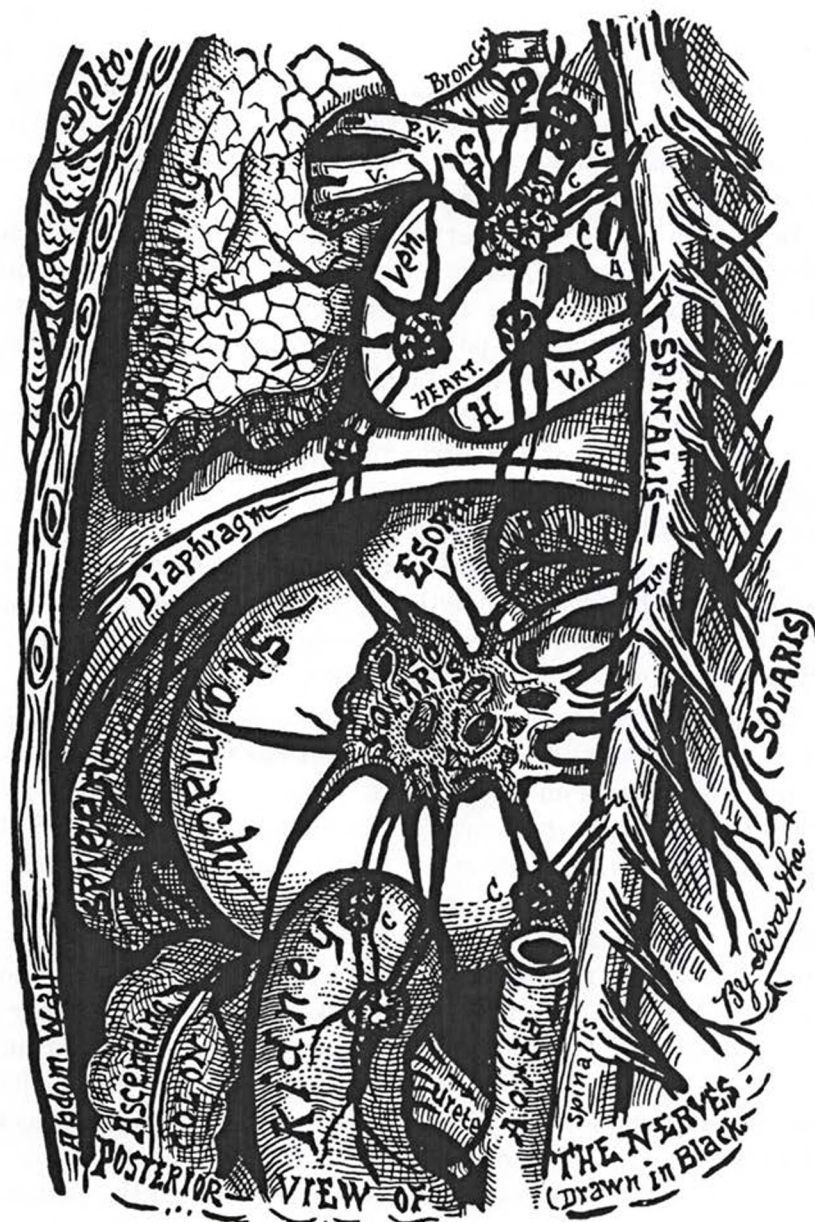
The everlasting stars sang to his willing ears the hymn of their perpetual revolutions; the earth turned to his gaze the fossil-written record of her uncounted ages of development; chemistry allowed him to penetrate and examine the intimate structure and atomic changes of matter; philosophy taught him to measure the majestic forces of the universe; and biology permitted him to scan the rhythmic and hidden pulsations of organic life—all these must be understood before he could thread the winding labyrinths of the brain, and survey that wonderful mechanism from which have sprung the noble achievements that built up civilization and glorified the human race.

When the brain is removed from its bony encasement, we observe a mass of folds or convolutions, as shown in the engraving on page 37. The actual surface of the brain is said to be three hundred square inches in each hemisphere.

In some brains the convolutions are deep, and in others they are shallow. The amount of mental or nerve power increases in proportion to the surface thus gained. In two brains of equal size, one might have deep convolutions and much mental power while the shallow convolutions of the other would give a much smaller thought-generating surface.

The richly endowed intellect of Aristotle and the dull soul of the Bushman both dwelt in brains having the same number of parts. But in these two cases that marvelous instrument of thought must have differed widely in its perfection of form and texture. The brain of Aristotle intoned the music of the spheres, that of the Bushman was heavy clay.

PHASES OF DISCOVERY. From the year 1796 to 1828 Dr. Joseph Francis Gall made public the location of twenty-seven



organs of the brain. The method pursued by Gall was to compare the external developments and peculiarities of the brain with the known traits of character shown by different persons. This method was long, laborious and difficult. That he made so few mistakes shows the depth of his sagacity, the greatness of his intellect. All except six of these locations have been confirmed by subsequent experimenters.

In 1839 to 1842 some American mesmerists, and among them educated medical men, made experiments on the brain by applying magnetic currents from batteries and nerve currents from the hand to various parts of the brain and body. In this way they excited the mental faculties to action.

Uniting these methods with a scientific study of Gestures, the mistaken locations of the early phrenologists were corrected and the final maps for both brain and body were drawn out as given in this Book of Life.

Eminent physiologists had proved that the cerebellum was connected with locomotion and only partly with the sexual instinct, or amativeness. Dr. Gall was partly wrong and partly right in regard to this part of the brain.

Quite recently a series of most remarkable experiments have been made made, and these have caused the scientific world to change its attitude on this subject. They have furnished just that kind of proof which medical men demanded. From 1872 to 1876 Dr. David Ferrier made numerous and careful experiments on the brains of monkeys, dogs, cats and birds. His method was to make the animal insensible by giving it anæsthetics. He then removed portions of the skull so as to expose the brain. When the animal had recovered consciousness, currents of electricity were applied to different parts of the brain and the results were carefully noted. At any one point, the excitement produced by the electric current would always cause muscular movements of a certain kind.

After a multitude of experiments, Ferrier located the centers of movement for twenty-one faculties. Although others may still call these "motor centers" yet Ferrier was careful to describe the movements as Gestures.

These movements are exactly the ones which the writer of this Book had described as belonging to the organs marked in these regions in our engraving, ever since 1859. They were locations corrected from the old system of phrenology.

The movements evoked by Ferrier were indeed of a most striking character. On touching the organ of imagination or wonder with the poles of the battery, the animal would open its eyes with surprise and wonder, turning its head from side to side. On exciting caution, the animal would display every mark of fear and alarm; it would prick its ears on the opposite side, turn its head and eyes, and dilate the pupils widely. Exciting the organ of smell was followed by torsion of the lip and nostril on the same side.

When the organ of faith was excited, the monkey would reach its hands forward and upward as if expecting to receive something. On removing the front or intellectual part of the brain "the animal remained apathetic, or dull, or dozed off to sleep," in short, the intellect was lost. Cutting off the posterior lobe "caused depression, apathy, indisposition to exert itself;" that is it destroyed the animal's will, which is located there. Extirpation of the cerebellum caused a loss of co-ordinating power in the muscles of locomotion. When the organs of smell and taste were removed by the cautery, the animal lost these senses.

Exciting the organs of Purity and Caressing caused prehensile and clasping movements of the hands, such as are used in fondling. When the organ of Reverence was excited it produced modest, filial, and penitential movements of the eyes. Excitement of Language caused movements of the mouth as in talking, with vocalization. Ferrier also removed other portions of the brain and the result was a marked loss of the function. In commenting on these experiments Ferrier says: "The phrenologists have good reason to locate the reflective and other intellectual faculties in the frontal regions of the brain."

The experiments of Ferrier have proved in a direct way the location of twenty-one faculties, and indirectly they have

confirmed the rest. They disprove the location of the very faculties that had previously been disputed by the medical profession; that is amateness, parental love, friendship, and inhabitiveness. These are really located in the middle and upper parts of the brain. The organ of language is also located higher up than was supposed. The importance of these experiments cannot well be overestimated. They reduce the location of the organs to clear scientific demonstrations. The proofs are quite as positive and decisive as those which are accepted in chemistry and the other physical sciences.

All of the mental laws also furnish proofs of the location of the organs. They show that only such and such a mechanism could do the work of life.

The experiments of Ferrier have been repeated by many others, and their validity has been strongly endorsed by the most eminent physiologists of Europe and America. For the abundant proof of this, see Flint's *Physiology*, page 694—Dalton's *Physiology*, page 426, edition of 1882. Bastian on the *Brain*, pages 530, 570 and 688.

Another important contribution to our knowledge of the brain has been worked out by Hall, Carpenter, Luys and many others, before Ferrier's experiments were made. This was the establishment of the two great centers of brain action, the Thalamus or center of sensation, and the Striatum or center of motor processes. These were known to the older physiologists simply as masses of gray or cellular nervous matter. They were named before their functions were known. The writer proposes to name them the Sensus and the Motus as these terms express their established functions.

In another part of this science, Dr. James Wakeman Redfield, basing his observations upon the acute work of Alexander Walker (1839), had succeeded in locating the signs of character in the Face, and he published these in 1848. The surface of man had been carefully surveyed. It seemed to these explorers that the science of man was almost complete. Yet far greater, and far more important truths remained to be unfolded. It is not enough that we know where the organs are

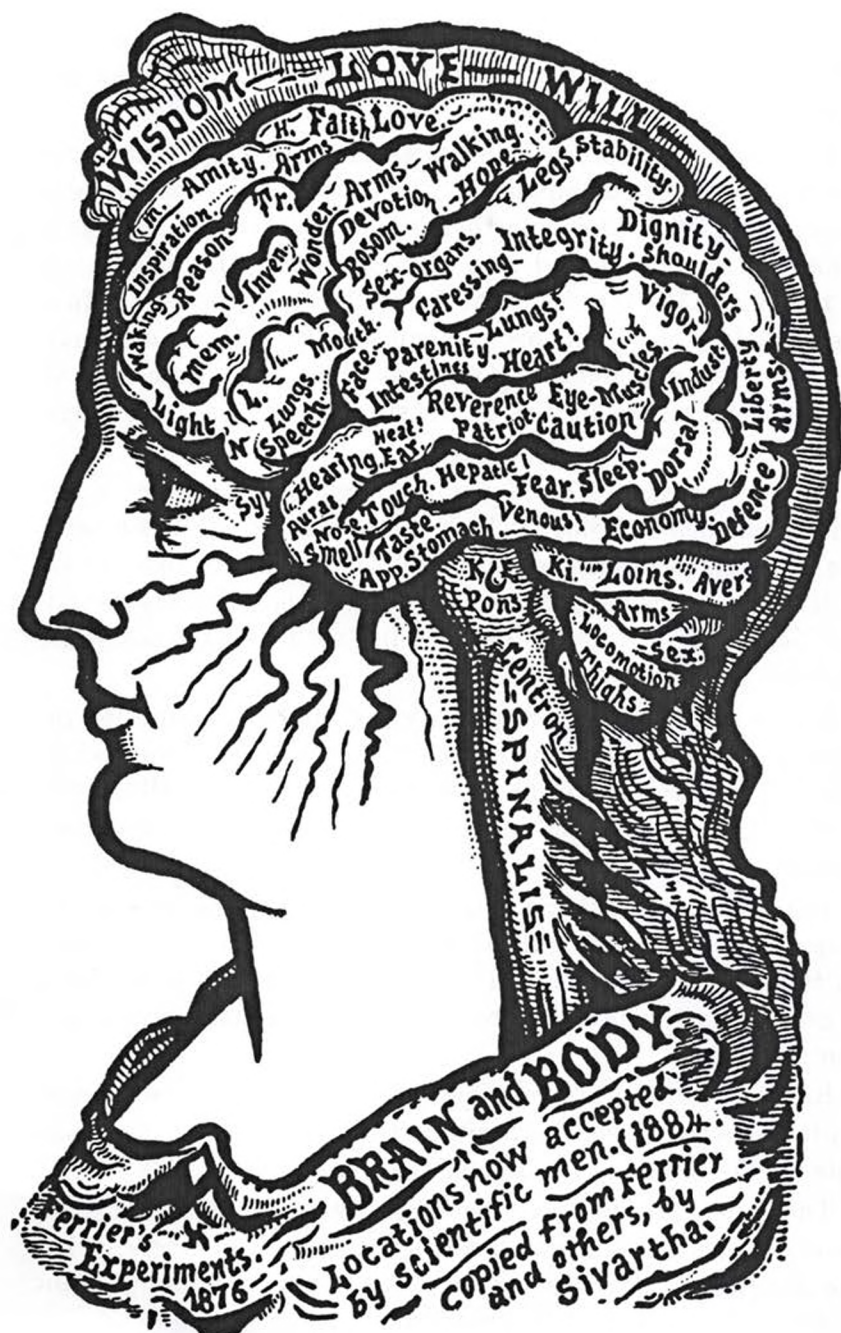


located in the brain. For the law of location is only one out of twelve laws. The discovery of these other laws has made such extensive additions to the science of man that the work of Gall and his pupil Spurzheim sinks into insignificance. All that the old phrenology could do was to describe a person's character and give advice. This is now the very least part of the science. It now deals successfully with the great questions of human government, the past and future history of man, the new and perfect plan of education, the collective life of society, and the final unity of the human race.

These newer discoveries were made by the present writer, seventeen years after those first surveys had been completed. Those older surveys had established the law of Location or structure; they had partially developed the law of Evolution; and they had made a few contributions to the law of Responses. Ten laws thus remained to the labor of the Author, and these were elaborated between the years 1860 and 1878 Common Era. Their main outlines were found in the first three years of discovery, and were published through various channels. The Plan of the Book of Life was written out in 1862.

In April, 1878, the Author discovered that each of the twelve tribes of Israel was marked by one dominant group of mental faculties, and that each tribe in the New Jerusalem was placed on its ruling group of faculties, when we draw a plan of the city on the human head. This discovery completed the Author's scientific explanation of the great Scheme of the Bible, and demonstrated the essential truth of inspiration. It completely placed in our hands the means and the method for establishing the Kingdom of Heaven on the Earth.

The brain of man is about seven inches long, five inches high, and five in breadth. Its weight is about one-forty-fifth part of the entire body. It receives about one-sixth part of all the blood sent from the heart; an evidence that it produces the most concentrated form of vital force. This also shows why intense mental action is so much more exhausting than muscular labor. It consumes the blood more rapidly in proportion.



See Saunder's Handbook of Physiology, pp. 208 and 210.

The brain has two sides or hemispheres, the right and the left. These are closely alike in form, size, and uses, like the right and left eye or hand.

The right and left hemispheres are united by transverse bands of fibers or commissures. The corpus callosum connects the upper parts, and smaller bands connect the centers. These bands are seen at *co*, and *com*, and *callosum* in the engraving of the Brain Mechanism. The hemispheres of the cerebellum are united by the *pons varolii*, simply marked *Pons* in the engraving. Its new name is *Tuberum*. The front and back of the hemispheres are united by the superior and inferior longitudinal commissures.

BRAIN CENTERS. The *Motus*, or front brain center, is the chief focal point through which the organs of the brain send the impulses of motion to the muscles. It radiates force to all of the mental organs and receives from them. The *Motus* like the *Sensus*, is a mass of nerve cells, with fibers passing to, through, and from it.

The *Sensus*, or back brain center, is the chief point for receiving the incoming currents, containing the impressions which have been made on the organs of sense. All of the mental organs at their inner ends terminate in these two centers.

The *Motus* and *Sensus* thus stand between the mental organs on the one hand, and the outer world of sense and motion on the other. In passing through the centers the nerve force is usually modified, and more or less of all the impressions are stored in them.

Below the brain, are collections of cells which form a great center through which the brain acts on the body and the body acts on the brain. It is named the *Centron*.

The cerebellum has a center of its own, and it is connected in action with the larger brain by a process of fibers called the *Processus*. It chiefly forms the organ of mobility, controlling the muscles of locomotion.

In the opposite engraving the centers are shown in both

hemispheres. Those in the farther hemisphere are simply marked M. and S.

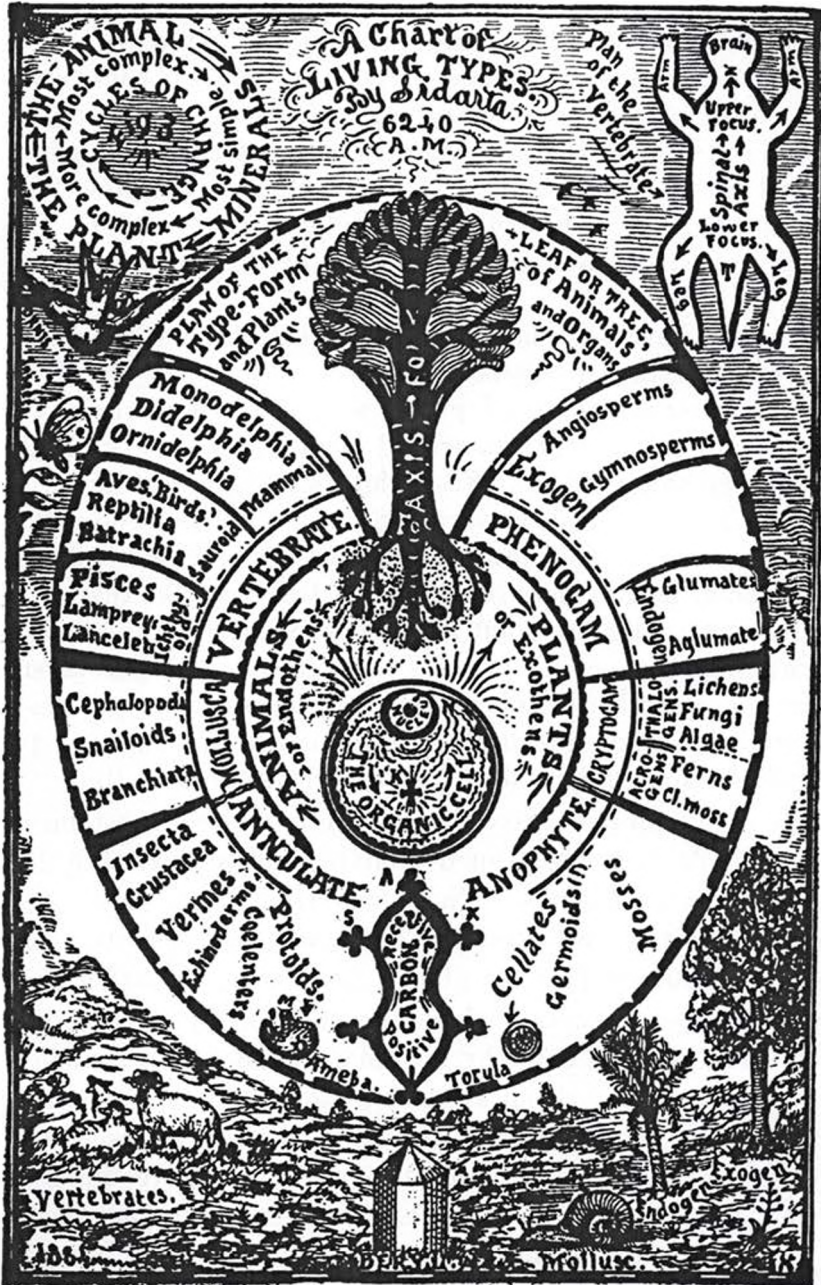
TYPES OF LIFE. The perfect brain of man entitles him to a physical rank above that of all other animals. But his body is governed by laws like those which rule theirs. We may classify the entire animal kingdom according to their dominant physical organs. A threefold division of the functions prevails through the whole. Assuming this as the basis of a system of classification, it will of course give three leading branches of the animals—Vertebrates, Mollusca, and Annulates.

A Type-Cell is placed in the center of our chart. Animal and plant alike have their origin in cells. Below this is a molecule of Bioplasm, with carbon for its central atom. The lowest animal known is little more than a simple cell, like the ameba or monera. The lowest plant, like the torula or yeast plant, is likewise a simple cell. The protoids and the cellates do not differ widely in form. As the plant and the animal rise to their highest forms, there is a vast divergence

The plants are Exothens, or external liverers. That is, they take their nourishment from the ground or the air by direct absorption. The animals are Endothens or internal liverers. They have an internal pocket, or sac, or digestive cavity, into which they receive their food and where it undergoes solution.

The functions of nutrition, the interests of the stomach, are the chief end and aim of the mollusca. The Annulates vary from the extreme stolidity of the crinoids and polyps, to the intense muscular activity of the insects. The simplest plan upon which an animal can be constructed is to make all of its parts be developed about equally around some central point, in a single plane. This is made somewhat more complex if we place a series of these rings or disks in a connected row. This describes the basic plan of the Annulates. A crinoid is shown in the chart of nutrition.

The molluscs as a class have dominant organs of nutrition, and as these organs are unsymmetrical, not alike on the right and left sides, therefore the whole animal is one-sided, as a



rule, like the snail and the oyster. Of all types, the plan of the mollusc admits of the least possibility of progress.

The Vertebrates are named from possessing a back-bone. The object of this series of bones, with its expanded top or cranium, is to protect the brain and spinal cord and allow their highest development. The vertebrate is therefore the highest of the great branches. This plan permits the greatest variety of vital powers. At the head of this branch stands man.

The botanists have not yet made a satisfactory classification of the types of vegetable life.

Comparing the plans of plants with those of animals, we should say that the plants are all radiates or annulates. A tree has an axis or trunk. From this its limbs spread upward, and its roots reach downward. So in the human body, the arms and head spread upward, and the legs reach downward. The plan of man is more like that of a tree than like that of a mollusc. The highest plant approaches nearer to the highest animal than some of the animals themselves. And food taken from the vegetable kingdom, from grains and fruits, is best adapted to sustain the perfect physical life of man, and to supply the force required in its highest mental activities.

The plant can live directly upon purely mineral substances, though it flourishes best upon a mixture of mineral with decaying organic matters. The plant transforms these substances into its living tissues. The animal lives upon the material thus collected by the plant. Even the flesh-eating animals live upon others which in turn depend upon vegetable food. The material taken by the animal as food is continually reduced to simpler chemical combinations, and then rejected by excretion it passes back again to mineral or vegetable forms. In being thus reduced, it yields the forces required to sustain the actions of animal life. There is a perpetual Cycle of Changes between the mineral, the plant, and the animal, as diagramed in figure 3 of our chart of living types. A connected chain of dependencies unites all parts of creation.

BRAIN— NERVO-SYSTEM.

Mentorgans—Rad. Fibers, Cells, Converg. Fibers.

Centers—Motus, Sensus, Centron.

Commissures—Processus, Callosum Tuborum.

NUTRO-NERVES—

Fibers—Distributed to all the Organs.

Ganglions—Cardicus, Gastricus, Pelvicus.

Bands—Fibers, con. ganglia and Spinal Cord.

SENSI-MOTORS—

Sensors—Special and Spinal Nerves.

Centers—Medulla Spinalis, Encephalon or Brain.

Motors—Special and Spinal Nerves.

GENITALS— NUTRO-SYSTEM.

Femorgans—Vulva, Ovary, Uterus.

Flower—Pistil, Ovary, Stamen.

Mascuorgans—Penis, Testis, Vesiculus.

ALIMENTORS—

Ingesters—Mouth, Salivators, Throat.

Digesters—Stomach, Glands, Intestines.

Egesters—Anus, Kidneys, Skin.

CIRCULATORS—

Arteries—Pulmonics, Capillaries, Systemics.

Heart—Auricles, Valves, Ventricles.

Veins—Pulmonates, Lymphatics, Recursors.

MUSCLES— MOTO-SYSTEM.

Flexors—Head, Voluntary, Striated.

Sphincters—Trunk, Mixed, Elastic tissue.

Extensors—Limb, Involuntary, Non-Striated.

BODY—

Head—Face, Corona, Neck.

Trunk—Thorax, Abdomen, Pelvis.

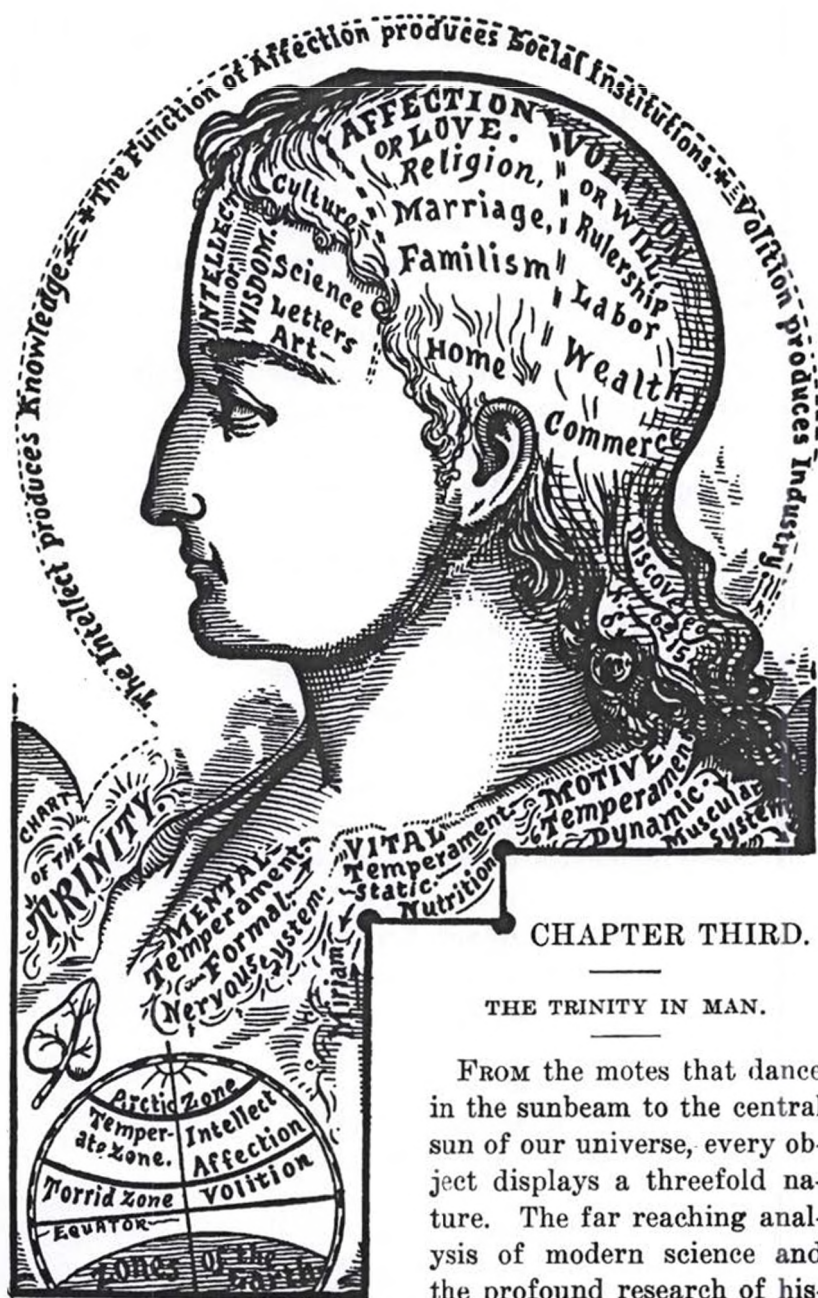
Limbs—Manupes, Arms, Legs.

BONES—

Head Bones—Cranium, Nasum, Maxillæ.

Trunk Bones—Ribs, Sternum, Vertebrae.

Limb Bones— { Shoulder, Arm, Hand.
Thigh, Leg, Foot.



torians have proved that the intuition of the old thinkers in regard to sacred Numbers had a solid basis in reality. The music of the spheres is not a mere figure of speech.

The structure of the very atoms of matter makes them vibrate to pulsations which reach through the universe. The Laws of Numbers do more than simply gratify our sense of order and beauty. For they are practical guides in the works of art, in the discoveries of science, and in the conduct of life.

VITAL TRINITIES. In studying the table of vital functions, we shall perceive that each divides into three parts. One of these three is always central, and each of its two side members or wings supports its action in a characteristic way. The general relation of the three is formal, static, and dynamic. For example, the *state* of the body is maintained by Nutrition; the *form* of its movements is determined by Nervation; and its *dynamic* expression is through Motation.

Ingestion, or the process of taking in our food, and Egestion, or the final rejection of its waste parts, are both subservient to Nutrition, or the direct growth and sustenance of the body. So the Inspiration and Expiration of the air in breathing, are each for the purpose of Aeration, or the purification of the blood by the action of the air.

In the last example, the distinction of the formal and dynamic elements is not strongly marked. The wings of a trinity naturally respond to each other. They are so constituted and arranged that the action of one excites the other to activity. The wings of a trinity express its possibilities and limitations; but the primary impulse to action comes from the pivot or center. The head and the two hands form a trinity. The head is the center, it gives the directions, and then the hands carry these into execution. The right hand takes the lead; it is positive, while the left hand is receptive.

Looking at mental action as a whole, we observe that Intellect and Volition are the two wings, or instruments for gratifying Affection, which is their pivot. The attraction of friendship arises in Affection, but if we did not use the Intellectual faculties of perception and memory, we could

neither perceive the presence nor remember the face of a friend; and if we did not exert the faculties of Volition, we could not move the muscles to express our friendship, even in words.

When carried to one thousand subdivisions, the analysis of vital functions still shows the law of the trinity governing them all with imperative exactness. One-third of these functions directly employ the organs of the brain and mind. And each one of the other two-thirds is connected by exact and constant laws of sympathetic action with some definite mental faculty. A rigid scientific analysis therefore proves that the great law of the Trinity governs no less absolutely in the true classification of the mental faculties. Theological writers have speculated in vain about the Trinity, for they had not the slightest idea that there is a fixed and well-defined relation between the three members of any trinity, and that the trinity is in each person, yea more, an essential part of the framework of the universe.

Modern chemistry rests upon the law of Definite Proportions. That law teaches that all the atoms of matter are grouped according to fixed numbers. Each kind of atom has a certain number of poles or points of attraction, and these limit the number and kind of other atoms with which it may unite. Thus in the molecule of Bioplasm the carbon atom in the center is shown with six poles, and at each one of these is found another kind of atom; of oxygen, of nitrogen, of hydrogen, etc.

If we turn to any other branch of physical science we shall find the law of definite numbers ruling with absolute sway. No object is too minute and none too magnificent to be linked in its measured harmonies. The mechanical forces are of three kinds—the Direct, the Lever, and the Inclined plane. The direct includes the pull, the blow, and the push. The lever in its simplest form has three elements, the fulcrum, weight and power.

The application of this law to the entire range of human knowledge will be seen in the extended tables of Universal Synthesis.

MEANING OF NUMBERS. Without entering into elaborate proofs, the meaning of the more important numbers is given here, before proceeding to the analysis of the mental organs.

1. One is the number of unity, the beginning of every series, and the end of every synthesis. We look at a man, and while we perceive that he is a unit; that he acts and moves as a whole; that through the whole of his form there is connection or continuity, yet at the same time we perceive that he is made up of parts; that there is a trinal division into head, trunk, and limbs, and a dual division of the limbs into two legs and two arms. Thus we perceive both the one and the many, both unity and plurality, at the same time. The mind does not experience any difficulty whatever in thus taking cognizance of both the simple and the complex. The two ideas exist together in the mind without conflict. Indeed we cannot conceive of any object so simple that it does not have parts. Every object must have the basic properties of Form, Space, and Parts. We cannot deprive any object of these.

The attempts of the old philosophers to reduce all things in the universe by analysis to one thing or element, or law, like the law of evolution, all such attempts are not only useless, but they are opposed to the necessary laws of thought, and they begin by a denial of facts. Nature is not poor, she is rich, and she has always had an abundance of materials in her treasure house.

2. Two is the number of duality. All the forces of nature are dual or polar. They are positive and receptive, masculine and feminine, active and passive, earthly and heavenly. By an inverse meaning, two is also the number of uncertainty or dubiety, as when we do not know which of two things to choose. By direct meaning, two stands for certainty or assurance, as the mouth of two witnesses. The repetition of a number intensifies its meaning. 777 shows the fullest measure of meaning in seven.

3. Three is the number of simple completeness, the Trinity. In every actual unit there is also a trinity. The two wings of a trinity are dual; three includes two. The two

wings without a center would be easily divided, the center unites them, makes the three a unit.

In the indivisible atoms of matter there are three dimensions, length, breadth and thickness. The organic cell has three elements, cell-wall, nucleus, and circulating contents.

4. Four represents simple organization, or structure, the crossing of two lines of force at right angles. In the crystal, the poles A, B, C, D, are its line of construction. In Segmentation, the organic cell is polarized by the sperm-cell, and divided into four parts, A, B, D, K. Four is the number of Life, and of the Family—a father and mother, a son and a daughter. It represents the heart with its four chambers; the river of life with its four heads.

12. Twelve is produced when two axial lines, like the major and the minor axis in the brain, each terminates in a trinity. It includes a family of trinities, four threes. It is the high number of organized, spiritual perfection. It is the mathematical basis of construction in the human head, and in the human form, as will be shown in the next chapter. It is the number of Social Structure and of the New Jerusalem, the center of all earthly interests.

5 and 7. The number twelve divides into Five, as its material or lower side; and Seven, as its higher or spiritual side. In the head, the brain is seven-twelfths of the circle, and the face and body, its servants, are five-twelfths. In the brain, the fibers of seven groups point upward and those of five groups point downward. Five is the number of the hand, the four fingers with the thumb as a pivot of action. Hence five is the number of the covenant and of material law. Seven includes two trinities with one as a pivot to unite them.

6. Six has two trinities, but without a pivot. It stands for physical completeness, but lacks the spiritual bond of unity found in seven. 666 is the number of "the beast," of man under the reign of his lower functions.

8. Eight contains twice four, the number of life. Hence it indicates the renewal of life, the resurrection, or a union of the physical and the spiritual life. The two fours which

form eight are incomplete, or lack dynamic power, until the third four is added, and this makes twelve. It is a general law that the Even numbers form the Structural Series, while the Odd numbers form the Dynamic Series, or, that relating to the exertion of force. The trinity is an odd number, and, in the structure of the mind, the trinity of Wisdom, Love and Will is made even by duplicating it in the two hemispheres of the brain. Seven candle-sticks symbolize spiritual force, the dynamic work of light.

9. Nine is the number of Judgment and of Labor. Its three trinities count a triangle, three sides of a square, the builder's measure of judgment. Labor is the ninth group, counting from the base of the brain. The date 1881 would read "The double judgment of the earthly and the heavenly of the past, and the judgment by judgment of the present." This number reads the same backwards and forwards, it is the dividing line between the past and the future.

10. Ten is the complete number of material law, the duplicate of five.

11. Eleven indicates incompleteness, uncertainty, imperfection, or disorganization. Hence thirty-three, the years of Jesus, shows threefold uncertainty, and, after three times six centuries, He is still without a kingdom.

13. Thirteen contains twelve, with one for a pivot. The twelve groups of mental faculties pivot upon the brain centers. The twelve masculine faculties have their pivot in the back center or Sensus, and the twelve feminine ones on the front center or Motus. The twelve assistant faculties pivot in the Centron. The twelve tribes in the New Jerusalem have their center in the great Temple. The twelve Princes of Israel had their pivot in the King, High Priest, or Judge. In every 13, the thirteenth number must be central or pivotal. For if they are all of equal rank, there can be no true balancing of parts, all will be discord. If we look at the twelve-rayed sun, we see that its points balance each other in every direction. But if we draw one with thirteen rays, no two of them will balance each other. We see from this and

from the law of the trinity, that the doctrine of Pivotal Numbers assumes a high degree of importance. But it was quite unknown to the older writers on numbers. Hence those writers could not understand why thirteen should in many cases be a number of discord, while yet in others it belongs to undoubted scales of harmony. In the Bible, the number thirteen prevails in the names and dates of the descendants of Joktan and Ishmael, even down to modern ages. These were discordant branches from the great Semitic tree. "Ishmael's hand was against every man, and every man was against him." However, when they recognize and arrange around a Messianic center, they will be brought into harmony.

26. Twenty-six contains two twelves with a pivot for each. It represents the twenty-four leading faculties and the two brain centers, a summary of the mental attributes of man. On these are based the twenty-four Rulers of the Kingdom, with the central Prince and Princess. Each group and each tribe has its material and its spiritual side, its masculine and its feminine rulers. Twenty-six is the number of the mystic and sacred Name, YEHOWAH. Among the Hebrews, every name and word had its number, and this number always shows its meaning. The attributes of Yehovah are therefore the same as those of man, for man was formed in the divine image. The Rabbis say that the full number of the sacred Name is seventy-two. This is the full number of thirty-six faculties, duplicated, as they are, in the two hemispheres of the encaphalon. These faculties are again duplicated in the body, thus making one hundred and forty-four, the grand number of man and of the eternal City of Peace.

17. Seventeen is one number of the Chosen People Israel. 40 is another number of Israel, and signifies a renewal of the covenant, five times eight. The term 40 years occurs 12 times in the history of Israel.

31. Thirty-one is the number of AL or EL, an ancient name of the Deity, in Chaldea and Canaan. Its plural form was Elohim.

19. Nineteen signifies Judgment under the Law. The

Nineteenth century of the Christian Era will witness the close of that Dispensation.

144. The meaning of this number is given above under twenty-six, and a proof is given in the fourth chapter.

The great events of human history, no less than the structure and laws of the individual man, have been arranged in harmony with the meaning of these numbers. These regular periods are best shown in the chronological tables.

HISTORIC NUMBERS. It has been proved by Mahan, Guinness, and others, that the periods of history are measured by certain numbers. These are the very numbers which enter into the structure of man and of the universe.

If we classify the events of history according to their different kinds, then we shall see that each kind is divisible by a certain number. For example, those events which relate to Renewal or new life, have eight as a prominent factor in their dates. Those which relate to the display of spiritual power, have seven as a factor. Six is a prominent factor in periods of secular or earthly power, like the Roman and Mohammedan. The 1260 in their dates resolves into the factors, $6 \times 6 \times 5 \times 7$. From the end of Cyrus to the final Dispersion of the Jews is 666 years. The year of the Flood 1656, is $6 \times 6 \times 46$. The destruction of Jerusalem, 4194×699 . The nines are numbers of Judgment. From Nabonassar to Romulus Augustulus, the last of Roman Emperors, is 1260 lunar years.

Forty is eight times five, the number of COVENANTED PROBATION. It occurs twelve times in the history of ancient Israel.

The "Seventy Weeks" of Daniel is 490 years, counted by the year-day theory. This measures from Exodus to Samuel; from Samuel to the Babylonian captivity by Nebuchadnezzar; and from Nehemiah's Commission and its execution in rebuilding the Temple, 418 B. C., to its Destruction under the Roman Titus, is 490 years.

Thirteen is a number of discord or division, and is a factor in periods of this kind, like the Ishmaelitic and Mohammedan. When the thirteen is a pivot, then it is a number of structural unity.

Periods of Judgment have nine as a factor. The date 1881 contains twice 9 in the century, and 9×9 in the year, making it eminently the turning point as a year of Judgment. It reads the same backward or forward, it looks equally toward the past and the future. It is the 19th century of the common era, and 19 signifies Humanity come to judgment.

Time is a dynamic element, and therefore 5, 7, 9 and other odd or dynamic numbers are found more frequently than the even or structural numbers, in the dates in history.

TRANSITION PERIODS. Every event in history is the result of a growth, and that growth must occupy time. There must always be a period or phase of preparation, more or less extended. The critical point of change, from one to another, may be very clear; but we can trace each phase back for years or centuries, into the preceding age. There may be several points with apparently almost equal claims to be considered as the turning points of a phase of history.

THE TRINITY IN MIND. The primary analysis of mental phenomena gives three divisions, Thought, Feeling, and Volition; or Wisdom, Love, and Will. These spring from the faculties of Intellect, Affection and Volition, and each of these classes is based upon three divisions of the bodily functions. The intellect acts in close sympathy with the entire nervous system; affection acts with the organs of nutrition; and volition governs the motive system. The intellect is directive, affection is attractive, and volition is impulsive.

The division of the classes into twelve groups and thirty-six faculties is given in the map of the mental organs and in the table at the close of this chapter. Each faculty again subdivides into three parts. This analysis is sufficiently minute for the purposes of art and science. It is only necessary to map one side of the head, as the right and left hemispheres of the brain are alike in their functions, each a repetition of the other.

It has not been an easy task to find single words which were exact enough, which expressed just enough but not too much, to stand as names for all of these organs.

The mind is an organized unit, yet it is composed of many different powers, a variety in unity. We do not hesitate to call the body a unit—one thing—notwithstanding the many diverse organs of which it is composed. Between the attraction of friendship and the feeling of pride, in the mind, there is as wide a difference as there is between the function of digestion and that of breathing in the body. The mind must possess a definite structure, with various organs or parts, each having a special location and function in order to produce such exact and definite results as the mind constantly displays.

The groups of Sensation, Culture, and Impulsion are transitional in character, and this leaves a trinity of groups in each class.

The Intellect is FORMAL, it determines the forms of knowledge, of feeling, and of action. The Affections are STATIC, they maintain and perpetuate the race and unity of man. The will is DYNAMIC, it applies the powers of man in all his social and physical activities.

The organs of the brain gradually change in the character of their functions as we pass from any given point to an entirely antagonistic region. There are no sharp lines of demarcation between them, and the lines thus drawn in the map of the organs are for the convenience of study.

BRAIN AND BODY. The brain is the great central organ of the Mind, of Thought, Feeling and Will. We know this, first, because the nerves of feeling and motion, from all parts of the body, all lead to and from the brain; second, because in vivisection the removal of the brain destroys all mental manifestations, but not the bodily life of the animal; and third, because the faculties can be excited by direct experiments on the brain, and observation shows a constant relation between the mental power and the degree and kind of brain development, while the structure and plan of the brain corresponds to all the requirements of an instrument of mental action.

The front part of the brain is connected with the front part

of the body and of the limbs, and the back of the brain with the back of these. From the Somatic Chart the student can readily trace these connections.

The arms partly repeat the signs of the body. The lower limbs relate us to the world of life below man, to the earth and its elements.

The upper and lower parts of the body repeat each other in action and sympathy. The anatomists have shown that the nose is thus connected with the anus; the upper lip with the perineum; the mouth with the genitals; the tongue with the penis and clitoris; the chin with the pubes; and the lungs with the allantois.

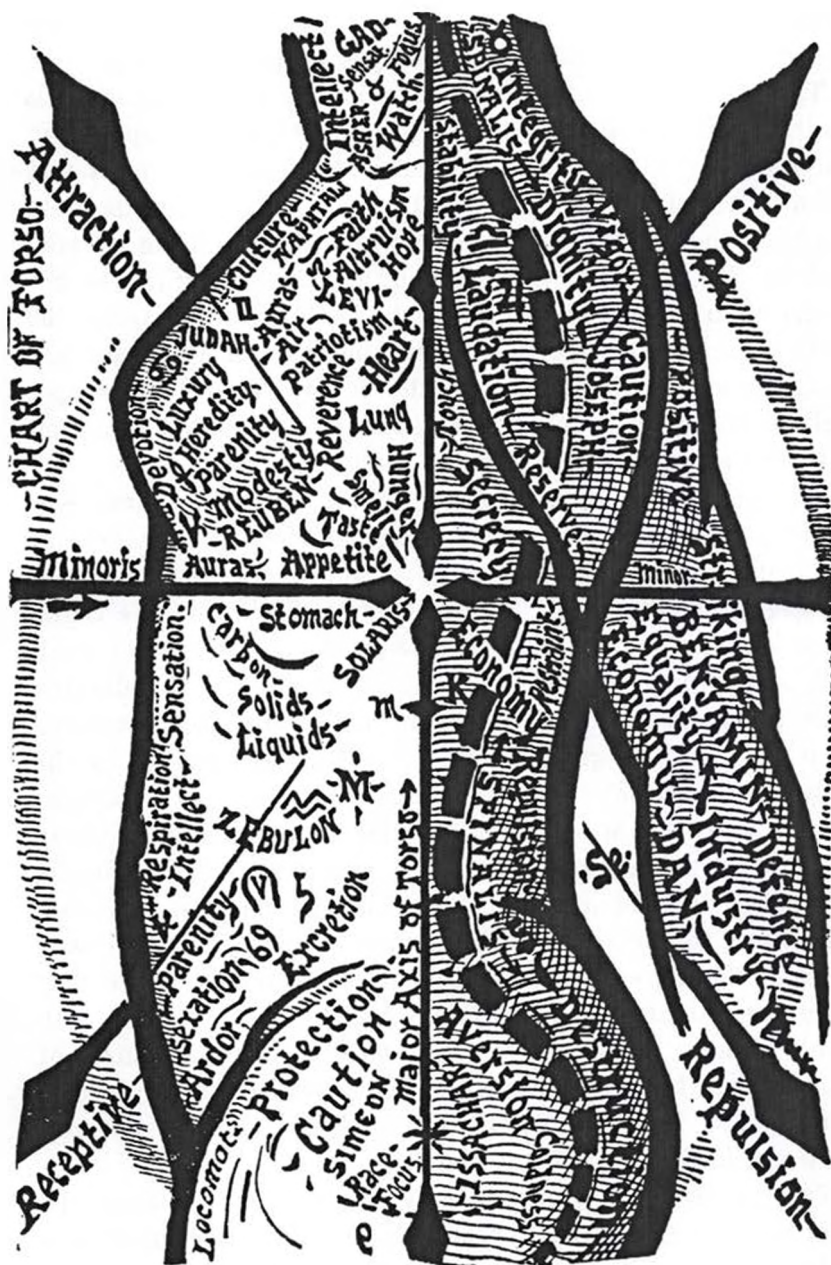
The size and texture of the signs in the form indicate the basic powers of the faculties, and their endurance; that is, the power of the brain to sustain long-continued action.

The body and the brain are usually developed in harmony with each other, but sometimes the organ of the brain is found to be either larger or smaller than the corresponding sign in the face and body. In that case, the activity and power of the faculty would be irregular, and not well sustained.

In the map it will be noticed that the intellect is not specialized in the body. The reason of this is found in the fact that the body is much more an instrument of feeling than it is of thought.

From the summit of mental to the base of bodily life, we have a sympathetic and responsive scale of forces. Touch any mental string in this harp of life, and instantly some part of the body responds with its sympathetic vibration.

The vibrations of mental excitement are larger and more noticeable in the body than in the corresponding parts of the brain. The heart throbs high under the impulse of love; but beats with irregular and arrested action when fear penetrates the soul. The whole language of gesture illustrates mental and bodily sympathies. They justify the instinctive sense which leads men to speak of Affection as the "Heart." We may still use the word heart in this way, if we will re-



member that the brain, the face, and the body, each contain the same scale of powers, pitched upon higher and lower keys.

The body is the base, the foundation on which the mind is built. Each division of the bodily functions corresponds in its character with a division of the faculties. In the lowest animals the functions of the mind are carried on more in the body than in the brain. The crinoid has no brain proper; and in the molluscs, the brain or cephalic ganglion is not larger than the other centers of the body. As we ascend the scale of animal life toward man, the mental functions are transferred more and more to the brain. They become specialized there, but they still retain a close sympathy of action with the corresponding parts of the body.

The sensations of hunger and thirst have their first converging point in the stomach. The absence of food beyond the usual time produces a sense of uneasiness in the nerve-centers of the stomach. Transferred to the brain, this vague sense becomes at once connected with our recollection of food, and of the way to get it; our sense of beauty is delighted with the fragrance and flavors of food, with richly colored fruit and golden grain. The sensations are simple in the body, but complex in the brain. The sense of muscular fatigue when confined to the muscles is only a vague feeling of nervous exhaustion. But once transferred to the brain, this sense of weariness is connected with the pleasant associations of the home, the fireside, and couches of restful ease.

From these close dependencies of brain and body we may learn the importance of physical health to the mental well-being of man. We can see that no reform or measures of progress can be truly successful if they neglect these physical foundations. Religion itself is worthless if it does not rest upon the basic laws of material life.

TEMPERAMENTS. A person may possess a predominant development of either the Nervous, the Nutritive, or the Motive systems. This gives a certain cast to the character, and we call this cast a temperament. It is evident that there would be three principal forms of these, the Mental, Vital, and Mo-

tive. The Motive temperament gives power of will and execution; the Vital sustains the vigorous action of the feelings; and the Mental gives power and clearness to the intellect.

Persons with the Mental cast have a rather slight frame, with the head large in proportion to the body. The forehead is well developed, the face pyriform, and the features delicate and finely chiseled. The hair is fine, soft, and not abundant. The character is marked by vivid ideas, intense feelings, and refined tastes.

THE VITAL TEMPERAMENT depends upon a large development of the organs of nutrition. Persons in whom it leads incline to breadth and thickness of body; the stature is short rather than tall, and the limbs are plump but tapering. The face is round and full, the complexion florid, and the hair light in color. The character is lively, genial, and impulsive.

THE MOTIVE TEMPERAMENT means a dominance of the bony framework and muscles of the body. The person is generally tall, the muscles are tough and wiry, and there is great bodily strength. The face is oval or oblong, the features are prominent, and the hair is strong, abundant and usually dark. In other cases the hair is dark red or tawny, like the lion, who is an example of this cast among animals. The character is energetic, bold, and solid.

In eminent scholars and writers the motive is often found in combination with the mental, and in statesmen with the vital temperament. To the former it would impart vigor and efficiency, and to the latter it would give strength, ambition, and love of power. The different parts of the body may all be equal in development, producing the Harmonic temperament. It is the most desirable of all the combinations, and gives a corresponding symmetry of mental character.

RACE-FORMS. The different races of men may be classed according to their leading traits of character. On this basis we obtain three well-marked divisions, as described in the first chapter.

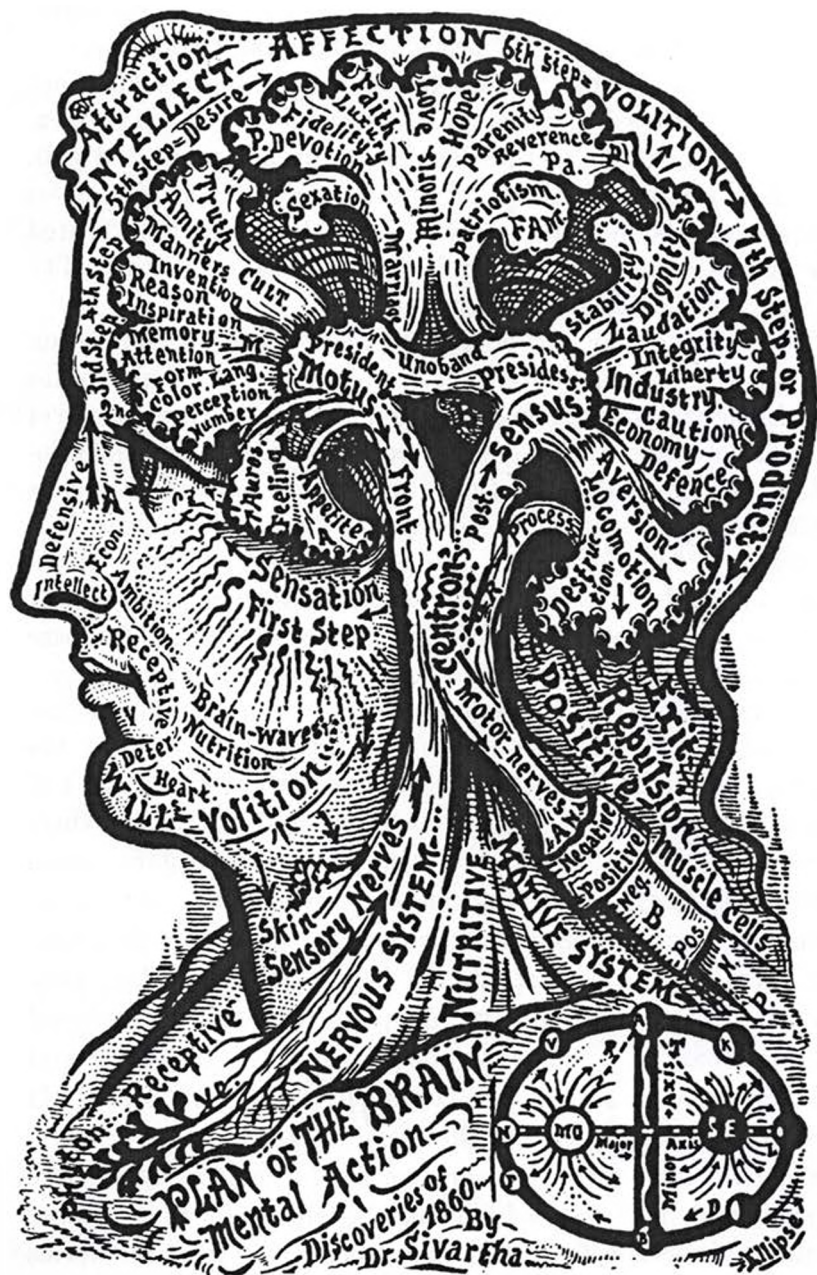
1st. The Adamic or Roseate race, marked by having the organs of sense well developed, but not dominant, the in-

tellectual and moral brain both broad and elevated, and the cerebellum of moderate size. The senses are subservient to wisdom and virtue, and locomotion (from the cerebellum) is not strong enough to tempt them from settled habitations and dense cities.

2nd. The Brown or Mongolian race. The organs of sense are small or moderate, especially the eyes and nose. They find it easy to deny the senses and to endure privations. They are inclined to be cruel from this lack of sensibility. The head is broad rather than high, the intellectual action is permanent rather than intense and brilliant. The cerebellum is large and active, they are all marked by locomotive activity. And in many branches of this race, such as the Tartars, Scythians, and American Indians, it is so strong that it leads to a wandering or nomadic life. In the middle ages, the invading hordes of Jenghis Khan and of Timour illustrated this propensity on an extensive scale. The Chinese branch exhibits incessant activity throughout a populous empire, but it is not migratory in its tendencies. A partial mixture of the Mongolic with the Slavonic race has given to the modern Russian his short nose.

3d. The Negro or Black race has the organs of sense largely developed. He lives chiefly in the gratification of these faculties. The extreme heat of the African climate keeps the skin moist by perspiration, and thus exposes the extremities of the nerves to impressions from every source. This excessive sensibility produces that levity or inconstancy of mind so remarkable in hot climates. "The mind is there open to all impulses, but as these succeed one another rapidly, none of them make any very permanent impression, but efface one another in succession. The sensation of weakness also discourages all exertion of body or mind, by suggesting the idea of inability." Even when the hardy and vigorous races of temperate climes reside long in hot climates, they and their children are enfeebled by these thermal influences.

PHYSIOLOGY OF THE BRAIN. We close this general sketch of the connection of brain and body by the engraved chart of



the head with the bodily organs marked at the points which are their principal seats of brain sympathy and response.

THE HUMAN FACE. The Face of man surpasses all other objects in nature in its beauty of form and its variety of expression. But if the mental faculties were not connected with very definite parts of the face, then the face could possess neither expression nor beauty. For a look which indicated love at one moment, might indicate hate the very next. The face is no such bundle of contradictions.

Although we may not be able to trace a special connection through the nerves between each mental organ of the brain and the corresponding sign of that faculty in the face, yet these facial signs all have a physiological reason for their location. All mental actions have a physical side. The organs of the brain are located in such a way that each one can best fill its own functions, and can best excite just those movements of the body which these functions require. And so of the face. The physical use of each part of the face is the base of its mental use and of its indications as a sign of character.

The mouth is directly connected with the functions of eating, and in this use the lips are concerned, as well as the tongue and teeth. But eating is the first step of nutrition, and this is the process of taking materials and attracting them into new combinations, and uniting these into organs which have an associated or living action. Now, in the mental domain, the corresponding work is done by the Social faculties. For these organs attract human beings to each other, they lead men to associate and build up the vast fabrics of social and national life. Thus physical growth in the body and social growth in society are counterparts of each other. It must follow, therefore, that the social organs or those of affection should be indicated in or around the mouth. And here we shall find them in the following descriptions. It is because of this connection that men in all countries take the terms applied to food and apply them to expressions of affection. They say that love and friendship are "sweet;" that religion

gives us the "bread of life." The affection of the mother is actually connected with the physical nourishment of the child.

A fullness of the nutritive organs of the mouth gives a general roundness to the face, and this goes along with a large vital temperament.

The Motive system, the bones and muscles, are direct instruments of the Will or volition. Hence we should expect to find the faculties of the will indicated in the bony and muscular parts of the face. They give downward length and breadth to the lower jaw, prominence to the cheek-bones, and to the ridge of the nose. They produce a general squareness or rather oblong form of the face. All volition is for the purpose of carrying out the thoughts of the intellect and the wants of the social organs. Hence some of the expressions of the higher affections, as of hope, amity, and faith, are shown by muscular movements.

The intellectual faculties are indicated in the forehead, the eye, the ear, and the lower end of the nose. The physical use of the nose is for breathing and smelling. We call the reception of knowledge "inspiration," using a word proper to the action of the lungs. In the elephant, the end of the nose is united to the upper lip, and he uses the trunk thus formed as an instrument of both touch and prehension. All intellectual action depends for its materials in the first place upon the senses. But the sense of taste is the least directly connected with the intellect, and is mostly a stimulus of social feelings. The senses of sight and touch are most closely related to the intellectual processes.

Some faces express great sensibility with but little development of the will. The Hindoos have a fine oval face, beautifully shaped eyes and nose, and lips admirably curved, and along with these they have much sensibility. But their faces have very little expression because the muscles of the face are not developed or active. With these traits we can easily see why the Hindoos should have originated religions where the central doctrine was eternal passivity, eternal submission to fate, like Buddhism and Brahmanism. This passive beauty

is not of the highest type. In European and American faces we often see a great deal of muscular expression, with too little of roundness and delicacy. The very highest types unite the two. On comparing the face of woman with that of man, that of woman is seen to be more rounded and that of man more rugged in outline.

The development of each region of the brain shows the endurance and latent power of its faculties. The degree of development of the signs in the face shows the active capacity of the faculties—the power of the will to control their manifestations and give them outward expression. A large brain with a small face would not be able to express much. The character would be latent. This is the case in infancy and childhood, for during these phases the features are small in proportion to the brain.

The face is much more an index of feeling than it is of thought; and the same thing is true of the body. The forehead must be counted as a part of the face, and aside from this we must not expect to find in the face and in the body the signs of the Intellect as much specialized and detailed as the signs of Affection and Volition. In the end of the nose, for example, we find a number of intellectual faculties, but not those of Form, Color and Order. On the chart of the face, the arrows show the direction of the development or of the movement of the different parts. Signs which simply give breadth to a part are usually marked with a little cross.

THE INTELLECT. These signs give downward length and breadth to the nose. No person with a very short nose could have a great intellect or produce a profound impression of any kind in the world.

The projection at the tip of the nose indicates observation, the questioning faculty, and belongs to the inquisitive character of the child. He has everything to learn, and how can he learn except he asks questions? This faculty is a part of Attention, and it takes the lead in our intellectual processes, as its advance-guard position in the face plainly shows. The negro has a nose of this same shape. From such a shape we

might expect quickness, pertness, or a quick yielding to impressions, but not profundity.

By the side of attention is Inspiration or sagacity, which literally means "keen scented." Back of this, the thickness of the nose indicates judgment, a sense of the proper relations and adjustment of things, of their propriety.

If we inquire and observe some discovery will follow. And accordingly, the downward length of the septum (or partition of the nostrils) just back of observation shows the faculty of Discovery, a part of reason. Still back of this is the sign of Synthesis. When a thing has been discovered we must then get a general idea of its component parts as members of one united whole. This is primary synthesis. Still back of this the faculty of analysis separates its constituent parts and finds that they belong to widely divergent series. The order of mental action is thus preserved in the location of its nasal signs.

When a thing has been put through the crucible of the intellect, we may then widen our view and contemplate its poetic relations. The faculty of Imagination gives thickness to the back part of the septum. When this is large, the person delights in figures of speech, in metaphors, fables and symbols.

Reason also gives height to the upward curve of the wing of the nostril, but Manners extends this downward. A delicate and perfect chiseling of the nostrils indicates refinement and symmetry of intellect. It characterizes the form known as the Greek nose, because it was common to the Greeks as a nation. They gave this form to the Apollo, Venus, Mercury, Jupiter, and their other idealizations of art, thought and mental power.

The common Roman nose was less finished at the end; its possessor desired knowledge for the sake of power and conquest, rather than for its own sake. Aggression and Self Defense were the leading signs which gave character to the Roman nose. They are large in the face of Julius Cæsar, who carried the genius of Roman conquest up to its meridian

splendor. Civilization has always had to push its way against a mass of obstacles. The Roman nose is a moral battering ram, to beat down these walls of savagery and ignorance.

The hard Roman nose, pushing its way despite all personal suffering, has played a conspicuous part in the moral as well as the political advancement of the world. It carried Washington on to triumph; it stood in the forefront of Lincoln's unyielding strength, as it had sustained the shocks of Waterloo in the face of the "Iron Duke." In all the great founders of religions, or of sects, we see the same aggressive nose. It stands boldly forth in the face of Zoroaster, in Moses, Mahomet, Calvin, John Wesley, and in the otherwise gentle face of the Nazarene. It is prominent in the hosts of other leaders who have done fierce battle for opinion. Nature never puts a great cause upon a saddle-backed nose and expects that it will ride into power. It was not Victor Emmanuel, but rather the high nosed Garibaldi, who achieved the independence of Italy. In a pure Greek nose, the entire ridge may be high and all of these combative faculties be amply developed, as seen in the portrait of Dr. Gall, in the seventh chapter of this Book. But in such a character these faculties are always subservient to intellectual and moral power.

A low bridged nose will do for the helplessness of childhood or the servility of the African, but such a bridge will never carry the chariot of progress safely over.

The aquiline nose of the Jews has large signs of aggression, defence, and protection, while the breadth of their noses indicates their money-getting propensities. This form of the nose was common among the old Assyrians, as shown on their numerous sculptures. It is given in figure 5 of our chart, named Determination. The faculty of Economy is also indicated by that fullness which produces the "double chin."

A nose which is elevated on the ridge at the upper part, permits a more direct, extensive, and continued application of odors and is more calculated for their enjoyment; for in the

interior of such a nose there is more surface on which is spread out the olfactory nerve. Just the reverse is true in a nose which is flat; for in this case the current of air which contains the odors passes quickly along the lower floor of the nostrils into the lungs.

The short or upturned nose is evidently calculated to receive rapid impressions, and thus induce rapid emotions. The long and drooping or overhanging nose is adapted to receive impressions slowly, and of course to slowly lead to emotions. It therefore indicates the reserve with which they are sought and the permanence with which they are retained.

THE EYE has been regarded as the noblest organ of sense, because it commands objects at the greatest possible distance. The impressions received through the eye are at once direct perceptions. They do not have to pass through the intermediate state of indistinct sensations, as those of the other senses do. Hence the sense of vision is the most nearly related to the intellect.

Large eyes indicate lively emotions, and activity of mind and body. Prominent eyes are quickly impressed, but deep-seated eyes have more accurate and deeper impressions. Brown or dark colored eyes seem to indicate exact inspection and firm character. The dark iris in such eyes excludes all light except what passes in at the pupil and the images of objects are thus rendered more definite and sharp in outline. But in light blue eyes, the iris transmits some scattered rays, and the impressions of objects are more soft and indefinite.

Eyelids which are widely expanded, so as to give a round form to the eye, like those of the cat and the owl, indicate sensibility. On the contrary, eyelids which nearly close over the eye indicate permanence and less keen perception, but greater sensibility.

In the look of scrutiny and discernment, we draw down the eyebrow in order to exclude the unnecessary rays of light and to thus confine our attention to the object examined. We thus use the sign of Resistance to shut away, reject and repel the side view of other objects. In this case the defensive faculty

of Resistance acts as a servant of the intellectual organs. In the expressions of anger the eyebrow is also depressed, because the object which excites the anger is keenly inspected. An eyebrow greatly elevated indicates the absence of severe thought.

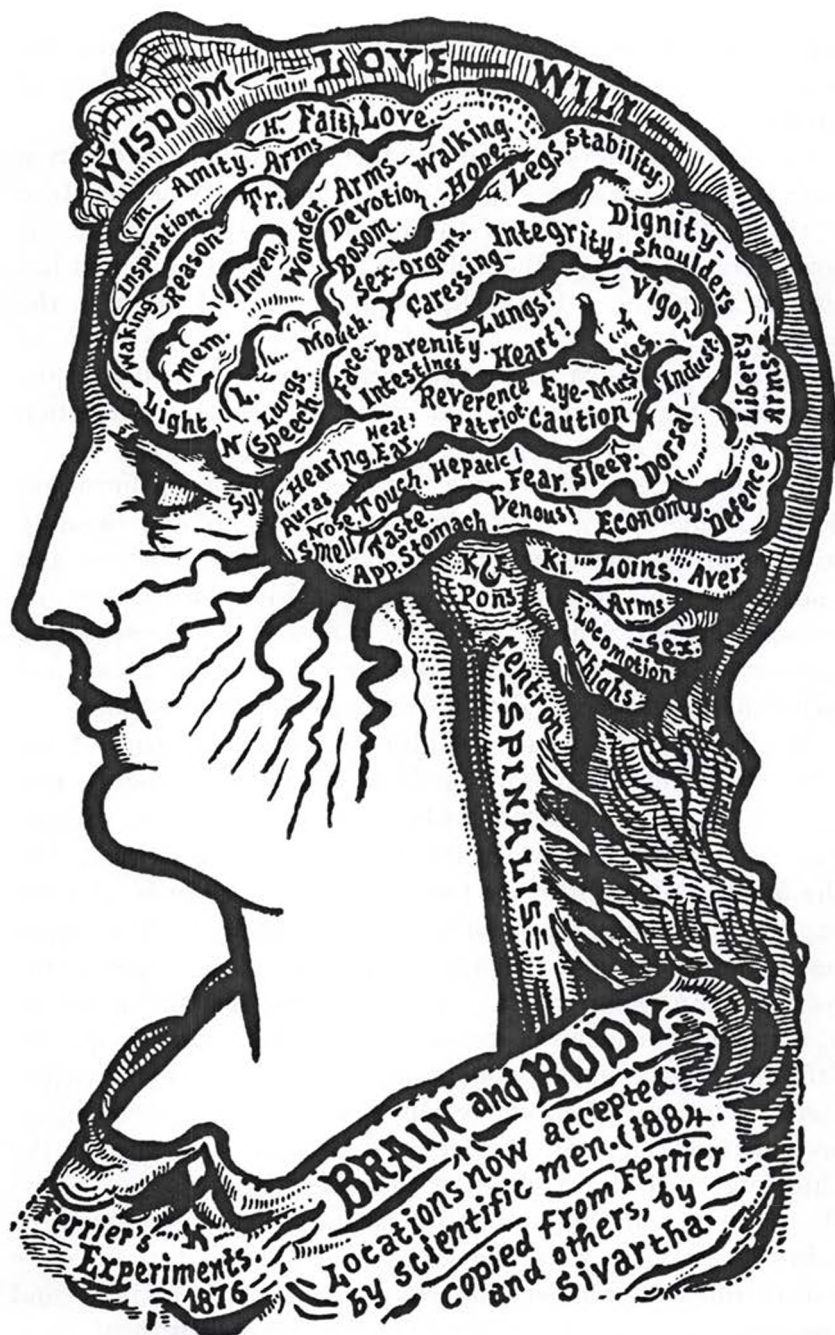
Parental and filial love elevate the inner end of the eyebrow and are also connected with the lips near the center, as shown on the chart. Modesty causes a drooping of the eyelids. Reverence turns the eye upward, and humility turns it downward. Parenthood also draws the corners of the mouth upward and back. In this case it acts with the faculty of Complacency, which is a part of Amity. Patriotism presses the lower lip against the upper one, midway between the center and the corner.

Amity and Reform elevate the eyebrow at the middle and the outer ends. Truth and kindness elevate the inner third of the eyebrow. They form the upright and the vertical wrinkles there. Truth also produces folds and wrinkles above and below the eye, as marked at Verity. Mirth causes converging wrinkles from the corner of the eye outward. It also draws the mouth corners up and backward as in laughing.

Hospitality gives upright wrinkles back of the mouth corner. Simplicity or candor curves the mouth corners slightly upward. Friendship causes slightly converging wrinkles in the red part of the lips.

Faith and Love elevate the middle of the eyebrow, above amity and reform but more centrally. Farther outward, the elevation indicates Hope, Zeal and Trust. A noble brow is one where all of these are large. These faculties, with Parental and Filial love, are all seen to be unusually large in the likeness of Abraham, at the beginning of the seventh chapter.

The faculties of Sex-love, such as Devotion, Desire, Mating and Luxury, have their signs in the fullness and breadth of the red part of the lips. Persons with thin lips may, however, have large Fraternity and Kindness, and thus be kind and genial. The lips are the most sensitive organs of touch of any in the face, and this sense is closely connected with all



See Saunder's Handbook of Physiology, pp. 208 and 210.

expressions of sex-affection. In the inferior animals, the mouth is often the sole organ of touch, it takes the place of hands.

The signs of the senses in the face are to be judged from their respective organs. Thus, development and fine structure of the mouth, especially of the tongue and lips, indicate the power and fineness of the sense of Taste. That of Touch has also its facial index in the lips, and its general index in the perfection of the skin. The development of the sense of Smell may be estimated by the perfection of structure of the nose; and that of hearing and vision by the same perfection in the ear and eye.

The lips conceal the tongue, yet they indicate its form and development. Large lips always indicate greater capacity with regard to taste and its associated desires. Narrow and linear lips show less of this capacity. Lips with coarse, irregular and ill-defined outlines, indicate a corresponding rudeness of these functions. But lips with fine, regular, and well-defined outlines, tell of a delicacy of these functions.

The lower lip is connected also with some faculties of the will. It is thrust forward midway between the mouth and chin to express Contempt, while Aversion gives a fullness just back of this, drawing the lip down and backward. In the mouth, all the inferior parts are the acting ones, and the superior parts are the passive or receiving ones. The upper teeth, the palate and the upper lip, receive the action of the corresponding lower parts. And so we find that the upper lip is expanded to receive agreeable impressions, and is the infallible accompaniment and indication of such passive enjoyment. The upper lip, undeveloped, shows the absence of passive gratification. In this respect, compare the face of the child, figure 3 of the chart, with that of figure 4 just below it. A long and thin upper lip belongs to the expression of sobriety, as marked in the large face. When both lips are considerably developed, the character is both actively and passively voluptuous. Where the lips are gently held in or drawn backward toward the angles, whatever may be their

expressions of passion, it is under control, and the character has coolness and precision. This is specially shown by a fullness where the word "control" is marked on the chart. The little concavity in the upper lip, between the nose and the mouth, indicates in its depth and breadth the desire for rest and relaxation.

The general quantity of attractive force in a person is indicated by the softness, fineness, and delicacy of the skin, and by the mobility and pliancy of the spine. Repulsive force is indicated by the length, strength, straightness, and stiffness of the spine. This quality is stronger in man, as attractiveness is in woman.

The downward length of the lower jaw indicates the faculties of Self-control, Integrity, Stability, and Caution. The breadth of the face at these points is thought to indicate the power of these faculties of the will to express affection. Caution, Protection, and Industry, are shown by the projection and breadth of the cheek bones. The faculty of Protection is large in the Chinese, who built the Great Wall under its stimulus.

Dignity and Laudation are connected with the muscles which elevate the upper lip and the wing of the nose. Laudation lifts the upper lip, as in the smile of approval. Dignity produces a muscular fullness at the place marked. Liberty and Equality are back of this, and Authority still lower. The faculty of Reserve or secrecy is associated with Economy, and gives the wide or thick nostrils as in the negro and mongolian.

The sense of hearing is closely connected with the mental organs of Reverence, Modesty, Purity and Invention, as we may see in the engraving of the brain on page sixty-nine. Hence the Ear indicates, when it is well formed and of good size, the capacity for culture and improvement under instruction and guidance. When a kitten is stupid and disobedient, its dam boxes its ears, by way of correction. And human mothers are inclined to do a similar thing. In the old Hebrew Scriptures we meet continually with the injunc-

tion, "Hear and obey," "incline thine ear;" and the commandments themselves begin with "Hear, O Israel." All this was in strict accord with what science now shows us of these connections. Hence, also, we see why Language links itself naturally with familism on the one side and with poetry, imagination and symbols of speech on the other. When the whole earth is like one family, it will not consent to do otherwise than speak one language.

INTENSITY AND PERMANENCE. The nerve-fibers or tubes which compose part of each brain organ constantly transmit currents of nerve force. These currents accumulate intensity with the length of the tubules which they traverse. Therefore the longer the mental organs, the more intense and brilliant are their functions. Wherever the organs are wide or cover a good deal of lateral surface, there is a greater diffusion of the currents through the nerve cells, both in the convolutions and in the centers. Therefore breadth of the organs gives stability and permanence to their functions. This law, of course, applies to the head and face as a whole, as well as to their individual parts and organs. Even in the mineral world, the breadth of objects gives them the appearance of stability and permanence, while their height gives the impression of lightness, elegance and mobility.

ANIMAL TYPES. The lower animals possess many of the faculties which belong to the lower half of the brain in man. Hence the different characters which exist among men have their types among the lower animals. The same traits of character which distinguish the lion among beasts may be found strongly marked among men. Mary Stuart had a leonine face. Fenelon resembled a sheep; yet no one would think of applying the word beastly to their faces. The lower animals have only a fragmentary development of the faculties; man alone possesses them all in symmetry and completeness.

Some would-be philosophers have taught that the human race was descended from some of the monkey tribes or quadrumana. But if this had been true, then the higher types of

men should have typically resembled monkeys of some kind. This is never the case. The higher types of men often resemble in type the lion, the horse, the eagle and the ox or sheep. But a monkeyish face on a man never yet excited admiration, even from a Darwinian.

The Hebrew prophets represented the lower back faculties of man, by the lion, leopard, wolf, bear and serpent. The higher faculties were symbolized by the lamb, the kid, the dove, the eagle, and the horse. In the Messianic age, the lower faculties, the beast in man, were to be subject to the higher powers.

THE HAND OF MAN. The human hand is the special servant of the brain. It imitates and shows the character of its master. The hand is used to express every faculty of the mind. In all the works of art and skill, in the expressions of love and the gathering of knowledge, in all these the brain must constantly send down its nerve-currents to the hand. These currents are charged with the molding and directing forces of thought, of feeling, and of will. This vital connection with the brain determines the development of the hand, and renders each one of its parts significant of some mental faculty or of its modes of action. In deciding upon the indices of each part it was necessary to examine the hand, or its counterparts, all the way down through the scale of the lower animals. The ant, the bee, and the bird use their lips in place of hands to work with. In their cases, however, the lips and the teeth are united in one.

As a rule, the general form of the hand, in any case, corresponds with that of the head. A beautiful and well formed hand indicates a well balanced head and character. Broad hands go with a broad head and body.

Large hands are both capable and inclined to do the real work of the world. They do not shrink from carrying out the plans devised by their owner; they take hold of things without gloves.

Small hands belong to the person who plans great things, but employs others to carry these plans into execution. They

are dainty in size and they prefer dainty work; they dislike to submit to exact rules and minute details. Their owners use general terms rather than precise statements.

Hard hands have active power; soft hands mean passive endurance.

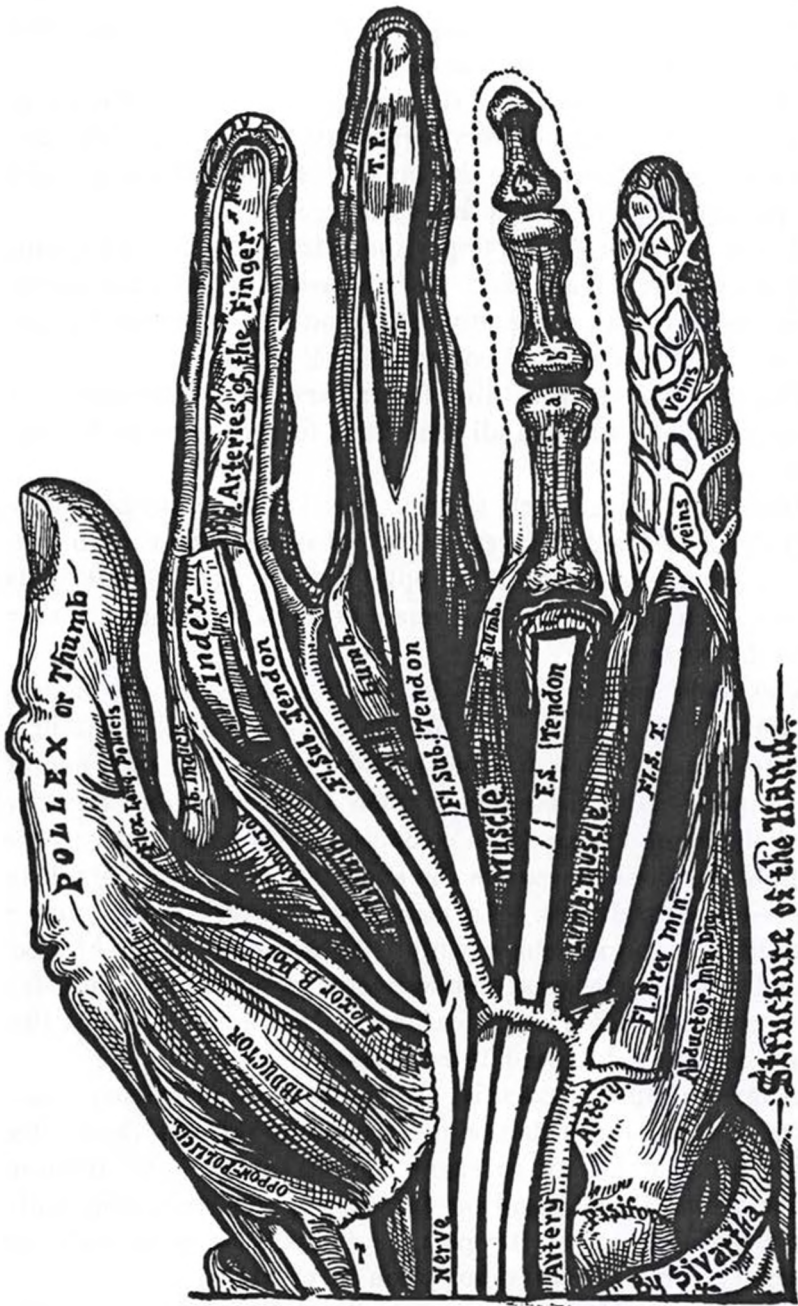
THE FINGERS. Long fingers give capacity for minute delicate, and finished work. They succeed in details, they specialize the parts of labor, and from these they produce the general effect. Broad joints in the fingers mean that they have large surfaces on which to attach the finger and arm muscles. It means that these muscles are large, active, and capable of a variety of movements. Therefore fingers with thick or prominent joints are the best adapted to do delicate, minute and varied work of skill.

It is not the tapering and slender fingers which are thus adapted. Their muscles are too weak for efficient and varied effort. Tapering fingers prefer the ideal and the sensuous, to the practical and laborious.

Short and broad fingers choose strong and general work, they deal with masses, they admire magnitude more than finish. They dislike long and careful labors.

The first finger is specially employed in guiding the tools used in many of the most skillful and delicate manipulations of various arts. As a consequence, the nerve currents from the intellect flow down to the forefinger directly and constantly. They stimulate its growth in directing its movements. The first finger must therefore be an index of the intellect, much more than any of the others. The first phalange of this finger indicates perception, the immediate directing power in all operations. The breadth at this joint shows logic and system. At the second joint it indicates order in work. In our engraving, all of the fingers have both ample length and breadth.

The middle finger is connected with the association of men in the various employments and practical work of society. The forefinger rests against this one in working, and this, in turn, upon the third finger. The large development of the



middle finger shows that its possessor has a faculty for putting plans into a feasible shape, and for combining men and means to carry out these plans.

The first phalange of the third finger indicates ambition by its length, and fondness for display by its breadth. The second and third joints show the capacity for industrial art, and for the pursuits of wealth and commerce.

A well developed little finger indicates versatility of talent, and the power to manifest the character in external forms. It is the ability to make others see and feel what we do ourselves. It is the basis of conversational talent.

The first, second and third fingers are opened or shut by a muscle common to them all; the little finger is moved by separate muscles.

When the fingers are smooth, the joints unmarked, they indicate a character governed by intuition rather than reason; a person with direct perceptions, who chooses statements rather than arguments, and one who decides at once, rather than deliberates.

The nails usually follow the general shape of the fingers on which they are placed, and they have a similar meaning.

THE THUMB of man is the grand fulcrum for each one of the fingers. It is opposable to them all, or can touch any one of their joints; it can thus co-operate with each finger. The thumb therefore represents the executive power of the will in a pre-eminent degree. As man alone, of all animals, has a true thumb, so men alone exhibit the immense power of associated will in the great achievements of organized industry and national life. The indications of the thumb are most like those of the middle and third fingers.

A large thumb is essential to a powerful and efficient character. A person with the first phalange of the thumb too short will not be apt to carry out his plans. On different parts of the thumb, and on the fingers, the engraving indicates the meaning of the part, and this does away with the necessity for a minute description in words.

The amount of development of the different temperaments

is shown on the hand, at the various places marked. The thumb as a whole is motive, the fingers mental, and the palm of the hand is vital. It is because the thumb is significant of rulership that men have used the phrase "Under the thumb" to mean the domination of one over another.

When the first phalange of the thumb is short and the middle phalange long, the person will have energy without order, impulse without judgment, and is apt to be rash and arbitrary.

THE PALM. The large muscles which form the base of the thumb spread out and become a part of the palm of the hand. The action and development of the thumb produce a well marked and curved line around this base. This line therefore indicates the extent and regularity with which a person's will-power has succeeded in attaining the objects of life, and in embodying the inner desires in outward conduct. Hence this may well be called the Life-line of Action. And we can see why it should indicate the general course, the duration and intensity of a person's life. Commencing near the upper edge of the palm, the length of this life-line is thought to show the number of years to which the person's life will extend. In the charts, these years are numbered in figures along the upper side of the line.

When the life-line is clear, well marked, and unbroken, it signifies good health and a vigorous constitution. If the line is long and slender and broken by cross lines, it tells of defective health and low vitality. The main line may have an echo line above it, and this shows its increased strength. If the beginning of the main line comes from the base of the forefinger, the course of the person's life will be subject to outside and varying influences. When the life-line is connected or close with the social line and the thought line, where they begin, it indicates that the person will have a unison of thought, feelings and conduct, all tending to one common end. Such a person will make his doctrines the guide of his life. His religion will not be one of mere professions, or of mere beliefs in a hereafter. If these lines are widely separated at their commencement, they foreshow a discordant and incon-

sistent course of life. The person will think and feel one thing, but actually do another.

The four up and down lines of the palm are produced by the four underlying tendons, arteries and nerves; these are lines of nutritive, muscular and nervous or mental force. Their indications are based on this fact.

The cross line nearest the fingers is produced by shutting the hand. This is the third in the series of muscular movements which start with the pectoris at the breast-bone. Another effect of closing the hand is the long angular line at the middle of the palm. Along this line the ends of the fingers discharge their currents of nerve force, and hence are called the Head-line.

A hollow and thin palm shows a defective state of the nutritive system.

The Line of Thought is the third of these important lines of the hand. It corresponds to the intellect, and to the manifestation of that intellect in practical life. Whenever the affections are well developed and cultivated, we shall also find that the intellect itself is active and influential, for without the intellect it would be impossible for the affections to be developed or to attain their objects. An ignorance of this fact, of this responsive dependence of love upon wisdom, led the early students of the hand to confound the Social and Thought lines, and to exchange their places. A knowledge of the locations in the brain and of the physiological laws enables us to correct this ancient error of the palmisters. The old notions about the relations of the different planets to the parts of the hand, had also to be corrected in the light of modern science. The moon can not now be considered as a symbol of instability and uncertainty. It is truly an emblem of Periodicity. The fixed recurrence of its phases made the early nations choose the moon as the first measurer of time, and the very name they gave to the moon had this signification.

Across the three main lines of the hand are three others which are supposed to inticate the nutrition of the body, the strength and length of the family instincts and associations,

and the ability to deal successfully with the material things and forces of life. A large number of other and minute signs have been pointed out by various observers, but we have chosen to describe those which were capable of verification, and could be shown to have a basis in the established laws of physical and mental life.

Study the following table of groups, faculties and sub-faculties.

INTELLECT OR WISDOM.

PERCEPTION—ART—

Form—Shape, Outline, Individuality.

Color—Idea of Color, Size, Location.

Number—Trinity, Unity, and Plurality.

RETENTION—LETTERS—

Memory—Retention of Facts, Time and System.

Attention—Observation, Mental Focus, Vision.

Language—Mastery of Words, Sounds, Music.

REFLECTION—SCIENCE—

Reason—Analysis, Synthesis, Judgment.

Inspiration—Foresight, Intuition, Spirituality.

Construction—Skill, Invention, Imagination.

RECEPTION—CULTURE—

Amity—Friendship, Kindness, Hospitality.

Reform—Culture, Progress, Improvement.

Communion—Candor, Imitation, Mirth.

AFFECTION OR LOVE.

RELIGION—

Faith—Belief, Love of Deity, Worship.

Love—Philanthropy, Good-Will, Trust.

Hope—Aspiration, Zeal, Immortality.

SEXATION—MARRIAGE—

Devotion—Desire, Sex-Worship, Romance.

Fidelity—Mating, Sex-Fealty, Ardency.

Caressing—Fondness, Sexality, Petting.

PARENTION—FAMILY—

Parentity—Parental Love, Familism, Providence.

Reverence—Filial Love, Respect, Modesty.

Patriotism—Love of Home, Kin and Country.

SENSATION—HOME—

Appetite—Sense of Hunger, Taste and Smell.

Feeling—Sense of Touch, Heat and Gravity.

Impression—Of Character, Spheres and Aromas.

VOLITION OR WILL.

AMBITION—RULERSHIP—

Dignity—Pride, Self-Esteem, Authority.

Laudation—Praise, Emulation, Display.

Stability—Firmness, Energy, Perseverance.

COACTION—LABOR—

Integrity—Justice, Honor, Balance.

Industry—Work, Prudence, Self-Control.

Liberty—Freedom, Equality, Independence.

DEFENSION—WEALTH—

Defence—Self-Defence, Protection, Aggression.

Economy—Property, Ownership, Selfishness.

Caution—Care, Secrecy, Rest.

IMPULSION—COMMERCE—

Mobility—Locomotion, Travel, Commerce.

Aversion—Dislike, Contempt, Repugnance.

Destruction—Vengeance, Rigor, Baseness.

By these laws we are to measure the very shape of our thoughts, our feelings, and our volitions. These are the Celestial Mechanics of the human mind.

THE CIRCLE. We must consider every curve as the product of forces. Let us take for analysis one of the simplest, that of a circle. The circumference of a circle is a line everywhere equally distant from the center, KE. The circle includes or means all the plane surface between these two. Suppose that our circle is the section of an orange. It is composed of a great number of atoms or molecules, which have been distributed from the center. Each one of these molecules has been acted upon by both attractive and repulsive forces. The molecule V has been pushed out a little way and stopped, because the pushing or repulsive force at that point became just equal to the attractive force which pulled it toward the center. The molecule at R moved still farther before its two forces, attractive and repulsive, came to an equipoise. At B is a molecule in which the repulsive force was still greater, and hence it moved out as far as the circumference. And so around the entire outline, as at B, L, S, F, a series of atoms have been moved until their two forces exactly balanced each other.

If we draw a circle with the hand, and examine the steps, we shall discover the same two forces at work. Stick down a pin where we wish the center, and tie a thread to this, and tie the other end of the thread to a pencil. Now move the pencil around to mark the outline. You must constantly pull away from the center to keep the thread straight. If the center itself exerted this force it would be a repulsive one. But the thread constantly holds or draws the pencil toward the center. These two, outward and inward forces, must be exactly equal in their intensity and opposite in their direction. If either one varies from this, the regularity of the circumference will be broken.

THE ELLIPSE. The human brain is constructed on the mathematical plan of an ellipse. A circle requires only two points of generating force; an ellipse requires three such points. The ellipse has two centers of force, as at MO and

SE. From each point is radiated both attractive and repulsive forces to all parts of its circumference.

At the ends of the Minor axis, A, B, the forces of the two centers are equal. This axis is the balancing line of unity. At all other points the forces vary. Let us suppose an atom moving forward from D around the ellipse. Its shaded part shows repulsive, and its light part shows attractive, force. If repulsive force alone acted upon D from SE, it would move off in a right line toward the word "ellipse." But it is attracted by MO, and under this combined action it moves in a curve. When the atom reaches B, its attraction from MO just equals its repulsion from SE. As it advances toward F, the attraction of MO increases, and reaches its greatest possible quantity at N. The repulsion of SE is now at its lowest possible ebb. The atom now moves on to V, A, K, and just the reverse of what we have described above takes place. For the attractive forces of MO become less and less; while those of SE have become greater and greater, reaching their maximum at L. At every point, both kinds of force are in action at the same instant.

The points at equal distances on either side of the minor axis, as V and K, balance each other in action and pivot on the axis, as at A. In a less conspicuous way, the upper and lower sides balance upon the major axis. Thus Reason above responds to Perception below this line; and Dignity above responds to Defense below. All of these balances are of extreme importance in understanding mental action.

A section of the brain shows that it contains four great elliptical planes, three of them vertical and one of them horizontal. Those in the right and in the left hemisphere are of course alike in function, so that we really have but to consider the relations of three ellipses. The united action of the two hemispheres takes place on the double middle ellipse, as shown at A, in the upper figure of our initial. The horizontal ellipse is seen to cut the other two at right angles, hence it has the same focal points.

MINOR AXIS. The minor axis of the external ellipse ex-

tends from Appetite upward to Sex-love: Ap. to Sex. These faculties are the material pivots of all human life on the earth. For the physical existence of every individual depends upon the reception of food and drink, through appetite. From these materials of food every organ of the body is continually formed, and its action is maintained. The solid bones and the thinking brain are alike built up from these food materials. So much for the existence of the individual. But the existence of the race or species depends upon the union of the sexes through Sex-love. Through this love, the child receives the materials for the original formation of every part of its physical organism. Thus Sex-love becomes the high material pivot of our existence, as the faculty of Appetite is the lower one. No other faculties can affect our mental and physical happiness so directly and so profoundly as these. From no others can we receive such exquisite and all-pervading pleasure as these give when they act in harmony, or such misery as these bring when in discord. In the eighth chapter, we shall find that Sex-love determines the classification of all offices and labors.

In the middle ellipse, the upper end of its minor axis is formed by the faculties of Faith, Love, and Hope. At its lower end are those of Feeling, Heat and Impression. These faculties are the channels through which we receive universal FORCES, even as we receive MATERIALS through the first ellipse.

The sense of Touch or Feeling, at the lower end of this axis, is the common standard for comparing all the other senses. Through this sense we perceive mathematical relations, which are the basis of all science. Through Faith and Love, at the upper end of this axis, we are related to the life of the Deity and to the collective life of Humanity; to the spiritual forces of the universe.

The horizontal ellipse has the organ of Reverence at each end of its minor axis. This organ points to each side, and relates equally to the past and the present, the high and the low. This ellipse reaches to both sides.

ECCENTRICITY. The Striatum or Motus, and Thalamus or

Sensus, are now regarded by all physiologists as the two great centers of brain action. The nerve fibers radiate from these centers to all parts of the circumference. In any ellipse, the farther apart its focal points are, the longer it will be in proportion to its breadth. The Striatum and Thalamus are a little too near together to be in the true mathematical focuses of the brain ellipses. The cause is this: The Intellect and Volition at the front and the back have more repulsive force in proportion than exists in Affection, which is along the middle of the ellipse. This excess of repulsive force in the Intellect and Volition pushes the brain out more at the front and back than at the sides, and this makes it relatively longer than it would otherwise be with the Motus and Sensus so near each other.

In any case, the mathematical analysis of a vital curve will give us the general law and relations of the organs which enter into its formation.

We know that the brain is an ellipse by simply dissecting it and studying its structure. The forces which produce its growth and form proceed from its centers, from within, and not from the outside. It is not cast in a mold. These forces are both mental and vital. That they are mental forces is clearly proved by the well-known fact that the very thoughts and feelings of the parents during the embryonic life of a child determine the shape of its features and of its brain. And we know that either temporary or permanent changes of feeling or of character will change the curves of the head, the face and the body. It is mental forces, then, which cause the brain to be an ellipse, and consequently the mental faculties must obey the mathematical law of this curve.

In the growth of a leaf the molecules of bioplasm are moved outward by its vital forces, and arranged along its outlines, until the tree itself presents a vast series of mathematical curves, all of them the product of interior forces.

SEX IN THE ELLIPSE. The forces of the two sexes in love act in strict harmony with the elliptical law of variation. The Motus is dominantly masculine and the Sensus feminine.

In their highest expression—that of originating a new being—the masculine and feminine forces are equal. From that moment forward, during the whole period of the child's prenatal development, the feminine forces increase in quantity and intensity, and the masculine diminish. After the direct parental functions are accomplished, the feminine forces slowly return to their equipoise with the masculine.

The affectional forces of the two sexes pass through elliptical variations of slighter extent when not engaged in parental relations. This law gives to sex-love—within its duality—a wide variety of emotion, the infinite charm of perpetual renewal.

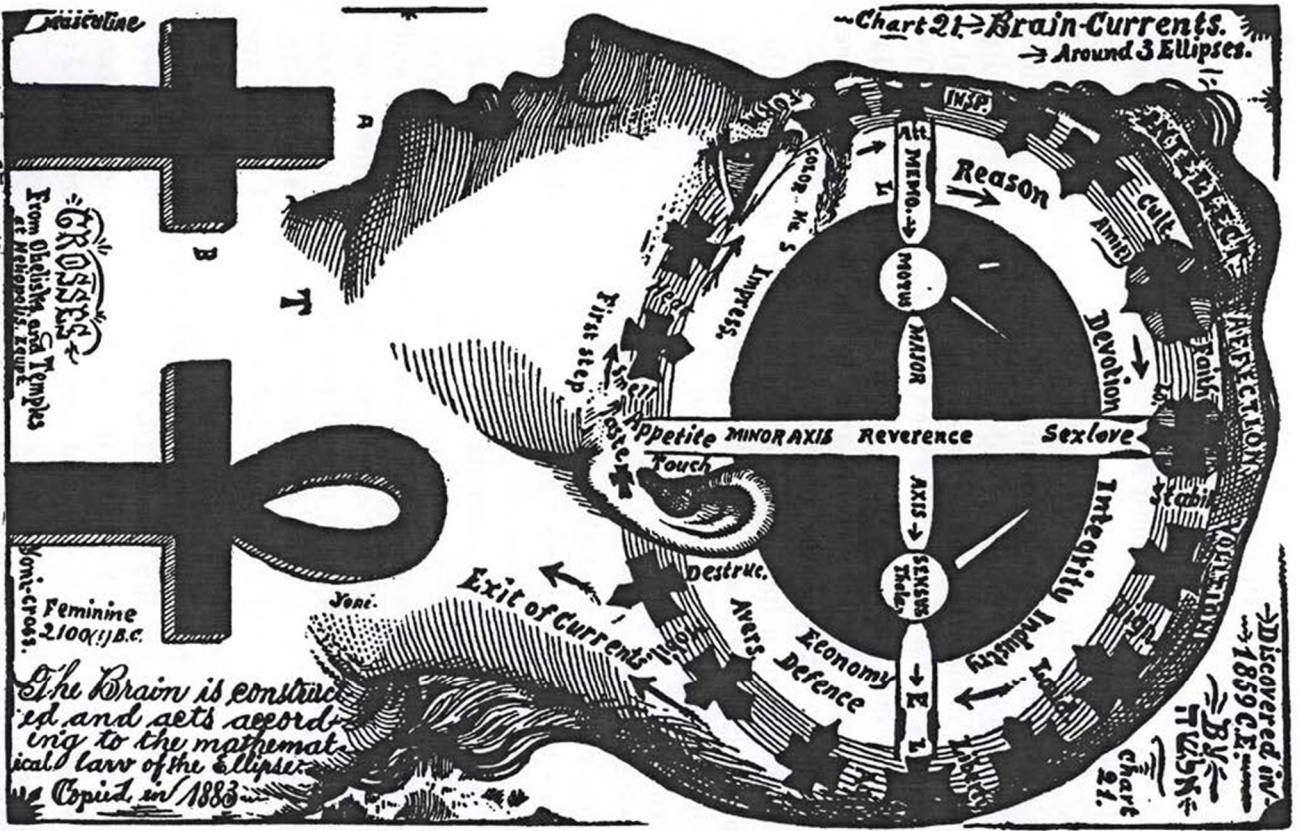
Three Great Currents of nerve force sweep around the brain ellipses. They flow from cell to cell, and taking in their path all the principal organs, they awaken or excite these faculties in a definite order.

A large part of all the impressions received through the senses are conveyed along the fibers to the Motus and Sensus. On our initial and Chart 21 we may trace the course and effects of these currents around the brain. The arrows show the direction of the currents.

From the Sensitive group in front of the ear, the current sets forward toward the Perceptives at Form and Color. It then curves upward, and, crossing the horizontal current at M, it flows over backward and downward.

The currents of the horizontal ellipse, starting forward from Reverence, at REV, meet the upward moving current of the vertical ellipse, at M. The currents cross each other here, and a part of all the impressions composing the currents are here stored and retained. This crossing point is the organ of Memory. At no other place could Memory be so located as to store all impressions.

Moving still onward, the horizontal current crosses that of the middle vertical ellipse, at Att. This is the organ of Attention, and the crossing here makes this the focal point of the whole intellect, the center of intellectual consciousness. The current goes on from right to left around the entire head.



The direction of this current determines an interesting fact—it makes us right-handed instead of left-handed. The impulse, following the direction of the brain-current, flows out on the right hand and back on the left. Hence, the right hand takes the lead in most kinds of work, and the left hand is the recipient.

At points in the back of the head, corresponding to M and Att. in front, there is a crossing of currents. These points are the organs of Equality and Liberty. This latter faculty makes us demand room for expansion; it is a point for the DISPERSION of force in all directions. At the front brain, Observation CONCENTRATES force from all directions. At Mobility a part of the currents pass to the body, and thence make their exit from the system.

All of the principal organs of the brain are located on the line of these ellipses. So that wherever an impression may be made on the brain, or an action may be started, it will be carried in these currents to Memory, Attention, Reason, and Inspiration. We are thus made conscious of every mental action, and can reason about its relations.

This law of the ellipse would alone determine that the faculties are correctly located.

The course of these currents determines that in mental action there is, first, Sensation, and this is followed, in orderly succession, by Perception, Memory, Reflection, Desire, and practical Action. Experience proves to us that this is just the order in which these mental processes normally succeed each other. But in cases of insanity the currents flow in irregular or reversed directions, and the ideas and actions are illogical and disorderly.

RADIUS VECTOR. A current of nerve force starting from Attention and flowing around the central ellipse, in the direction of Inspiration, Amity, Faith, Stability, Dignity and Liberty, would become slower and slower as it receded from Attention, its point nearest to its focus in the Sensus.

After the current reached Liberty, its speed would gradually increase toward Appetite and Feeling, until it reached

its starting point. This variation corresponds to the law of radius vector of the planets. The shorter the fibers of any organ, the less will be the time required to perform the circuit.

MINOR CURRENTS. There are many minor currents in the brain, for they start at any organ which is the point of excitement, and spread more or less in all directions. Every organ, when in action, must therefore excite its neighbors, these waves establishing a universal sympathy among the organs, strong in proportion to their nearness. Hence, faculties which are similar to each other have adjacent locations. If Friendship and Aversion were side by side, then the more our Friendship were excited in loving a friend, the more would Aversion be aroused to repel him.

OTHER CURVES. The ellipse is the great curve upon which the brain is constructed. But it is not by any means the only curve which we find in the human form. The organs and signs of Sex-love in the brain, the face, and the body, form elliptical curves; the Parental, filial and some of the intellectual, form parabolic; the Ambitious form hyperbolic; and the Reasoning, and Religious form epicycloidal curves. We shall only notice these briefly.

THE EPICYCLOID forms a prominent part of our mental structure. This is the curve upon which all of the planets and suns move through space. In the brain a vertical range of organs, including Inspiration, Kindness, Faith, Love, Hope, Stability, and Dignity, are located upon this curve. These give us the widest possible range of relations so far as our feelings or affection are concerned. They unite us with universal life. Another range of organs, forming an epicycloid, includes Inspiration, Reason, Imagination and Construction. These faculties enable us to comprehend, and to harmonize ourselves with, universal law. These are the only two ranges which form this curve, and they are the only ones which establish universal relations.

In the map of the body, hyperbolic curves are formed by the ambitious faculties at the shoulder and the same curve is repeated by the analogous group of impulsion in the thigh.

This curve is formed by the faculties of Will on the chin, and lower maxilla.

The straight line is a monotone. It does not possess that variation in the direction of line which is essential to beauty of curvation. It can occur but once in a beautiful form, and that is in the ridge of the nose. The circle, too, is a monotone, and only occurs in the iris.

BEAUTY OF THE FORM. The curves of the head, face and body seldom terminate abruptly, but gracefully blend with each other, like the organs of the brain. The number and perfect arrangement of these curves give to the human form its wonderful beauty, so far surpassing that of all other physical objects that we cannot conceive of anything more beautiful; and our highest inspirations attribute the same form to beings in realms of existence more exalted than our own.

The most beautiful face and figure is one in which all of the faculties are the most fully and symmetrically developed. If any organs or signs of a curve are deficient in size, this will destroy the regularity, and consequently the beauty of the curve. The most beautiful living object is one having the fullest and freest manifestations of life. For Life is a principle of unity, and the more complete the relation and harmony of its parts, the more perfect is the manifestation of life, in any living being. Living creatures appear ugly and deformed when the free play of life seems obstructed in them. The Line of Beauty is that which presents the least obstruction to free movement, like the double parabola of the geometer. A line that is crooked instead of curved must have been produced by disturbed or interrupted forces. More force must be expended in turning at an abrupt angle than in passing around a gentle curve.

A homely face may have many of the higher faculties well developed, and express the goodness which comes from these, but it cannot belong to a complete and well-rounded character.

The angular character is really much better adapted to a discordant and defective civilization than a more symmetrical character would be. It sometimes happens that beauti-

ful persons become perverted; and many persons have been called handsome who were really lacking in the higher indications and elements of beauty.

In the lowest of the animals, the simplest and fewest of the geometric curves prevail. The curves become more numerous and complex as we ascend the scale of life until we reach man. The divine beauty of the human form is expressed through one hundred and forty-four of these curves, and these are duplicated in its bi-lateral symmetry. Thirty-six of these curves belong to the head and face. The human form exhausts the possibilities of form-beauty in our solar system. There is no higher curve than the ellipse upon which a rounded body, as the brain must of necessity be, could be constructed. And, as we have already seen, all of the other great curves are included in its structure. We therefore know, from the rigid laws of mathematics, that man can never be supplanted on the earth by any being of a nobler form. Man is the only being on the earth who is rhythmically balanced against the collective forces of the universe. He alone can understand and put himself in complete harmony with these forces and thus secure immortality for himself and his race.

The more beautiful curves—the ellipse and its modification, the parabola—are repeated many times. The bosom of woman—the ivory throne of love, set with carnation, garnet, or amethyst—derives its exquisite beauty of form from both the ellipse and the parabola.

THE MICROCOSM. From the time of Pythagoras down to this writing, the philosophers have asserted that Man is Microcosm—a universe in miniature. Yet no one, before myself, had shown that in the constitution of man are repeated the very laws which pervade and sustain the sublime mechanism of the heavens.

Before the time of Kepler, astronomers had supposed that the planetary orbits were circles; and before my discovery of the mental law of the ellipse, the followers of Gall made a like mistake in supposing that the brain is constructed on

the plan of a circle. But even that supposition was worthless in their hands, for they did not attempt to use it in explaining mental action. Some great men had conjectured that mental action might be interpreted through mathematics. Thus Sir Isaac Newton, in speaking once of his discovery of the law of gravitation, expressed his belief that "sometime we might derive the rest of the phenomena of nature, even those of the mind, by the same kind of reasoning from mechanical laws." That great result is accomplished in the present volume, as we shall see in every chapter.

Our initial engraving gives seven fundamental curves. Out of these few curves nature is able to furnish the lineaments and give a characteristic shape to each one of the four hundred thousand species of animals and plants.

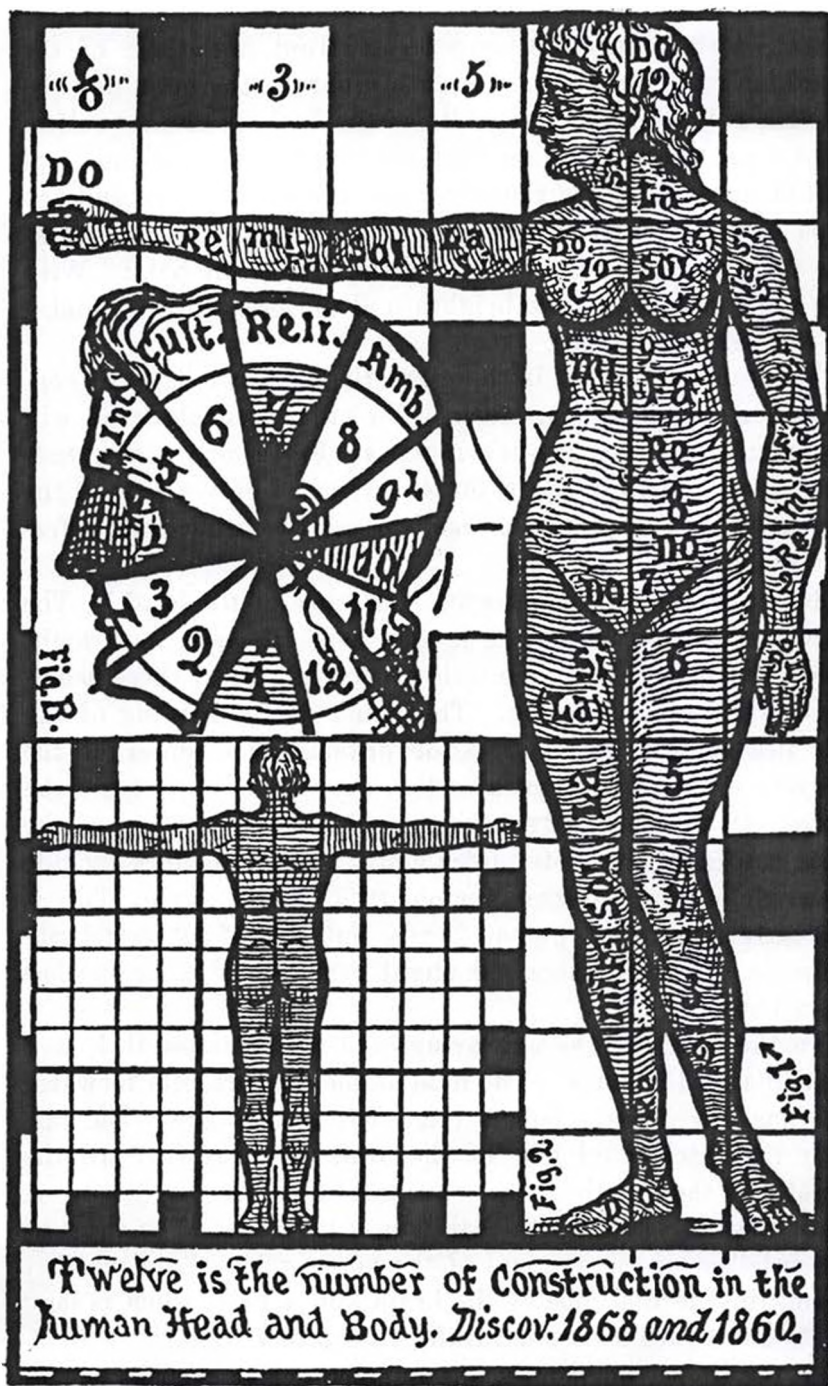
PROPORTIONS. The curves which make up the human form not only bear fixed relations to each other as regards their position, but also in regard to their proportional size. The figure in the Measure of Man will illustrate these proportions.

If we draw twelve squares, in each direction, these squares will accurately divide off the proportion of the various parts of the human form. This divine measure of a man was rediscovered in modern times by the artist William Page, from whom our drawing is copied.

The extended arms reach as far as the person is tall; the height and breadth are equal, as was said of the Celestial city.

These divisions of the form are not simply external, they belong to the bones, the muscles and the viscera. They are "laid in the very walls of a man." They are exemplified in every well proportioned adult person, and in the great works of ancient and modern statuary.

Beginning at the base, the lowest square includes the foot and ankle; the second is the lower leg; the third contains the great muscles of the calf; the fourth includes the knee; the fifth is the upper leg; the sixth takes in the thigh with its great muscles; the seventh contains the viscera of the pelvis; the eighth is the abdomen proper; the ninth embraces the stomach, liver, spleen and pancreas; the tenth includes the



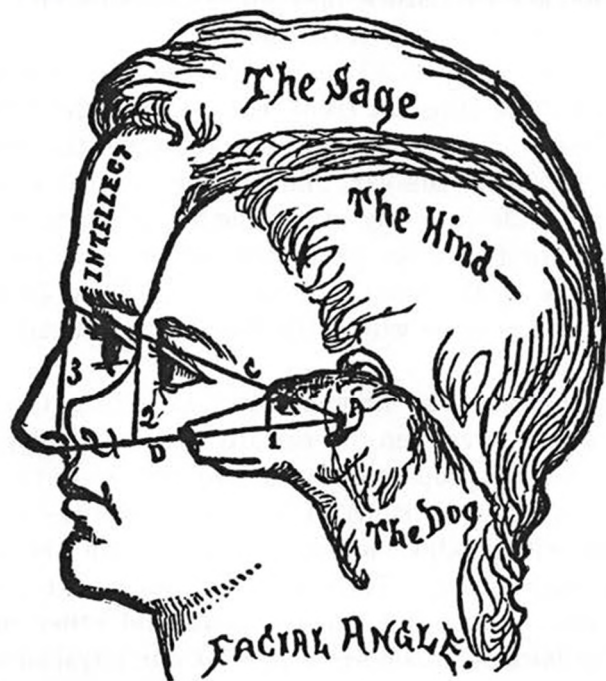
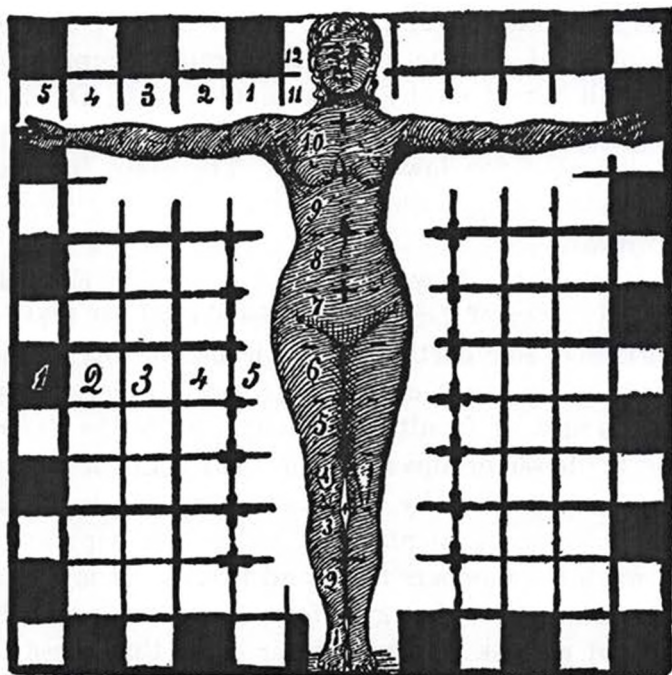
breast, with its pectoral muscles in front and those of the shoulder on the back; the eleventh square is the neck, and the twelfth is the brain. The width of the brain is also a twelfth. Looking at the arm, we see that one square measures the great deltoid muscles of the shoulder; one takes the biceps and triceps muscles of the upper arm; one includes the muscles of the forearm; one is the wrist, and the fifth is the hand. With the arms extended, "the height and the breadth are equal," as was said of the city.

The number twelve is therefore the numeral basis of construction in the human form. No other possible scale will accurately measure its various parts. For a long time artists used a scale of eight parts, but this touched only a part of the divisions, and they were obliged to use two other and different scales within the first.

Let us examine the engraved "measure of the head." The mathematical outlay of the human head, if made in straight lines, will give us the same scale of twelve. Draw three heads, as in the next engraving. The point at the opening of the ear lies against the centre, or physiological center of the nervous system, the pivot of action between the brain and the body. Draw one line from this point to the lower end of the nose, and another to its upper end. These two lines include an angle of thirty degrees, or one-twelfth of a circle. This is not only true of all human heads, but also of all vertebrate animals. In some cases, the slight variation of a degree has been noted.

In the heads of the engraving each of the noses at 1, 2, 3 just fills up the angle. The nose of the dog projects forward, but has less upright length than that of the sage. The farther the intellectual lobe of the brain projects forward the greater is the length of the nose, measured up and down. A short nose is nearer to the ear than a long one. The signs of the intellect are in the end of the nose, and we here see that a long intellectual lobe of the brain and a nose which is long in its downward aspect naturally go together.

In the higher harmonies, the number twelve consists of two



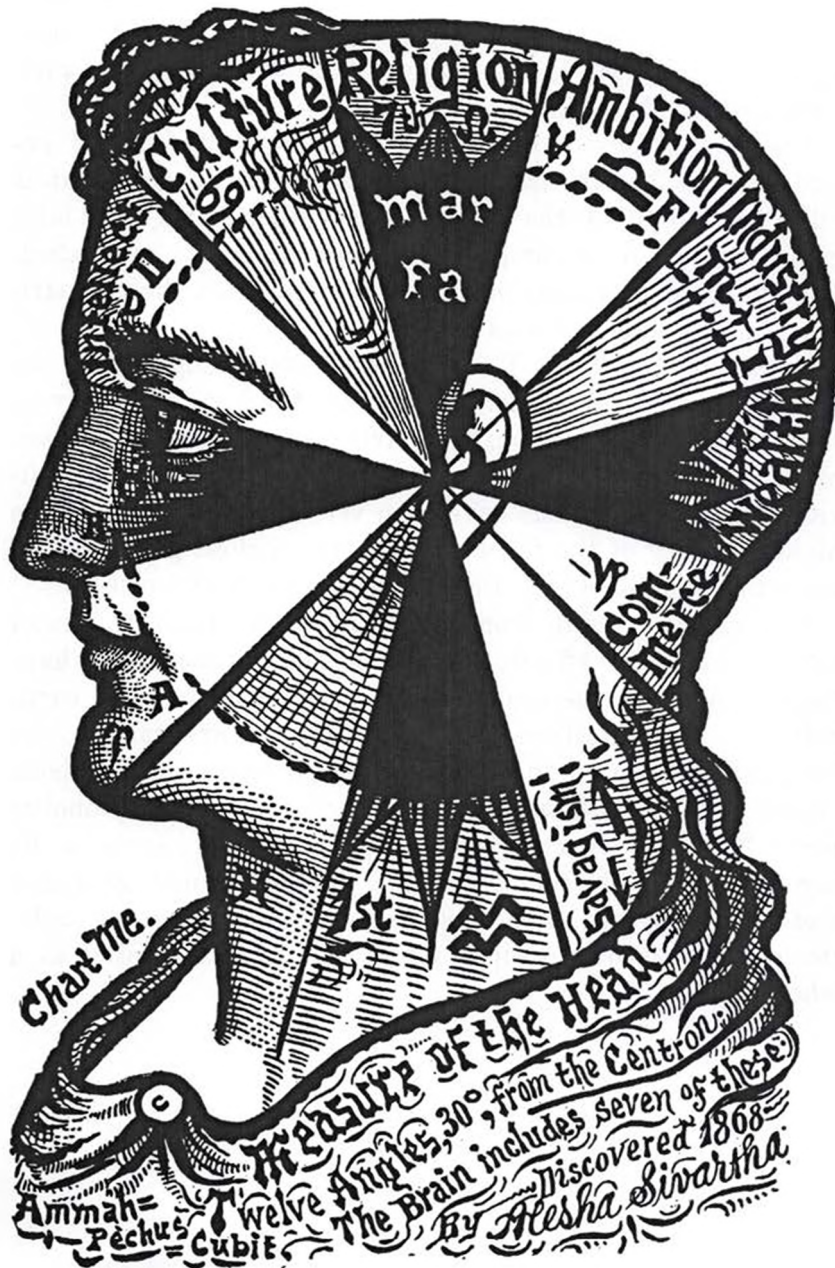
parts; five as the lower, and seven as the upper part. So in this measurement of the head, the brain occupies seven-twelfths of the great circle, or the angles B, C, D, E, S, I, and K. The face and the body, the servants of the mind and brain, include the five lower angles. The brain itself is divided into seven groups which point upward, and five which point downward.

In his vision of the New Palestine, the prophet Ezekiel saw the gathered tribes of Israel all redistributed, so that seven were placed above or north, and five below the city. And, as we shall see in the ninth chapter, the seven upper tribes had the upper groups of faculties dominant, while the five other tribes had the lower groups ruling in their traits of character.

We have thus proved, by the unanswerable facts of mathematics, that both our mental and bodily life express themselves through the numbers three and twelve. It is the faculties of the mind itself that give form to the brain and body, and we could not ask for any clearer proof that these faculties are classified by nature into three divisions and twelve groups, as set forth in the third chapter.

Extending the same sized angles all the way around the head, there will be three in front, three above, three behind, and three below. This scale measures the nose, the chin, the mouth, the forehead, the ear, and all parts of the head. If we divide the scale into any other number of parts, say into five, or seven, or ten, these parts will not fit or measure any of the features of the head and face. The New Jerusalem was laid out in the same way, with three tribes on each of the four sides.

MUSIC IN FORM. The human form, including the brain, is divided, as we have seen, by certain mathematical proportions. These very proportions are also the basis of music. If we make similar divisions of a musical string—a monochord—these will produce musical sounds which are in harmony with each other. They will give us octaves, thirds, fifths, fourths, second and third octaves and other musical chords. The laws of music are a part of our physical nature

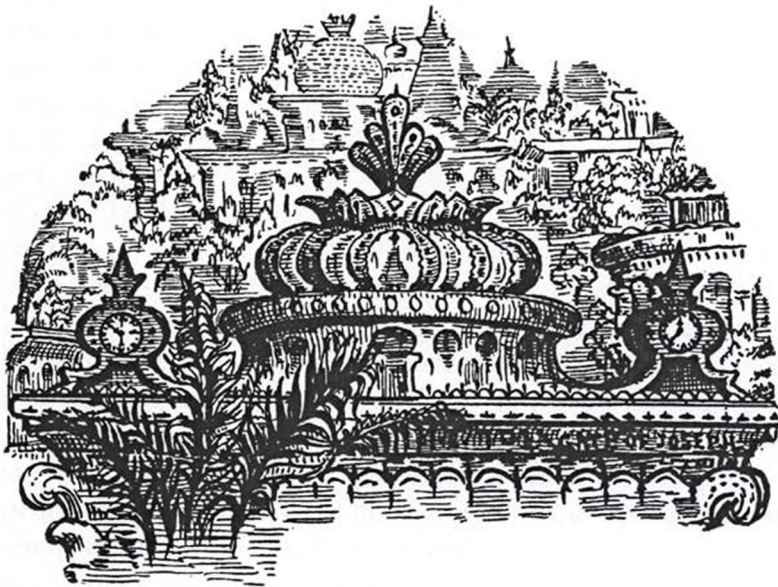


itself. And were it possible to make the human body vibrate, so as to produce sounds, we could evoke from it all the musical harmonies. We can now understand why music has such a wonderful effect on the human mind.

The proportions of the human form vary at different periods of life before maturity. Thus, at birth, the head is fully one-fourth of the height. The other parts gradually gain upon this until the proportions of maturity are reached. The standard of beauty has been derived from the comparison of many human forms.

TRUTH OF BEAUTY. The brief analysis through which we have conducted the reader proves that the laws of beauty in form are a part of our physical structure. Those old philosophers who supposed that Beauty depends merely upon individual tastes or customs have been very much mistaken. The highest beauty of the form indicates the highest perfection of structure and function. Beauty is both truth and utility.

SYMBOLISM. Aside from the clear explanations of mental action which they afford, the laws of celestial mechanics have their principal value in determining many laws of art, in earth culture, in architecture and in costume. For example, the faculties of parental and filial love are located upon parabolic curves. If we wish to have any object express or symbolize these faculties, then we should use parabolic curves in its formation. In like manner elliptical curves would symbolize and excite sex-love; hyperbolic curves would do so to ambition; and the entire ellipse would symbolize the mind as a whole.



CHAPTER FIFTH.

CROWN OF LIFE.

THE radiant waves of force start from central suns in their long and swift journeys across the universe. They are banded in octaves of light, heat, and chemic power. These marshalled vibrations assume definite mathematic forms.

They thrill the dull bosom of the earth, and its slumbering germs of vegetable life rearrange their molecules of starch, oil and bioplasm in exact chemic numbers. Their busy cells wheel into diamagnetic lines with the polar circuits of the earth. And the sunbeam lifts each aspiring plant up a stairway of light, whose spiral steps are gauged by the same harmonic intervals that we find in the wide-extended orbits of the planets and stars.

On the stems of plants the leaves are so placed that a line wound around the stem and touching the petiole of each leaf would be a spiral. Where the leaves are in two rows, the space between two opposite leaves is just one-half of a cycle or circumference of the stem, and where there are three rows it is one-third. The expression $\frac{1}{2}$ is applied in the first case, and $\frac{1}{3}$ in the second. Thus the different plants present a successive series of $\frac{1}{2}$, $\frac{1}{3}$, 2-5, $\frac{3}{8}$, 5-13, 8-21, 13-34, 21-55. Now compare the periods of the planets: Mercury 88 days, Venus 224, Earth 365, Mars 600, Asteroids 1500, Jupiter 4000, Saturn 10,000, Uranus 30,000 and Neptune 60,000 days. These bear a proportion to each other like that which marks the phyllotaxis of plants. This example is cited here to show that the vital forces are subject to measurement in the plant, and we may well conclude that they are equally so in the brain.

Among scientific men the theory of wave-movement is now generally accepted as a well-established truth. But granting its truth, we have to inquire where does the ultimate power reside which produces all the wave-movements of the universe? We are compelled to believe that the power of movement exists in matter itself. As a question of fact, we can not place any particle of matter in any position where it will not exert its power and effect some movement. The power of vibration must exist in matter as a mass or else in each of its ultimate atoms. Nature works in a similar way on both the large and the small scale. "Atomic mechanics, or a resolution of all changes in the material world into motions of atoms, caused by their constant central forces, would be the completion of natural science." These are the words of an eminent scientist; words of sober reason.

FORM OF ATOMS. Whatever may be the form of the ultimate atoms, they are too small to be seen by the eye of man, or by that sharper eye of science, the microscope. At least this is true in the present state of that instrument. Nevertheless these atoms may be studied in another way. That is, we may construct an hypothesis of the form of the atoms

which shall be sufficient to account for all the forms that are known to exist in the objects of nature. This does not require a great number of kinds. For, as we learned in the last chapter, seven geometric curves are enough to constitute the basis of all the forms in natural objects. The fundamental types of life are only three—radiate, molluscate and vertebrate. A radiate or annulate is made on the plan of a circle; its polar forces radiate from one common center. The mollusc type is unsymmetrical, its polarity is involute, like that of the atoms marked S and N. The vertebrate has three poles at each end of an axis, like the atom of carbon. The most fully developed plant has this same kind of polarity. The greatest variety of forms is among living objects. The forms assumed by minerals are simple and few.

TWELVE FORMS. On the border of the Dynamic Chart, from V, S, N, around to A, we have placed twelve kinds of atoms. They include such forms as would produce, by their polar action and their combinations, all the forms that are known to us in nature. These atoms are the builders of the universe.

The points marked on these are their poles, that is, the places where they attract and may become attached to other atoms. Some of them have only two of these points, as the ones at A and N. Others have three, four or six. As an example of their grouping, look at figure 6, where the atom A has attracted the atoms a, b, c, d. In the figure of the Ellipse, the row of atoms, M, O, A, N, V, K, S, have arranged themselves around the focal atoms, M, S. Each one of these directs its poles to its next neighbor, and also toward the focus. Each one has also one free pole. The figure of the circle illustrates a grouping around a single focus. By means of these polar points the atoms of substance are able to arrange themselves into all the myriad forms that diversify the rich fields of nature.

A group of atoms might have a collective polarity which would be different from that of any one of its atoms. It would be produced by modifications of the dominant atom by



the others. A molecule is a group of atoms having its own special properties as a result of its combined polarities. In the molecule of Bioplasm, on the Chart of Nutrition, the atoms of oxygen, nitrogen, hydrogen, phosphorus, sulphur and iron are grouped around the atom of carbon as their center.

INCESSANT VIBRATIONS. Every atom has incessant vibrations, and these are a part of its inherent nature. These vibrations can not be destroyed, but they may be combined with those of other atoms and thus give rise to new forms of waves. Each kind of atom is distinguished by its own peculiar kind of vibrations. Upon these depend its properties, as we know them. "The atoms are not passive but spontaneously self active." All the great movements of the universe are produced by combining these atomic vibrations. The atoms themselves are indestructible. The distinction between any portion of matter and its motions is just as well defined in the ultimate atoms as it is in the largest known bodies.

SPIRIT AND MATTER. The atoms of Matter differ from those of Spirit in three particulars—in their forms, in their size, and in their polarity. The atoms of matter are bounded by straight lines; those of Spirit have curved surfaces and rounded outlines. Spirit atoms have circular polarity. And this produces the rounded forms which prevail everywhere in living objects, in all plants, cells and animals. In the composition of these, spirit atoms of some kind have always taken a part. Each living object, like each individual cell, has a circulation, and the cause of this lies back in the ultimate atoms. In the higher spirit atoms, the two focuses of each atom approach and recede from each other incessantly, and thus produce constant vibrations. On the other hand, the atoms of matter have right-line polarity, and this causes straight lines to predominate in crystals. The waves which proceed from atoms of matter are angular in form; but those from atoms of spirit are curvilinear. I regard the atom of oxygen, ox, as a transition form between spirit and matter.

In the circular figure of the Dynamic chart, it is shown that

each one of the great forces is distinguished from the others by the size or form of its component waves. Those of gravity differ from those of heat, and these again from those of light. An object has gravity or weight simply because its particles are capable of that special kind of vibrations which are known as those of gravity. There may be, and there are, some kinds of substance which are not capable of that peculiar kind of waves. In the same way, we know that a piece of wood will not vibrate to the waves of a magnet, while a piece of iron will at once respond to the magnetic vibrations. The atoms of spirit can not be directly affected by the waves of gravity. Therefore spirit has no weight. But these atoms may be united with those of matter and then the compound body has weight or is under the influence of gravity. This is the case in living bodies.

The waves of spirit atoms may unite with each other, and, according to the law of Intensity, they may produce waves large enough to balance those of gravity, and to produce the same effect upon matter. In figure 3 of the Wave-chart, the two small waves, S and F, unite and produce the larger wave L. This law of intensity is a general one for all of the forces.

The atoms of spirit possess forms quite as distinct and persistent as those of matter. This has nothing to do with the question of their possessing weight, as we explained above. If spirit atoms have FORM, they must of necessity have SPACE. For we can not conceive a form, a circle or triangle, for instance, without there being space between its two sides. It does not follow that the ultimate atoms can be divided because they have parts, though some thinkers have tried to suppose it did. Divisibility has nothing to do with the size of a thing. If it had, then a cubic foot of steel would be more easily divided than a mellow apple. To say that "we can imagine the ultimate atom to be divisible because it has two sides," is to put together words without meaning. An iron ball has two sides as much as a melon has, but you can not cut open the ball with the melon. Spirit atoms may be just as hard and firm as those of matter.

The atoms of one kind are never converted into those of another kind. Matter never turns into spirit by any process of refinement or other change. Throughout the universe we shall find spirit and matter associated. The ancient philosophers of Greece imagined that spirit was one uniform substance. But the properties of spirit are as widely various as those of matter. Those men fell into that mistake because they failed to make any careful analysis of mental phenomena. Had they made this analysis, they would at once have perceived the complexity of mental properties or qualities. They could not have then believed that all spirit was one indivisible substance. And their followers would have walked in better paths. The terms Spirit and Matter were chosen at a time when the distinctions between them were little understood. That, however, does not stand in the way of our using those words and attaching to each one a distinct meaning.

If spirit did not possess space and form and color then the mind could never know that these properties existed in the external world.

MATTER, ETHER AND SPIRIT. If we pile up a mass of such atoms as are figured in the dynamic chart, it is evident that they will not all be in contact throughout all of their surfaces. They will only touch at certain points. What fills up the intermediate spaces? Science is obliged to conclude that in all these interspaces, far through the universe, there is a substance which is the most highly elastic of all elements; it transmits the waves of force in all directions but is not itself composed of separable atoms. This is the Ether, and thus the universe is composed of three great classes of substances, Matter, Ether and Spirit. Each of these has some distinctive characteristics, and also others which are common to all three. The old sages imagined that spirit has no properties which also exist in matter. But in forming this notion they had to ignore the validity of all the facts in the case, and they constructed an hypothesis with nothing for a basis.

SEVEN FORCES. Seven great Forces carry on the universal operations of nature. These are Gravity, Heat, Chemic force,

Magnetism, Electricity, Light and Vital or Spiritual force. All these were known in some of their manifestations to the old Greeks. But it was not until modern times, when the genius of Gilbert, of Franklin, Dalton, Galvani, Young, Faraday, Mayer, and others, had investigated these agents, that we came to understand how the forces were mutually related and their intimate nature. They are now regarded as different modes of Motion, and all these motions have their ultimate centers in the atoms of spirit and matter. The forces do not exist independently, by themselves; they are attributes or, rather, movements of substance; that is, of matter, ether or spirit.

The movement of all these forces consists of waves, or a series of vibrations. And certain forms, sizes and rates of rapidity belong to each kind of force. These forms are partly figured in the chart.

All forces are convertible, transferable, or counteractive, in measured proportions. A definite quantity of one always produces, or else counteracts, a definite quantity of another. In the steam engine, heat is converted into mechanical motion. When a body falls and strikes the earth, heat is developed—gravity has been converted into heat.

In no part of nature is there any such thing as absolute rest. Matter, Spirit and Force are eternal. Either may assume a thousand complex forms in succession, but neither can ever be destroyed. To-day we behold the stately tree of the forest; a few centuries hence it will have fallen to decay, and its tissues be converted into gases or into the soil. Nay, before our very eyes the wonderful transformation is constantly taking place, but not an atom has been destroyed, not any force has been wasted. They have disappeared in one, to reappear in another form. The entire quantity of matter and of motion remains always the same in the universe. We can not take any atom of matter and by any possibility divest it of motion. For example, no atom of matter was ever found that did not possess gravity, or the power of movement toward other atoms.

The waves of Sound are large enough so that we can easily make them diagram themselves and thus examine them with the naked eye, and study their forms. From these studies many of the laws of wave-movement have been discovered, and these have been used as a key in studying the minute waves of the seven forces. For these latter waves are so small as to escape all ordinary means of scrutiny. The waves of light, for example, vary from the 37000th part of an inch in red light, to the 67500th part of an inch in the violet.

In the case of sounds, any given note has waves which are exactly twice as long as those of the note which is an octave above it. The ear can easily distinguish eight octaves of sound. But in the case of light, the longest and the shortest wave differ only as a single octave. This is the ordinary range of the eye. The waves of red are twice as long as those of the violet rays. The waves of nerve force form a series of colors which constitute the next octave above that of ordinary sunlight. The wave chart presents some characteristic forms of sound-waves in the central figure. At 2 is shown the sound-wave represented by the letter I in the word "marine," or by ee in "feel." The crest of this wave is at C, and on one side is the sharp curve or overtone, V, and on the other are two of these overtones. These with the crest make up a single wave. At A is the wave which belongs to the sound of A in the word "far." On one side of the crest is a rounded overtone, and on the other side are two of these. At O is the sound wave of O in the word "tone." In this case, only one overtone belongs to each crest. In these examples it is seen that the vowels differ from each other chiefly in their overtones. At Im are the collective waves belonging to the word "impossibility."

When we consider that the forces all consist of waves, it is easy to understand how they may be converted into each other, and how closely they are related. The nerve-force obeys the general laws of radiant forces.

WAVES OF NERVE-FORCE. The radiant waves from each organ of the brain and from each part of the body have their

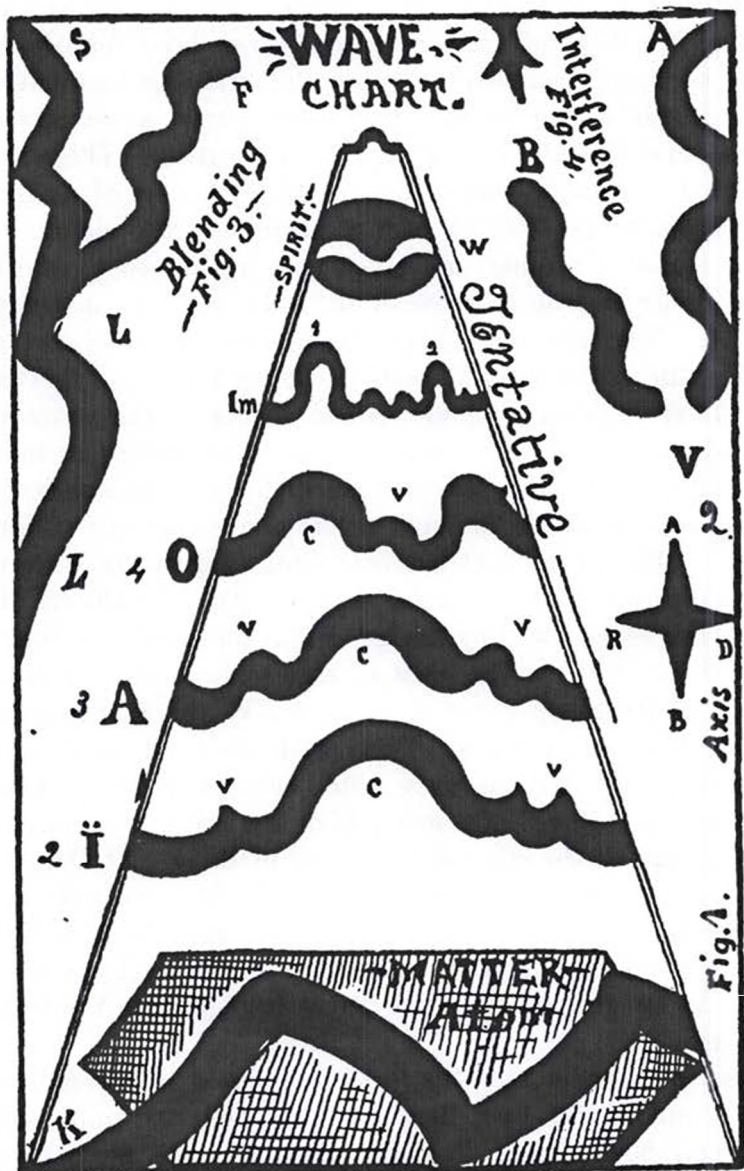


Fig. 1.

own distinctive character. They differ in form, in length and in altitude.

The engravings of the Aurosphere show the rounded form of the waves of Memory; the constructive waves of Reason; the articulated waves of Amity or Friendship; the smooth waves of Religion; the looped waves of Sex-love; the angulo-curves of Dignity; the sharp angles from Integrity and Liberty; the acute angles of Defense, and the hooked waves of Aversion.

These examples show that the form of the waves corresponds precisely with the character of the faculties from which they are radiated. The smooth, attractive waves of Affection are in broad and appropriate contrast to the harsh, repulsive waves of the Defensive faculties. Our very thoughts and feelings have their distinctive shapes and impress them upon the outflowing waves. The prickling sensations under the excitement of anger are very different from the soft thrills of affection. An instinctive perception of these truths has determined the figures of speech used in all languages. Men never speak of love as rough or of anger as being smooth.

The nerve-force usually travels along its special conductors, the nerve-fibers, while it is within the brain and body. But like magnetism it can readily flow outside of its conductors when it reaches their terminal ends. The sheaths of the fibers insulate the current while it is passing along the fiber, but when the current reaches either the cells or the free end of the fiber, then it may be freely radiated into space. Its rate of movement along the fibers is thought to be about ninety feet per second, a rate which is very slow in comparison with that of magnetism or electricity. The nerves are capable of transmitting currents of electricity. They can be made to do this even when compressed. But if we press upon a nerve, that pressure will stop the current of nerve-force and prevent its passing. We see from this that the nerve-force is not electricity, although they have many points of resemblance.

NERVE-SPHERES. The nerve-force constantly radiates from

each organ, and it thus passes from us in all directions through space. Each person is thus constantly surrounded by a nerve-sphere which corresponds to his own character. Through these spheres we either attract or repel those who are around us. We mentally impress others and are impressed by them.

These pulsating brain waves, these swift lines of thought and feeling, sometimes reach a few feet, and sometimes many miles. But whether extending a great or a less distance, there, around every person, is this vital sphere of silent power, reflecting and transmitting every mood and impulse that sweeps through the soul.

When two friends approach each other, there is a beautiful play of colors as the nerve currents from them meet and blend, one after another, and, when the two friends become fixed in position, the waves returning to each give a new series of luminous harmonies. Sometimes the currents from some organs will blend, and those from others will not. In that case, the two friends can only partly sympathize in feeling or thought. When the blending is complete, we may read the very thoughts of our associates.

These exchanges are constantly taking place and all persons feel their influence, whether such persons are called sensitive or not. The highest effort of clairvoyance is but the exaltation of this nerve-sense, which all persons exercise in a greater or less degree.

In all the great religious inspirations of the world, in all ages and among all nations, the nerve-force was the instrument through which the inspiration was effected, the channel through which the visions or the words were conveyed to the mind of the seer. Perfectly natural means were used, whether the inspiration came from the Deity or from angels.

MESMERISM. Mesmer and his followers have shown that the voluntary exertion of nerve-force in one person has enabled him for a time to control the muscular movements and apparently the whole thoughts of another. The operator makes passes over his subject, who must remain in a receptive

condition until his nerve-force has sufficiently penetrated the latter. Then whatever the operator may think or wish, the same thing is thought and wished by the subject. These experiments are abnormal uses of the nerve-force, but they serve to vividly illustrate its transfer between persons. In cases of disease, as well as in health, the vital force may be rapidly communicated from one person to another, either with or without any direct contact. The strong and vigorous person may exert a most beneficial power in this way; he may become the mighty healer of his helpless fellows. It is then right for the sick or weak person to make himself as passive as possible. And a million plated batteries, in the form of tactile corpuscles, stand waiting at their fixed stations in the skin, ready to vibrate in swift response to mesmeric impressions, and to carry the vital waves of life-power far inward to each drooping and exhausted organ of the system.

TELEPATHY OR MENTAL TELEPHONE. The nerve-force may extend its influence between those who are great distances apart, and convey expressions of thought and emotion even more exact than by words. In these cases of mental telephoning, the messages are transmitted by means of currents or strata of spiritual substance, the spiritual atmosphere. These currents are more easily established along roads where the persons concerned have traveled. We speak of the nerve-force as itself traveling, but it is more exact to say that the nerve-force imparts its vibrations to a spiritual atmosphere, and that they are sent through this by continued waves or pulsations. In a physical telephone, a person speaks in one end, and the current of magnetism passes along the wire and reproduces a similar set of sound-waves at the other end, where a person is listening. And so in mental telephoning, the spiritual current reproduces the mental vibrations at the other end of the line.

Many obstacles interfere with this method of communication. Every advance in culture and refinement will make its use more frequent and certain.

The nerve-force from large and active organs extends

farther than that from small and inactive ones. So does that from the front and upper organs when compared with that from those of the lower and back head. From Kindness, for example, it reaches farther than from Defence. The latter points to the earth and so must soon stop. Anger, hate and all the evil passions die out sooner than love and the higher emotions. The reign of evil is limited by this law of brain-structure. The passion for military glory will be outgrown, while the beneficent triumphs of the intellect survive through all generations.

It is through these vital currents that the whole human race is to be united in one vast composite life. The high sensitiveness, which would belong to such a universal sympathy, implies the entire dominance of the nobler faculties of man's nature. The invention of the magnetic telegraph and telephone was an external index that the development of man had reached nearly to a point where it would be possible to unite all the nations in bonds of amity. The telegraph or telephone was the physical nervous system of the nations.

CONTROL OF THE WILL. The will appears to have a certain amount of control over these out-going currents. By thinking and steadily exerting the will on a particular person, the nerve currents may be directed towards him more definitely and effectively. Within the brain itself the will displays the same power in directing the currents of force. We can, by an effort of the will, call one faculty or another into activity, just as we choose. In the brain, however, the mechanism is so regular that this object is accomplished without difficulty and without our notice.

MODIFICATION OF CURRENTS. A current flowing from an organ in any direction over other organs mixes with the force peculiar to each and is correspondingly modified. For instance, take a current starting from Excitement, the lower part of Caution, toward Stability. The harsh, angular character possessed by the waves when they start from Excitement is slightly modified by mingling with the force from Caution. At Patriotism, its forces make them much more

quiet and smooth. Still further on, the blending nerve-force of Integrity imparts to them a more steady and even strength, and that of Perseverance gives them greater uniformity. At the end of their course, Stability or Firmness imparts its gentle and firm influence. The force of each organ tends to make the passing current resemble itself in character. If the intermediate organs are small and inactive, the current would pass around them and over larger and more active ones.

INTERFERENCE OF BRAIN WAVES. A current of nerve-force from one organ may meet and neutralize that from another by interference. This is according to a general law of all the forces, when the crests of the waves in one correspond to those of the other they are increased in their intensity; but when the crests of one falls into the depression of the other, they neutralize each other. This is illustrated in the Wave-chart, fig. 4. The wave A proceeding downward is met at V by the wave B, which at that point is going in the opposite direction from A. The force of the two waves is thus set against each other, and they become neutralized or converted into some other kind of movement. In figure 3, exactly the opposite kind of an effect is seen. For the waves F and S, going downward, meet at the point L, where they are both going in the same direction, and they unite to produce a wave which is equal to them both in volume.

The new resulting force in the brain may be readily estimated by considering what the two organs were, and over what organ the currents met. A current from Purity and one from Laudation might meet and neutralize each other over a large organ of Caution. The new force would be appropriated by Caution, and would probably impart to the organ a pleasing feeling of tender care.

Opposing currents are constantly meeting and being converted where no interference occurs. The organs of Imagination, Im, are located at the junction of the Reflective, the Receptive, Sexual and Parental groups. It follows that a multitude of minor currents must meet and be converted over

this organ. Out of these conversions would naturally spring the whole system of metaphors and figures of speech which form so large a part of all languages. For if the nerve-force of two organs may be converted into each other, then the forms of speech appropriate to each may be exchanged, as in the case of all metaphors.

The nerve-force from an attractive organ or group in one person may flow outward, and meeting the repulsive force from another person, it may neutralize the latter by equaling or exceeding it in quantity. This is according to a law which governs all of the forces in nature. Suppose, for example, that one person throws out a quantity of repulsive force from Destruction which would equal, we will say, $5x$, and another person meets this by enough attractive force from Love to equal $7x$, it is evident that the last will be sufficient to neutralize the first. In this way we may overcome evil with good. It is not by passively yielding to the evil, but by the active exertion of an opposite force; for the good person would be exercising the highest degree of Firmness and Self-control in connection with his organ of Love. This is a nobler way than to meet evil by evil, for this brings our own higher faculties into activity.

ADHESION OF IMPRESSIONS. When a new impression is made on the mind, it sets up its own peculiar vibration of the fibers and cells. Now if the mind already contains an impression which was in part similar to this new one, then some of the fibers have already vibrated in the same manner as the new impression would make them. According to a general law of all action, they could repeat their old vibrations more easily than they were produced at first. As a long-used violin, or other musical instrument, becomes toned to more and more delicate and exact sound vibrations, so do these brain cells acquire more perfect power by repetitions. Hence new ideas tend to set in action those fibers and cells which have already responded to similar ideas. And thus similar ideas and feelings are stored up in the same parts of the brain. This is the basis of the important law of associa-

tion in memory and reasoning. Each organ excites its neighbors to action. Stir up one thought, and you will arouse those that lie in the cells under or near it.

If each new fact and impression, as it comes into the mind, is compared with those which are already there, and the mind decides which of the old ones it resembles most, then the new impression will be made on the cells which are adjacent to those which contained the similar old one. As any excitement of one cluster of nerve cells will extend to and excite adjacent ones, it is clear that if the impress of similar facts be made upon adjacent cells, then the excitement of one will awaken and recall the other.

Association of ideas also arises from analogous faculties, those which are polar in the second degree. Thus the color of an orange may recall its form and its flavor. The organs of form and of flavor are polar, but not adjacent to color.

These laws show us the vast importance of true classifications in teaching all branches of knowledge. If our facts and our ideas are all in disorder in our mind, it will be as difficult to find and recall them as it would be to find anything you want in a disorderly house.

In childhood and youth the brain is more susceptible to impressions than at later periods of life, and they are retained with greater tenacity. The early part of life is the time to lay up a store of knowledge, to be worked out in the practical duties of mature years.

The mental state of Attention or Consciousness involves an entire circuit of relations, a series of impressions and responses from different parts of the brain. Consciousness is a complex, not a simple thing. Even the consciousness of Existence, which seems so simple involves the fact that impressions have been made upon various parts of the skin, and upon each of the senses, and these have been carried into the brain, and combined, arranged and focalized on the cells of the organ of Attention. This complexity is proved by analysis. There is no circuit of impressions in mineral bodies, and therefore they can have no consciousness.

The actions of nature are full of measured repetitions. To these as a whole, we give the name of Time. The organ of Observation relates to the present moment. When time recedes into the past, it is cognized by the organ of Memory. When the facts become far enough past to be organized into periods, they come under the cognizance of the organ of Time, situated still further outward from the middle of the forehead. And when the periods assume definite relations to each other, they impress the organ of System.

NATURE OF MEMORY. In the growth and nutrition of the brain—as each old and worn out nerve-cell is replaced by a new one—the impressions which were upon the old are transferred to the new, so that the mind is able to retain its images. But there is a little force expended in making the transfer; consequently, it is never complete, and the mental impressions gradually lose their distinctness and intensity. Probably, many times the new impressions received by the mind are superimposed upon others, and this would impair their distinctness. These mental palimpsests sometimes get very much mixed.

The organ of Memory is a general storehouse, but each mental faculty also retains or remembers its own kind of impressions. Thus the organ of Form remembers images, and that of Amity retains the impressions of friendship.

NERVE AND MUSCULAR FORCE. The nerve-force may be converted into either of the other forces. Whenever a muscle contracts, nerve-force has been sent to it and expended. Let a person of studious and sedentary habits engage in vigorous muscular labor, and he will quickly realize that the brain is using up its nerve-force in the effort, for his brain will soon feel exhausted.

There is an exact relation between the amount of nerve-force expended and the amount of mechanical force displayed in the contraction of the muscle. This is clearly proved by the fact that we know just how much nerve-force to expend in order to make the muscles contract to any required extent. All mechanic arts depend upon this certainty. In the acts of

cutting, sawing, painting, and ten thousand acts of our daily life, it is necessary that the muscles contract just so far and no farther.

WAVES IN DREAMING. When we are asleep and dreaming, the great brain currents no longer sweep along with their accustomed force and rapidity. They are now tardy or wholly quiescent. Other lesser currents, flowing in other and cross directions, now prevail in all parts of the brain. These minor currents mix up the mental images in a fragmentary and patchwork manner. They form the grotesque and illogical combinations in which dreams abound. Here the image of a cat's head floats along, and, touching the image of a man's body, the edges of the two partial or broken mental pictures adhere so softly and closely that they seem as one, and lo! in our dream there stands the man with a cat's head on his shoulders. The doors of the senses are close shut. The closed eye can not look out and compare and see that there is no cat there. The halls of the brain seem all the more brilliantly lighted because the doors of sense shut out the external world. Minute sprites expand in the dim light into giants. The slight jar of brain waves exaggerates their movements into the tread of mighty armies. A microscopic tremor becomes a terrific convulsion of nature. The mind is unable to correct these fictions by a comparison with external objects. It is obliged for the time to accept them as realities, until the opening eyes and ears tell us of the actual world around us, and relegate these dream pictures to the minor place they deserve.

But there are dreams which are perfectly logical and connected. For sometimes in sleep the mind is especially sensitive and passive, and then clear impressions of ideas, or of facts, may be received from other minds, or even from our surroundings. Many such dreams are recorded in history, like that of the Great Image in Daniel, and many have been carefully observed by the present writer. It would be thoroughly unscientific to explain these dreams as merely a revival of impressions already stored in the brain. Many of

them are prophetic; they represent accurately, or else by exact symbols, events which are yet future, at the time the dream occurred.

If a large current attempts to travel over a nerve which is too small for it, then one of two things may happen. It may be converted into heat, and we all know that a strong nervous current may produce a glow of warmth all through the body. Or it may be converted into galvanic current, and then the person will feel those thrills which all have experienced under excitement. The current may produce a cool thrill, instead of a warm sensation.

COLORS OF NERVE-FORCE. Each organ of the brain radiates a nerve-light of a distinctive color. Thus, from Ambition the light may be bright or dull, clear or impure in tone, but it will always be a crimson or reddish purple. These colors are shown in the full-page view of the nerve spheres. The author of this book was the first person who analyzed these colors and traced them to their source in the separate groups. This was done, and the proper diagrams painted, in the year 1860.

From the following table these colors may be readily learned, and from the colored plan of the New Jerusalem.

INTELLECT.	AFFECTION.	VOLITION.
RECEPTION, Emerald.	RELIGION, Lemon.	AMBITION, Crimson.
REFLECTION, Azure.	SEXATION, Orange.	COACTION. Scarlet.
RETENTION, Blue.	PARENTION, Amber.	DEFENSION, Red.
PERCEPTION, Grey.	SENSATION, Salmon.	IMPULSION, Maroon.

The dominant color in the intellectual group is blue; in Affection it is yellow; and in Volition it is red. These are regarded as the primary colors of nature, by the scientists. These mental classes and their colors may well be compared

to the climatic zones of the earth. The cool Intellect is the north temperate zone. The genial bands of Affection are the south part of the temperate zone. And the organs of Volition are hot, fiery and impulsive, the torrid zone of mentality.

These facts furnish a clear guide for the application of color in costume, architecture and landscape. Every color exerts a definite influence on that group of mental faculties which radiates a similar color. The world of color beauty, in nature and art, becomes full of living significance. Some of these applications are given in the twelfth chapter.

The nerve-force is finer than ordinary sunlight, and it is hence impossible to represent its extreme beauty and delicacy in a painting or an engraving.

The nerve-force bears closer analogies to light than to any other of the forces. It has often been seen by sensitives, under a slightly increased intensity of common vision. The rods and cones of the eye become more tense under some forms of mental excitement, and consequently they vibrate to the fine waves of nerve-force. It may then appear as a soft, diffused light around the head and form, or it may shoot out in broad glowing bands, like the aurora; or it may form iridescent clouds, at a greater or less distance from the persons. The light from the seven upper groups often appears like a crown of spiritual brightness, decorated with flaming jewels.

INTENSITY OF COLORS. When an organ is excited and active, its nerve-force will be bright and intense, flashing up vividly. We express this condition by saying that our minds feel bright. A public speaker whose whole intellect is excited, is said to make a brilliant effort. Those who first used these terms regarded them as simply figures of speech, little dreaming that in the advance of science it would be proved that they were true in the most literal sense. When an organ is inactive, or when we are asleep, the light from it is dull and obscure. We can truly say that the mind is dull and the thought slow in this case.

THE CROWN OF LIFE. A well-cultivated and properly used

organ gives forth a nerve-light that is pure and clear in color. But from an organ in the opposite condition, it will be foul and impure in tone. We speak a literal truth, then, when we say that a good person is the light of a community, or that the bad dwell in darkness. When we enlighten the mind of a person, we actually increase the quantity and quality of the nerve-light radiated from his brain. Our own light is none the less from lighting that of our neighbor. To the eye of the sensitive, or the clairvoyant, the brain appears like a luminous sun, only its light is of infinite softness. Hence, a sun with twelve rays is a true symbol of the human mind, and of a perfect man, a Sun of righteousness.

The seven-rayed crown of living nerve-light may adorn the head of every good person in this life. It comes to them as the sure reward of intellectual culture and spiritual excellence.

IMPRESSIONS. Every object radiates forces which impress an image of itself upon surrounding objects. If we lay a key upon a smooth metal plate for a short time, and then remove it, the image of the key may be evoked by heating the plate. And this may be done years after the contact. Whether conscious or not, the objects of the universe are thus continually writing their history in these marvelous pictures.

The nerve cells of the brain and of the various nerve centers are constituted on purpose to receive impressions. The extent of their impressibility is very great, and the results belong to a large part of our conscious life.

By coming in contact with an object, a sensitive person may perceive and may describe the impression it has received and retained. For example, by holding a manuscript letter in gentle contact with the forehead or the hand, the whole character, personal appearance, and even the thoughts of the writer, at the time of writing, may be faithfully described.

A fossil plant or animal, examined in this way, gives up a faithful picture of its ancient surroundings, in prehistoric ages. In the experiments made by Denton, this was done again and again.



marriage Religion- Familism

o SCIENCE
Learning & Cultural

Arts
Percept

Home
SH.
Sivayatha
BU
AURAS

Ambition
Display
Austerity
Wealth

Copyright
Commerce 1908

The much later experiments of Hitzig, Ferrier and others (1872) were made by currents of electricity applied to the brains of the lower animals, and have already been described in our second chapter. These experiments were very striking and decisive, but they only confirmed the locations already assigned by the older discoverers. Some of these later observers fell into singular mistakes by not knowing or not considering that every intellectual organ has a special organ of the will upon which its external expression depends. The organ of invention would be worthless if the group of labor did not embody what we invent in some object or structure. The sense of vision requires the constant exercises of the organ of vigilance, the upper part of caution. This dependence is so close that when Ferrier destroyed the organ of vigilance, in the animals, the sense of vision also disappeared. The organ of Equality, a part of liberty, is essential as the support of memory. If equality and liberty were destroyed, then memory and attention would fail.

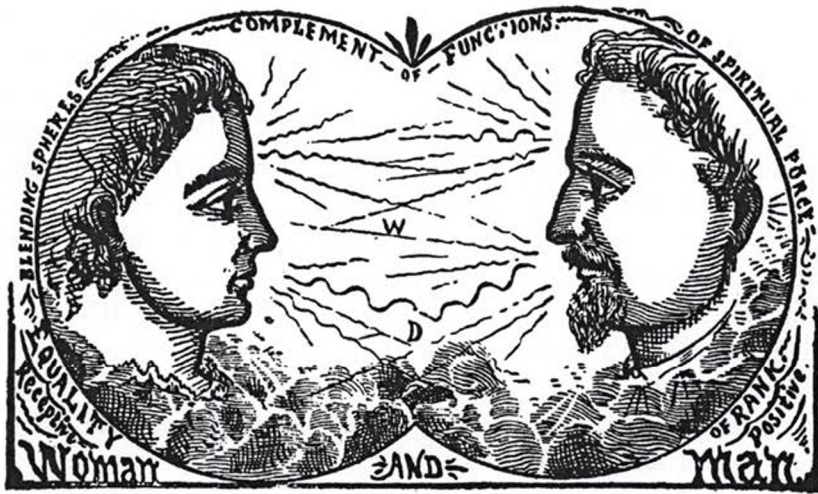
CARESSING. Those acts of contact which express the various forms of affection prove the reality of these impressions beyond all possibility of doubt. All animals with a distinct nervous system, from the insignificant worm up to man, express their sexual, parental, filial or friendly affection by the contact of caressing. Taking man alone, here are twelve hundred millions of these facts occurring daily. And only one explanation is possible. There must be some actual force passing from one living being to another in these acts of caressing. This nerve-force is a vital part of us, and its reception in this way is just as real as the reception of force through the food which we eat. It does not depend upon imagination. We touch those parts of the face and body which are functionally connected with the actions which we wish to express. Thus parental, filial, fraternal and sex-love are connected with the lips and with the bosom, and hence kissing or caressing these parts expresses these affections. A kiss on the back of the hand expresses protection and submission, for this part of the hand is connected with the defensive

and ambitious faculties. A kiss on the forehead expresses fraternal and religious affection.

SPIRITUAL ATMOSPHERE. Through the radiated nerve-force we actually impart somewhat of our own being to everything we touch. And in turn we as constantly receive from the accumulated force left by others.

The presence of a large number of the wise and good in any locality fills the place with a nerve-sphere of light which may last for years. Such a luminous mental sphere is highly favorable to clearness of thought and social harmony. It is a part of human destiny to surround, in this way, the whole earth with the living glory of truth and love, its true and final spiritual atmosphere.

This law teaches us that we are responsible to our fellow beings for every thought and feeling which we entertain, as well as for every action which we perform. The silent waves of mental force vibrate from soul to soul. They unite us all by the inseparable links of a composite spiritual life.



CHAPTER SIXTH.

RESPONSES.

FROM the rhythmic sweep of stars down to the chemical union of atoms, all action is polar. It involves the concert of opposite forces or tendencies—the attractive and repulsive; receptive and positive; masculine and feminine.

The phenomena of mental polarity play an important and conspicuous part in mental action.

The polar faculties, these all-sweeping levers of life, vibrate through the earthy and the heavenly spheres of our being. They sweep the past, the present and the future. They actuate both the progressive and the conservative phases of our existence. The rhythm of human life depends upon their equal development and concordant action.

SPHERES OF CONTRAST. The major axis of the brain extends from Memory to Liberty. The whole half of the brain below this points downward and belongs to the earthly side of our natures. This lower side of the brain rules the life of the lower animals. Their chief attractions are earthly and material. This half relates to the lowest sphere of life, the lowest uses of all things.

With most impressive force the ancient seers called these lower faculties, "The Beast, the dragon, the leopard, and the serpent." All through the early ages of history this sphere of darkness ruled the world. Man sadly proved that he was "made out of the dust of the earth" by yielding to these dominant earthly attractions.

Opposed to this inferior sphere is the upper half of the brain. Its organs of Inspiration, Integrity, Faith, Love, Hope and Reform lead us to perceive the higher life; the spiritual, the better uses of all things, the heavenward phase of feeling and action. We should look up and not down, is the command of these faculties. They point upward and they fit us for an elevated life of purity, goodness and harmony.

The symbolism of prophesy represented this upper realm of the mind by the Lamb, the dove, the horse, the ox, and other animals which were the servants of man. It was this sphere which the Messiah was to establish in supreme dominion.

If we mix all the colors which belong to the nerve light of the lower groups, the result will be a dark, dull and muddy color. If we blend the nerve colors of the higher groups it will produce delicate and bright colors. The "spheres of light and darkness" are substantial realities and their adjustment is a necessary problem in the science of society.

The perceptive faculties, around the eye, are concerned with the things of the present. Opposed to these are the conservative feelings of the ambitious organs, from Dignity to Economy. They cling with tenacity to whatever the past has bequeathed to the present. When acting alone, they produce a clannish feeling, and desire to go with the oldest and strongest party, whether it be in the right or in the wrong.

The attractions to the past are opposed by the high front faculties of Inspiration, Reason and Reform. These point forward to the future, and assure us that it is in the noonday of human history, and not in its gray dawn, that the sun of truth shines with the most life-giving beams. They command us to look forward, not backward. In the grand cycles of

growth the old never fully returns. The new always has the first unfoldment of some truth or beauty.

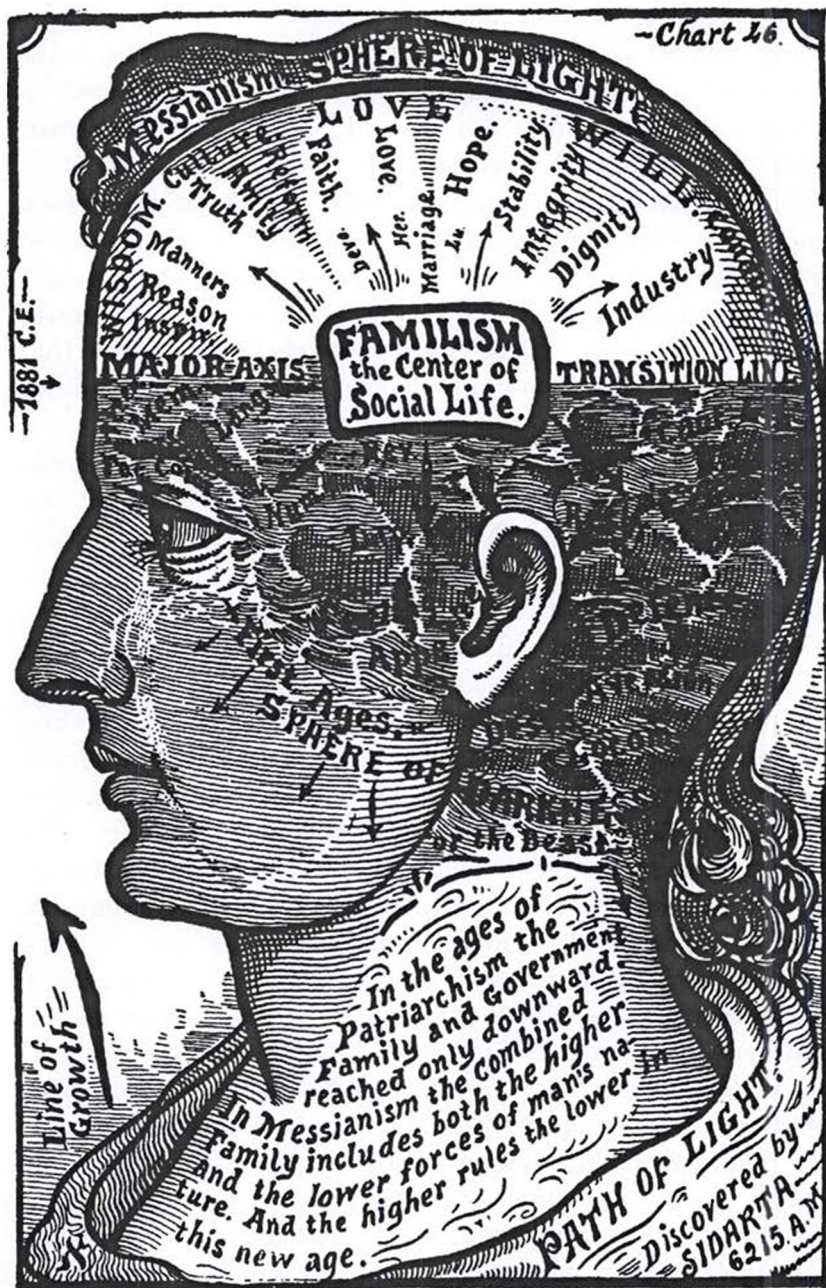
The sensitive faculties, from Appetite to Impression, make us sensitive, yielding and impressible. They are balanced by the vigorous organs from Stability to Caution. These organs render us firm, hardy, and tranquil.

The Defensive group, if acting alone, would make a person harsh, disagreeable, conservative, and selfish in manners and conduct, but when acting in conjunction with the opposite group of Amity, as they should do, then we have a careful regard for our own rights, but are careful to consider that our own rights are bound up in the interest and happiness of our fellow-beings.

The organs of repulsion, which point downward and backward, press against the earth, and thus push us upward and forward at every step. Their force thus acts in concert with that of the attractive organs in front.

Evolution or growth involves two great phases of action—the destruction of the old and the construction of the new. The front brain relates us to the constructive phase, and the back brain relates to the destructive phases of all existence. The social organs are constructive through their internal, vital, and attractive power. They unite men in societies, building up the vast fabrics of national and race life. The intellect is constructive through the external application of law, art and order. The back brain contains the organs of aversion, destruction, rigor, defense, mobility and liberty, and these, acting in dominance, are destructive in their nature.

In estimating the character of any person by the size of the organs, we must carefully take into account the opposite tendencies of these polar faculties. Thus a person may have very large Pride, and yet be modest and deferential through large Modesty and Reverence. When an organ and its opposite are both small, the person will exhibit no decided tendencies in either direction. A person with small Kindness and small Economy would be neither a liberal nor a miser. His character would be negative in both respects. From the table of



Mental Chords, the student can easily make these applications of the law.

MENTAL UNITY. Whenever we allow the gratification of any back head or basenal organ to become the chief object of our existence, we are then failing to obey the laws of unity. The fullest power and most perfect pleasure of the senses can only be reached when they act in connection with the higher faculties. The organs of Appetite and Feeling lie at the base of all the social faculties, and they furnish the materials of force to all of the organs, as well as to themselves. Hence in their normal action they support and stimulate the noblest and most refined emotions of the mind.

The highest power of the Perceptives results from the culture and exercise of the Reflective faculties above them. The telescope and the microscope were the products of Reason and Construction, yet how immensely have they enlarged the scope and increased the accuracy of our perceptions.

The higher organs of the brain must rule in the character of man. The larger part of the attractive organs and signs in the lower animals point downward toward the earth. What is the front aspect of the body or trunk in man, is the lower side in the animals, in quadrupeds, insects and even in birds, though the latter seem to stand partly upright on two legs. In serpents and worms this front or attractive side rests constantly against the surface of the earth. But in man these attractive organs mostly point up and onward towards his fellow beings, and the external universe. He alone, of all beings here, is released from a direct bondage to the earth, and united with his fellows in filling an exalted and immortal destiny.

Viewed as a whole, the front of the face and of the body is attractive, and the back is repulsive. The organs of sense, the eye, ear, tongue, nose, and tactile sense, are all located in front. They are in the highest degree attractive; they are special mechanisms made on purpose to receive impressions. The very fact that these receptive organs are in front proves that the front of the body is attractive when compared with

the back. The sense of touch is in all parts of the skin, but not equally, for it is ten times greater on the inside of the hand than on its back side.

The axis chart illustrates the up and down tendencies in a general way. The axis of force and movement is the spinal cord, with its node of vibration back of the solar plexus or solaris. The lower focus is at L, and from this the great nervous branches and currents pass down the legs toward the earth. From the upper focus, at F, the branching nerves go to the arms and head. This is the celestial side of man. The atom of Carbon has a similar node of vibration. As in all other cases, the positive pole is here named the anode, and the negative or receptive pole is the kathode.

In a still more inclusive way, the engraving of the Microcosm illustrates the general relations of the human constitution to the universe. These are marked in such a way that they can be readily studied. The upper and front parts of the chest form the region of magnetic, receptive, or converging forces, and are responsive to the influences of daytime, of light, the atmosphere, etc. Corresponding to this on the back is the region of electric, positive, and diverging forces. Around the lower and back part of the trunk are radiated the forces of dispersion, the influences of coldness, of night and darkness. The lower and front parts of the trunk are the realm of relaxation, of liquids, and of warmth. The legs and feet place man in dynamic sympathy with the earths and soils, with the animal, vegetable, and mineral world.

The body as a whole has upper and lower spheres, with their junction at K, and marked in the semicircles of the margin. Each season of the year, each of the twelve months, has influences which bear more specially upon some one region of the body than upon the rest. A dim conception of this was the basis of the ancient Astrology. But the extreme ignorance of man's constitution led those ancients into many errors. Our chart is arranged in harmony with the facts of science as now understood. The twelve constellations are numbered and marked by their signs, on the margins.

The different planets have a subordinate influence over man's nature. The sun by its magnitude, and the moon by its nearness, must of necessity be the most influential of all the cosmical bodies. Compared with the influence which these exert upon man, the guiding forces of the planets, of Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune, must be small in amount, if not in kind.

The constitution of each planet is obviously different from that of the others. It follows that the forces which they may exert on man must also be unlike. In the chart of the Microcosm, the signs of the planets are marked on the body on those parts which are under their respective influences. On the Astro-chart of the twelfth chapter these are also marked in their proper places on the head. The Domestic or home group of faculties stands in responsive sympathy with the earth; the group of Art with the moon; Letters with Neptune; Science with the Pleiades; Culture with Mercury; Marriage with Venus; Religion with the Sun; Familism with Uranus; Rulership with Jupiter; Labor with Mars; Wealth with the Asteroids; and Commerce with Saturn.

The position of the planets at any given time must have an effect in determining what their combined influence will then be. The favorable or unfavorable position of the planets can be at once inferred from the polar complements of the groups with which they are in sympathy. For example, in the brain the groups of Culture and of Rulership respond to each other. Hence Mercury and Jupiter, the planets of these groups, are in favorable position when they are either three or five astral houses apart. The moon and Saturn are in good position when three houses distant from each other. That is, the planets are favorable when they are thirds or fifths, according to the mental law of polarity.

In Harmonism the periods which are established for social movements, for elections, labors, and festivals, are all in harmony with planetary movements. Consequently none of the planetary movements can be causes of disturbance in the affairs of men. This was never true in any of the preceding

civilizations. In them only a few festivals, like Christmas and Easter, were established to synchronize with astral changes.

CONCERT OF REPULSIONS. When the repulsive force of a person is directed against us, we are usually repelled from that person. But, for example, when Defense is not exerted with sufficient energy to terrify or conquer the person assailed, it usually rouses his defense in turn. In this case the Defense of the first person conflicts with the organs of Firmness and Dignity in the second; and these organs, being too strong to be overcome so easily, have roused up their assistant organs of the defensive group. The courageous man becomes firm or combative when attacked, when the person with little Firmness is frightened or paralyzed. But the repulsive force of two persons may act in concert instead of antagonism. In this way the courage of a leader arouses and inspires that of his followers. Where they are all pursuing the same object, each one imparts repulsive force to his associates, and they display the results of its accumulated strength.

ZONES OF CO-OPERATION. It is a law that the organs all point toward their objects of relation. Thus the social organs point forward toward our associates and friends; the Perceptives point down toward the earth, which we are observing; and so of the rest. But the organs of the brain are, many of them, arranged so that different organs have the same, or almost the same, direction. As a consequence of this, they should have similar objects of relation; and such is the case. These organs occupy two parallel zones, and may be illustrated by the cross-section. It represents an upright cross section of the brain, from right to left. We are looking at this view from behind. The fibers of Stability in the left hemisphere curve over toward the right. They take nearly the same direction as those of Caution in the right hemisphere. They must have similar objects of relation. The calmness and fortitude given by Stability are sustained by the co-operation of Control or Caution, which gives restraint and elevated caution. The two faculties are analogues.

In this engraving, the fibers of Integrity, in one hemisphere, point in the same direction as those of this faculty in the other. At B, the fibers of Baseness are seen pointing exactly opposite to those of Integrity.

In the table of mental chords the most important of the co-operating organs, just described, will be found. They constitute polarities of the second degree.

Where the hemispheres lie against and touch each other is another zone, still more interior. Its faculties echo in a less definite way those of the outer zone.

This chart also illustrates the crossed action of the nervous system. In the spinal chord, just below the brain, a part of its fibers are seen to cross over from the right to the left side; and a part of those on the left side cross over to the right. It follows that the left side of the body and the limbs receives nerve-fibers from the right hemisphere of the brain and is controlled by its force. And the right, in turn, receive fibers from the left hemisphere of the brain and from it receives its principal controlling force. So that if we are right-handed, we are left-brained, and vice versa. An impulse to move the right hand comes chiefly from the left hemisphere of the brain. We say chiefly, because it may be controlled by fibers from the hemisphere on the same side. This law of decussation is very important in studying the direction of gestures, as we shall see further on in this chapter under the head of the Mimetic law.

THIRD DEGREE. This unites all of the faculties in pairs. In the table of mental faculties, the first and second one in each trinity form a pair.

The contrast between the two members of a pair is less strongly marked than in the other degrees. In some cases it required a most extended and careful analysis to discriminate them. The two are located near each other, and never act in antagonism.

The organ of Dignity is bold, positive, masculine, and impressive, tending to keep those upon whom it acts at a respectful distance. The organ of Laudation, its polate of

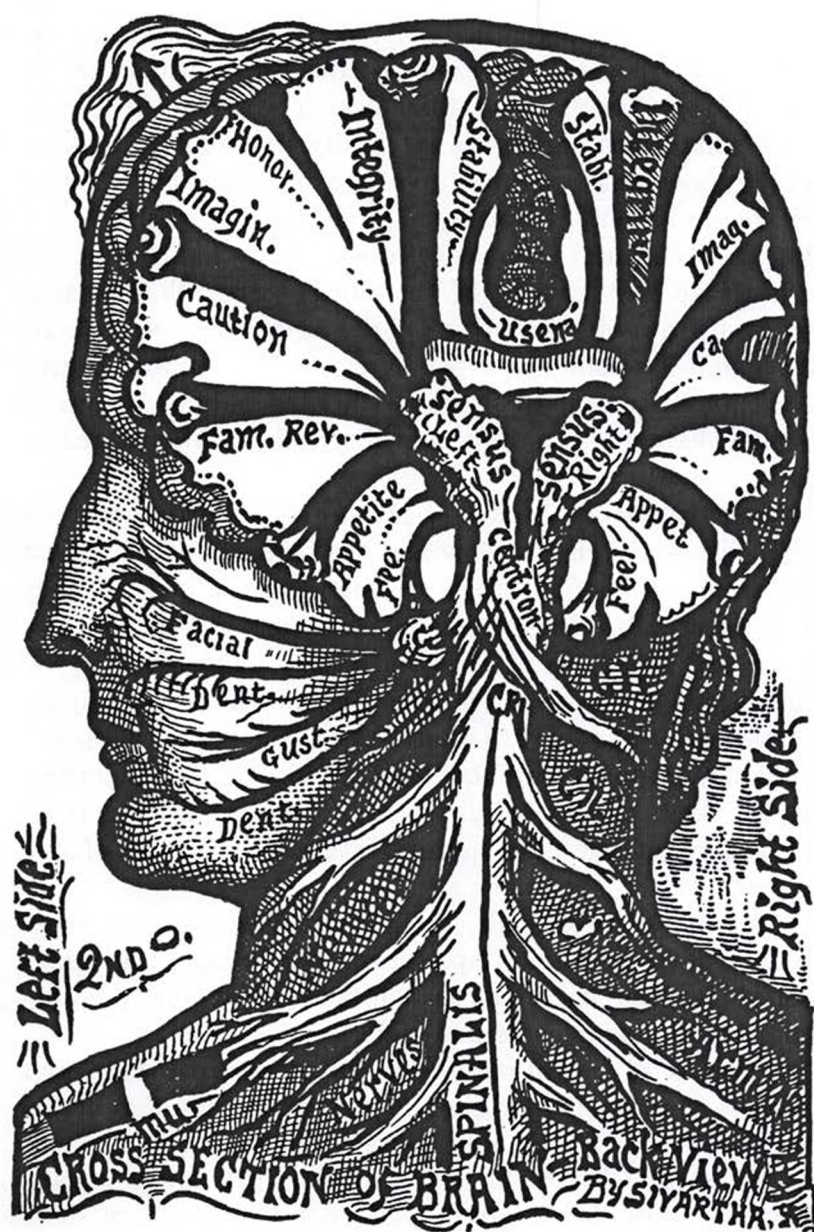


Chart of Zones.

the third degree, is receptive, attractive, and feminine, tending to win approval. It is strongest in the womanly character, while Dignity is stronger in man. Inspiration is simply receptive, it is directly impressed by the forces which are to produce future events, and those which are now in action. But its polate, Reason, works externally, it combines and arranges impressions and produces new phenomena. Hence, when compared with Inspiration, it is the more positive.

But if we should compare Reason with Aggression, its polate of the first instead of the third degree, then Reason itself would appear receptive, while Aggression is positive. Defence and Economy, as a pair, are polar in the first degree to Amity and Reform. So long as the first pair predominate in human character, the influences of wealth are all enlisted on the side of conservatism.

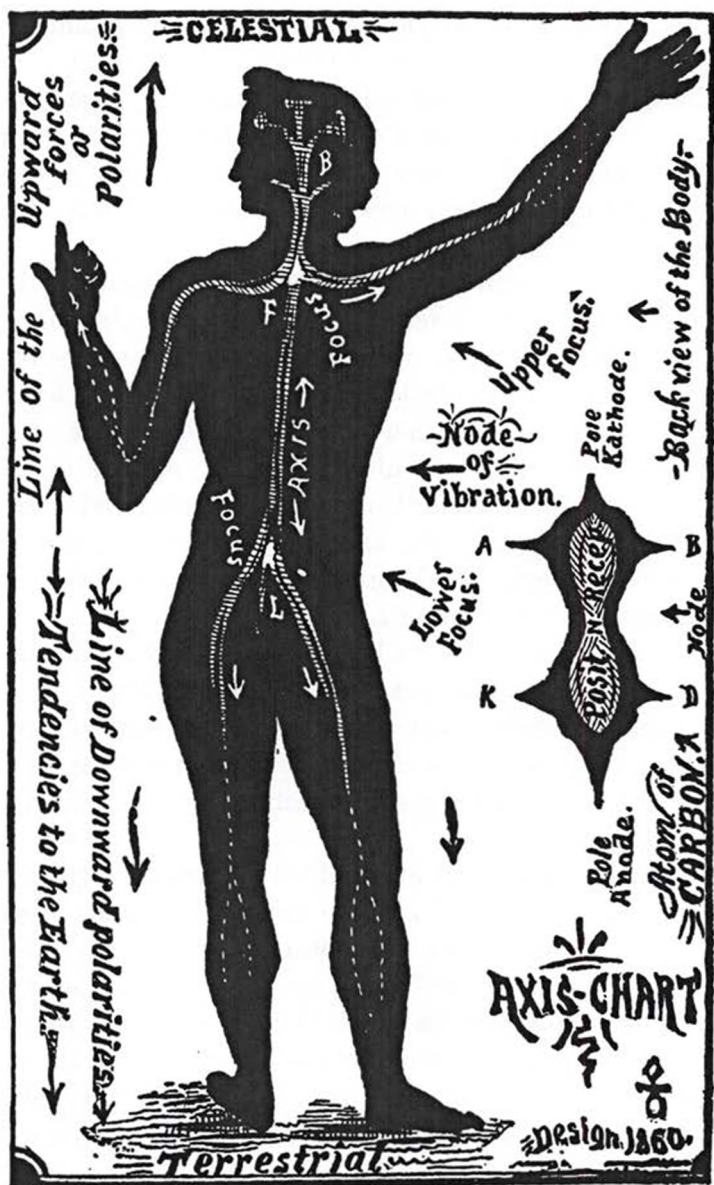
REPETITIONS. It is a part of the law of evolution that all through life the higher organs and the higher animals repeat and elaborate functions which are found in the lower organs and types of life. In our mental structure and action this transfer and repetition of function is very important.

The organs of the sensitive group attract us to the objects of sense, and make us feel that "the earth is our mother." The higher group of parental love attracts us to our human parents. And, highest of all, the religious group attracts us to the Deity, at once the infinite father and mother of our existence.

Among the lower animals, the attraction between the sexes originates in the organ of Impression. But in man, the higher group of Sexation takes the lead in this attraction, and surrounds sex-love with noble and refined sentiments.

The organs of reflection enable us to perceive laws and relations. This is a higher kind of perception than that of the Perceptive group, which only reveals objects.

As we shall discuss in many places, the lower organs everywhere in the brain supply materials for the use of those above them. Thus we can not reason unless the lower group of memory supplies Reason with facts; nor can Memory retain



facts themselves, until these are observed by the Perceptives which are still lower.

MENTAL CHORDS. It is evident that if the higher and lower organs resemble each other in functions, then they may make an exchange of duties, and this is actually the case. Thus, Reason may exchange with Color. The latter gives the perception of light, and we say that we reason upon a subject to throw light upon it. Control may exchange with Stability; Defense with energy; Liberty with Dignity.

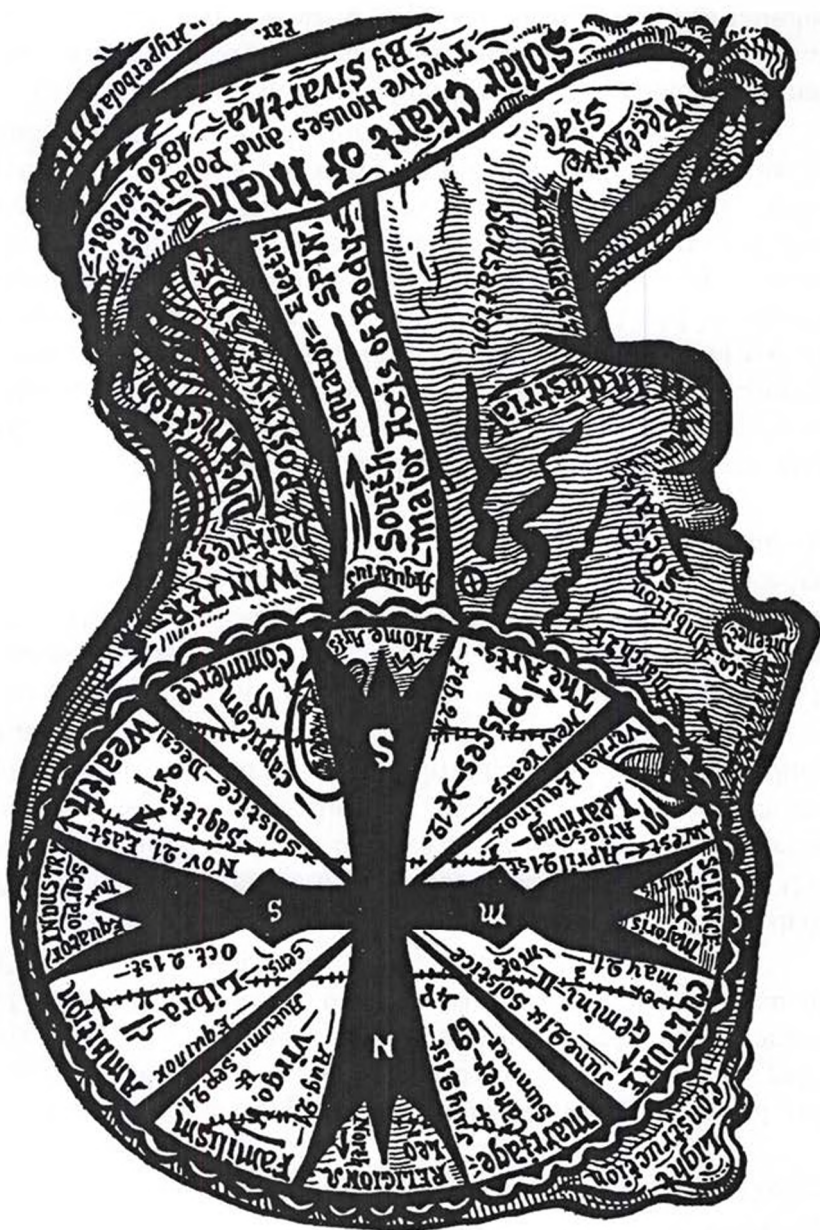
In general, an organ may exchange or co-operate with the third, the fifth, or the seventh one, either directly above, or directly in front of itself. This action corresponds with the chords in music. If musical notes which are thirds, fifths or octaves, are sounded together, they produce a sense of harmony. So, when these faculties respond to each other, it produces harmony of mental action. The principal ones are given in the following table, and the intelligent reader, with the maps of the organs and signs before him, can easily work out the remainder for himself.

The harmonies of music are based upon purely mathematical relations. The sweet and graceful blending of voices in song, and the noble symphony of instruments, are each under the rule of strict physical laws of science. For in science we shall find graceful beauty and gentle sweetness no less than in the works of art.

The laws of music are exemplified in mental action, and these same laws of mental rhythm must be the basis of social harmony, as will be shown in another place.

A train of thought or feeling may be carried on awhile by one faculty, and then its third, fifth or seventh complement will assume the train of thought and carry it forward, while the first rests or is engaged with other objects; or, what is more usual, it may take on the proper functions of the first, thus effecting a direct exchange.

In the early ages of history, rulership depended upon the impulsive group. The chief of a tribe must be its best hunter, warrior and runner. In time it came to depend more upon



THE SOLAR MAN.

wealth and policy, functions of the higher group of defence. And in the future it will arise from the group of rulership itself, sustained by the eternal laws of justice, philanthropy and wisdom.

There are also frequent exchanges between organs of the third degree; that is, those which belong to the same pair. We may, for instance, make previsions through the organ of Reason; or, we may discover causes through the organ of Prevision or Inspiration.

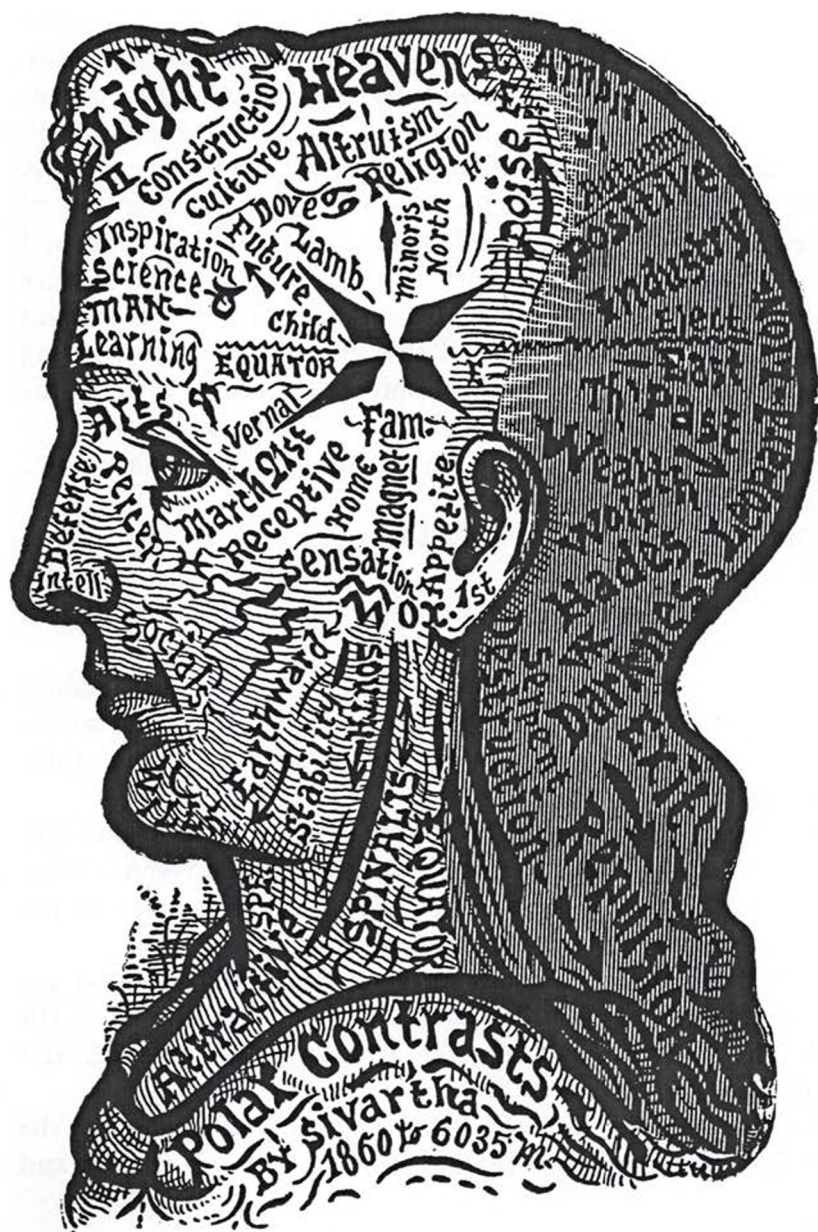
RESPONSES. If we take the minor axis, from O to E, we shall find that any organ at a given distance directly back of this line must mathematically balance and co-operate with whatever organ is at the same distance in front. These organs are enabled to respond in action through bands of fibers which run directly from one to the other.

Language is full of expressions which illustrate these balances. Thus Truth and Fortitude respond, and we say "truthful and serene." Mirth and Playfulness balance, and are expressed in the phrase, "playful and witty." Memory and Economy balance, and hence we say that "language is the storehouse of thought."

As another example, take the faculties of Faith, Love, and Hope. At the front, the organ of Faith gives us strong confidence in human goodness and the possibility of improvement. The moment this faith is established, the organ of Hope responds and leads us to undertake great and beneficent enterprises for humanity, and thus satisfy Love or Philanthropy. The mental trinity of Intellect, Affection, and Expression occupies the front, the middle, and the back brain. Affection lies along the minor axis, and is, both mathematically and vitally, the central third of our mental life.

Thus when we desire anything, through Affection or feeling, the Intellect in front remembers, reasons, and decides about it, and then Expression in the back head moves the muscles to do what is necessary to gratify the desire.

The primary impulse to action comes from the central



member or pivot of the mental trinities, and first the left wing responds and then the right.

The sense of hunger springs from Appetite, but it requires both Intellect and Expression to gratify its wants. We must see the food through the perceptives, and the impulsive organs of the Will must move the muscles of the legs to go and get it.

Wisdom and Will are always the instruments to serve Love, from the low realm of sensation up to the exalted sphere of religion. Love without knowledge is blind. Without will and labor it is powerless. The richest fruits of Love must mature under the pure light of cultivated wisdom. The warm current of affection sweeps through all thoughts and volitions, giving them its own hues of life and beauty. It must transform the selfish impulses of the back brain into the noble forces of social life, and warm the cool blue rays of the intellect with its own golden light.

The organs above and below the major axis also respond to each other. Thus Reason above responds to Perception below the line. So Ambition above responds to Defension below; and Sexation responds to Sensation.

The polar responses of the faculties reach the very highest degree of importance in adjusting the different departments and interests of society, as shown in the eighth and ninth chapters.

PHYSICAL RESPONSES. The engraved Measure of a Man will illustrate a series of interesting and important responses between the different parts of the body. Each square of the body is numbered from the feet upward.

The first square responds in sympathy and action to the fourth; the 1st and 7th respond; the 1st and 12th; the 4th and 7th; the 7th and 10th; the 10th and 12th; the 7th and 12th; and the 7th and 9th.

Uniting the arm and the body, and naming squares of the arm first each time, then the 5th and 7th respond; the 5th and 10th; the 5th and 12th.

These physical responses are the basis of physical culture, of caressing, of many sense-relations in the fine arts.

TABLE OF MENTAL CORDS.

These polar organs of the first degree point in opposite directions and display the most striking contrasts of action. Thus Amity attracts, but Defense repels. The repulsive organ is placed first in each contrast.

Energy	and Feeling.	Secrecy	and Manners.
Control	" Appetite.	Aversion	" Sexation.
Courage	" Fear.	Destruction	" Love.
Mobility	" Patriotism.	Defense	" Amity.
Control	" Mobility.	Aggression	" Reform.
Economy	" Kindness.	Liberty	" Serving.
Dignity	" Modesty.	Integrity	" Destruction.

The organs compared in this table occupy zones of parallel direction in the two hemispheres. Thus firmness in one hemisphere points in a direction parallel to that of control in the other. They are analogous, and they co-operate and exchange functions.

Form	and Construction.	Love	and Reverence.
Attention	" Impression.	Stability	" Control.
Inspiration	" Imagination.	Dignity	" Control.
Kindness	" Hospitality.	Liberty	" Caution.
Reform	" Devotion.	Aggression	" Economy.
Faith	" Worship.	Mobility	" Excitement.

An organ may respond to, and exchange functions with, the third, fifth or seventh one above or below it; and it also co-operates with those in front and back of itself. This action corresponds to that of thirds, fifths and octaves in music.

THIRDS.

Form	and Number.	Integrity	and Liberty.
Reason	" Color.	Parenty	" Patriotism.
Memory	" Imitation.	Fidelity	" Integrity.
Construction	" Words.	Caution	" Defense.
Faith	" Hope.	Defension	" Ambition.
Sensation	" Sexation.	Parention	" Religion.

FIFTHS.

Color	and Truth.
Form	" Order.
Words	" Imagination.
Patriotism	" Love.
Impression	" Devotion.

OCTAVES.

Feeling	and Zeal.
Serving	" Victory.
Reverence	" Faith.
Reason	" Control.
Destruction	" Integrity.

THE BRAIN AT WORK. The Chart shows the successive steps and the course of the nerve currents in a complete series of mental action, with twelve of these steps numbered, from Sensation in front of the ear forward, upward, and over backward.

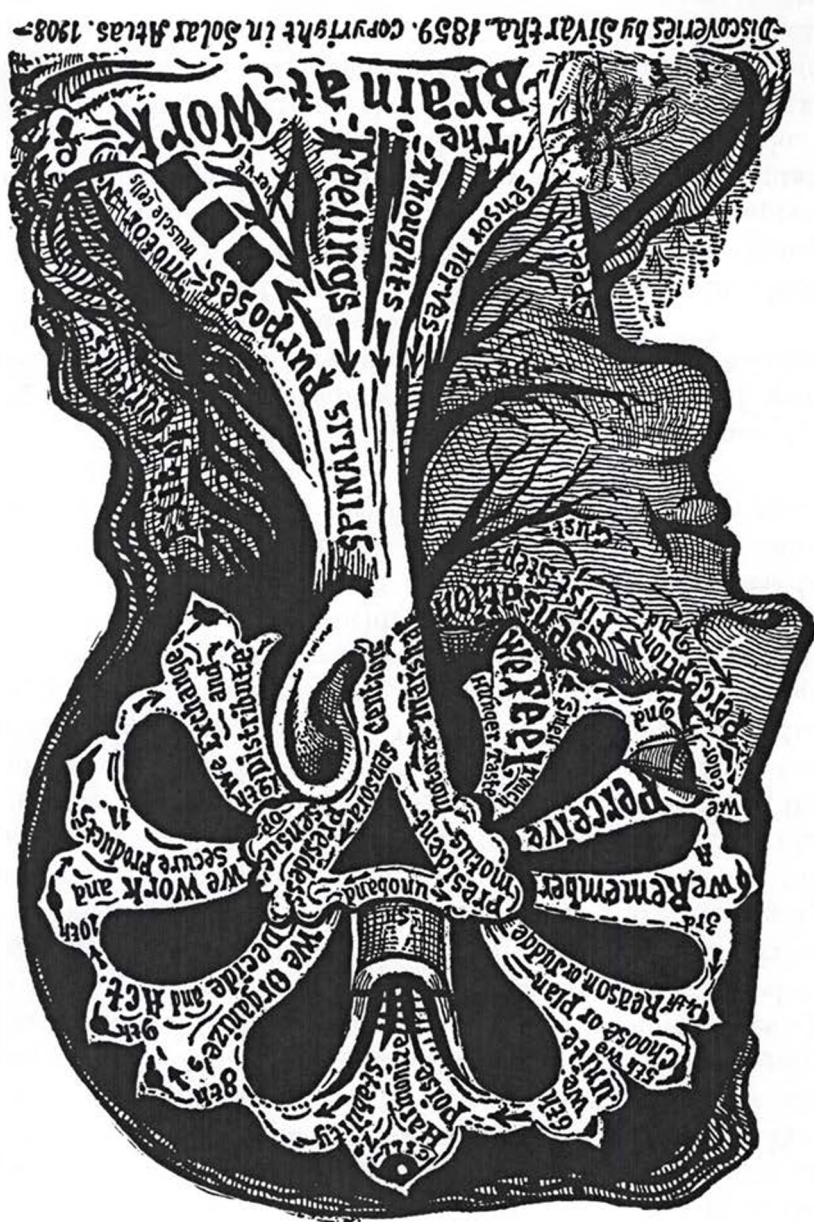
Two sets of currents are concerned in each mental action. One set flows around from cell to cell and the other set flows back and forth from the centers to the cells of the convolutions. The laws of the ellipse determine these currents.

Let us take a simple case for illustration. A fly lights on the skin of the neck. This irritates the sensor nerves of the skin and a message is carried along these nerves up to the Sensus. From this center the current passes across the Unoband to the Motus and then down to the cells of sensation. We now feel that an impression has been made on us. The message then goes forward to the cells of Perception. At this second step we perceive that the cause of the disturbance is a fly and we know his location. The waves of the message flow on upward through the cells of memory and reason. We now remember all about what kind of intruders flies are, and we think about the way to get rid of them.

The currents move still up and over backward, exciting the cells of desire and of volition or will. We now decide to do something. The cells of volition send a message down through the Sensus to the Motus, where it is joined by a current from Perception, and both go together down the motor nerves to the muscles of the arm and hand. These muscles now contract, we raise up our hand and drive away the little invader. The current from Perception was required to direct the movement.

Much of our work in life involves the social faculties with united labors which end in various products and in distribution and exchange through commerce.

ON BRAIN AND NERVES, read Ferrier's *Functions of the Brain*; and Bastian *On the Brain*; *On Brain Centers*, Draper's *Physiology*, pp. 282, 319, 265; Luy's *Brain and its Functions*.



Discoveries by Sivartha, 1859. Copyright in Solar Atlas, 1908.

MENTAL ORDER. From the law of the ellipse it follows that impressions made on the sensitive group must flow forward through the cells to the group of Perception. While in the sensitive group these impressions are more or less vague or indistinct, they are merely feelings. On reaching the Perceptives, they assume definite forms, and we recognize the size, location, form, color, and other properties of the objects which have made the impression. The current now passes up to Memory, where more or less of all impressions are stored or registered for the future use of all the faculties. From Memory the current flows up to the cells of the Reasoning organs. These faculties combine, arrange and mould the impressions into the final form of mature ideas. They discover the relations among the objects which have produced the impressions, and the uses to which these laws of relation can be applied in practical life. The current flows back over the Social organs, and these make us feel like using the knowledge in such actions as will gratify our own affections, and benefit our associates and the world. Passing on to the organs of Expression in the back head, the current stimulates these to activity, and they control the muscles to produce the bodily movements necessary to carry our ideas and plans into practical action.

The Sensitive group is the great portal of entrance for impressions, and the Impulsive group is the door of exit, through which they are finally ejected from the mental temple. This is shown by arrows in the chart.

In the above brief description we have the order in which mental action must normally take place when the exciting cause is outside of ourselves. First there must be an Impression on the nerves. This part is physiological, not mental, action. Then in the first mental step we have a Sensation; next there is Perception; then Memory or Retention; next Reflection or Reason; then there are Social impulses and desires; and lastly there is Volition or Will, the practical execution of ideas and purposes. When a current starts within the brain, from the action of the mind upon its already ac-

cumulated materials, then it may commence in Observation, Memory, Reason, Amity or any other point.

A MENTAL ACT. While currents of nerve-force are flowing through the cells around the ellipses, other currents are flowing over the fibers, to and from the centers. The combined action of these currents may be well illustrated by a single act, that of picking up an arrow or pointer.

Let us suppose that there is an arrow before us, as in the engraving. The rays of light produce an inverted image of this arrow in the back of the eye, as at AR. The optic nerve in the eye terminates in minute rods and cones. Each one of these rods and cones takes up a part of the series of vibrations which constitute the image on the retina, and it carries these, separately, along the optic nerve to the optic lobe, then through these cells to the sensus, across to the motus, and down the brain fibers to the cells of Form and Color. By passing so nearly around a circuit the image has now become right end up as shown at A. When the picture has reached these cells, then, and not before, we see the arrow. So it is the cells in the brain that see, after all. We now know what kind of a thing it is that we are looking at, and this action of the mind is called a perception.

A current of nerve-force, the vibrations of the image, now passes upward through the cells to Attention and Memory. When it reaches the cells of Memory it awakens other images there, we compare it with them, and we remember the objects for which arrows are used. The upflowing current then reaches the cells of Inspiration and Reason, and we reflect or reason that by reaching out our hand we can get this arrow.

The message still goes upward and over toward the back of the brain. The message awakens desire, and we feel that we would like to show the arrow to some one, or to do something with it. We consider what the effect would be upon our associates or others. The current now reaches the sixth step or volition. It stirs up these cells and they send a current down through the Sensus to the Motus. Here it is joined by a directive current from the perceptive faculties, and the two

are blended in one. They proceed down the front or motor columns of the spinal cord, and pass outward on the motor nerves to the arm-muscle, marked at the lower edge of the diagram. The current polarizes the cells which compose the muscle, or muscles. That is, it charges one end of each cell negatively and the other end positively. When thus oppositely charged, the two ends of each cell approach each other, and this causes the whole muscle to contract or shorten its length about one-third. When the current is withdrawn, or exhausted, the muscle relaxes. The brain stimulus thus causes the muscles to contract and relax and make the movements necessary to get the arrow.

If an obstacle were presented to the action of the arm, then by the law of the ellipse the Defensive organs, below the major axis, would respond and assist in removing the obstacle, and this is commonly the case.

Suppose that our example had been that of a sensation of hunger in the stomach. In this case the currents would have passed up the sensory columns of the spinal cord to the centers, and then down to the cells of Appetite. We would then be conscious of a vague sense of want. This is Sensation, the first step in a complete mental circuit. The current flows forward to the cells of perception, and we distinctly recognize the source of the feeling, we know that it is located in the stomach, and that it indicates the need of food.

We have described the action of picking up an arrow as though only one set of currents were concerned, those flowing from cell to cell. But while all this was taking place, there was another set of currents passing over the fibers. When the perceptives are excited, a set of vibrations pass back to the Motus, and are thence reflected along the fibers to the group of Reason. Then they return to the Motus, across to the Sensus, and up the fibers to the group of Labor. From this they are reflected to the Defensive group. The law of the ellipse determines the course of these reflections, as it also does the slower currents which flow at the same time through the cells. We thus have, on each side of the major and minor

axes, four groups which constantly respond and support each other's action. These are Perception, Reflection, Coaction and Defension.

IMAGES. Certain important circumstances have now to be considered. Every one of the rods or cones in the back of the eye is connected with a particular nerve fiber. And that fiber has an insulated sheath so that it must carry its message separately from that of every other fiber until it reaches the cells in a nerve center or in the brain. No matter how many other fibers may be bundled up with it, no appreciable force is radiated to any of these. If you look at your hand, the image which is formed in the eye must be taken into at least fifty thousand pieces, or into as many series of vibrations, and each of these is carried along separately until it reaches the brain cells of Form and Color. In what way are these separate pieces or bundles again united in the brain into one image? Each little bundle or piece is polarized in a special and peculiar way at each of its ends and surfaces. The intensity of these polar attractions and repulsions is partly suspended during the passage along the fibers. When the current has reached its destination in the cells, then these polar forces are free to assert themselves. They go to work and rearrange the vibrations in exactly the same order that they occupied in the eye. The polar forces are of course inherent in the vibrations. Each point or surface is attracted to just the point or surface with which it was originally united. A similar decomposition takes place in the sense of hearing when different sound waves have entered the ear at the same time.

In another place we have compared the nervous system to the telegraph or telephone. Taking a suggestion from this resemblance, some otherwise eminent scientists imagined that although the image in the eye does have a form and color like the external object which produced it, yet when the current has passed into the brain, there is neither form nor color in the effect which is produced there. As in the telegraph the alphabet is made of purely arbitrary signs, having no semblance to the sounds indicated, so they thought that the changes

set up in the brain and mind bear no resemblance to the actual properties of external objects.

But these men forgot that in case of a telegraph the operators at each end of the line must both of them be familiar with the actual sounds themselves, before they could agree upon a set of arbitrary symbols for use, as an alphabet. And the mind could make no such agreement with the organs of sense unless the mind could first perceive the actual properties of things. Their supposition was every way untenable and opposed to facts. If those men had reasoned carefully they would have seen that in the mind, in the thought itself, there must exist exactly the same kind of a difference between our two ideas of a six-inch cube of red wood, and of an inch ball of lead, as that which exists between the objects themselves. Otherwise we could not know that the difference exists at all, we could not affirm its existence.

If we look at a sensitive plate immediately after its exposure in the photo-camera, we see no image, nothing but a dull film of collodion. But there is a very definite something on its surface. The operator pours a liquid upon it, and the well defined image emerges with all its lights and shades, and forms. Because an outsider can not see any images when he looks at the brain, that is no evidence that they are not there, with definite forms and colors.

The image in the eye is produced by definite arrangements of the atoms of the black pigment. The vibrations which go to the brain there reproduce these arrangements in the atoms of matter which compose the nerve cells, and in the atoms of spirit substance which are intimately associated with the material atoms of the cells.

TIME. Thoughts, feelings and volitions are movements of the mind. And every motion must have form, it must have time, and it must have a greater or less degree of intensity, or momentum. Swing your hand in the air. Its motion must be either in a straight or in a curved line. There must time elapse between the beginning and the end of the movement. A greater or less degree of force must have been exerted. Time

is the central element of every motion. It is an inherent part of motion, and that is all there is of time. Hence we can neither measure time without employing some regular kind of movement, like that of a clock or of the moon, nor can we conceive of any motion where this element is absent. Whoever has made any movement and watched his own sensations, must realize that there is no more mystery about this subject than there is about the shade of objects. The ancients did not perceive that Time is an essential and central part of Motion, just as space is the central attribute of matter and spirit.

TIME OF THOUGHT. In the domain of mind every action involves form and time. When we think of a circle, our thought has shape; when we think of green fields our thought has color; when we think of the voice of a friend, our thought reproduces vibrations which are like those of sound. It always requires time to think, to feel, or to exert the will. It takes from one-twelfth to one-half of a second to receive an impression, to have it traverse the brain, and to return through a volition in the form of an action.

TRUTH OF SENSATION. In every act of reasoning we must fall back on the evidences of the senses; and it is an important question whether these are to be trusted. The ancient Platonists and many moderns thought not. But science answers without hesitation that in a state of health the eye, the ear, the skin, and other organs of sense always tell the truth. They send into the brain correct reports of the impressions which have been made upon them. The sense of sight does not tell us that the sun rises and sets, or revolves around the earth. The sense of vision in this case simply reports that the sun is seen in different directions, or at successive positions, during the day. The reasoning faculties connect these appearances; and comparing them with other experiences in which successive impressions have been felt, the reasoning organs conclude that the sun is in motion. But in this case Reason has failed to take into account all of the facts. It has not considered that the visual impressions would be the same,

whether it were the earth or the sun that was the moving body.

When a person thinks of a distant city or of a planet, and all at once seems to be there, it is an illusion of the judgment. For if he considers a moment he will see that his thought does not go outside of his own head. He is only thinking of or recalling impressions concerning that city or planet which were already stored in his brain. If his mind or thought were actually there, it would know what things are now transpiring in that distant locality. The phrase "As swift as thought" in this case only means about ninety feet per second or sixty-five miles an hour; the rate at which a nerve current travels. When actual mental telephoning, or telepathy, is used, the message is sent with a rapidity one-third greater than that of sunlight.

Even when the nerves and sense organs are diseased, the vibrations sent over them still truthfully represent the producing causes, just as the reflection of an image from a mirror with a waved surface would represent the combined influence of the object and of the irregular surface.

How much brain-space does a single thought or a feeling occupy? A group of twenty-four cells would be sufficient to receive and retain the mental image of my hand. The same sized group could retain the proposition "The hand is an instrument for working." The brain-convolutions contain some seven layers of cells. There may be 1,200,000,000 cells in the entire brain, and 300 millions in the Intellect. This would give space for six million facts to be remembered by the group of Memory alone. And the group of Reflection might entertain six million propositions. The mind is a capacious treasure house.

MIMETIC LAW. In every animal tissue the direction of its fibers, if it have any, infallibly shows the direction in which its forces are and can be manifested. Thus the fibers of a muscle, running lengthwise, show that this is the line in which it can exert its force. This general law must of course apply fully to the brain. Its fibers have a definite direction, and

this determines their lines of action with regard to each other in the brain, and also the direction in which each one will cause the body to move when it acts upon that. The whole system of gestures, or natural language of the faculties, is a necessary product of this law.

The location of the organs, and their direction being the same in all cases, the gestures which express any given passion or emotion must be the same in all ages, and all nations. And this is the fact. From the gestures alone we can prove that the organs of the brain are correctly located. Twelve hundred million human beings daily reproduce these decisive facts, and no other interpretation can be put upon them. It would be extremely absurd to suppose that results so uniform and so universal could take place without the operation of such a natural law as the one here laid down. The internal forces and mechanism of the brain are perfectly adapted to all the outward actions and objects of life. Every organ of the brain is so located that the exertion of force in the line in which it points will tend to secure the objects which are adapted to its gratification.

CHARACTER IN GESTURES. Through the front organs we are attracted to what is before us, and move forward. The organs of the back head repel us from what is behind us. The top head faculties elevate the features, the body, and the limbs, but the lower faculties depress all these. Many of these motions are matters of common observation. Every one has noticed the lofty bearing of Dignity, the bowing of Submission, the erect attitude of Firmness and Integrity, and the reaching down and forward of Appetite.

In order to understand the subject of gestures clearly, we must remember that in the spinal cord the fibers from the right hemisphere of the brain go across and supply the left side of the body. This crossing is shown in the engraved Chart of Zones. Take, for example, the organ of Amity or Friendship. Its fibers in the brain point up, forward and outward. In expressing friendship by grasping the hand of a friend, we raise our **RIGHT** hand in the direction of our organ of Amity

on the LEFT side of the head. In embracing a friend in our arms, the same direction is observed. In reaching the hand down to take our food, the right hand follows the organ of Appetite on the left side, and vice versa. Gestures may be made either from or toward ourselves. In either case the line of the organ is followed. There are many compound gestures, produced by two or more organs, and taking a line of direction between them. By comparing the map of the mental organs with the drawings of the brain, the direction of all the gestures may be readily learned.

INTELLECTUAL MOTIONS. The lines of the front brain point forward, and when a person is engaged in study or thought the head naturally inclines forward. It is seldom held high, and never is thrown back under intellectual excitement.

The Perceptive organs cause downward and forward motions of the head, as when we are picking up or closely examining objects. The larger number of the objects upon which the perceptive act lie beneath us or upon the surface of the earth.

The group of Memory is horizontal in its direction. Observation points the forefinger almost directly forward, and slightly upward when acting under the influence of reason, as when pursuing a close and direct train of thought. Observation relates to what is directly before us. Memory, Time, and System are more external, and relate to events as they recede into the past and form fixed periods and systems of action.

Reason produces forward and upward gestures, as we see in a speaker who is reasoning and explaining logically. Prevision usually acts with Inspiration, and thus produces motions more lateral, and broader in their sweep. Reason produces similar ones when acting with Imagination. In planing and using a chisel, the movements are in the line of Construction, modified by Destruction and Aggression, as a part of the force comes from the latter organs.

Kindness throws the head forward and up, and raises the hands in the same direction when we are rendering assistance. The language of Friendship has already been mentioned.

GESTURES OF AFFECTION. Faith raises the hands above the head, slightly forward, and near each other, with the palms inward. This is the right attitude for expressing the true feelings of this lofty faculty. The act of bowing the knee comes from the organ of Serving, low down on the side head. It seemed appropriate enough in those ages when men regarded the Deity as a despotic monarch, only a little above themselves. The highest and purest religious fervor requires lofty, outspread gestures. And every artist gives these to the apostle and religious teacher, because they naturally express the superior sentiments. Hope, Belief, Zeal, and Victory, all elevate the limbs and the features.

The organs of Sexation cause the upward and forward motions of caressing, the clasp, and the embrace. As we shall see hereafter, these organs are on the minor axis of the brain, and hence may use the gestures of all the other faculties to express themselves.

The natural motions of Parental love are seen in the act of nursing an infant, supporting and carrying it in the arms. Modesty and Reverence usually draw the hands close to the side of the body. When acting under the influence of the higher social faculties they may raise and clasp the hands. Reverence may greatly expand the feelings when we are gazing upon sublime scenery in nature, or when contemplating the grand achievements recorded in history.

Appetite, Feeling, and the other senses point to the earth, to their objects of relation and attraction on its surface.

The motions of Affection, as a whole, are of a gentle, refined, soothing, and quiet character, and they produce attractive and winning manners in social intercourse.

GESTURES OF VOLITION. The vigorous organs give the upright walk, the firm, erect, and manly carriage of the head and person. Integrity raises the hand directly upward by and above the side of the head. Justice may also be expressed by extending both hands horizontally forward with the palms upward. The hands then take the line of the intellect and represent the idea of balancing, one of the functions of Justice.

Caution and Economy, pointing out from the right side of the head, may bring the left hand in toward the body. They may also throw the hands outward, as when we reach out the hands to protect ourselves from danger at the side of us. Here we see that the same organ produces motions both FROM and TOWARD the person. Both motions are in the same line of direction as that of the mental fibers.

Dignity gives the erect attitude with the head and shoulders thrown slightly back, imparting an air of self-possession more marked and imposing than the simple attitude of Firmness. Laudation throws the head more to one side.

Defence moves the limbs back and to the sides, as seen in animals when kicking. The motion of striking with the fists is in the same line, but reversed by the signs of Defence in the back of the hand and arm. Economy draws the hands inward, as in the act of gathering materials.

Destruction, Baseness, and other impulsive organs cause motions still more downward than Defence as we see in the acts of rending, tearing down, destroying, and stamping. When a carnivorous animal strikes its prey with the paws, the motions are in a line between Construction and Destruction; it destroys the prey that it may construct its own body out of the materials. In walking, the motions of the feet against the earth are in the line of these organs.

LANGUAGE AND GESTURES. From the foregoing descriptions the student will perceive that the language of gestures is in no way arbitrary, but strictly natural. Our spoken language is full of illustrations proving an instinctive perception of this mimetic law. We speak of actions which spring from the superior organs as being HIGH, NOBLE, EXALTED, and HEAVENLY. While of those which result from the base of the brain we speak as being LOW, DEBASED, IGNOBLE and EARTHLY. We speak of the SUMMIT of power and of moral excellence; and of the DEPTH of infamy and vice. We commonly think of these as mere figures of speech, but the mimetic law proves that the expressions are mathematically true. In a large number of cases, there is a direct, external, physical reason for the figures

of speech. A parent is literally taller than the child, and therefore SUPERIOR. But the mechanism of the brain must be exactly adapted to all these physical conditions, exactly fitted to produce the necessary actions in each case. Otherwise, the mind and body would work in a confusing and impractical antagonism.

CHARACTER IN THE WALK. With a knowledge of the various gestures we can easily read the general character of a person by the walk. For, in walking, the head, the arms, the body, and the legs are all making gestures. If a person in his walk habitually assumes and makes the gestures belonging to any group of faculties, we may be certain that those faculties are leading ones in his character. In the walk of a tall, healthy, well-balanced man, both Dignity and Firmness may be seen. Where these qualities are deficient in the character, the stooping posture and unsteady gait will be assumed. The mincing, affected walk of the dandy, and the heavy, ungainly tramp of the boor, each express corresponding mental characteristics.

EFFECT ON LOCOMOTION. The attractive organs are in the front, and the repulsive ones are in the back of the body. As a consequence of this arrangement, we are attracted to what is before us, and we move forward. At the same time the organs of the back head repel us from what is behind us, pushing us forward, and thus acting in concert with those in front. Attractions and repulsions are proportional to destinies, for they are the motor forces which carry us onward and upward. This is as true in the physical as it is in the mental sense.

The upward attractions center in Religion, and the forward ones center in Retention or the group of Letters.

According to the law for the composition of forces, their united action is on the diagonal line between them, and this takes the organs of Culture, the line of progress and reform. It is upward and forward.

The organs of the side head are alike on each side, and consequently we are equally attracted or repelled from each, so that these do not determine our course.

THE VOICE AND CHARACTER. The vocal gestures or Inflections

follow the mimetic law. Thus the organ of Reason, which asks questions, points somewhat upward. Hence, all questions have the rising inflection or slide of the voice either at the end of the sentence or upon a principal word. The returning answer must reach us through the same organ, and, of course, take a downward direction to do this. Therefore answers have the falling inflection.

The upper organs give rising and the lower organs falling inflections. Supplication, entreaty, sympathy, praise, ambition, hope, and affection illustrate the rising; while authority, aggression, aversion, contempt, and other manifestations of the lower organs illustrate the falling inflections. The monotone may express either the upper or the lower organs. The circumflex, or union of the up and the down slides, is properly used in irony, where we say one thing and mean another, or, in some cases, in expressing surprise or a sudden turn of thought and feeling.

When the lower faculties predominate in a person, his voice will be coarse, harsh, and discordant. The indistinct, guttural voice of the savage expresses his low and undeveloped nature. The musical, flexible, rich, and sonorous voice of the civilized and cultured man speaks the language of the superior sentiments, of self-control, affection, and intelligence.

In the Harmonic age, the law of gestures will be the basis of a true and natural system of ceremonies in religion and all the intercourse of social life.

and art of Greece; it glowed in the Messianic visions of Isaiah; it turned that Wheel of the Law with which Gautama sought to elevate the masses of Hindostan; and it thrilled the dull heart of China through the voice of Confucius, before it finally broke on the shores of the Yellow Sea. Yet that great wave came and passed without fertilizing civilization so that it could bring forth the promised fruits of universal happiness.

In the preceding chapters we have chiefly considered the nature of man as an individual, the relation of his faculties to each other. We are now to study his faculties in their more widely extended and complex expression through the institutions and activities of society. At every step of this study we must remember that social phenomena arise directly from the faculties of the human mind, that they are as much the natural functions of the social organs of the brain as breathing is the natural function of the lungs or hearing is of the ear. A scientist would not attempt to study the function of hearing without learning the structure of the ear, nor that of vision without studying the eye. It would be equally unwise and futile to attempt the development of Social Science by gathering and classifying the facts of history, the statistics of all peoples. Such attempts have always ended very nearly where they began, in a total ignorance of what is the future of social institutions and of what we should do toward their unfoldment.

The Science of Man therefore proposes a new method for studying these great questions. And this direct method has been richly rewarded by the discovery of a complete system of social laws in the nature of man. It has revealed in detail the means by which man shall quickly attain a destiny as full and magnificent as the visions of ancient seers.

The advancement of the human race in past ages has not been guided solely by the caprices of statesmen and kings, nor by the fluctuating impulses of men. The mighty drama of human history has been an impressive and majestic procession, moving forward under the dominion of eternal laws.

These laws of development are not only an inherent part of the nature of man, but they also control the physical world, and their center is in the Life of the Universe.

PHASES OF LIFE. The mental faculties are subject to a law of evolution which embraces in its sweep the entire career of vertebrate life on our globe.

The human brain proceeds from the development and rule of organs at the base and back to that of the top and front. This gives the three great phases of life—Preturity, Maturity and Senility. These phases are separated by horizontal lines in the map of the mental organs.

From the first moment to the close of foetal life, the brain presents a constant increase in its complexity of structure. At different parts of this period, the embryo resembles, in succession, the members of an ascending series of the lower animals; but the brains of these lower animals are arrested, some at a low and some at a higher point; that of man alone passes onward to completion.

In the chart of the Nervous System, Figure 3 shows the embryonic evolution of the brain. This is shown more fully in the initial of this chapter, to which the following description applies. An enlargement of the end of the "Primitive Trace" Tr, becomes divided into three vesicles, front, middle and back, F M B. From the front one of these a little process arises, as at Proc, Fig. 2. This process enlarges, turns upward, and increases in size until finally it forms the cerebrum, or the principal mass of the brain, as seen in Fig. 3. From the back vesicle, the cerebellum, CBL, arises. The developing force in this growth is applied from behind, from the direction of the spinal cord SPIN.

In the insect, the nervous system is formed on a very simple plan. A collection of cells, or nerve center, is found in the head, in the thorax, and in the abdomen. Bands of fibers connect these with each other. In the spinal cord of man, the centers are continuous with each other, and the fibers are outside of them. The first stage of growth in the

human brain is as complex in structure as that of the mature insect.

In the ameba, the whole animal is so extremely simple in structure that no nervous system is required to establish a sympathy of action between its different parts. The few necessary sympathetic impulses are conveyed from cell to cell through its tissues, just as they are in the carnivorous plants.

HEREDITY. An organic being resembles its parents with such variations as are induced by the temporary activity of special organs or functions in them during its prenatal existence, and also such as are caused by the external influences which bear upon it after birth.

All impressions made upon the mind and body of the mother during the prenatal phase are transmitted, in a greater or less degree, to those of the child. If the parents exercise their higher faculties during this period, the child will be superior in mental endowments. If they exercise the lower faculties chiefly, it will be inferior. The law of Heredity places within our voluntary control a powerful instrument for human exaltation. It is for the vital interests of society that all parents should have the favorable conditions which these laws demand. Both the parents and society are responsible for the organization of every child. They can make it good or bad, as they choose.

The child, after it reaches maturity, is to be a member of society forty or fifty years, four times as long as it is directly dependent upon its parents; therefore society has a much greater right than the parents to control the child's development and education.

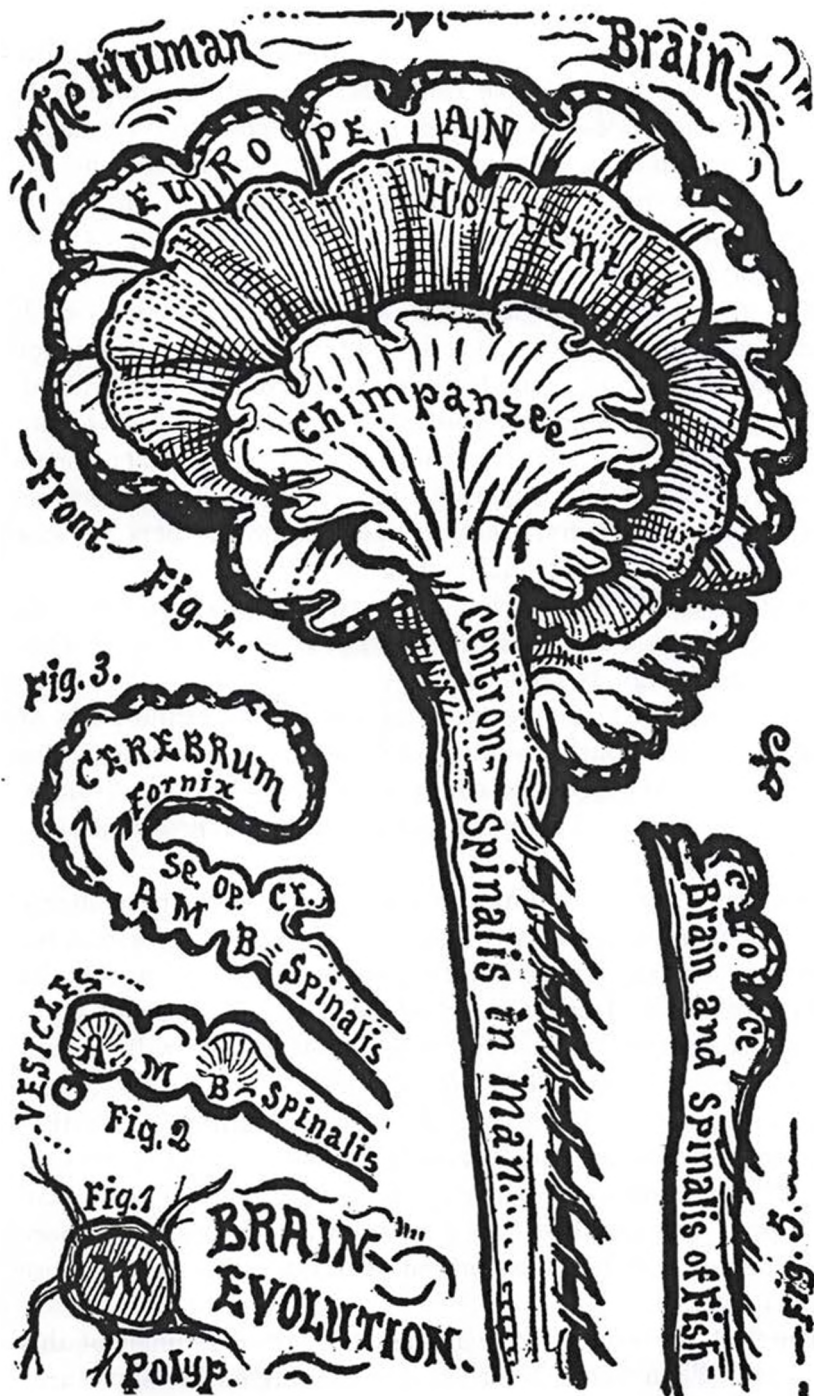
In every society, therefore, as we shall see further along, there is a subdepartment of Heredity, which has the care of these influences. In many cases it is necessary to surround the prospective parents with new conditions in order to counteract the evil or defective tendencies which have been inherited through successive generations.

By "good conditions of heredity," we mean all that makes up the sum of a harmonious social life. The phrase means

still more. For during the phase of gestation the uterine system of nerves attains an unusual development, and places all other parts of the system under contribution, with itself as the center of activity. It is necessary that all parts of the maternal organism should then be extremely sensitive and receptive. The molding forces of a new life are as delicate as they are permanent in their results. Yet it is not right that the mother should be a mere passive instrument, receiving all impressions which may be offered. Her will must be actively exerted to repel evil conditions, but she must not allow the mind to dwell on these, for in that case they would be transmitted. Evil can often be repelled most effectively by a self-centered indifference. An exertion of our will at any particular moment may make our whole system less receptive, without at all thinking about the evil thing which we wish to avoid.

PHASES OF PERSONAL LIFE. The brain is not perfect at birth. It must pass through phases of development each well marked at its central period, and at their points of union insensibly gliding into each other. We may consider life, after birth, in three phases. The ascending phase of Preturity, includes childhood and youth. The central phase of Maturity is the highest altitude of life. It is succeeded by the descending phase of old age or Senility. Each phase is marked by the dominant activity of certain faculties.

CHILDHOOD. During the periods of Infancy and Childhood, from the first to the tenth year, the groups of Impulsion, Sensation and Perception rule the character. The child is restless, impulsive, sensitive and perceptive. The brain easily receives impressions in infancy; but these are indistinct, and soon replaced by others. In the latter part of childhood the impressions are the most permanent of any made during life. The child learns through Sensation and Perception almost wholly. It constantly asks questions, yet reasons very little. Although the organs of the top brain are often very large in Childhood, yet they are dormant, and not roused into activity until later.



Morality involves the complex relations of society, and the child does not realize these relations. His life is simple. It is not easy to appeal to his moral sense. The motives placed before him must be such as directly reach his senses and his limited experience. The child is selfish without having a sense of ownership. He does not perceive that it is wrong to take what belongs to others.

YOUTH. The range of organs which rule in this period, from the tenth to the twentieth year, includes the groups of Memory, Parention and Defension. Through Observation, Memory and Language, the youth acquires stores of knowledge; through Reverence, Parenty and Patriotism he learns some of his relations to his superiors, his equals and his inferiors; and through Economy, Defense and Reserve he gets an idea of property and of personal rights.

MATURITY. In this period, from twenty to sixty, the high faculties of Integrity, Control, Energy, Sexual, Parental, Fraternal and Religious Love, with Reason and Inspiration, come into prominence and rule the character. The crude ideas of Childhood and Youth are displaced by exact knowledge. The powers of mind and body attain their full solidity and vigor, and the character is rounded out into completeness and symmetry.

SENILITY. At last old age or Senility comes creeping slowly on. The faculties gradually lose their vigor, and the senses become unretentive; the body demands rest and quiet, and its powers pass into decadence. Such has been the phase of senility in civilization, what it is to be in the future will be considered in the ninth and twelfth chapters.

STEPS OF GROWTH. From the age of molluscs up to that of man, the climate, the atmosphere, and the soil, were constantly becoming more perfect, and better adapted to sustain the higher types of life. And through all of these ages there was a steady and resistless march of organic life toward more perfect forms.

The first vertebrates were Fishes, the lowest animals of this division. Then came Reptiles, a little higher in structure;

then Mammals, above these; and at last came Man, the crowning form of the organic series.

It is the marvelous brain of man that gives him the most exalted rank in the scale of earthly life. The development of the nervous system and the brain is therefore the most interesting of all the facts revealed by geologic science.

If we compare the nervous system of the lowest vertebrate, a fish, with that of man, who is the highest, we shall be at once struck by the great relative development of the brain in man. As shown in the engraving, the brain of the fish is only about one-third greater in diameter than his spinal cord. The balance of nerve power in the fish is only slightly in favor of the head. But the brain of man exceeds in diameter that of his spinal cord seven times. Its structure, too, is correspondingly complex and elaborate.

Not only does the brain of man greatly predominate over all other parts of his nervous system, but the other organs of his body, especially his limbs, have become modified so as to be in harmony with this advance of brain structure and volume. The vertebrate branch of animals is characterized by a spinal column, a long, bony canal, made up of many pieces or vertebræ, and enclosing the great bundle of nerves known as the spinal cord. The cranium, which encloses the brain, is an enlargement of the upper part of this series of bones. The nervous system and brain of the serpent or the fish is not important enough to demand this osseous case for a protection. It is only when we reach man that we find a brain so advanced in structure as to be worthy of this special care and these threefold walls of defense.

In the lower vertebrates, all of the four limbs are used for locomotion. In some of them, the fore limbs, though still used for walking are also partly used to minister to the functions of the head. Thus rodents, like the squirrel, use their fore-paws to seize their food and convey it to the mouth. The same is true of the canines and felines. All of the monkeys or simians use their fore paws in the same way, but their front limbs are more specialized than those of the carnivora, for the

monkeys find little difficulty in walking upon the hind legs alone when occasion requires. The engraving shows the proportion in size between the ordinary brain of man and of the chimpanzee, the largest of simian brains.

Although birds generally employ only one pair of limbs at a time in locomotion, either walking with the legs, or flying with the wings, yet they are not to be considered more advanced in structure than the carnivorous mammals, for the wing of a bird is less complex than its leg and foot.

In man alone of all the animals the arms or front limbs are entirely relieved from the duty of locomotion and are devoted wholly to the service of the head. The bones and muscles of the hand have their counterparts in those of the foot. But they are widely changed in form and proportions. Man alone has a real hand, with each one of the fingers opposable to the thumb. Upon this structure of the hand depends the possibility of all human works of art and skill.

Man is thus deprived of one pair of legs for the sake of possessing hands. But the hands repay this many fold, even in the line of our locomotion. They enable man to construct the locomotive with its attached train of cars, far exceeding, in its united strength and speed, the strongest and fleetest of the lower animals.

Through all the many species of vertebrates, from the fish up to man, the spinal cord and lower parts of the nervous system have steadily diminished in size and importance, while the brain has quite as steadily increased in relative size and in perfection of structure.

This all-sweeping law must also embrace the brain itself when we compare its lower with its higher parts. It must determine the successive development of its organs from the base to the top, as was illustrated in the phases of personal life. The ultimate rule of the higher faculties of the brain, the nobler powers of the human mind, is secured by a law as extensive in its way as the existence of organic life itself. No hand of conservatism can turn back that upward march of humanity.

Whatever may be the functions of the top brain, this well proved law of science assures us that these functions must rule in the future of national life, in the political conduct of men, no less than in that of the individual members of society.

This law sums up the experience of the whole human race, and that of all life below man. If selfishness has thus far ruled in the affairs of nations, this law shows that it can not in the future.

NATIONAL PHASES. Nations are composed of persons, and hence the laws which govern the individual also determine the national life.

A nation, like a person, has its childhood, its youth, and its maturity.

Through these national and race phases we observe the same successive rule of organs from the base to the top, and from the back to the front, which mark the life career of a single person.

The first ages of the human race were sensual, debased, and ignorant. As a nation, or the race, advances to maturity, the higher and nobler faculties come into activity and elevate the whole character of civil and domestic life.

But so far in history no nation has completely developed its phase of maturity. Many nations have just entered this phase and then have been cut off prematurely, or have remained with a dwarfed growth for centuries.

This part of the law of evolution is regarded by all scientific men as established by the clearest of proof. We may safely build upon it, as an everlasting foundation. We shall first see what changes this law has produced in the past and then show what it points out in regard to the future of national life.

LINES OF GROWTH. On three great lines of movement we may trace the influence of higher and higher faculties, as nations pass through the phases of childhood, youth, and maturity. The lines of Intellect, of Affection, and of Industry form ver-

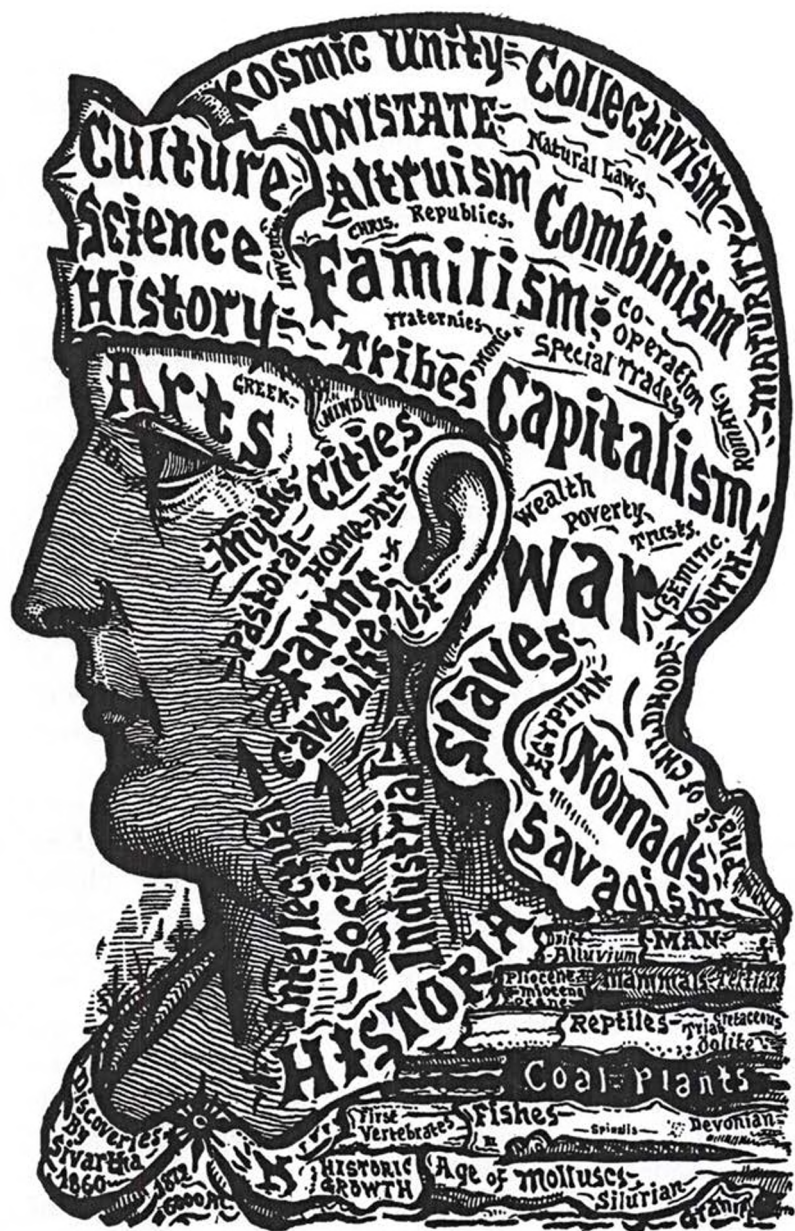
tical columns. Each one is subject to the same great law of development.

In the childhood of the race, the low faculties of Mobility, Destruction and Aversion, led to absolute forms of government. The most successful warrior and hunter becomes the chief of the tribe by his prowess. Labor is insulated, it is confined to hunting, fishing, and pastoral life, except in a few localities where a rude earth-culture is very easy.

In the phase of national youth, the higher organs of the Defensive group lead to forms of government in which the power of its rulers is limited by fixed laws and customs. The war power and the money power are then regarded as the true indications of a nation's rank in greatness. Labor then assumes the form of competitiveness, a fierce strife of the few to accumulate wealth from the labor of the many. This phase produces war, monopolies, competition, usury and common poverty.

When a nation, or the race, reaches maturity, the group of Rulership comes into full power in government, and it is under the guidance of the groups of Science and Culture, which have then become dominant in the front brain. These lead to the establishment of natural laws in government. Labor now takes the form of combinism, it secures the organized unity and specialization of all industrial interests. This results in common wealth among all classes of society, just as the phase of national youth is marked by common poverty among the masses of laboring men.

The line of religious evolution begins low down in the Sensitive group. It is idolism and sensualism, a worship of the objects of sense. In national youth, under the influence of the faculties of Familism and Memory, Religion passes into the phase of Creedism, where the doctrines rest upon the real or the supposed authority of ancient inspirations. This was the condition of Christianity and of Judaism in the middle of the nineteenth century. Reason does not yet exert its influence, and hence religious doctrines are shrouded in mysteries, are separated from practical life, and



are divided among hostile sects. Religion finally becomes a conscious union of the human with the divine life, and the organized unity of the human race, as exemplified in the Harmonic reign of peace. It is based upon an intelligent obedience to the eternal laws of spiritual harmony.

The line of Intellectual growth gives us superstition and savageism as the product of the perceptive faculties. The succeeding age of dogmatism and civilism is produced by the group of Memory. Science and harmony complete the upward march on this line.

Each line of advancement is supported by the other two lines at every successive point. Thus the creeds of religion are sustained by dogmas of the intellect and by competitive labor. The fatal defect in any system of competition is that it creates an opportunity for man to take advantage of his fellows, and "the weakest must go to the wall." Idolism is sustained on one side by superstition and on the other by absolute forms of government. Wars and conflicts are natural to the first ages. They are in harmony with that state of mental development. Harmonism will use scientific knowledge as its instrument on one side and, on the other, organized industry.

In the Chart of *Historia* we have marked in the low corner the geologic ages of the earth. The kinds of life in these geologic ages correspond in a general way to the phases of personal and national life. Thus the Azoic age resembles the bones or osseous system in man, for these are the most mineral and have the least life of all parts in the body. The age of Molluscs, of Fishes, and of Plants, have their types in the bodily functions of nutrition. The age of Reptiles is the type of the phase of Childhood; the age of Mammals resembles the phase of Youth; and the age of Man typifies the phase of personal and national Maturity.

SEVEN CIVILIZATIONS. There have been six great forms of civilization in past times; each was the outgrowth of a limited region of mental faculties, as shown in the engraving. Their characteristics are given in the first chapter.

The civilized nations of the earth have already passed through the phases of childhood and youth on these different lines of growth. They have organized their institutions to correspond with these phases. We therefore have the supreme warrant of science in affirming that the nations will go on and organize the higher institutions which are required by the phase of Maturity. The ablest scientific men and the profoundest historians teach that such an organization of society, based upon science, is not only possible, but absolutely certain. We have to determine what are the natural laws which will give form to that perfect social structure.

THE TRUE METHOD. This science of society proposes a new method for studying social phenomena. Up to the time of my discoveries, the scientists had all pursued a method which was false in conception and fruitless in results. They attempted to study history only in the light of past experience and history. But in past times, all systems of government and social institutions were very imperfect. This is freely acknowledged by the most eminent of civilized statesmen and scientists. Nature has not yet given us the example of a perfect community or nation, as an object from which to study social science. But nature has given us comparatively perfect samples of individual men and women. We must study these to learn what society should be.

Society itself is made up of individuals. And whatever powers society may possess, it must derive these from the nature of its component units. We must therefore study these units in order to understand social actions. Let us make a more special and extended statement.

The Institutions of society result from the direct functions of the social faculties, and of the other organs acting in connection with these. It is the natural function of the eye to see; of the ear to hear; and of the lungs to breathe. In the same exact way, the normal actions of the social faculties produce all the parts of society. It is the function of the organ of Memory to remember facts. This is the personal side of its use. But under the stimulus of

the social organs of Familism, the organ of Memory leads men to organize a system of schools, where we can more readily acquire the necessary collection of facts under the guidance of a teacher. The same organ leads to the establishment of publishing houses, of libraries and museums. If we could imagine men who possessed no organs of Memory, and these men should organize social institutions, these would include no schools; they could not realize the existence or nature of such a collective want. The Organs of the Defensive group impel men to organize factories, stores, machinery and systems of mercantile life. The wants of the Appetite lead men to organize agricultural societies, in order to learn better methods for cultivating food.

Indeed, if we examine any institution or part of society we shall find that back of each one stands some mental organ which was its producing cause. The faculty created a want, and, to get means for satisfying that want, it was necessary that men should unite with each other. They could not get the means by separate action. At the beginning of the human race, the social organs of sex-love led men and women to associate in marriage. From this sprang the social institution of the Family. The family by its increase became a tribe, and the tribe expanded into a nation. All of the great communities and nations had their origin in the tribe and family. This is the lesson of history.

The expanding tribe accumulated knowledge, it gathered lessons of experience, and these took permanent shape in the form of customs, and thus constituted the civil law. For long ages the decrees of kings and councils were little more than a formal method of confirming what experience had already pointed out or established.

The whole growth of human institutions is therefore a natural process. It is a direct expression of man's faculties. And it is not in any sense the result of an arbitrary convention or arrangement among men. They did not get together and form a "Social Compact." A life in organized society is the natural condition of man. The social facul-

ties form one-third of the brain. The law of polarity teaches that each one of these is connected with an organ of the intellect and one of the will. So that the action of the social faculties involves all parts of the mind. It follows that all parts of the mind are concerned in producing social wants. The argument may be summed up in three self-evident propositions:

FIRST. The Collective Wants of Society arise from each one of the Mental Organs, and we can know the number of these wants only by knowing the number of the faculties.

There is no exception to this law. In order to illustrate it more clearly, the whole is put into the form of a table, "Organs and Wants." After each faculty are placed some of the general wants of society which are produced by that faculty. It might seem to a superficial observer that some of our faculties may be satisfied without the concerted action of society. But this is not the case. It is quite true that a man eats food for himself, and that he can eat alone. But in order to get the food, there must be a little society, a group of the family, to cultivate the earth, and there must be railway or other companies to take the food from one part of the country to another. A man remembers for himself, but if he would have a sufficient store of knowledge for all the work of life, society must help him to get it through a system of schools. The organ of reason requires the association of men to make instruments of scientific research, and to gather materials for study. It is evident that the examination of any one of these faculties will reveal a social, or collective, as well as a personal or private side of its functions.

The entire groups of the social faculties have for their direct object the association of human beings. Without society, friendship would have no object of action; parental and filial love would perish; philanthropy and sex-love would cease to exist. If we could destroy any mental faculty, then the corresponding want would disappear. If men had no organs of memory they would care nothing for facts; if they

had no organ of Integrity, they would have no desire for justice.

The eye of man adapts him to live in a world which is full of light; the ear is fitted to a world where sounds are made; and the lungs are adapted to a widespread atmosphere. And it is equally true that the social organs adapt man to live in a world of society. As the eye can only be satisfied by light, the lungs by air, and the stomach by food, so each mental organ has wants of only one kind. The wants of Friendship always relate to friends in some way, those of Integrity can only be satisfied by justice, and those of Reason can only be answered by scientific truth. You can not gratify the organ of Dignity by proving that a mixture of yellow and blue will produce a green hue.

Every human being comes into the world with just the same number of faculties that every other one possesses. He has therefore all the kinds of wants. Some of these may be developed in a high and others to a less degree.

A survey of the faculties gives us a complete view of the natural wants of man. And we can get this view in no other way. For three thousand years the statesmen undertook to gain this knowledge by the light of experience. They studied history with great diligence. They knew the conduct of men. The proud result of all their vain labor is presented in the engraving of Civilism. They discovered much less than one-half of the collective wants of man. Their method was essentially imperfect. As social scientists we may know history as well as the statesmen do. But as social scientists should do more than simply to study the past as sociologists have done, we should study the faculties of man, the ever-present and the direct-producing causes of history, and understand the interior forces of these faculties, the central mechanism of all social life. The statesmen of past times were like a man who should merely study the outside case of a watch in order to understand how it does the work of recording time.

“The wants of man are the true and natural foundations of human society.” These words of a great jurist were true, but

ORGANS AND WANTS.

THIS TABLE GIVES THE GENERAL WANTS OF A COLLECTIVE KIND
PRODUCED BY EACH FACULTY.

FORM requires beautiful dwellings, temples, costume.
COLOR requires its accords in temples and costume.
NUMBER—Concert, order, and social unity.
MEMORY—history, records, books, literature.
ATTENTION—museums, laboratories, pictures.
LANGUAGE—conversations, lectures and music.
REASON—science, civil laws, universities.
INSPIRATION—prophecy, poetry, ornament.
CONSTRUCTION—workshops, factories, machinery.
AMITY—friends, social groups, associations.
REFORM—culture, education, social progress.
MANNERS—urbanity, manners, ceremonies.
FAITH—unity of man with the divine life.
LOVE—unity of mankind in thought and life.
HOPE—social enterprise and achievements.
DEVOTION—marriage, pairing, sex-equality.
HEREDITY—constancy, sex-unity, offspring.
LUXURY—social apartments, home luxuries.
PARENITY—the family, children, dependents.
REVERENCE—parents, guardianship, teachers.
PATRIOTISM—unitary home, domestic life.
APPETITE—agriculture, the cuisine, feasts.
FEELING—shelter, home comforts, sanitarium.
IMPRESSION—harmony of social spheres, telegraph.
DIGNITY—government, leadership, social rank.
LAUDATION—competition, social display, rewards.
STABILITY—enduring forms of civil and social life.
INTEGRITY—universal justice and peace.
INDUSTRY—combined labor and employment.
LIBERTY—social rights and opportunities.
DEFENCE—protection from social danger.
ECONOMY—wealth in buildings, lands, goods.
CAUTION—private apartments, personal rights.
LOCOMOTION—commerce, highways, travel, vehicles.
AVERSION—social seclusion, penal exclusion.
DESTRUCTION—scavengers, purifiers, cultivators.

it long remained for science to discover the complete foundations in the human constitution. That is now done, and it brings us to the discussion of our second basic proposition.

SECOND. The wants of society are represented and provided for by its departments and officers.

The Secretary represents the organs of Memory, and leads in supplying the wants which arise from this faculty. The Treasurer represents the organ of Economy; the Justice is intended to represent Integrity; and so of every officer.

The organs of the brain all radiate from two centers. These centers produce the idea of many different kinds of parts in concerted action. To satisfy this sense of unity, each society chooses a President, Chairman, or chief of some kind, who thus becomes the common pivot of their collective action.

If we look at the duties of any officer whatever, and inquire why these duties exist, we shall find that men were conscious of some real or supposed want, and that this officer was chosen to lead them in getting means for its gratification. The officers of society are its organs, the common instruments through which its actions are accomplished. This method is perfectly natural. The actions of nature all take place around centers. The forming of a crystal, the growth of an animal, or the development of a globe, alike prove this law of action around central points of force. It is thus a mathematical necessity that the actions of society must turn upon its centers or officers. But it is not necessary to confer arbitrary power upon them. The axle or hub of a wheel has no more arbitrary power than its circumference.

The nature of these wants is such that single persons, working alone, can not get or use the means to satisfy them. Each requires combined action, through some fixed provision in the structure and offices of society.

Impelled by those wants, men have organized all their institutions, and elected all their officers. If men had possessed no organ of Economy, there would have been no Treasurers in any society. If the organ of Memory did not exist, man would not know that a society required a Secretary. As

the organs of the brain correspond to those of the body, this analysis includes all of the bodily as well as the mental wants.

THIRD. A complete form of society must have as many departments and officers as there are groups and faculties of the brain. If there is a less number, then either some wants would be left unsupplied, or some officers must fill diverse and complex functions.

Nature wanted man to see, and she gave him the eye as an organ of vision; she wanted him to be just, and she gave him an organ of Integrity; she wanted him to understand laws, and she gave him an organ of Reason. A distinct organ for every distinct class of functions is the rule in nature. The argument here made does not rest upon analogy in any sense. We are discussing the direct functions of the mental organs. It is true that some of the old Greek philosophers, and some of their modern imitators, compared the structure of society with that of man, and they talked about a Social Organism. But they only meant an analogy, and their work was idle speculation.

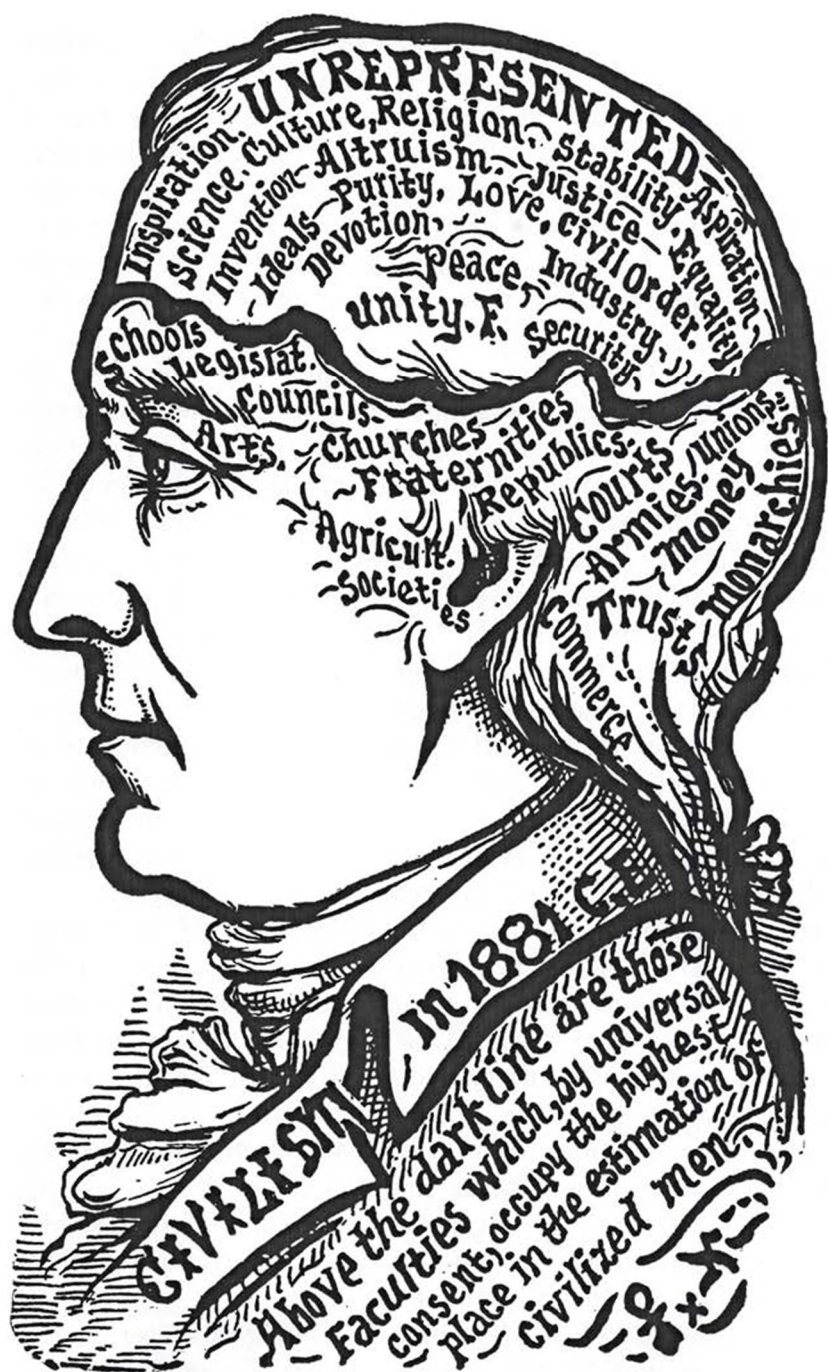
Our argument here has nothing to do with analogy, any more than the scientist has when he talks about digestion in the stomach or breathing in the lungs. He is dealing with realities. Every mental organ seeks outward expression, it seeks conditions for its free activity and full gratification. And in doing this, it sooner or later produces some institution, some officers or part of the social fabric. It must therefore come to pass that, when a man attains a complete growth, the outward parts of society will reflect all parts of his inward nature. In all past history, the higher faculties have never exercised their full functions in the masses of men. If they had done so, then they would have organized institutions sufficient to completely represent all of these higher functions of the mind.

It now becomes necessary to enquire exactly how far men have yet carried this natural process of growth. The only true way to test any institution, or any proposed measure of reform, is to compare its plans directly with the nature

of man. For all these are designed to meet the needs of his nature. In the years 1859 and 1860, the writer of this Book carefully examined the duties of every class of officers, in all the institutions of civilization. He extended this survey over both ancient and modern times. He traced the duties of each officer back to the mental faculty from which it originated. The result of this year and a half of work is summed up in the diagram, entitled "Civilism in 1881." Up to this year of rewriting, 1912, C. E., only the six lower groups have been in any way represented. The nobler elements are still a blank in the public life of nations. They have been left to the isolated and always abortive efforts of private individuals. It is quite true that the church and some other institutions often took the name of these higher faculties. But is was only in name. The true function of religion is twofold. First, it must unite the entire human race in one composite life. Second, it must unite and harmonize man with the living beings of the universe. The church never undertook to accomplish either of these results. It has really represented an obedience to dogmatic authority, and this sprang from the organ of Reverence, low down on the side of the head. The justices and judges of civilism never represented the organ of Integrity, for this faculty would seek to reform and restore the criminal to a normal condition of social health and power. But those judges all spoke the language of the lower organs of Destruction, of Economy, and of Secrecy, for they condemned men to death, to fines, and to imprisonment.

The reason why the higher faculties have not been provided for, lies in the fact that they belong to the phase of maturity, and the nations have only passed through the phases of childhood and youth. They have been dominated by the base of the brain. Fraud and Force are the two black parents from which most of the institutions of civilism have been born.

But the nations have now entered the phase of maturity. In Europe, America, India, China, and Japan, the average



development of the brain is far above the line that separates the phase of youth from that of maturity. We know this from a great number of actual measurements. The masses of the people have outgrown their institutions and are prepared for higher social forms. They are everywhere dissatisfied with the old, and are waiting for the new. For centuries they have been slowly pushing upward across the major axis, the transition line that separates the higher from the lower side of our nature.

Science points out clearly the next phase of evolution. It directs us to carry out to completeness that which men have been doing in a partial and fragmentary way from the earliest ages. We must complete the social organism by a systematic representation of the mental and physical constitution of man.

THE PERFECT MODEL. A perfect social structure would represent each of the twelve mental groups by a department, and each organ by an officer. This is shown in the engraving of Harmonism of this chapter, in that of Unista in the next chapter, and in the table of Departments of Society. This plan provides for our intellectual wants by having departments of art, letters, science, and culture. It establishes and incorporates the home, the family, marriage and religion, to answer our social needs. And it organizes rulership, labor, wealth, and commerce, to meet all the demands of industry.

In the engraved Unista, each officer is placed next after the represented organ. It seemed necessary to use some titles already in existence, but the actual duties of the officers must not be inferred from these titles, they must be learned from the table. In each of the twelve groups of the brain are two leading faculties and one which acts as an executive or assistant. For example: the organ of Attention observes facts, that of Memory retains them, and Language stores them up in books for future use. As a result of this threefold arrangement of the faculties, we must arrange each group in society with two leading officers and one assistant.

Three subdepartments are placed after each officer in the table. These may be still further divided. Thus Cooking in-



cludes, baking, boiling, and roasting. Baking divides into bread-making, cake-making, and pie-making.

SIMPLICITY. The entire plan, as sketched in this and the next chapter, only requires forty officers and thirty-six departments. This covers the entire ground of man's nature. We may contrast this simplicity with the hundreds of different kinds of organizations which belong to Christian civilization. And this does twice the work of them all.

Men will always live in society. And each person has all of these faculties, demanding conditions for its free action. If, in order to be simple, we make the structure of society less complex than that of the individual man, then no person could be fully satisfied. And by a common instinct, men would seek to make up the deficiency by organizing new institutions inside and independent of the general government, just as they did in all Christian countries. All these lesser organizations act at an immense disadvantage. They are disconnected, and each one requires as many officers as are needed by an entire government. In a machine shop, it is much easier and better to have one engine as the center of movement for thirty wheels, than it would be to have thirty separate little engines for them.

In six thousand years of experience, men have discovered one-half of their social wants. But science discovers the whole of them at once by looking directly at the constitution of man. We know that such a system of society will fit all men, for it fully represents all that is in the nature of every man. All men have the same essential nature, and therefore what is good for one is good for all. The plan of Harmonism provides definite places for both men of high and men of low development. Each one will be able to find a congenial place. If we model society after the lowest minds, then the highest minds could not find in it a natural sphere of action. This has always been the case with civilism. The good, the true and the beautiful always had a hard struggle for existence. The weightiest forces were on the under side. Every reform had to meet with fierce and stubborn resistance. The race of man



OUR CONSCIOUS WANTS start in the brain. When the condition of the body requires food, the message goes on the nerves from the stomach to the organ of Appetite in the brain. Then we are conscious of hunger. Cut off the nerve, and we should never feel that we needed food. And so of all bodily organs and wants. A million nerve fibers connect them with definite parts of the brain. In representing the organs of the brain by officers we therefore make direct

provision for all bodily wants.

Until the years 1859 and 1860 no one had thought of tracing the collective wants of society back to their source in the mental faculties, and of thus finding out how many officers and departments would be required in a complete form of human society. *Our argument is final and decisive.* Without the faculties we should feel no motives that would lead us to form any institutions. And thus each faculty has both a private and a public side to its natural functions. These truths give us, for the first time, a basis for an actual Social Science or Sociology.

A careful analysis of all civilized institutions, up to the year 1881, showed that they only represented the lower half of our faculties, that is, those below the dark waved line in the Historic Charts. They sometimes assumed the *name*, but not the functions of the higher faculties. The best and fullest plans yet offered by the Socialist writers still leave out one-half of the natural departments. Yet the laws of Evolution assure us that the higher and nobler faculties must finally be represented and come to rule in all the public affairs of men.

had not learned that moral and intellectual growth was a natural thing. These lower faculties of man also exist in the minds of brutes. And as long as they reigned, the rule of brute force would certainly be dominant.

The upward growth of civilization has been a constant attempt of its leaders to represent the wants of higher and higher faculties in the social structure. Three great factors have been at work in the growth of the nations. These factors are the Intellect, the Feelings, and the Will of man. They have produced Knowledge, Social life, and Industry. In the present age knowledge has developed social science, and this must and will take the place of mere experience as a factor of social advancement. We can now see for the first time, the exact method by which the growth of the race has been effected. And we can see with equal clearness, how it must be completed. Before men knew that officers really represented mental faculties, they had no possible means of knowing how to complete the structure of society.

The work of reconstruction is direct and simple. Men have already represented a part of the lower faculties by officers. There is nothing in the nature of the higher faculties which makes it either difficult or impossible to represent them also in the same manner. For example, it is no more difficult to represent Reason by an officer than it was to represent Memory. The process has succeeded in all past ages, only it went forward in a half instinctive, rather than in an intelligent way. We are not obliged to wait for an experiment to prove that the process of growth will also be successful when guided by the clearer and the exact knowledge now in our hands.

Science proposes here a new understanding of the methods of nature, just as it did in the railway, the steamship and the telephone. And the new methods will be just as successful here as they have been in other directions.

The transitions to new forms of social life will not be sudden or violent, though they are begun now and are pushed forward with all possible speed. It will be long enough to satisfy even a conservative before the new age is entirely established. The

constitution in the next chapter provides for transitional steps in emerging from the confusion and complicated disorder of civilism.

In the nature of man is the vital mechanism that produces all social phenomena. We have so far been explaining a single law, that which deals with social forms and structure. This is only a part of the domain of social science. Natural laws exist which cover all the possible relations of man in the collective life of society. These natural laws are just as explicit in determining all the proper actions or conduct of society as they are in showing its proper form. These collective laws of social life and action will be treated in the remaining chapters.

Our bodies are perfect governments, where each member does its work free from undue interference, but yet regulated by every other organ, and ever obedient to the decision of the whole. Such a systemized whole should the people of a nation present. An organization that will meet all the wants of the people, and secure to each an opportunity to act according to the best of his ability.

Although civilism represents the lower half of the faculties, it does not do this in a complete and methodical way. For example, in Great Britain and America the three departments of government are Legislative, Executive, and Judicial. But the great classes of wants in society are Intellectual, Social, and Industrial, for they arise from the great divisions of our nature, from Intellect, Affection, and Volition.

Not only were the parts of civilized society so sadly deficient, but the natural relations and mutual dependence of its various parts were disregarded, or not established, as we shall now consider under the head of Specialization.

SPECIALIZATION. Far below man, and extending too, far up through all phases of his national life, is the great law known to scientific men as that of Specialization. It teaches us that in the career of every thing, whether it be the formation of a world, of an animal, or of a nation, the method by which its growth is effected consists in the division of labor or

of action. That is, those functions and actions which in the early stages of evolution are performed in a rude and general way by a few organs or parts, or else by many parts of similar form, are gradually divided up among a greater and greater number of unlike parts, each assuming some special portion of the work.

“While in the early stages of evolution there is scarcely any mutual dependence of parts, this becomes greater and greater with the increasing complexity, so that at last the full life and activity of each part is more possible only by that of the rest.”

A few examples will show clearly the application of this important law to national life. Thus in some of the lower forms of animals, like the crinoid figured in the second chapter, the entire function of digestion is performed by a simple sac or stomach. As we pass upward in the scale of life, we find that in other animals there have been added to this sac various other organs, each doing a special part of the work of digestion. Thus we have a liver added to separate the bile; pancreas to help digest the fat in the food; intestinal and salivary glands to digest its starchy portions, and teeth to masticate. Of course where all of these exist the whole process of digestion is carried on much more perfectly.

Now this law of Specialization, this division of labor, governs the social progress of man no less than it does that of his body. For example, in national infancy each person performs every kind of labor pursued by any of the rest. Each man, in a rude way, is at once hunter, farmer, mechanic, and merchant. The savage chief hunts his own game, dresses and cooks it, gathers his own nuts and wild fruit, and makes his own rude clothing of skins, and his ruder hut of sticks and mud. In later periods, persons who show particular aptitudes for special kinds of labor begin to devote themselves to the kinds in which they excel, and thus the various trades and professions come into existence.

One man makes arrowheads, another blankets, another huts, and so on. Out of, and along with, this division of labor there

grows a far greater degree of mutual dependence between the members of society, and this increases just in proportion to the advance in civilization and social unfolding. For the men of each trade must exchange their products with those of the other trades. But while it makes men more dependent, it also makes them more completely individualized. The most highly individualized man is the one who has depended upon the greatest number of his fellow-beings for the materials, the comforts, and the luxuries of life. The farmer is dependent upon the tradesman, the grocer, the carpenter, the shoemaker, and those of a hundred other trades. And conversely, each of these is dependent upon the farmer, and upon all the others. The greater the degree of individuality, the greater is the degree of mutual interdependence, and of social unity of action and of feeling.

But while labor remains in the stage of competition, there is no formal recognition of these mutual dependencies. There is no provision to secure organized unity of action. Instead of this we only find a selfish antagonism of interests. Every man's hand is against that of his neighbor. What is for the interest of one man in civilism, is against the interest of the rest. Such is the state of industry in all civilized nations in this year of 1884, common era. The agricultural society is not connected with the state government, the temperance society is severed from the schools, commerce is divorced from art, literature is separated from finance, the scientists do not mingle with the laborers, and culture is not made a test of fitness for official positions. No civilized statesman was wise enough to provide for the united action of these dependent interests. Science proves, and experience confirms, their constant and important interdependence. The statesmen have left their connection wholly to chance or accident.

The result of this chance-work is that society is a vast aggregation of discordant and mutually destructive organizations. The social structure thus resembles the very low forms of animal life, like the polyps and jelly fishes, instead of the higher. In the next chapter we shall see how these different

parts of society are adjusted to each other and respond in action by laws which are a part of the very nature of man, and which will produce in the collective, political life of society a rhythm of movement, which has its lesser counterpart and image only in the noblest of musical symphonies.

The division of labor in any organism, or in any series of animals, is not affected chiefly or simply by increasing the number of organs or parts. It is accomplished by changing their form and arrangement. For example, one of the crinoids had 300,000 muscles. But these were all alike in form, and the only motions they permitted were reaching out its tentacles, grasping its food, and drawing this into its mouth. But in man, the small number of 232 muscles are constructed and arranged so differently from each other that they enable him to perform an exceedingly great variety of movements.

And so, in the true social organism we shall find a less number of officers than in the Christian and other civilizations. The whole structure of society, the duties of its officers, and the relations of its departments, are so clearly defined that a child can understand them. And the youth who learns this in the Band where he lives will then have a clear and true idea of the mechanism and the workings of society through all its orders. The expenses of conducting the affairs of society are reduced to a very small part of what was necessary in civilism. Nine-tenths of all the labor in civilism was misdirected, wasted, or nugatory.

FINAL TEST. The final and supreme test of any form of government and society is to compare it with the constitution of man. This we have now done, and have shown that the very best of civilized institutions have failed and must fail to secure human happiness. No matter how high the personal character and attainments of its officers may be, the mechanism of civilized society does not admit of the higher functions. It is as if we should put the spirit or mind of man into the body of a horse and compel it to use that body as its instrument of work and manifestation. We can see at once that in that case the mind of man could not do any of the great deeds,

produce any of the high works of art, or give form to the thoughts which place man so far above the brutes. So in civilized society, when men wish to unite in any noble and necessary work for their common welfare, there are no organized means suitable for their use. If they form an organization for the purpose, it is not connected with the rest of the social structure, and it is as impractical and useless as a human arm and hand would be if they were cut off from their connection with the body and the brain. There would be nothing to sustain and nothing to direct their movements.

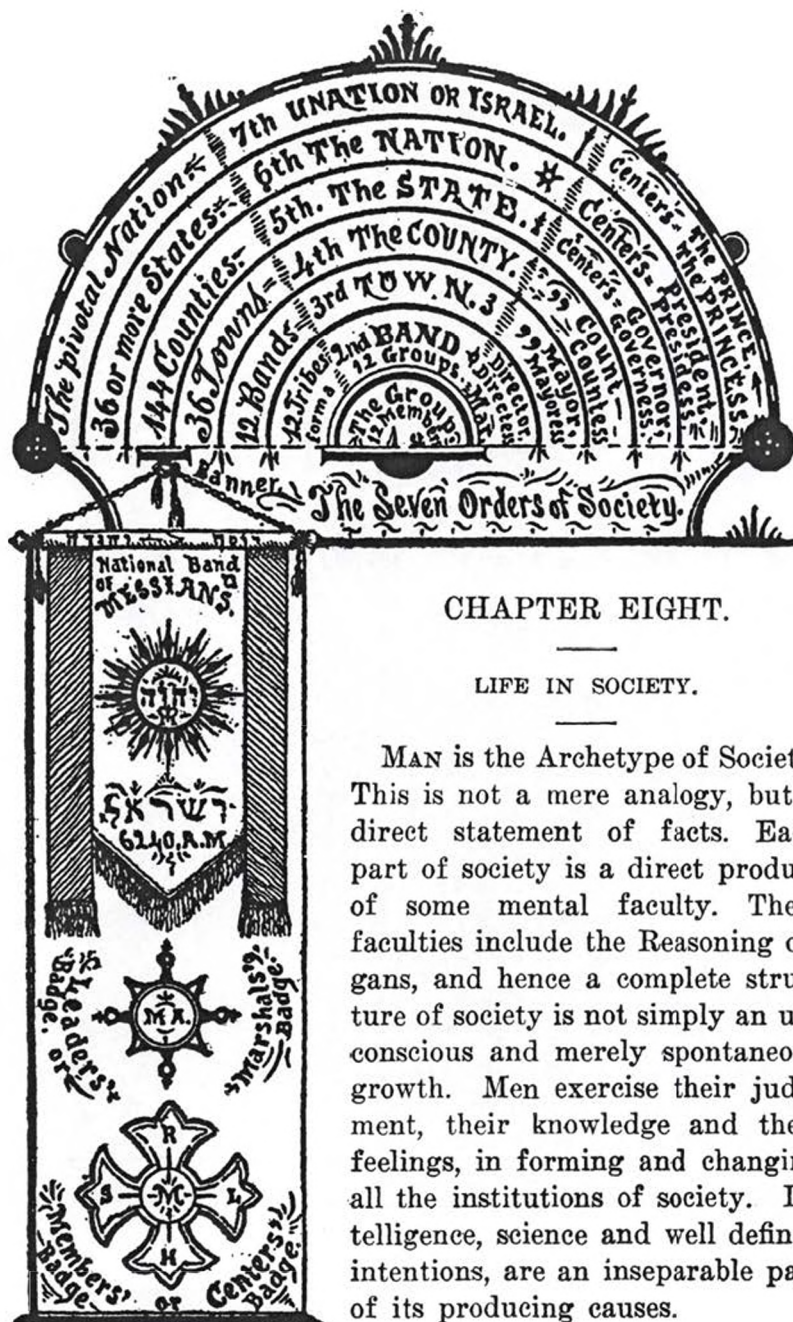
We are following the great law of specialization when we propose to unite the many necessary parts of a complex civilization in one connected system. We have no right to separate things which nature has united. Many diverse faculties are united in the human brain. Religion and appetite, philanthropy and destruction, reason and impulse, and all the widely contrasted brain organs send their fibers down to common centers of action and unity. They are all linked into responsive chords of movement by delicate and mathematical laws. Each has its fixed place and its harmonious relations to the rest. Nature has enwalled them with the triple bony plates of the cranium.

When these interior faculties have an outward expression in the social organism, we can relate all the parts of this to each other by the same laws of harmony that united the inner world of equally complex mental powers. The faculties do not have new laws added to them so that they may act in society. They come forth panoplied with all the powers of state.

A thousand or a million men when associated acquire no new powers or faculties. They only attain better conditions for using those which they already possess. They increase the quantity and the freedom of their forces, but do not change the kind. One man has not sufficient power to build a railway, a steamship or a temple. Unite a thousand men, and the difficulty vanishes.

The great mechanical inventions of modern times were not produced by imitating things of the past. The methods of

science have supplanted those of mere experience. Science puts exact knowledge in the place of mere guesses and imitation. The science of man is the science of living beings. It fully recognizes the mighty pulsations of social life. It watches and measures the radiant bands of spiritual light no less reverently than it measures the convoluted shores of thought in the brain of man. The office of Science in its maturity is not to suppress the emotion of the human heart. The highest work of Science is to lift the veil of mystery from our inner life, and to furnish a clear and supreme guide in all the forms of personal conduct and in the structure and actions of civil society. A true system of Sociology must fully state the twelve great laws of man's nature and it must stand as the crowning light of all the ages.



CHAPTER EIGHT.

LIFE IN SOCIETY.

MAN is the Archetype of Society. This is not a mere analogy, but a direct statement of facts. Each part of society is a direct product of some mental faculty. These faculties include the Reasoning organs, and hence a complete structure of society is not simply an unconscious and merely spontaneous growth. Men exercise their judgment, their knowledge and their feelings, in forming and changing all the institutions of society. Intelligence, science and well defined intentions, are an inseparable part of its producing causes.

The Officers and Departments

President.

Presidess.

Marshal.

<i>President.</i>	<i>Presidess.</i>	<i>Marshal.</i>
<p>CULTURE—5th <u>Receptor</u>—Receptions, Fraternity, Visits. <u>Cultist</u>—Education, Reforms, Discoveries. <u>Urbanist</u>—Morals, Manners, Drama.</p>	<p>RELIGION—7th <u>Pastor</u>—Unity, Conventions, Ceremonies. <u>Altruist</u>—Peace, Relief; Interchanges. <u>Postalist</u>—Postals, Messages, Telegraph.</p>	<p>AMBITION—9th <u>Captain</u>—Leaders, Ranks, Trainers. <u>Elector</u>—Elections, Awards, Fairs. <u>Ensign</u>—Banners, Displays, Marches.</p>
<p>SCIENCE—4th <u>Scientist</u>—Mathematics, Biology, Physics. <u>Symbolist</u>—Beauty, Esthetics, Symbols. <u>Artisan</u>—Building, Invention, Landscape.</p>	<p>MARRIAGE—6th <u>Riteman</u>—Rites, Pomology, Florists. <u>Matron</u>—Mating, Grouping, Heredity. <u>Servitor</u>—Feasts, Pleasures, Recreations.</p>	<p>INDUSTRY—10th <u>Justice</u>—Censors, Judgment, Arbiters. <u>Organizer</u>—Machines, Employment, Utility. <u>Watchman</u>—Signals, Climate, Environs.</p>
<p>LETTERS—3rd <u>Recorder</u>—Records, History, Library. <u>Curator</u>—Museums, Doors, Guides. <u>Herald</u>—Music, Publishing, Correspondence.</p>	<p>FAMILISM—8th <u>Conductor</u>—Schools, Obedience, Guidance. <u>Wardess</u>—Plays, Festivals, Labors. <u>Consul</u>—Service, Envoys, Patriotism.</p>	<p>WEALTH—11th <u>Foreman</u>—Tools, Factories, Wares. <u>Economist</u>—Accounts Expenses, Harvests. <u>Keeper</u>—Collectors, Stores, Preservers.</p>
<p>ART-WORK—2nd <u>Designür</u>—Designs, Architecture, Sculpture. <u>Costumist</u>—Costume, Painting, Decoration. <u>Surveyor</u>—Surveys, Order, Furnishing.</p>	<p>HOME-LIFE—1st <u>Purveyor</u>—Foods, Fields, Dairies. <u>Steward</u>—Cooking, House-care, Tables. <u>Sanatist</u>—Health, Laundry, Ushering.</p>	<p>COMMERCE—12th <u>Engineer</u>—Roads, Transports, Mines. <u>Merchant</u>—Supply, Exchange, Distribut'n. <u>Tillman</u>—Fertility, Herding, Forestry.</p>

The whole evolution of society in past times has been an attempt of man to organize institutions which shall satisfy his various needs, desires, and aspirations.

A concise statement of the fundamental principles of government is given on the next page, and the formal statement for legal use is given in the Constitution at the end of this chapter. The constitution of all human society may be thus written in a single page, or it may be minutely detailed through volumes, just as a work upon any other science may be either a synopsis or a lengthened exposition.

The engraved Unista or Archetype of Society exhibits the classes, departments and officers, with thirty-six sub-departments. The table in the Constitution shows one hundred and forty-four of these divisions.

As an illustration: In the groupate of Letters, the organ of Memory is represented by the Recorder, who leads in the subdepartment of Records. The Curator represents attention, and presides over the subdepartment of Publication. The assistant officer here is the Herald, and he presides over music. The duties of all the officers can thus be readily learned from the engraving.

ORDERS OF SOCIETY. The societies are placed in seven orders or ranks. These are called the Group, the Band, Town, County, State, Nation and the Unation.

A groupate, or tribe, when full, contains from twelve to thirty-six members, besides the children. Its two central officers are called the Director and Directress. The members are grouped according to their characters, tastes, and attractions, each groupate being composed of those who have the corresponding group of mental faculties dominant. Twelve groupates form a complete society or Band of Harmonists, which thus contains from one hundred and forty-four to four hundred or five hundred members. The School is formed on the same plan as the parent society, and the Home School is presided over by the Home groupate.

Twelve Bands of the lowest rank are united in a Town. Thirty-six towns are united to form a County. This has

THE TWELVE FOUNDATIONS OF SOCIETY.

1st. The Constitution must be based on the collective wants of man, as shown in the twelve departments.



2nd. There must be artistic and sanitary homes for all, in rightly organized cities and farm domains, as in the models.

3rd. Social events and dates, such as elections, installations, etc., must be in unity with the natural periods of years and cycles.

4th. The officers and work of society must be dual or allotted equally to the two sexes. Marriage laws must be national, and marriage be based upon love and adaptation.

5th. Science as the measure of truth, with the promotion and protection of scientific discoveries and inventions.

6th. The grouping of members in departments and work must give each one a free choice according to tastes and capacities.

7th. Equity, unity and peace between all nations. Religion as the altruistic unity of all life, with its laws in the nature of man, and proved by the methods of science.

8th. The schools must include the systematic daily culture of all the mental faculties, through appropriate studies, plays and labors; and there must be a true care for children.

9th. All officers must be elected, or impeached and deposed, by a direct and free vote. All laws, public measures and inventions to be adopted by a vote of the people through a Receptum.

10th. Organized industries and universal employment, securing to all persons the full average results of their labor, with assurance against accident and want.

11th. Collective ownership by the people of all public utilities, of all things of collective use, and private ownership only for things of private or personal use.

12th. The establishment of highways and commerce, the distribution and exchange of all products, to be based upon actual wants, throughout the nations.

the same number and kind of officers in its general government. The State contains one hundred and forty-four counties. Thirty-six or more States form a Nation.

The wants of a Town, of a State, or of a Nation are alike in kind, and they differ from each other only in the degree in which these wants descend to details. For example, a town may require roads which reach no farther than simply through it. Other roads may extend through the State, and others still, through the Nation. But in either case, it is the same kind of a need, and differs only in extent.

If the wants of all these orders are the same in number and kind, they must each have the same kind of officers, and be governed by the same constitution. From the lowest to the highest rank, the Unista gives the plan of government in each Order. The only titles changed are those of the two central officers. These changes are shown in engraving at the head of this chapter.

When all the nations of the world are united, the central nation is Israel, with its capital in Palestine. Its officers are elected every twelve years. In serving as a pivot of international action and unity, this central government must have the consent of each nation involved in any project or proposed line of action, before it is put into practical execution. It can not force its measures on them without their consent. The legal title of the two highest central officers in Israel, or the Unation, is Prince and Princess, the word Prince meaning one who is first.

AUTHORITY. The laws of the human constitution include the only true laws of society. Therefore the office of legislation is to discover and express these natural laws. Or, when this can not be at once done, it may devise temporary rules and expedients until the required natural law can be discovered.

The proof that each law of society does thus truly express a natural law, should be such as to satisfy all members who are to be affected by the law, so that no person shall be

compelled to obey a law which he does not regard as true and based on justice.

Every permanent law of society must be referred back to the people for their acceptance or rejection, and it must be accepted by a three-fourths vote before it is practically adopted. Temporary expedients, in the case of emergencies, need not be subject to this rule.

The methods and tests of science legitimately apply to every sphere of knowledge. And scientific proof is of such a character that it can be understood in the same way by all persons. Therefore no doctrine or belief which is not susceptible of scientific demonstration must ever be made a part of the laws or constitution of society.

True freedom consists, first, in the presence of the right conditions for the full and natural exercise of every faculty; second, in a normal internal state of the faculties; and third, in the absence of false external restraint.

It is not in any sense true that when men enter civil society they surrender certain rights or liberties, in exchange for other benefits conferred. On the contrary, it is only by uniting in organized society, that man can gain the conditions required for the free exercise of each and all of his faculties. If isolated from his fellows, he would lose the freedom to use all his social organs, and none of his other faculties could attain a full development.

Man is adapted by his nature to live in a social organism like the Universal Republic, where all parts of his nature are represented. By fulfilling the duties of such a life, by acting in concert with others, by loving and being loved, by these alone can any person secure the full measure of freedom. The laws of such a society can not restrict any person's freedom, because they are true statements of those laws which are a part of the nature of each person. The acting forces are from within and not from without.

Every person has a natural right to the proper development, conditions, and use of each faculty. Rights can not be created or transferred by men.

As all human beings, of either sex and of all races, have the same number and kind of faculties, therefore all have the same classes of rights, and are adapted to the same great forms of government and social life.

The quantity of a right may depend upon the degree to which its faculty is developed. A man with a small organ of Reason would have a right to exercise it in learning science, but not in leading the scientific pursuits of society.

In every natural law, the inseparable results of obedience are integrity and happiness, and those of disobedience are destruction and pain.

A member of society might become so vicious or discordant that the other members could not work with him, or he might possibly become dangerous to the peace or lives of others. But he is still susceptible to influences from the higher faculties of his fellows, and these influences must be brought to bear, so that they will make his own higher faculties rule in his conduct thereafter.

In the Harmonic kingdom, the chief motives which impel men to crime in civilism will be removed. This is done through the system of integral education, of organized and attractive industry, and of universal wealth. The great criminal causes in civilism are ignorance, intemperance, and poverty.

In depending upon the higher forces to secure obedience, the structure of society is such that it secures the constant rule of the higher faculties in all of its activities. But it still retains as much compulsory power as in civilism, only it is not necessary to use this lower force.

The assistant officers are each elected by the groupate in which they are to act. The same rule applies to sub-leaders of the subdivisions of departments.

The Curator and Recorder take and record the votes in each society.

Each officer must have the represented faculty large. Thus, the Scientist should have large Reason, and the Justice large

Integrity. The Centers should have a full development of all the faculties.

The times of election may be changed by a two-thirds vote of the members in all the societies.

RIGHTS OF WEALTH. The right to own property arises from the mental faculty of Economy, and hence this right exists in all persons. But man is normally a member of society, and he can not acquire extensive wealth unless he combines his labor with that of his fellows. The rights of wealth thus become Common and Social, as well as Personal. Capital is simply accumulated wealth. There can be no antagonism between the act which produces a thing and the thing itself.

Capital and Labor can not be in conflict. Civilism always made a conflict between those whose labor produced wealth and another class who always sought to appropriate this wealth without laboring themselves.

Three objects are gained through combined labors. **FIRST**, Increased power of production. **SECOND**, Facilities for making exchanges of property. **THIRD**, Economy and Security in the use of wealth.

The grouping of members in Harmonism secures to each one a free choice in employment. The industries are so organized that the mental and physical labor of each member is fully productive, and no part of it wasted. And each member receives back the full product of his labor, or else receives in exchange with some one else, that which has cost that person an equal amount of labor, or, more strictly, an equal amount of vital force.

By the law of Conservation every person expends just as much force as he receives, and no more. Hence, where the plan or society makes these forces wholly productive, the wants of each member may be safely made the basis for the distribution of the products of labor. There is no danger that any one will receive more than his just share. This law applies to all the produced necessities and comforts of life.

Those things which are used by one person alone, should

be owned by that person. This includes clothing, private rooms, and many kinds of tools. In all these, each person has individual character, peculiarities and tastes to gratify, and what is adapted to one person is not adapted to another.

All those things which are used together by two or more persons, should be owned by them in common. One person alone could not occupy and use a house, and therefore should not own it. Each Band would own a unitary home, with common rooms used by all, and with private rooms which are used and owned by each member exclusively, and furnished in harmony with that member's character and tastes.

A railway is to be used by the whole public, and they should be its owners. A farm can only be well cultivated by a group or a society, and should be owned by them. Homes, temples, workshops, storerooms, machinery, lands, and highways of all kinds, are all used by a common public, and should therefore be owned in common.

The Town, the County, the State and Nation, each owns property. For example, the County owns the county roads; the State owns those which only pass through it, and the Nation owns those which are national in extent.

The whole growth of society is through the Specialization of Labor, the division of the different employments among those who have the talent to excel in each special kind of work. Thus the whole community gets the benefit of each person's skill. The carpenter builds as good houses for others as he does for himself. The shoemaker does as skillful work for his neighbor's children as for his own. One talent alone, the ability to control men and make their labor productive, this talent alone in civilism is used wholly for selfish purposes. The financier uses his talent to accumulate wealth for himself out of the labor of others. But in Harmonism this talent must be specialized the same as all other kinds of skill. In demanding this, we are doing no more than we have already done for the rest. Financial talent is not any more godlike than the painter's skill, or the artizan's technical acquire-

ments. It has no more right to be exempt from this great law which has lifted man from savageism to civilization.

EMPLOYMENT. When the youth, of either sex, graduates from school the course of study will have fitted that youth for a definite place in the productive work of society. And society must secure this place to every youth, and it must thereafter furnish constant occupation.

Civilism left its industry without organization, to be the prey of fierce and selfish competition. Its best possible results brought only wealth and comfort to the few, while poverty was the lot of the masses. Surely the political wisdom which produced no better than these conditions was not worth boasting about.

The national organization of Intellect, even in the imperfect schools of civilism, secured to every member of society the benefits of a general education. The manifold benefits of wealth will in like manner be secured to all members of society through the national organization of Industry. If it is wise and practical to establish order in the work of imparting knowledge, then it is equally wise, practical and necessary to organize the application of knowledge in the methods of labor, in a complete system of production and distribution. This will displace competitive labor by combined industry, and establish equity in supreme dominion.

The system of combined industry in Harmonism opens a thousand new channels for the highest ambition, in the fields of science, labor, culture and religion. And, unlike the grovelling lust for wealth, these higher channels lead only to the welfare of humanity.

In every Band, through all the seven Orders, there is a department of enterprises, of display, and of awards, so that every person is sure to receive, not only assistance in his undertakings, but the fullest measure of reward and praise for whatever good and great thing he may achieve.

Man was driven from the Garden of Eden for his disobedience. He was doomed to toil in discomfort, and the very ground was cursed for his sake. In the new life, all this is

reversed. For labor will be performed with a new spirit. It will be surrounded with the most attractive conditions, the worker will reap the full result of his toil, and manual labor will be honored as highly as brain work ever has been. The brain and the body will work in complete unison. The worker will put his spirit in his work. And labor will no longer be drudgery. When labor is done with the right spirit, with the soul as well as the body, then it will not be exhausting, we shall accumulate as much vital force as we expend. Four hours a day for physical labor will be widely different in its effects from the excessive toils of civilism. But far more than this: the laws of polar interchange between groups, and the responses of these to each other, exalt labor to the rank of the noblest harmonies.

The front and back groups, on the same level, respond to each other, and their action pivots on the one between them. For example, the group of Art produces, and that of Commerce distributes, while both center upon the Home, or where their materials must be stored. Without material Wealth the group of Letters would not lead men to accumulate the records of knowledge, and without the family group between them, men would not perpetuate these records in families and communities. The group of Science discovers and invents, and then that of Labor applies these inventions in practical life. Both these have a high center in the vitally creative forces of marriage. The group of Culture leads us to improve and perfect our character, and then the group of Rulership impels us to take that rank in society which our culture merits. Both groups center upon Religion, for this includes in a comprehensive way our relations to humanity and to the divine life.

In the New Life, the members of society make temporary exchanges of employment or of position with those who are their thirds, fifths, or octaves. For example, those in the department of Food-culture may exchange with those who are in the department of Luxuries; those in the department of Wealth may exchange with those in the department of Ruler-

ship. The different branches of labor are therefore related to each other by fixed and eternal laws of harmony.

Through these exchanges, the members secure a wide but systematic variety in their work and pleasures. And by thus calling all their faculties into activity, they prevent that partial development of personal character which would result from incessantly using a few faculties in one vocation. Such exchanges and harmonies were not possible in any of the societies of civilism.

The labors of society should succeed each other according to the law of mental responses. For example, the mind is rested and harmonized by passing from the work or amusements of the groupate of Art to those of Science, from that of the Family to that of Religion; from that of Wealth to that of Rulership. These groupates are thirds. The other responses up and down are Culture and Letters, Marriage and Commerce.

The labor and amusements of each day are to be arranged, as far as possible, in harmony with this law of alternation. These laws will exalt human labor to a noble kind of music, a rhythmic response of life to life.

In the new life, the division of the day should be based upon that of the mental classes, Intellect, Affection, and Expression. Each of these occupies about one-third of the brain, and a corresponding division of the day would give four hours for intellectual culture and action; four hours for social relations; and four hours for physical labor and exercise. The social faculties include the sensitive group, and hence eating and the duties of the toilet come within the hours given to these faculties.

The whole structure of society is thus an exquisite piece of mechanism. From its three great departments down to its groupates, all of its parts are vitally responsive and interdependent. An imperative law of nature unites all the collective interests of society.

THE GROUPS. Every person has a natural right to associate with others who are attractive and congenial.

This right must be gratified by arranging the members of each society into twelve departments, according to their characters.

Members in whose characters the reflective faculties are dominant would unite to form the groupate of Science; those who have the faculties of religion as leading elements of their characters would form the groupate of Religion; and those in whom the ambitious faculties were strongest would form the groupate of Rulership.

This process is followed in forming each one of the twelve groupates and the various sub-groups which each of these may require. Each member will then be associated with others of similar ideas, tastes, and capacities. A person who is fully and evenly developed in all his traits, may pass and repass, in succession, through all the groupates. Such persons would also be qualified for Centers.

In order to join any groupate, a person must be accepted by all its members, by vote or otherwise. If dissatisfied with any groupate or society, a member may, without censure, leave it for another. The Pastor and Minister lead and assist in this grouping of the members, and they must provide every facility for the satisfactory adjustment of these relations.

We may learn the character of persons by reading the indices of the face; by the development of the brain; by psychometry; or by an actual acquaintance with the facts of their lives. The Pastor, Minister, and Scientist must understand all these methods of reading character.

As each group of faculties gives a taste for its particular kinds of employment, this grouping of members places each person where his natural tastes and capacities can be most fully satisfied. Thus persons with the faculties of Defense or Wealth dominant, prefer those employments named in the square of Wealth in the Social Model. And so of all the other groups.

SPHERES OF THE SEXES. Man and woman are mental and physical complements of each other. Each sex is more developed in some directions than in others, but neither can

claim superiority as a whole. They possess equal quantities of power, but it differs in kind.

The physical differences of sex must produce mental differences, because the brain and body are definitely related in action and sympathy. So long as woman must fill the offices of maternity, so long must her nutritive organs predominate over the nervous and muscular. The effect on her brain would be that she would be ruled more by her affections and emotions, and less by ideas and material influences.

In the table of faculties, the first one given in each trinity dominates in the character of man, and the second one in

MASCULINE.	FEMININE.
Form - - - - -	Color
Memory - - - - -	Attention
Number - - - - -	Language
Reason - - - - -	Inspiration
Amity - - - - -	Reform
Invention - - - - -	Manners
Faith - - - - -	Love
Devotion - - - - -	Heredity
Hope - - - - -	Luxury
Parenity - - - - -	Reverence
Appetite - - - - -	Sensation
Patriotism - - - - -	Auras
Dignity - - - - -	Laudation
Integrity - - - - -	Industry
Liberty - - - - -	Stability
Defense - - - - -	Economy
Locomotion - - - - -	Aversion
Destruction - - - - -	Reserve

the character of woman. Man is positive, woman is receptive. In general, man is the more vigorous, muscular, hardy, bold, cool, and scientific. Woman is more sensitive, yielding, gentle, loving, ardent, and intuitive.

In woman, the nerve currents from the body to the brain

first flow outward on the mental organs which are feminine. In man they first flow outward on the mental organs which are masculine. Thus in examining a truth, man looks at it first through his Reason; while woman gets her first idea of it through her Intuition. She may afterward reason about it as exactly as man does, but her first impulse is to employ the intuitive method. For convenience, let us tabulate these faculties, placing the masculine one first in each pair.

An immense mass of careful observation and exact measurements were used in discovering this pairing of the faculties. These observations were extended to all the races of men and to all the ages and stages of history. Do these present differences of the two sexes represent something which is permanent, or something which was incidental, and due only to unfavorable differences of opportunity and developments? Science answers that they are permanent, and are part of a divine and harmonious arrangement.

These natural differences of the two sexes adapt them to different spheres of intellectual, social and industrial activity. Their spheres and characters are complements.

The office and labors of society are all dual, as shown in the Model of Society. Each has its masculine and its feminine side. Thus the department and labors of Illustrations are feminine complements to those of Building. So is that of Inspiration to that of Law; and that of Exchanges to that of Machinery.

The office and employments of harmonic society are assigned to the two sexes on the basis of this difference. The first officer in each pair is a man and the second is a woman. The twelve Assistant officers may be arranged as masculine and feminine, as follows: Surveyor and Herald; Artisan and Dramatist; Courier and Waiter; Server and Sanatist; Signalist and Ensign; Scavenger and Keeper. The Marshaless works with the Marshal, and is regarded as of equal rank, although the office is not elective nor placed in the table. She forms the transition to the rank of membership.

The sexes are thus everywhere equal in rank, they go to-

gether in all the groupates, and to each is assigned duties and employments in harmony with its natural adaptations. While woman thus takes an equal part in the government and conduct of society, she does not become less womanly nor does man become less manly, in development and character. This is the societary or external side of marriage. It is the high material pivot of the entire social organism.

In the new life, the ceremonies of Sex-love are many, beautiful and interesting. And they are not confined to a single event once during a person's life; they are repeated every day. The groupate of Marriage includes the sub-departments of Luxuries, Rites, Waiters, Maternity, Heredity and Florists. And each day these occupy one hour of the harmonic life. In the lower phase of life, Sex-love exhausts its forces in physical intercourse. In the new life it becomes the high and inspiring center of a thousand new relations of harmony.

CONDITIONS OF HEREDITY. Society must give to all prospective parents the best conditions of heredity, so that the forming structure of the child shall be perfect, mentally and physically. Private effort can never secure and maintain these conditions. In every child, society has rights no less than the parents. But the two claims can never be in conflict. The child is to be under the direct influence of its parents for perhaps twenty years, but it is to be an active member of society more than three times as long. Whatever tends to develop the individual character into symmetry, that also tends most directly to qualify the person to fill his place in society with honor.

The laws of Biology teach us what are the conditions and influences which mold the character of children previous to birth.

It is comparatively an easy task to train children into virtuous men and women, if their original organization of brain and body has been made such as these good prenatal conditions will secure. Society has a right to protect itself by insisting that prospective parents shall avail themselves of these conditions.

HOME WORK. The division of human labor into classes or separate trades and pursuits has lifted man from barbarism to civilization. But this division of labor affected the pursuits of the male sex chiefly. From the most primitive times woman remained merely a housekeeper; and her advance depended upon the incidental influence of her connection with man.

The isolated household made this restriction of woman's sphere a necessity, while it left man free to follow varied occupations. It was not until the analysis in this book was made, showing that every office and every labor is dual, having its masculine and its feminine side, that it became possible to give woman her true place in society, to specialize her labor as much as that of man, and to organize a unitary home which should equally secure the privacy and the sacredness of domestic life, and the widest range of social action and sympathy.

The domestic work of the home is divided into the branches of Purveying, Cooking, Table-serving, House care, Sanitary and Laundry, Separate groups of men and women labor in each of these branches. But woman also takes one-half the labor, the feminine side, in all the employments of society. Her range of choice is as wide as that of man. Only one-twelfth of the women in a society are engaged in household duties.

The whole society is interested in seeing that each of its members has its free choice of employments and place gratified. In the home each person has at least three hundred others from which to choose the group with which he or she will work and be most intimately associated. And the whole community accepts this choice as right, proper and according to the laws of harmony in adaptation. The employments of each society are so arranged that persons who are not adapted never come in contact. But in civilism, just the opposite constantly occurred. In the unitary dwelling the groups of members pass in regular directions through the buildings, in going to the central rooms, and to and from their employments. These directions correspond to that of the currents through

the brain, from which the temple is modeled. They are thus in harmony with the laws of each person's mind. In grouping at the table, and in the kinds of food, the same free choice is regarded.

And third, within the unitary home is a circle of three hundred persons, or varied characters, and all of them chosen friends, seeking each other's welfare, and meeting often together. The facilities of social intercourse are carried to the highest possible point, but at the same time it provides for a privacy much more secure and complete than could be obtained in civilism.

A true social life can not exist along with dominant selfishness. And neither can social happiness. The sooner all selfishness disappears from the earth, the better it will be for us all.

COMMERCE. The thirty-six sub-departments given in the model of society, are found in all the orders from the bands up to the nation. The six departments of Wealth and Commerce, in all these, constitute a vast and perfect mechanism for the distribution and exchange of wealth through every nation and throughout the world.

At the yearly and half yearly conventions, the highest societies receive from those of lower rank exact reports of their various productions, and of their present and prospective needs; and these are made the basis of state and national distribution.

Society in Harmonism is thus able to proportion its productions to its wants, to guard against the vicissitudes of climate, and in every way to protect its composite life.

The wealth of society is the product of its united industries. No person, by wholly isolated industry, could accumulate wealth. The right to superintend its distribution is therefore much more a society than it is a personal right.

The organ of Economy, the desire for property, has not as much right to dominate the life of society as any one of the higher faculties possesses. In civilism, the love of wealth was a dominant power.

If a member were so selfish as to require more luxuries and comforts than his proportion of labor would have produced, then that is simply a proof that the society has not educated him up to the proper idea of social justice.

In effecting the commercial exchanges between the various societies, the same law is followed. Each is supplied in proportion to its wants.

REPRESENTATION. The wants of the lower orders are answered by the higher, through like parts of each. Thus, if a want in regard to food arises in the Home groupate of some town and can not be answered there, it would be represented in, and answered by the Home groupate of its ruling County. Or, if necessary, it would be carried up to the corresponding groupates in the still higher orders. These wants may be made known through any of the ordinary channels of communication, by messages or by special delegates. All the interests, employments and professions of society are organized, secured and represented in the twelve groupates, with invariable certainty and equality.

INFLUENCE OF CENTERS. The two brain centers, the Motus and the Sensus, do not originate movements or impulses, except to a limited extent. They modify many impulses which are sent through them, by imparting either additional or counter-acting force. Hence the President and Presidess, who are the corresponding social officers, may offer suggestions or arguments upon motions or arguments which originate with members or other officers. But the Centers do not usually make motions themselves, when a Band is in session. A meeting is usually called to order by the Curator, though the Centers may do this.

When an organ of the brain has been destroyed by accident, the Motus or the Sensus may take up and perform the function, though not usually so perfect as before. As more or less of all impressions on the organs are stored and registered in these centers, it is not difficult for them to become vicarious. From this fact as a basis the Centers have a right to appoint temporary officers to fill vacancies.

The normal method of action in the brain is for each organ to start the impulse intended to supply the needs which belong to its proper function. For example, the organ of Reason may require facts from which to work out the solution of some question. But facts are supplied by Memory, and Reason would need to send an impulse to Memory and procure them. A part of this impulse would pass through the front center or motus and a part directly to Memory through the cells, therefore the returning response might, and in most cases would, take both channels. In cases where the demand is urgent or strong, the impulse is supported by the polar organs of the second degree. It may also be supported by polar organs in any of the degrees.

A member has a want in regard to food, which requires the attention of the whole society. He makes known his want to the Purveyor, whose office is to see to this class of wants. The purveyor lays it before the society; they vote in regard to it; and he carries out their vote. It is not necessary or proper for them to vote to refer it to him to carry it out, for this power and duty is included in his functions. A member may himself bring the subject of his own wants before the Band.

As every part, and consequently every want of the mind, is represented by an officer, there is no need of a committee on any occasion; and hence no motion to refer anything to a committee is ever made. This greatly simplifies and lessens the work of legislation. The mental laws of responsive action are the true models for all legislative action.

Nature has connected all these faculties and functions in the brain by one system of laws. Their relations and actions are all compatible with each other; they work together without any normal conflict. It must follow, as a perfectly logical inference, that there need be no conflict between the varied interests and departments of society which spring from these faculties. If all these diverse powers can work together without conflict in a single brain, they surely can in the conduct of society. The laws of society should never conflict with the

natural laws of the human mind. The two should always correspond and reflect each other.

TRANSITIONS. From the old forms of civilized society to the new methods of unitary life, the steps of transition may be taken in a very gradual manner. This will enable people to gain the required knowledge, and become adapted to the new order of things. The law of Phases furnishes a full guide for the successive steps in making this change, the law gives all the required forms of transition.

In the personal and the national growth of man, the more simple forms come first, and then those which are more and more complex. Following this great law of growth, it is not necessary to have the full complement of twelve groupates and twenty-six officers in order to commence a Band of Harmonism. Any persons who choose may unite and form a Band with only the seven following officers:

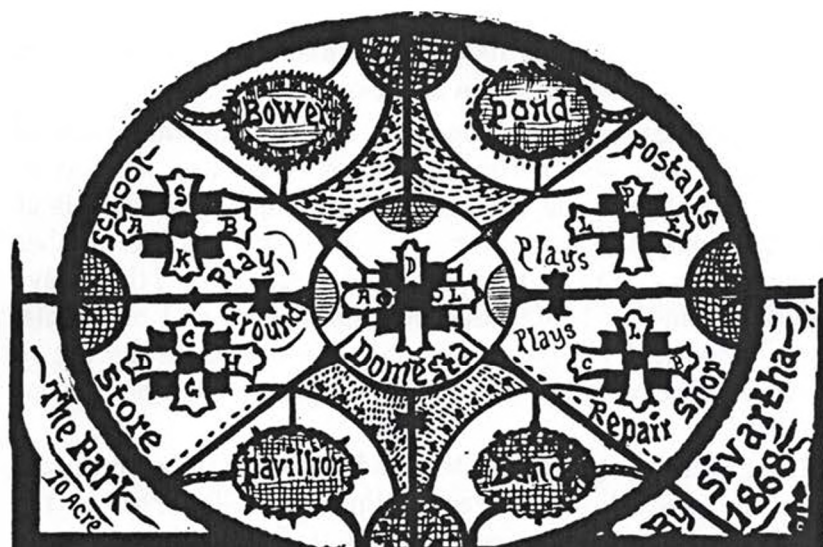
Recorder,	Director,	Foreman,
Curator,	Directress,	Economist.
	Marshal,	

These officers represent the major axis of the brain, the line of forward movement. The brain itself begins its growth with three vesicles on this line. These officers lead in the intellectual, the social and the industrial work of the Town, as shown by their position in the table.

Many bands of Harmonism will be formed for the preparatory work of intellectual culture, of learning the methods of the new life, and of spreading a knowledge of the new truths among the people. They also will form the means of concerted action in securing a practical adoption of the new methods required in social or political life.

These Bands may hold conventions and act in unity with the fully formed Bands. They may organize their children into classes and groupets so as to form a school for daily or weekly training.

Whenever three-fourths of the members desire it, a band may enter upon its phase of practical life. As fast as expedi-



40 acres		(Millet)			40
Flax	Willow	Oats.	Wheat	Wheat	Grain
select	Rotate	Barley	Grain ^{LS}	Grain	Wheat ⁴⁰
		B	Bf	H B	6,400 B
Wood-land	select			Grasses	Clover
				Engine	Woods.
Beech maple	Clover			Clover	Grasses
Walnut	Bees	Home Squares		Poultry	B.S
Apples	Berries	Storage	Ice		
Cherries	Berries	Melons	Potatoes	Horses	Horses
Pears		Squashes	Turnips		Pasture
Quince.	Fruiter	Peas	Carrots	Cows	Sheep.
Plums	Greenhouse	Cabbage	Beets	Pasture	Pasture
Peaches	Grapes	Beans			

1980. The Farm-Domain, By Sivarthan.

ent, it will then arrange its property and its employments on the unitary plan, as stated in this constitution.

Its buildings may be formed on the fundamental plan of the temple, but have a less number of rooms and amount of detail, and thus lessen the cost of building. These Bands at first have only the three departments, but when the number of members is sufficient, they may be divided up into the twelve groupates, and each of these have its leaders and assistants. Each Town will regulate these steps of growth according to its increasing amount of wealth, of vital culture and of numbers.

The government of each State and Nation may be organized after the general plan given in the Model, long before the majority of the people are prepared to live in the high and unselfish condition of unitary homes.

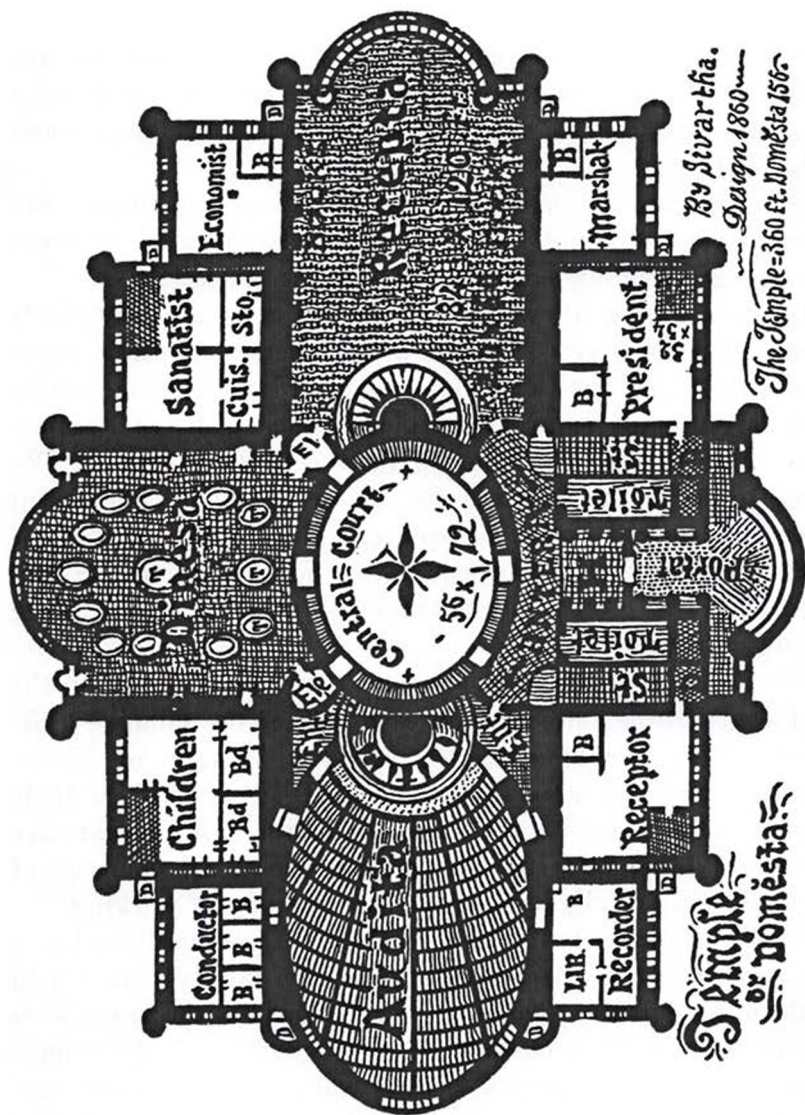
The national or the state government, with that of each County and Town, are in twelve subdivisions or groupates, with two officers and an assistant over each one. The town might, however, retain the simpler form of only seven officers.

Within the State there might still remain more or less of the old sectional organizations, such as churches, lyceums, etc., etc. But the true and natural work of these local societies could be much better done by the twelve groupates.

In this transition stage of government, the people, through the National, State and lower orders, would own and control all public lines of travel, commerce and inter-communication. They would regulate Employment, Production and Distribution. They would prevent the absorption of wealth by private monopolies.

The rest of this chapter is given to a statement of the constitution of Farm-Domains and Villages. This is quite as essential as the political side of life.

THE FARM-DOMAINS. One half of the people are needed to cultivate the soil. Common sense would tell us that the farms should be so arranged or planned that they would secure three great results, viz. :



1st. Economy in using the best implements and methods of culture;

2d. Co-operation in working, buying and selling, and in taking care of the products of the farm;

3d. They must secure artistic and sanitary Homes for all, with Parks, public buildings and a social life that shall make farm life as attractive to young people as city life has seemed to be in the past.

Up to the time of this writing the dwellings and farms have been so scattered and badly disarranged that none of these objects have been accomplished or even made possible.

In three charts following this page we give carefully elaborated plans for Farm-Domains and Villages. In these plans the farmers organize and concentrate around central points, just as the great manufactories and other kinds of business have done in order to achieve their colossal fortunes. We bring or build the farm houses nearer together. We group them in a central section or square, and place the great crop-fields outside of this home-square. And this square, or Villista, with its central park, takes the place of the old-style "country village."

The Farm-Domains of the smaller size are as shown in the first chart, three half miles on each side of the square—1,280 acres. This central square is called a Villesta, or Home-Square. This contains all the dwellings, as marked by little crosses in the second chart. Outside of the Home-Square are shown the large fields for the various crops. All the crops of a given kind are placed together, for economy of working.

The Villesta is the farmers' village. Each dwelling has a one-acre home-lot. And besides this, each family owns a field in the outer domain. Those who work chiefly in the grain fields would have their home-lots in that quarter of the Home-Square, so as to be nearest to their work. And so of the rest. Each farmer keeps an account of his day's work, and thus knows his share of the products.

At the center of the Villesta is the Park of 10 acres. See its plan at the top of the first chart. The Park contains five

public buildings. These are the school house, the department store, the repair shop, the Postalis, or post, parcel and telegraph office, and at the center, the Domesta. This has audience room or audita that seats 500. It is used for Sunday meetings, lectures and entertainments. At the east end is the reading room, parlor and library, all in one. The dining room and bakery are for the festivals, picnics, etc.

When the farmers return from their field work they are gathering from all directions toward the focus of their business and social life. They own collectively the Park with its buildings. And these are all within 80 rods, or a ten-minutes' walk of their dwellings. They can assemble in twenty minutes' time. The children are near the graded school. The Park is managed by a Board of Seven Trustees, four men and three women.

Each Villesta is a Band of Culture with the plan shown on page 222.

GRAINS AND STORAGE.

THE FOUR GRANARIES are of one story each and are located in the northern corners of the Villesta, or Farm Village. They must be large enough to hold at once the crops of three years. One year's crop is always reserved to guard against a possible crop failure or a famine.

The walls must be built vermin-proof. The outside of the four walls is built so as to curve outward 6 or 8 inches at 30 inches above the ground, or at the level of the floor. Rats and mice can not crawl up this curved surface.

Under the floor the ground is covered with close-laid hard brick. The ventillating windows are guarded by coarse and fine wire netting. The movable steps, 30 inches wide, are set to one side when not in actual use for filling or removing the grain. Then the vermin can not use them to gain access to the floor.

The inner rooms of the storage buildings are so planned as to be best adapted to preserve the various kinds of vegetables and fruits.

It has been carefully estimated that the general adoption of these granaries and storages would save \$100,000,000 a year in food-products, which has been a yearly loss from vermin and waste in the United States. And the saving would be equally great in Britain. The cost of building would fall lightly on the seventy-two families of each Farm-Domain.

The body of civil laws should be condensed and direct in statement. The Book of Life forms the general code. The text-books of applied science furnish us with special codes for the various departments of societary activity. These do not need to be bundled up and labeled as special and formal enactments. The entire circle of knowledge is used as a guide in social life.

ASSURANCE.

ASSURANCE AGAINST WANT is provided for in five ways by the

BANDS OF CULTURE.

These Bands are a transition form between the Old and the New Social Order.

1. By helping to provide or secure work for members who are out of employment. This comes in the duties of the Justice and the Marshal.

2. By mutual patronage between members of the order whenever this is practicable. The Economist has charge of these exchanges.

3. By uniting to purchase goods at wholesale prices, and to establish stores for the delivery. The Economist supervises this work.

4. By assistance and payments during sickness and disabilities. Application for these is made to the Sanatist or the Pastor. This article includes needed assistance to members who may become orphans or widows.

5. By uniting to build homes or work-rooms for the Bands and for members; to publish books, charts and papers, and to establish lecture courses and entertainments for instruction and culture. In each Farm-Domain the Villesta, or Village, forms its members into a Band of Culture with this

BOARD OF TRUSTEES AND OFFICERS.

The Marshal is president and leader in order.

The Matron, over Households, Marriages, Heredity.

Recorder—Records, Music and Publishing.

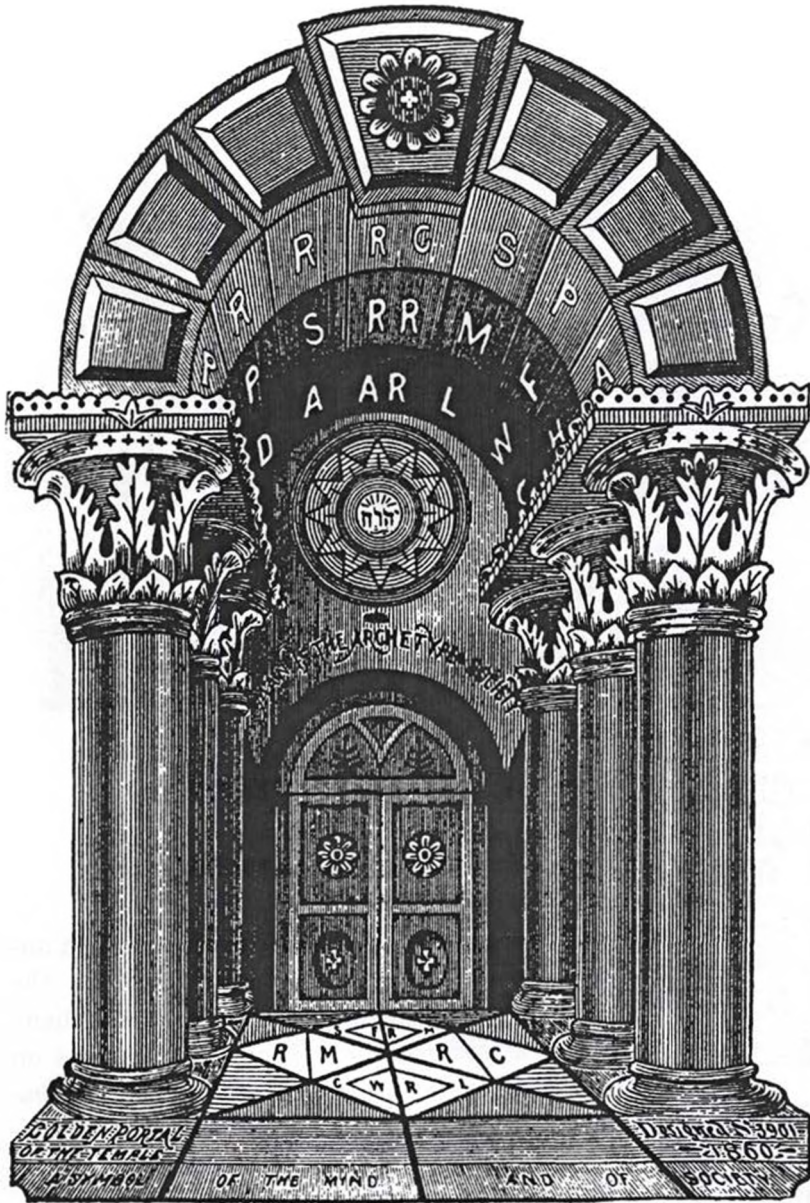
Conductor—Schools, Children and Festivals.

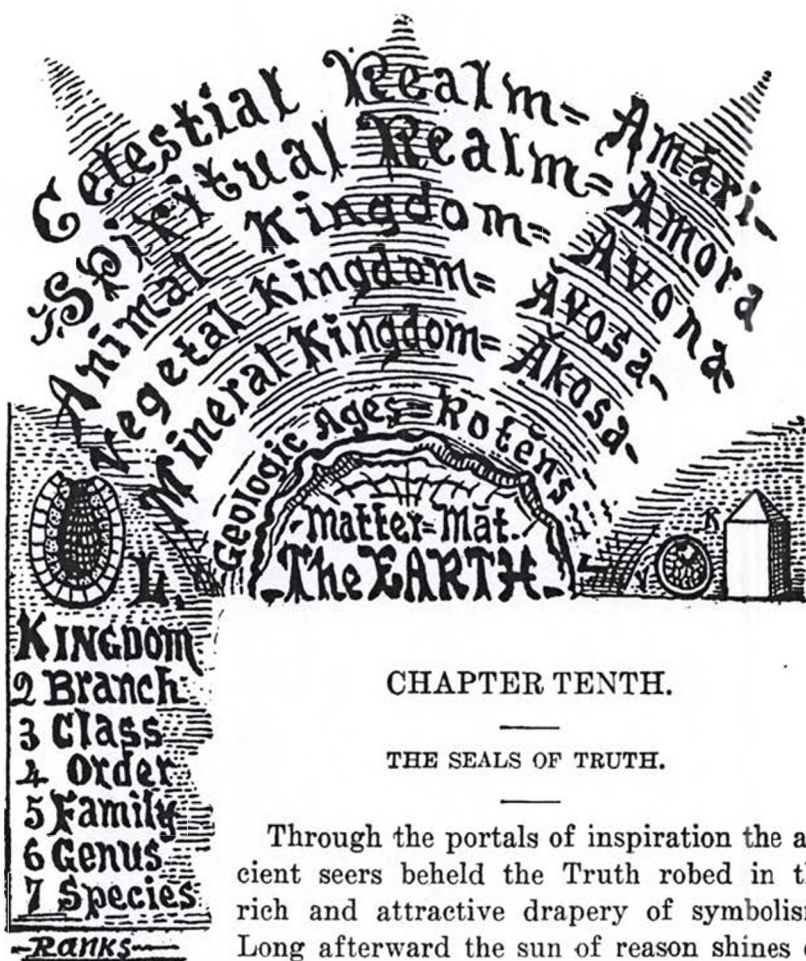
Sanatist—Health, Foods and Temperance.

Justice—Employment, Judgment, Equity.

Economist—Stores, Expenses, Exchanges.







CHAPTER TENTH.

THE SEALS OF TRUTH.

Through the portals of inspiration the ancient seers beheld the Truth robed in the rich and attractive drapery of symbolism. Long afterward the sun of reason shines on her divine form, revealing its exact lineaments, and the interior mechanism which moves and produces all the harmonies of a spiritual life. In the work of truth we must use both science and inspiration.

Until this is done, the great truths of religion can not become the actual guides of human conduct. That consummation has been reached in our own day.

The great doctrines or ideas of the Bible are these seven:

1. Eating the forbidden fruit and man's expulsion from Eden.

2. The setting apart of a "chosen people," the nation of Israel, with its twelve tribes.

3. The promise of a Messiah, and His reign of universal peace and righteousness.

4. The New Jerusalem as the capital of the Messianic Kingdom, and the throne with twenty-four rulers.

5. The atonement, the new birth, and the justification of man.

6. The nature of God as a person, and the incarnation.

7. The resurrection and general judgment of mankind.

Underlying these ideas is the belief that God could and did communicate with man in ancient times. I shall prove that each one of these truthfully represents a great and vitally important truth in the nature and the collective life of man. I shall show that in the laws of his mental and physical constitution is the clear and solid scientific proof of each one of these inspired ideas. The Christian preachers have never professed to understand a single one of them. The Catholic, the Greek Church and the Protestant writers and preachers, have united in affirming that "all of these doctrines are essential mysteries;" that the human intellect does not and can not understand or unseal them. At the same time they have always taught that the salvation of the world depends upon these mysteries, and that we are bound to accept them as true.

The writer of the Apocalypse saw, in a vision, a little book in which these doctrines were shown under seven seals: "And I saw in the right hand of Him that sat on the throne a book written within and on the back side, sealed with seven seals. And I saw a strong angel proclaiming with a loud voice, 'Who is worthy to open the book, and to loose the seals thereof?' And no man in heaven, nor in earth, neither under the earth, was able to open the book, neither to look thereon. And I wept much, because no man was found worthy to open and to read the book, neither to look thereon. And one of the elders

saith unto me, 'Weep not: behold, the Lion of the tribe of Judah, the Root of David, hath prevailed to open the book, and to loose the seven seals thereof.'

"And I beheld, and lo, in the midst of the throne and of the four beasts, and in the midst of the elders, stood a Lamb as it had been slain, having seven horns and seven eyes, which are the seven Spirits of God sent forth into all the earth. And He came and took the book out of the right hand of Him that sat upon the throne. And when He had taken the book, the living creatures and twenty-four elders fell down before the Lamb, having every one of them harps, and golden vials full of odours, which are the prayers of saints. And they sang a new song, saying, 'Thou art worthy to take the book, and to open the seals thereof: for Thou wast slain, and hast redeemed us to God by Thy blood out of every kindred, and tongue, and people, and nation; And hast made us unto our God kings and priests: and we shall reign on the earth.' "

Five of these seals are doubled or cover two groups of faculties, while two of them are single, the fourth and the seventh.

The great work of Human Redemption has its source deep in the very nature of Yehovah. There we find its sustaining fountains of force. In doing each part of the work God has to exert a special part of His own faculties, because that part of the work has to reach and affect a special part of the spiritual life of man.

Thus the events of history which occur under the seventh seal are brought about by the exertion of the Religious group of faculties in God's nature. So also He exerts His faculties of Rulership and Labor, in the work of judgment or the second seal.

Some of the seals cover two groups of organs because that the changes produced by them both occur at the same time. The formation of Tribes in the Kingdom and the Divine Marriage will both occur together, and they are therefore represented under one seal.

The Seals cover not only the constructive work of the New Life, but also the preparatory work of destroying the evils of the world. The latter is attended by great commotions among men, and precedes the work of the new Creation.

We shall here both prove and explain these doctrines, by the positive methods of science, and thus rend and remove this Veil of the Covering, once spread over all the nations.

SEVENTH SEAL. The Sixth and Seventh seals will be explained first, because these two are the key to the rest.

When the Seventh seal was opened it was proclaimed that the kingdoms of this world had become the kingdom of the Messiah. The New Jerusalem was its capital. The Old and New Testament focalize all their prophecies and promises in one burning picture, the resplendent image of the New Jerusalem.

The carefully drawn engraving shows the plan of the New Jerusalem, as described by the prophet Ezekiel, and as copied by John in the Apocalypse.

The great city was laid out four square, with twelve departments, twelve gates, and twelve foundations, three on each side. Each of its twelve departments was made up of members from a special one of the tribes, having one of the twelve mental functions predominant in its nature, and its gates were named accordingly. Every part of the plan is full of important meaning.

The engraved head on page 229, Chart 40, must be laid down so that it will point north, because this polarizes it with the earth. The face turns to the west because this is the course which the development of civilization has taken.

The plan of the New Jerusalem is drawn on the head, so that the comparison may be direct and clear. It follows exactly the description given in Ezekiel.

The recent great discoveries of science, in regard to these meanings, may be summed up in three propositions:

FIRST. The plan of the New Jerusalem is modeled after the plan of the Divine Mind. The arrangement, the number, and

the character of all its parts, represent the attributes of Jehovah, and the relation of these attributes to each other.

SECOND. As man is in the image of the Deity, the plan of the New Jerusalem represents all the faculties of man, and the arrangement of the faculties in the human brain.

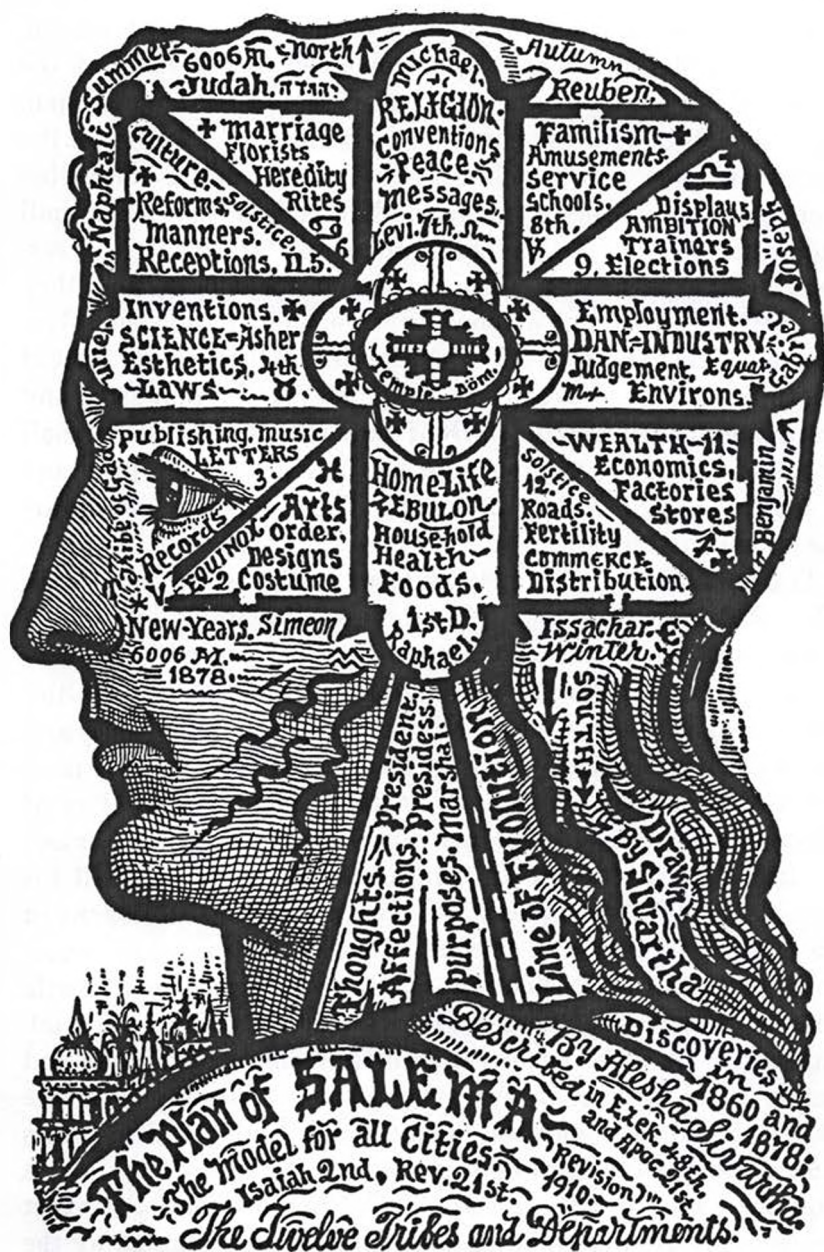
THIRD. The character of the twelve tribes of Israel, and the places occupied by each tribe in the plan of the City, correspond precisely with that of the twelve groups of faculties, and the location of these groups in the brain. As man is the archetype of society, therefore the ancient nation of Israel, with its twelve tribes, was a type of that final and perfect organization of human society described in the eighth chapter.

A simple comparison will bring into bold relief the proof of these propositions.

The people of the twelve tribes differed widely from each other in character. Those of each tribe had a special one of the groups of faculties as dominant traits in their character. These differences are strongly pictured in the blessings pronounced by Jacob on his twelve sons, and they are confirmed by the whole subsequent history of the separate tribes, as given in the Bible and by both Jewish and Christian historians.

The groups of Art, Home and Commerce form the base line, on the south side. Simeon is placed in the group of Art, and the Simeonites became the scribes and musicians of Israel. They represented literature and music, the only branches of art which were developed among the Israelites. Zebulon was located in the place where the Home group is, and he is the only one to whom Jacob assigns a definite home in the promised Land. The name Zebulon means Dwelling, and like all Hebrew names, it indicated the character of the bearer. Simeon means hearing or perception, the group that ruled in his tribe. Issachar is placed in the city in a position exactly corresponding with the group of Commerce in the brain. He is said to be a strong ass, crouching down between two burdens. This animal was the beast of commerce in Palestine. The name Issachar means hire, or one who is hired.

On the east side of the city are the tribes of Joseph, Dan



and Benjamin. Joseph is exactly where the group of Rulership is located, and he was made a ruler over all his brethren. The half tribe of his son Ephriam stood at the head of the house of Israel when the ten tribes separated from Judah. They "pushed with the horns of the unicorn." Dan is in the group of Labor, in which Justice is the leading masculine faculty. Dan means a judge, and it is said that Dan shall judge his people. Labor shall judge the world; it is a serpent by the path, it secretly strikes at the rulers, and they will fall backward out of power. Then shall follow the salvation of Yehovah, says the patriarch. Benjamin is placed where the group of Wealth is, in which are the defensive and acquiring faculties, and of Benjamin it is said that he shall raven as a wolf; in the morning he shall devour the prey and at night he shall divide the spoil. They were the most warlike of all the tribes.

The west side of the city contains Gad, Asher and Naphtali. Gad is in the group of Letters or philosophy, of central truths, and he is said to be seated in a portion with the lawgivers. His group is the middle one of Intellect, the faculties which deal with laws. Asher is in the group of Science, and the Asherites, mixing with the Phenicians, became the most scientific of all the tribes. From them came the builders of Solomon's Temple. Asher shall have shoes of iron and brass, he shall dip his foot in oil, and as the days are, so shall his strength be. This prophecy has a most striking fulfillment in the modern triumphs of science. Its iron railways and brass-fitted machines of locomotion, are the shoes used in its swift lines of travel, and these must be constantly dipped in oil. Through these he brings royal dainties from foreign lands and makes them common in every household. Naphtali is in the group of Culture, and his goodly words and bland manners come from the faculties of this group. He is swift of foot, a hind let loose, and the group of Culture occupies the exact line of movement in walking and running, as explained by the law of polation.

The tribes of Judah, Levi and Reuben are on the north

side. Levi occupies the Religious group and the Levites had the priesthood, the religious care of Israel. His Urim and Thummim, his Lights and Perfections, were with the holy one. The twelve stones of the Breastplate represented, in their number, character and arrangement, all the attributes of the human and the divine mind, the sum of all light and beauty. When these attributes are all balanced and complete, like their symbol in the breastplate, then the spiritual light and perfection of the mind is perfect. In order to leave a place for the temple in the center of the city, the two groups of Marriage and Familism had to be turned upward, on each side of Religion, with which they are still in line. Reuben's place is then in the group of Familism. Being the first born, he represented the family by the law of inheritance. "Let not his men be few." The name Reuben means, see a son. Judah is in the group of Marriage, and the Lion of the tribe of Judah is to claim the redeemed Israel as his Bride. The number of Judah's name is 5 x 6, and it therefore means Law and Material perfection united in marriage. Again and again the prophets call the restoration of the nation, the union of the house of Judah with the house of Israel, a marriage. "Thy land shall be married." In the New Life of the Kingdom, as shown in this Book, Marriage, or the pairing of the two sexes in all offices and employments, is made the high material pivot of the entire social structure.

Here, then, we have the most marvelous fact that two objects, the Nation of Israel and the Human Brain, each made up of twelve widely differing parts, yet correspond to each other exactly in the whole character, the arrangement and the number of these parts. This could not be the result of either accident or of coincidence. For let it be announced that in a certain place, unnamed, there are twelve things, having some certain arrangement, undescribed, and let the whole world, 1,200 millions of people, set themselves to guessing what the twelve things are, and how they were placed. The well-known doctrine of mathematical chances proves that they might all guess for a hundred years without solving the problem. Let

PLACING THE TWELVE TRIBES.

The Levites were the most religious of all the tribes. The priesthood and the service of the temple was their allotment. Look at the diagram and you will see that their place in the city is directly where the religious faculties are located in the brain.

The work carried on in the department of wealth requires large organs of defense and economy in its members. That makes them like the Benjamites, and this tribe was located over the group of wealth. "Benjamin is a wolf, seeking spoil and combat."

The half tribes of Joseph, that is Ephraim and Manasseh, towered above all the rest in ambition. On these faculties of the brain Joseph finds his place.

Dan shall cry for justice, as his name portends; he shall toil in the group of labor, where his place is.

Crouching down between two burdens the "hired ass," Issachar, shall rest in the group of commerce where the prophet places him.

A tiller of the soil, a lover of sense and of the pleasures of home, how could Zebulon be better placed than on the home department?

The artists of Israel were Simeonites, and on the department of art has prophetic foresight given Simeon his location.

A troop, a troop cometh! It is the tribe of Gad, bearing the myriad facts of history for the department of letters, where he was assigned.

The iron shod and the brass mounted engines of science bring royal dainties from every land, and well was Asher located over the group of science, for these were his identity marks.

Bland words and pleasant manners graced the swift footed Naphtali, and rightly was he placed on the group of culture where these belong.

Let Judah's teeth be white with milk; let him drink the fragrant wine of marriage, and not mix its cup with the blood of gentiles.

May Reuben "see many sons," for the seer hath placed him in the group of familism.

bols during their national history, he at length gave to Ezekiel and to John the visions of the New Jerusalem, as a sublime type of the everlasting kingdom to be established, and as the actual plan and model to be copied in building all the cities of the new and redeemed earth. The city was both a symbol and a reality.

Yehovah knew that of the twelve groups of the brain, five point downward and seven point upward. They are not divided equally. That he knew this is proved by this fact: In ancient Palestine, the twelve tribes were scattered about in irregular patches. But in the vision of Ezekiel he saw them arranged in regular bands across Palestine. A square and band called the Oblation, was set apart for the city, the priests and the prince. Then above this were placed seven tribes and below it were placed five, which represented the five lower groups of the brain in the plan of the city; that is, the tribes of Benjamin, Simeon, Issachar, Zebulon and Gad. The scientists who discovered and classified the organs of the brain had not the remotest idea that they were mapping out something which was in any way represented in the Bible. This is positively proved by the way in which their discoveries were made and published. Dr. Joseph Francis Gall began his discoveries by observing that his fellow-students, who were distinguished by verbal memory, had full and wide-set eyes. He proceeded step by step to note and compare the leading traits of character in his associates, or others, with their brain development, and thus located organs here and there over the human head. Gall's Works were published at Paris, in six volumes, and he died in 1828. Twelve years later, in 1841, American scientists corrected the errors of Gall's locations by direct experiments on the brain and they published their results in proper maps. In none of these works or maps is there any trace of resemblance to any Bible symbols. Seventeen years later, the Author of this Book discovered that the organs were in twelve groups, a thing which Gall and Spurzheim did not imagine. They had discovered the one mental law of Location, and part of another, that of Impressions.

The Author discovered the remaining ten great laws, and published these from 1859 to 1866, Common Era. But the Author's maps had been published nineteen years before he saw that the twelve groups had the same character and arrangements as the parts of the New Jerusalem. As early as 1868, the Author had discovered that the scale of twelve angles measured the human head, and that this was the mathematical outlay of the New Jerusalem.

All these facts prove that there was no intention on the part of these scientists to plan out something which should fit and explain the Bible. Any mistake in locating the groups would have spoiled the whole arrangement and resemblance. And if the Author had not discovered the true structure of a perfect Society, based upon the wants and faculties of man, then there would have been no practical value in the resemblance. The traits of character which marked each tribe of Israel were well known to Bible students. But none of these students suspected that if we put all these traits together they will exactly cover the twelve groups of faculties which make up the human mind. In only two places in the Bible do we find the order of placing the tribes described; these are the second chapter of Numbers and the forty-eighth chapter of Ezekiel. The first was the camp of the Israelites in the wilderness and the second was the New Jerusalem. The camp was merely temporary; the divine city was promised to be of eternal duration. If there is any difference in the arrangement, we must therefore give the preference to that of the city. Not a single tribe in the city occupied the same place as that tribe did in the camp. The latter typified the disorder which prevailed among the tribes after they settled in Canaan. The two arrangements would have been alike in both cases, if they had been copied from the signs of the zodiac, as some foolish people have imagined. Moses and Ezekiel were representing living groups of men, and the living plan of a divine city, in which each of its twelve departments should provide for some want and aspiration of man. This work was directly and vitally human in its objects and aims. The symbols which they used had math-

emational exactness of shape, of color and of arrangement. And these symbols fit without a break into what science has discovered through independent methods in the constitution of man. We know very well that these laws in the nature of man were not understood by the ancient prophets of Israel. But Yehovah possessed this knowledge, and He inspired Ezekiel to write the plan of the City. The proof of inspiration for this part of the Bible is therefore as positive as any other demonstration in science.

A NOBLE PLAN. The New Jerusalem is planned after the noblest model that the human mind can conceive. For man is an image of the Divine Being, and every one of his faculties and the proportion and relations of these are faithful copies of the divine original. Salema is the chosen name to be used henceforth for the New Jerusalem. In Hebrew, the word Salema means "Peace". In the new language it means that which is constructed as a lesser copy from the divine model. The relations of all its parts are such that actual currents of spiritual life circulate regularly through Salema, just as they do through the organism of a human being.

MODEL CITY. The plan of the New Jerusalem or Salema, as it is drawn on the head in this chapter, is to be taken as the model for all cities and towns. It combines in the highest degree the beauty of straight and curved lines with a perfect symmetry of its balancing parts. The larger streets divide the twelve tribes and are indicated by the dark lines. The great Temple in the center is occupied by the pivotal Band of the Unation. Around this, on the four sides, are grouped the twelve Bands, each having its buildings, as marked by crosses. There is a grand entrance for each of the tribes; these are the main passage ways into the city. There should be a natural limit to the size of a city, just as there is to the size of a man, and for the same reason, that is for the convenience of working. An ordinary city should not exceed twelve thousand people. And the capital city of the world need not contain more than 144,000 as its fixed population.

The Harmonic Kingdom is both material and spiritual,

both external and internal. Every one of its departments has its direct source and counterpart in some department of man's spiritual nature. Thus the department of Science has its source in the Reasoning faculties; that of Religion has its counterpart in the group of religious organs, and so of every part of the social structure, its foundation is in the spiritual nature of man. This was never before true of any system of government or national life. It is moved by the mightiest impulses of spiritual life, and these alone lift it into majestic power and will maintain its triumphant course through coming ages.

This is the first form of civil society which has ever recognized reform and growth as normal and proper to society. Ample provision is made for these through its department of Culture. It will never need to be changed for another form of society. For its constitution is in complete harmony with that of man, and it will permit of his unlimited advancement through all ages of time.

In ancient Israel every tribe was ruled by a prince or chief, and these were all subject to the King or judge. In our new Israel, every tribe or group is ruled by a male and a female chief, and in Salema these are subject to the Prince and Princess, twenty-six rulers in all. This is the number of the sacred name, Yehovah, and Ezekiel declares that this name is embodied in the very plan of the city, and the Apocalypse declares the same thing.

GATHERING THE TRIBES. The work of organizing and locating the Bands of Harmonists is the true work of gathering and sealing the twelve tribes of Israel, as promised in the Old Testament and as marked in the Apocalypse under the Sixth Seal. All nations, whether lineal descendants of Jacob or not, are to be thus sealed and gathered. They can not have the name of Yehovah in their foreheads or in their hearts, unless they are grouped in tribes, for the meaning of the tribes is in the number of his name. "The name in the forehead" means in the understanding, which is located there, the seat of the Intellect.

Each band in society is like the ancient nation of Israel in miniature, and each state and nation presents the same features on a larger scale. The group of Religion is formed of members with dominant religious faculties; they are like the ancient Levites. Those with leading ambitious faculties are Josephites and go into the group of Rulership. And so of all the groups in society. By knowing what traits of character predominate in a person, we can tell at once to what department or tribe that person belongs.

When this work of grouping is established throughout the world, then all the lost tribes of Israel will be gathered and each person will be placed in his own tribe. We do not need to trace out his lineage, a thing which would be impossible now, for the genealogies are long since lost. We are guided by definite scientific knowledge, and require no miracle to direct us in the work of selection.

The tribe of Judah, mixed with that of Benjamin and part of Levi, are with us to-day as a distinct and easily recognized people, the modern Jews. The other ten tribes never returned after the Captivity, 721 B. C. They lost their distinctive name, but their descendants must still exist as a numerous people among the nations of the earth. There is a fairly proved chain of historical evidence which shows that the modern Anglo-Saxons are these ten tribes. But it is not necessary to prove this in order to fulfil the prophecies. We must not only be able to recognize the ten tribes as a whole, but also exactly what tribe each person belongs to, in order to restore them to their true places. The work of identification would be useless without this definite knowledge. Their places will be recognized through their dominant characteristics. This will be equally true of all the other peoples of the earth.

The prophets declare that an Harmonic Kingdom shall extend over the whole earth, and include all nations, with Palestine as their center. A large number of Jews will return to the land of their fathers. But many will remain in the countries where they are now, yet the societies in which they live will be bands of Israel, with all the twelve tribes repre-



sented. The prophets say that many other people will be among the Israelites when they return, and that these shall have their inheritance with whatever tribe they may cast their lot.

Obedying the supreme law of Yehovah, the stick of Joseph is here joined with that of Judah, the long rent houses of Judah and Israel are united forever, and in them all the nations shall be blessed.

On the side of the ancient capital of Palestine a new city shall lift its magnificent domes toward heaven. The geographical center of the earth shall become the center of unity and power for all nations. And the ransomed of Yehovah shall return, and come to Zion with songs and everlasting joy upon their heads. The law of Yehovah shall go forth from Zion and the word of Yehovah from Jerusalem. For in the very plan of the New Jerusalem are embodied and illustrated the great laws of personal and national righteousness. The arrangement of its parts shows the balances and responses of the different parts and interests of society. Measuring in either direction across the city we will find parts which balance and respond to each other according to the laws of social polation. The Archetype of Society will illustrate these vital responses.

In other chapters we have seen that the laws of music are embodied in the physical structure of man and in the constitution of his mind. The parts of the City embody these same divine laws, so that here alone can be filled out the rhythm of a perfect spiritual life. The very walls and foundations of the city vibrate in responsive union with a high spiritual symphony; its very gates are hymns of exalted praise.

The Twelve Tribes of Israel were placed in the city in such a way that they could carry on all the composite duties of society in a perfect manner.

Such is the framework and form of society through which alone the new and perfect life of the redeemed earth can be expressed. And by the rigid mathematic tests of science we have proved that this is identically what is represented by the

great Bible promises of a Social Harmonic Kingdom, and typified by the ancient nation of Israel.

It was to the founder of such a kingdom that every prophecy of a coming Messiah referred, in language not to be mistaken. That kingdom is both material and spiritual. Its duration is eternal, for it is based upon eternal laws. Its twelve foundations are these: Art, Letters, Science, Culture, the Home, the Family, Marriage, Religion, Rulership, Labor, Wealth and Commerce. The laws governing these include the whole of a perfect life, for both persons and nations. And these laws are written in the constitution of man, in his inward nature, where Jeremiah says that the New Covenant should be found written. It should not be merely upon tables of stone, like the Mosaic law. All other systems of government have been the contrivances of man, but this "is cut out of the mountain without men's hands." Although God had told man so emphatically where the New Covenant would be found, yet no one seemed to believe what He said, and no one searched in the constitution of man to find it, until 1858, when the successful explorations described in this book were commenced.

The Hebrew prophets speak of the government in the Harmonic age as a Kingdom. But it is not a kingdom in the old sense of the term. It is not maintained by arbitrary decrees. It is a perfect Republic, for all of its rulers must be elected by a free choice of its members, and it recognizes no organic laws except those written in the very nature of man, and fully demonstrated by the fixed methods of science. With this understanding, we may still speak of it as a Kingdom, but the proper title of its two chief rulers is in English, the Prince and Princess, and its formal title is "The Universal Republic."

THE THRONE. Both Ezekiel and John saw the vision of a great Throne. In our engraving of this throne of Israel, the central sun shows the two central rulers. The emerald bow represents Love and Wisdom, the uniting forces of society. Around this are the twenty-four rulers, two for each group or tribe. The Author painted these diagrams to represent the

brain and the rulers of society, two years before he saw that they correspond, even to the very colors, to the description of the throne in the Bible.

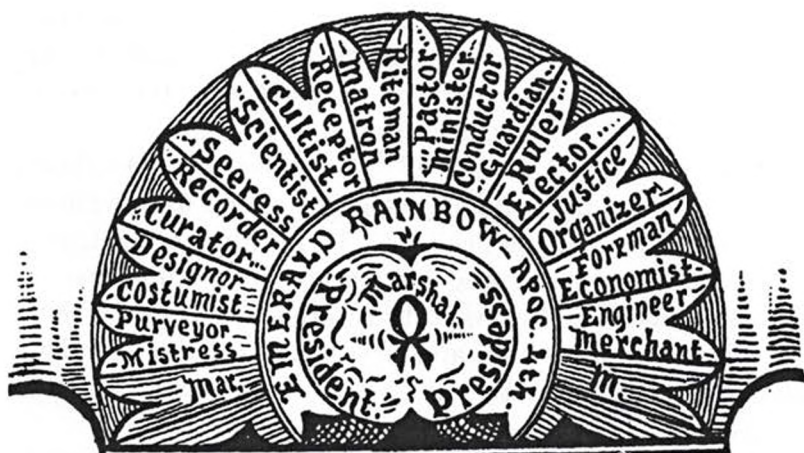
The four living creatures appear everywhere on the ancient monuments of Assyria and Babylonia as religious types. They were very good symbols of the four great lines of structure and movement, the major and minor axes within the brain of man. These inner springs of life have been the dynamic causes that produced all the wide extended fields of human history. They are shown in the engraving of the Cross of Life.

The front line includes the peculiar characteristics of man. These faculties measure, and the word "man" means one who measures. The upward line of aspiration was typified by the eagle. The Ambitious and Defensive faculties unite on the backward line, and these give the traits which were supposed to be dominant in the character of the lion. The Sensitive, perceptive and impulsive groups center on the downward line, and their traits belong to the character of the ox.

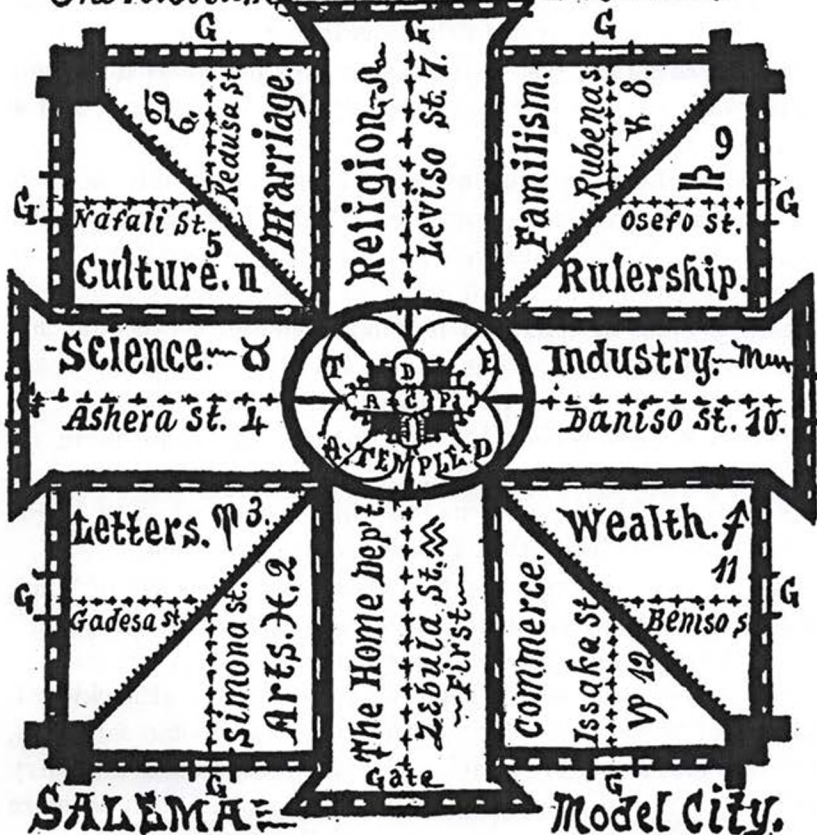
Each creature had six wings, and each of these four regions contains six leading faculties, and these appear to spread out like wings, if we look at the drawings which show the plan of the brain. They were full of eyes, and the microscope shows these in the multitude of nerve cells, each an eye of the soul, in form and in use. We shall see that a nerve cell looks like an eye, if we turn back to the second chapter where these cells are figured.

The Throne was a representation of the divine government in Heaven, and of its copy to be established here on the earth. The plan of it is used as a model for the rostrums in all the temples of Harmonism. The floor work of each rostrum is laid out as figured in the upper part of our engraving of the New Jerusalem. The names and initials of the twenty-four rulers are given there in their proper places.

Ezekiel saw that the throne was supported by wheels. Underneath the throne, for many years I placed circular diagrams, with segments, to represent the universal synthesis of



The Rostrum — and — Leaders.



all the properties, attributes and objects that have an existence. These were placed beneath the throne because its life rests upon universal laws and forces. These were the "wheels within wheels" of the ancient vision.

DANIEL'S VISION. I beheld till the thrones were cast down, and the ancient of days did sit, whose garments were white as snow, and the hair of his head like the pure wool; his throne was like the fiery flame, and his wheels as burning fire. A fiery stream issued and came forth before him; thousand thousands ministered unto him, and ten thousand times ten thousand stood before him; the judgment was set and the books were opened.

I beheld then because of the voice of the great words which the horn spake; I beheld even till the beast was slain, and his body destroyed and given to the burning flame.

As concerning the rest of the beasts, they had their dominion taken away; yet their lives were prolonged for a season and a time.

I saw in the night visions, and, behold, one like the Son of Man came with the clouds of heaven, and came to the ancient of days, and they brought him near before him. And there was given him dominion, and glory, and a kingdom, that all people, nations and languages should serve him; his dominion is an everlasting dominion, which shall not pass away, and his kingdom that which shall not be destroyed."

SECOND SEAL. When this was opened, one came forth on a red horse. The color of this determines that its place was in the group of Labor, just as the white horse and word Logos of the first seal placed that in the group of Science.

The second seal represents Labor, or the tribe of Dan, coming to execute judgment. "Dan is a serpent by the path," and in Europe and America Labor was forced to organize in secret. It bites the horses heels, and the rulers fall backward, fall out of power and place. And then shall come salvation, said the Patriarch of Israel. For then organized Industry shall supplant civilized competition, Labor shall then no more be cursed. No longer a serpent, it walks erect in wisdom.

In vain may those who rule the earth by outgrown laws and the power of personal wealth seek to avert the blow and to perpetuate their power. A greater power than theirs has opened the seal. Justice has long slumbered, but when a majority of a nation understand that these new laws of social life and of justice will give the greatest possible security and happiness, then they will begin the work of putting these laws into effect.

THIRD SEAL. This was represented by a rider on a black horse, with a pair of balances in his hand. It belongs to the group of Commerce and symbolizes the first form of the Atonement. This will lead us to consider and correct a great mistake which has been made in regard to nature of sacrifices, and their use among the ancients.

NATURE OF SACRIFICES. The Sacrifice was a feast offered by man to Yehovah. It was a feast which expressed either reconciliation, or good will, or gratitude. The entire Mosaic laws on this subject, the history of ancient Israel, as well as that of all nations, prove conclusively that this was the character and the import of all the sacrifices. This will appear very clear if we briefly consider the actual facts of the case.

First then, we must note that every object offered in sacrifice consisted of some kind of food. It must be in a condition to be eaten before it could be accepted as a sacrifice. If of flesh, it must be cooked; if of fruit, it must be ripe.

Among all eastern nations, the act of eating with a person who has been offended, is regarded as an indication and a symbol of reconciliation. If a man had offended the Deity, then he would offer him gifts of the best fruits and flesh, just as he would to an earthly prince or a friend. If the man's offence had been great, he would not partake of the feast himself, but would stand meekly by and witness the "sweet smelling savor" ascend to Yehovah.

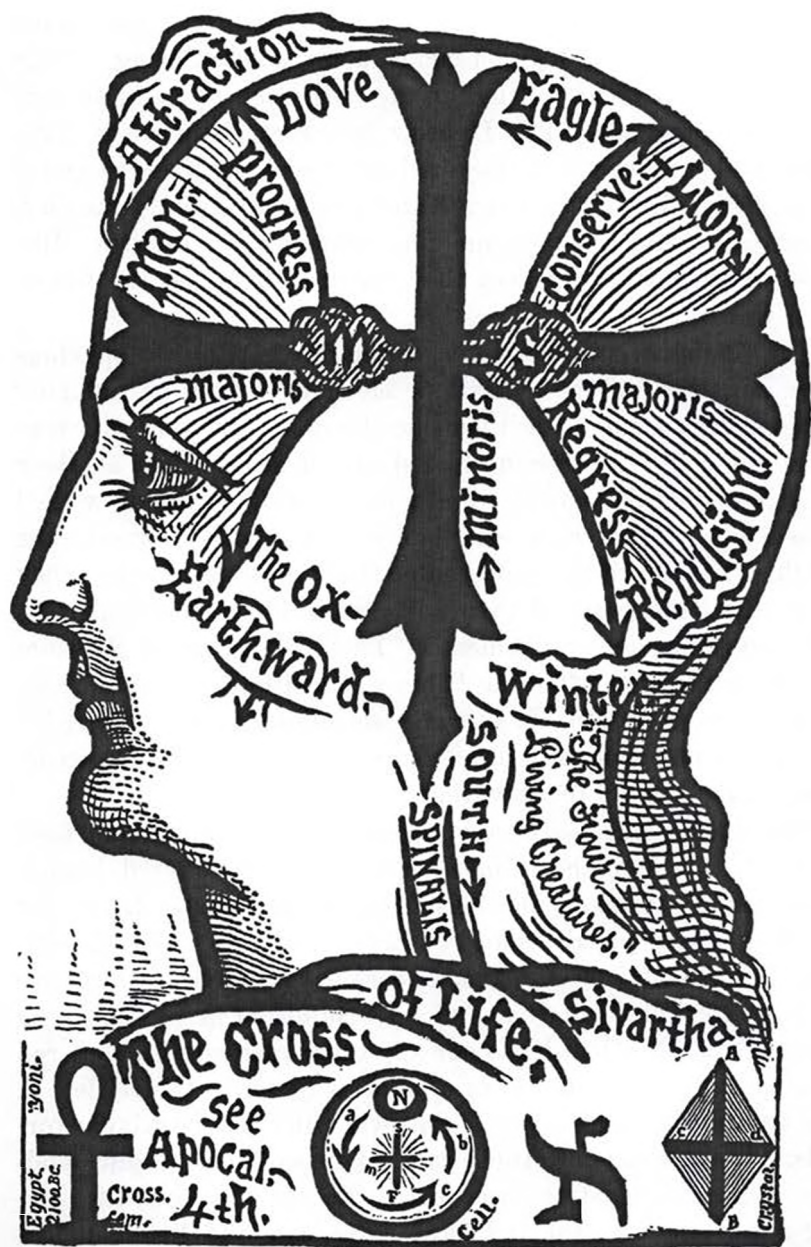
Hebraists inform us that the word *OLAH*, by which the burnt offering was commonly called, signifies that which ascends; the flesh is spoken of not as destroyed by burning, but rather as sent up in the fire-like incense to Yehovah. The phrase

“sweet smelling savor” is used so often, even in regard to the greatest of the sin-offerings that there can be no possibility of mistaking that it was as food, as something to gratify the appetite, and to symbolize that life which we derive from food, it was for this that Yehovah accepted the sacrifice. It was a most appropriate and a most striking symbol that man’s life, separated by sin from that of God, was, through returning obedience, again united to its divine fountain. A token that man and God were again partaking of a common life. In most of the sacrifices, the priest, acting as the representative of the people, partook of the sacrifice, ate a part of it. And in the greatest of all the sacrifices, that of the Paschal Lamb or Passover (see Exodus 12: 27), the people ate the whole of it; not a morsel must be left.

The organ of Appetite is polar to that of Religion, and this law of responses was the natural cause that led to the institution of sacrifices. Man brought his gifts to the altar with a joyous and an upreaching heart. In these symbols he saw the tokens of life, of spiritual strength, and the perpetual renewal of divine favor.

We must next observe that the element of Pain, the shedding of blood and killing the animal, was never in any case a part of the sacrifice, nor is it mentioned as such. There were directions about the way the animal should be killed, just as the Jews were then, and are at the present time, careful about how animals are to be killed for common food. And because the blood contains all the elements of life, all the materials out of which the living structures of the body are formed, therefore the blood was very properly used as a symbol. While it was yet warm and living, it was sprinkled upon the altar or upon the people, as a token of the interchange of life between man and Yehovah. If the blood became cold or coagulated, and thus showed any indication of death, then it could not be used. So careful was the Law to exclude the idea of death, of pain, or of punishment, from the sacrifice. These formed no part of its meaning.

This is proved by the very words which are applied in nam-



ing the sacrifices in the Bible. The word Zebach means to offer, to slay; Minchaah means a tribute, a gift; Olah means that which ascends; Kataah means a sin, a sin offering. None of these words mean killing, or the indication of pain, or penalty, or vengeance. The Hebrew language could easily have furnished such words if they had expressed the true character of any sacrifice. The word Katal meant to kill, to murder, to massacre, and was in common use among the Israelites. But when speaking of sacrifices they carefully avoided the use of such words.

The Christian theologians have taught that the sin offerings were penalties inflicted; that the element of pain or suffering in them was what made them meritorious; and that all these culminated in the suffering and death of Jesus. But all their teachings on this subject were a tissue of ignorant or wicked falsehoods. They were completely and exactly opposite the truth. The sacrifices represented Life and not Death; they symbolized the unity of man's life with that of Yehovah, and not vengeance or punishment. The English word Sacrifice though made long after the Bible was written, yet bears trace of the true meaning. It literally signifies "to make sacred," but we do not make any object sacred by securing its destruction, instead of its preservation.

There have been nations so degraded as to eat human flesh as food. So, too, there have been those who offered human sacrifices. But among the Israelites, this was forbidden under the most awful penalties and curses of Yehovah. (See Leviticus, 18: 21—and 20; 1, 2, 3, 4, 5.) And surely if this were so to God in the form of a symbol, it could not be less shocking as a reality. Neither Jesus nor any other man could be offered as a sacrifice under the laws of God as given in the Bible. A law can not be satisfied by doing what the law positively forbids. The law against theft can not be satisfied by our stealing; the law against profane words can not be satisfied by hiring some man to swear as hard as he can. If Yehovah had intended that the Messiah should be offered as a sacrifice, then he would have declared so through the prophets. But in four

hundred verses which speak of the Messiah and his kingdom there is not a single word, not a single hint or indication that he was to be made a sacrifice, to atone for the sins of anybody. So many verses were surely sufficient to announce the main object of the Messiah's advent. If the Christians were right, then God was mistaken. In the name of truth itself, we reject their violent perversions of the plain words and direct teachings of inspiration.

Justice demands that those who have sinned shall be punished. But, says Dr. Hodge, an eminent theologian, "Unless the Redeemer was a sacrifice on whom our sins were laid, who bore the penalty we had incurred, it is no atonement. He suffered the penalty of the law in our stead." "The punishment of all our guilt was absolutely and actually borne by Christ," says another equally distinguished Christian preacher. To this it must be answered that, The satisfaction by Substitution is impossible. If the law had said that either we or a substitute should die, this might be, but it said no such thing. The law is before us, and we see with our own eyes that it contains no such clause. If I cut off my finger, then it will be my finger that will perish, it will not be the finger of my neighbor. It is true that indirectly my neighbor may suffer, just as other parts of my own body might suffer, from the loss of the finger.

The sacrifice represented a present fact, then and there accomplished. The reconciliation must take place before the sin offering could be made. It was not a prophecy of something in the future, it symbolized a fact already past. It was not a prophecy except in this sense; that in the Kingdom, man will yield a constant obedience and will enjoy an equally constant and conscious union with the divine life.

The Apocalypse speaks of those "whose robes were made white in the blood of the Lamb." We must remember that this lamb, slain from the foundation of the world, can not be the individual man Jesus. For he was slain but once. But it does mean the lamb in man, or the spiritual side of his nature, which has always been persecuted, trampled down

and slain, by his lower nature, from the time of Abel down. Just as in Isaiah the lamb and wolf were to dwell in harmony; but this does not mean the lamb in the one man Jesus, it means the lamb and the wolf in every individual member of an Harmonic Kingdom. In this sense, the passage is broad as the redeemed race of man. And it is then more than a mere figure of speech, it has more than a spiritualized meaning. For the lower faculties when they rule are nourished by blood which is actually feverish and turbulent. When the higher faculties, the spiritual side, rule in the character, the blood that circulates in them is clear and pure, just as the radiated light from these faculties is white in color. The true doctrine thus comes directly home to the personal life and conduct of every man. It is in each of us that the blood of the lamb must purify the temple of life. The Messiah was a pre-eminent type of the Lamb, and the great leader of men in the work of overcoming the lower powers.

The Christian theory of the Atonement was based upon a total misconception of the nature of the divine laws and sacrifices. It contradicted alike the certain truths of history and science.

The real truth of the Atonement is twelve hundred million times greater than was their misconception. For the law of the atonement is universal, uniting all men in a common spiritual life. It has been proved in the fifth chapter of this book that the currents of spiritual life flow outward from every person and reach and affect other persons. In the selfish antagonism of civilized society these currents are the source of discord. But in the true life they are the source of most intense and exalted pleasures. It is through these same currents that our lives are united with those of spiritual beings in higher realms of existence. It is impossible for us to escape from this law. Each of us gives and receives from the spiritual life of our associates. We live by perpetual interchange.

In this way the strong must help the weak, the virtuous must give moral life and power to the erring, and each man

make atonement for his fellows. The good of one is through that of others. TO GIVE IS TO LIVE.

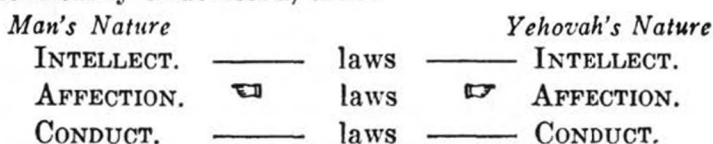
To confine the atonement to one man and to one event, as the Christians have done, is to make the doctrine only a monstrous falsehood, thoroughly selfish in the motive it presents, and utterly opposed to all the laws of justice, of vital sympathy and of causation.

Now science has very important things to say on this subject—things which make clear the dark mystery of ages. All life is manifested through the adjustment of internal to external relations. Suppose that an injury is done to the body. You cut your flesh accidentally. Now watch what occurs. The cutting gave you pain, and this warns you to desist. But the nerves have done something besides conveying the painful sensation. They have excited the nutrient arteries, and these carry the blood, freighted with the materials of growth and life. The arteries at once deposit a fresh and extra quantity of blood in the wounded part. Following its natural law of vital action, a part of this blood covers the wound with a fibrous clot, and this prevents its injurious exposure to the oxygen of the air. The vital forces at once set to work, and, taking another part of the blood, they proceed to form new tissues in place of those which were injured, and the wound is gradually healed. The forces of healing are within, but we may supply external conditions which favor this interior process. We may rest the injured part while it is healing, we may give it an even temperature, we may give it the protection of an extra covering.

In every kind of disease a similar law of vital action is at work to secure the patient's recovery. All that the physician can do is to supply the best conditions for the vital forces to use. His medicines, his nursing, his sanitary measures, all these are but conditions, they are like bricks and mortar for the hand of the mason, they are necessary, but they are not the actual workers. The organic sells, each of them possessed of vital power—these are the myriad workers in all the steps of healing.

A precisely similar law of healing governs the spirit or soul. Though the human spirit is not made of matter, yet it is composed of a real substance, and governed by real laws. It can act and be acted upon. The atonement expresses the law of healing for the spirit.

And here we must consider what is involved in the nature of spiritual laws. Every moral law is double—it has two sides. It involves our relation to Yehovah and His relation to us. If we place the proposition in a sort of diagram it can be more easily understood, thus:



Man is in the image of Yehovah, he has corresponding faculties, and these, of necessity, act according to the same laws. This is Bible teaching, as well as that of science and common sense. Our personal relations to Yehovah are established through the organs of affection in our nature and in His. The laws of these faculties act in both directions, as indicated by the hands in the diagram. Through these laws the currents of spiritual life flow from Yehovah to us, and from us to Him. They require a perpetual interchange between our human life and the divine life. These organs of affection also establish a direct and constant dependence of each human being upon those around him.

It is evident from these facts that every sin, every transgression of a moral law, must tend to injure or break our connection with Yehovah, or else our connection with each other. But these responsive laws also include the methods by which moral injuries may be repaired or healed. When we do wrong our repentance and sorrow are the warning moral pain. They show us that the spirit has been injured. The laws of responsive social action impel us to make amends for the wrong done. We seek reconciliation. And Yehovah desires this as much as we do. By seeking this, by the mutual action between ourselves and Yehovah, we re-establish the

broken currents of spiritual life. And this gives the conditions for healing the wounds of the spirit with new and actual moral tissues, like the healing of wounds in the body. The currents of vital force, flowing from the divine nature into ours, are sufficient to turn the tide toward a healthy action and establish the work of spiritual healing. This is the atonement. It is "the making one again," the joining of two lives which were sundered. The atonement extends between man and man, as well as between man and Yehovah. The law of the atonement is universal, it unites man with all spiritual beings in the pulsating tides of a common life.

The act of forgiveness is a voluntary attempt to overcome wrong conditions, and to restore harmony of action between two beings. It is thus a fulfillment of the law of spiritual responses. It is perfectly natural both to forgive others and to seek forgiveness for ourselves. But forgiveness does not prevent the pain or punishment of sin. It simply stops the evil internal action at a certain point, and allows the healing powers to commence and carry on the work of spiritual cure. Many theologians have taught that eternal suffering is the penalty for sin. But no such penalty is attached to sin in the Bible. Neither does science teach it.

The spiritual law does not say that the punishment shall go on forever. The most that the spiritual law does say is that the punishment will go on if no means are taken to avert it or to heal the injury. The old teachings only stated one side of the law. They did not know that the law included the methods of healing. The act of forgiveness does not do away with the law, it simply fulfills one part of its provisions. It is very true that "the divine laws are fixed and permanent." But these fixed laws include the law of perpetual responses and interchanges. An example is seen in the answers to prayer. When a friend asks us a question or makes a request the laws of our social faculties lead us to make an answer. And equally so the fixed laws of Yehovah's social nature lead Him to make an answer to human prayer.

In using blood as a type or symbol of the atonement, of

spiritual healing, the Bible is strictly scientific, for in the organic diseases of the body the blood is the instrument and contains the materials of healing. It is therefore the true type of the spiritual healing or atonement. The only other possible type would be the nerve force, for this is likewise concerned in all vital action. But the ancients did not know that the nerve force existed, and hence it could not then be used as a symbol. In the book of Leviticus, Yehovah affirmed more than once that "the blood is the life." Had He made it symbolize death, that would have violated the clear truths of science.

With this new view, this scientific interpretation, we may ask, "What has a Savior, what has Jesus, to do with procuring or making the atonement?" We know very well that when one man has injured another that a third person may interpose and by his good offices he may supply just what is needed to effect a reconciliation. And so we must reason in regard to our relation to the divine nature. Sin makes us morally blind as well as sick. The Bible is full of passages which compare sin to disease and the atonement to healing. A third person may show man the way of life; his spiritual light may lead the way; his spiritual life may thrill the sin-sick soul and turn its affections again toward its divine parent. This mediator may be absolutely needed to turn the human race from its evil ways. But he must be a source of spiritual truth no less than of life. Yehovah has nowhere promised to accept of man's repentance unless it is followed by obedience to the divine laws. A mediator can not be "the way, the truth, and the life," unless he reveals a great system of truth, unless he makes the highway of holiness so plain "that the wayfaring men, though fools, shall not err therein." When that is done, they can not make the paths lie through the crooked dogmas of 600 Christian sects. Man can not obey unless he understands. A Bible salvation requires the head as well as the heart. It demands wisdom and conduct as well as love. The atonement requires that we should be at one with Yehovah in knowledge and actions as well as in our feelings. The fatal

mistake of Christian theology was in leaving out two of the essential elements of salvation. They omitted knowledge and conduct, and only relied upon love. But they did this in total disregard of the direct statements of Scripture. It was a fatal mistake, and as a result the Christian church always said that it did not know how to remove a single evil from the earth. And that is why the millennium must bring not merely a new spiritual power, but a new system of truth and life. It must teach man how he may become responsive to Yehovah in his intellect, in his affection, and in his conduct. The new truths of science teach us how to secure the intellectual, social and physical redemption of man.

When we urge a person to do right instead of wrong, telling him that he can reform if he will, our own nerve force added to his may be sufficient to turn the scales of his mind in favor of the right. The earnest and true reformer should address the highest faculties, and enlist the sympathies of the public feeling, if he would open the most direct channel of influence.

SACRIFICES RESTORED. In our life in the Harmonic kingdom every meal will be eaten and regarded as a sacrifice. For we shall realize the fact that the life of our food, from which our own life is constantly supplied, has its central source in the life of Yehovah, and our union with His life will be conscious, full and perpetual.

At the vernal and at the autumnal equinoxes will be the two great sacrificial feasts of the year. The two secondary feasts will be at the summer and the winter solstice. The third class of minor feasts will be every twelfth day. Over all these feasts the Pastor will preside. His office is the higher octave of Appetite.

In that life, Yehovah has promised that "He will dwell with men," he will not simply come as an occasional guest to eat at a special table. Therefore there will not and need not be altars on which to offer the sacrifices. Every eating table will be a consecrated altar in the true life.

OBEDIENCE AND LAW. Obedience brings Life, in every sphere of existence. For the human constitution, the nature

of our faculties and their laws of action, remain the same whether we exist in a physical or a spiritual world. We may fail to fulfill, but we can not break or destroy a law. Thus it is a law of circulation that the finger must receive blood through its arteries and return this toward the heart through its veins, in order to maintain its life. Now if we cut off the finger, the law can no longer be obeyed, but it remains in existence all the same, and therefore the finger loses its life. If the law were really destroyed, if it ceased to be true, then possibly the life of the finger might continue after the violation.

In every law are expressed certain inseparable results of action. When a law is fulfilled by conscious beings, these results are harmony and pleasure. When not fulfilled, the results are destruction and pain. The sensation of pain is the outcry of suffering nervous tissue. It is the token of disorganization. "States of Pleasure are concomitant with an increase, and states of Pain with an abatement of some or all of the vital functions." Disease marks a failure in organic adaptation to external conditions.

The violator in no case suffers individually the entire penalty. For by the laws of the nerve-force a part of the evil results are invariably communicated to others. In a true constitution of society the incentives to wrong doing will be reduced to a minimum. Each person will see clearly that to do right will most certainly and directly lead to his pleasure. Society has often been so organized that it seemed to some of its members that wrong doing was the easiest and most direct way to secure private happiness.

The object of the physician is to cure the sick man of his disease, and not to destroy his life. And so in Harmonism, the object of penal measures is social health. The motive of punishment is not vengeance, but restoration. The transgressor is still bound by social ties to the rest of society.

The same living organs, the same vital powers, are in action in states of disease as in states of health. In disease, these organs or powers have been interfered with by bad conditions. The process of cure consists in restoring good conditions, and

in adding such new ones as the altered states of the organs demand.

LENGTH OF LIFE. The amount of life is measured by the variety of powers, and the ability to resist those causes which tend to destroy the body. This quantity increases from infancy to maturity. Causes which would destroy the life of a child, seem scarcely to affect the health of an adult. There is no reason, that we have learned, why our physical existence might not be continued indefinitely, if all of the conditions of life were fully maintained.

The organic Cell has power to adjust its internal forces and adapt them to changes which may occur in its external conditions. No such power exists in the crystal. This property of adjustment is imparted by the cells to the whole body of which they form a part. The plant or animal as a whole has a circulation of both liquids and forces. If it be wounded or injured, these internal forces at once change, they send new material to the wounded or injured part, and it is repaired. In a state of health these adjustments are equally constant and necessary. Labor exhausts our bodies, uses up the bodily forces, and consumes the tissues. This creates a necessity for new materials and force. Currents of nerve-force now pass from the stomach to the brain, and produce a sensation of hunger. Other currents now flow down to the muscles of the legs and arms, and move these to go down and get food to eat. When this is eaten new forces must pass into the stomach to do the work of digestion. A series of internal relations is thus seen to be adjusted to the changes of external relations, and the higher the type of the organization the more complex are these changes. In the lowest plant they are few and simple; in the higher animal they are numerous and diversified. Thus broadly is the world of life marked off from the mineral world by two distinct and contrasted modes of action.

But this is not all. For the organic cells possess another power. They can reproduce themselves. This is done in three ways: by sub-division of the parent cell, by budding

from the outside of a cell, and from segmentation or division of the parent cells. The middle one of these, that is, the gemmation or budding, is the typical plan upon which the animal or plant as a whole proceeds in the work of multiplying the species. In this way the living objects counteract the destructive forces of nature. Though the individuals die, yet the race of living beings goes on. This is all the physical immortality that man has yet attained; he has continued to live through the race.

We have now reached this conclusion: Life is maintained by a constant balance between the internal and the external forces. The quantity of life increases from infancy up to maturity. When maturity is reached for a number of years the internal forces are able to keep up an even balance against those which are outside the body. "If repair were always identical with waste, life would then only be terminated by accident, never by old age." But men are ignorant of vital laws and conditions; they fail to observe them. The outside forces begin to prevail, and the internal power grows less and less, until at last old age terminates in dissolution. Can this be prevented? Can the vital balance be perpetually maintained? Science answers, yes, if we knew and obeyed the vital laws of spiritual and physical health. We do keep the better side of the antagonizing forces during forty years of life. It is no more difficult to maintain the balance for a thousand years.

"The original endowment of life is sufficient to build the body and maintain it for a certain time." Its continuance depends upon such action as shall secure a perpetual supply of force from without to supply the waste that occurs within. "Persistence in being depends upon obedience to the law of being." "Immortality is not a gift to be accepted; it is a prize to be won. Life can be cultivated into persistence or be left to expire of neglect." We eat food and drink water in which there is an excess of the carbonates and phosphates of lime. By slow degrees this excess accumulates and is deposited in the valves of the heart and in the coats of the arteries

which branch out and carry the blood to every part of the system. The lime turns these valves and these arterial walls into partial bone. They become less and less capable of contracting, and of thus carrying the vital current. At last they altogether fail, and life ceases. In nearly all cases, besides that of old age, the immediate cause of death is a failure of the blood to circulate. A poison paralyzes the nerves, they fail to stimulate the muscles, the heart can not then contract, the supply of blood ceases, and death is the result.

It is evident that with the right kinds of food and drink we could avoid or counteract this excess of lime deposits. And in all other directions we can discover, learn and obey the laws of health, and reap the reward of continued life. The details belong to the whole science of physiology, of sanitation. They cover also the question of the spiritual laws. Man has a mind as well as a body. They are bound together by responsive laws of sympathy. We can never attain immortality without an obedience to spiritual laws. And these are not merely personal. Human life is not simply individual, each one independent of the rest. Our lives are so bound up in the lives of others, that as separate individuals we can not yield a full obedience to the laws of life. There must be a collective obedience of society, before the life of any one of its members can be complete, or secure. Men can not be saved simply as separate individuals, and no such salvation is promised, either in the Bible or by science. In the redeemed earth, the whole human race is to be as one vast body, permeated by the vital currents of a composite spiritual life.

On the side of prophecy the Bible promises are very plain. Yehovah Himself speaks to us these words, in Isaiah xxv. 6, 7 and 8: "In this mountain shall Yehovah of hosts make unto all people a feast of fat things, a feast of wines on the lees, a feast of fat things full of marrow, of wines on the lees well refined. And He will destroy in this mountain the face of the covering cast over all people, and the veil that is spread over all nations. He will swallow up death in immortality; and the Lord God will wipe away tears from off all faces, and

the rebuke of His people shall He take away from off all the earth, for Yehovah hath spoken it." In the sixty-fifth chapter of Isaiah we are told that in the new heavens and the new earth "Infancy shall no more be reckoned by days, nor old age years; they shall build houses and inhabit them; they shall plant vineyards and eat the fruit of them; they shall live as long as a tree, so long that they shall wear out the work of their own hands."

Does science justify these high promises of immortality on earth? We must answer strongly in the affirmative. The most eminent medical men in Europe and America are agreed that if the laws of health were obeyed there would be no disease, and in that case life might be prolonged to any desired extent. Neither Jesus, nor Yehovah, nor science, have ever promised immortality to man except as a result of obedience. No magical secret, no transfer of divine virtue; nothing but the wisdom to understand, and the heart to obey divine laws of life, will serve to win the immortal prize.

With the higher development of the nervous system, the causes which influence the physical health of man become more and more of a spiritual nature, more and more dependent upon his intelligent obedience to higher laws of spiritual life.

"If thou wilt have eternal life, obey the commandments given by Moses, these do and thou shalt live. Ye must obey the law more fully and more in its spirit, than even the strict Pharisees." But long before the time of Jesus we find that Yehovah Himself had declared the truth, through Ezekiel, in these words:

"Yet say ye, Why? doth not the son bear the iniquity of the father?"

"When the son hath done that which is lawful and right and have kept all My statutes, and have done them, he shall surely live. The soul that sinneth, it shall die. The son shall not bear the iniquity of the father, neither shall the father bear the iniquity of the son: the righteousness of the righteous

shall be upon him, and the wickedness of the wicked shall be upon him.

“But if the wicked will turn from all his sins that he hath committed, and keep all My statutes, and do that which is lawful and right, he shall surely live, he shall not die. All his transgressions that he hath committed, they shall not be mentioned unto him: in his righteousness that he hath done he shall live.”

And David says, “The Law of Yehovah is perfect, giving peace to the soul, the commandment of Yehovah is clear, enlightening the eyes. They are sweeter than honey, and in keeping them there is great reward.”

It will be asked, by some, if the law of evolution does not interfere and make immortality an impossible thing. It is easy to answer. For the law of evolution simply describes the successive phases through which an object passes in its development and its decadence. Nor does that law affirm that because an object has been formed it must therefore decay.

The law describes a series of cycles from the simple to the complex and back again. But life itself is a perpetual series of changes. Each day of our lives we pass through cycles, from simplicity to complexity. During the hours of sleep our lives are comparatively simple. When we are awake, we commence the complex activities of personal and social life, only to terminate again with the coming of night and the simple state of unconscious slumber. Every year brings a cycle of changes. A perpetual series of changes is an essential condition of immortality.

WORTH OF LIFE. But suppose that we were not assured of immortality, yet we can be absolutely certain that human life could be ushered in by a painless birth, that through long centuries it can be one scene of unalloyed happiness, that when old age should finally come, it would be a gradual fading out of life. We know that for generation after generation, human beings must live on this earth. And the possibility of removing the great evils of the race, is sufficient to move us to the mightiest efforts to transform the old conditions of human

life, and banish the dark hosts of disease, of social wretchedness and of national discord, from the fair face of the earth. Life may be made eminently worth living.

FOURTH SEAL. The symbol of this was a pale horse, and it represents the reign of death through Appetite and the senses. This began in the Garden of Eden with the Tree of Life. It must end by opening the way of the Tree of Life, as we shall see in the following exposition.

THE CELL. The molecules of bioplasm arrange themselves in the form of Cells. The cell is usually microscopic in size, it may have an external cell-wall, and an internal circulation of its parts around the nucleus, N. The cell is the organic unit of structure. For all vegetable and animal tissues are formed by the evolution and action of these minute cells.

In the mineral or lifeless world, we find the unit of structure in the Crystal. The crystal is bounded by straight lines, and its poles, or lines of force, point outside of itself, and is incapable of life. The cell, on the other hand, also possesses circular polarity.

The cells are the units with which all living structures are built. But a pile of cells without any order would no more form a living organ than a pile of stones without order would form a stone house. There must be a definite plan for the arrangement of these units of life, and in the Leaf or Tree we find this plan perfectly exemplified.

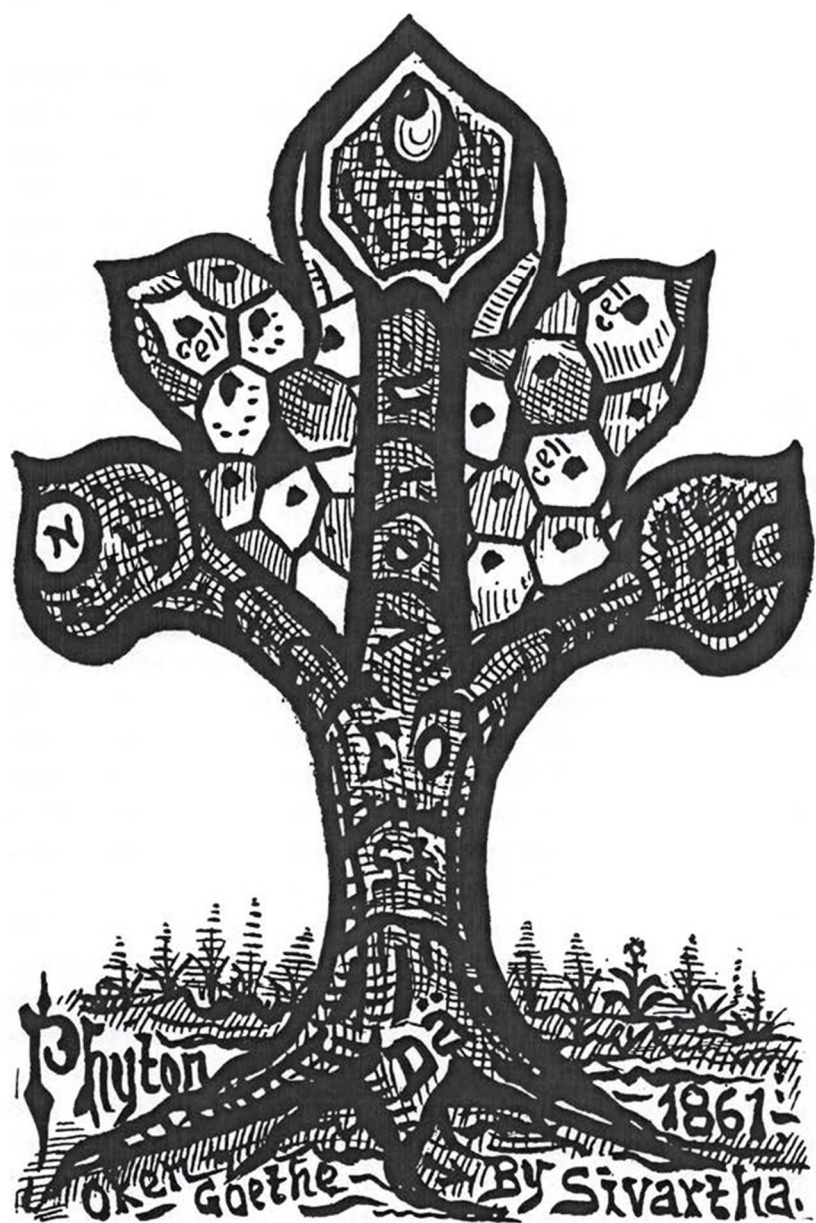
TREE OF LIFE. The plan of the Leaf, as shown in our initial, essentially consists of a central tube or vein, with branches or subdivisions which terminate in minute cells, as seen at C.C.C. The reason why this plan is assumed is found in a fundamental law of liquids. Both animal and vegetable tissues and organs, from the fragile nerve-substance to the dense, hard bone and wood, are formed from the plasmic blood and sap. About three-fourths of both blood and sap consists of water. Wherever a circulation of water is established, it assumes the form of a tree. This is seen, for example, in all the rivers of the earth. If we gently pour water which has been thickened with paint, or otherwise, into a shallow dish of clear water, or pour

the thin into the thick liquid, then we shall see it spread out in the exact form of a leaf or tree. This plan forms what is technically called a *Phyton*, by the botanists.

In the cells of the leaf the vital changes take place. They convert the soluble materials, which have arisen through the stem of the plant, into gum, starch and the substance of woody fiber. The tubes of the leaf are channels for the passage of liquids or of waves of force. It needs no vivid imagination to see the plan of the leaf in that of the tree. The trunk of the tree is a vast bundle of tubes, like the midvein of the leaf. And the limbs of the different species of trees imitate and reproduce all the forms of branching which we find in the varied leaves of all floras. But in the clear and wide-searching eye of science a tree is not necessarily composed of woody fiber and covered with leaves of green. The scientific idea of a tree represents a plan of structure or a fundamental form of organization. With this enlarged and exact conception we may look anew upon the world of living forms, and marshaled beneath our perfect definition come all the organs in every animal, no less than the myriad forms of the vegetable world.

A few examples will illustrate the universality of the law. Thus in the lungs, marked "lung" in the engraving, we see the great air tube, or trachea, dividing into the bronchial tubes, and these branch out until they terminate in clusters of air cells. By these air cells the blood is purified; the vital work of the lungs is done. Dissect any gland of the body and the same tree-plan is seen. The liver, for example, shows us the hepatic duct and branches, with the cells in which the bile is secreted. The parotid gland has Steno's duct with branches and clustering cells, which pour forth the saliva to moisten the food as we eat. The arteries and veins, starting from the heart, branch out over the body and terminate in the cells of its varied tissues where the blood does the vital work of growth, motion and repair.

And, finally, the great law of tree-forms reaches its highest exemplification in the brain and spinal cord of man. In the spinal cord are bundled a million nerve-tubes. It passes up,



branching outward through the brain centers toward the surface of the brain, where they terminate in the myriads of nerve-cells which compose its convolutions.

The engraving represents its plan, and the cells are enlarged so as to be seen by the naked eye. The drawing is physiologically exact, and tree-form is very evident. We do not mean that the brain merely looks like a tree, or resembles one externally. We are not dealing with analogies. But we do mean that the brain and spinal cord are an actual tree. By the most rigid scientific examination it is shown to fill the ideal type and plan of a tree more completely than any tree of the vegetable kingdom.

The spinal cord is the trunk of this great tree. Its roots are the nerves of feeling and motion branching out over the body. The roots of a tree are formed on the same general plan as those parts which reach up into the air. The tree of life is planted in the midst of many others, for the heart is a tree, the lungs are a tree, and the pancreas, stomach, liver and all these vital organs. The brain is its radiant and graceful foliage. If we could see the entire human brain at one view under the microscope, there is no tree in the vegetable world that could surpass its beauty. The Palm tree is the prince among all the floras of the earth. In its general form the Brain resembles the palm more than it does any other tree. It is far more complex, however, for its many connecting bands have no type among the trees, but only in the leaf-structure.

The brain of man is the great Tree of Life, spoken of by the ancient poets and seers of all nations. Its twelve groups of organs bear twelve kinds of fruit. And through the phases of childhood, youth and maturity, it brings forth these fruits in succession. In more than a hundred passages of the Bible, the conduct and feelings of men are spoken of as fruit. And through the language of literature of all nations are scattered abundant figures of speech based upon an instinctive sense of the great truth concerning this tree. In all ages, man has instinctively felt that in the tree was a type of himself. He gave expression to this perception in the Etz Hakeyim of

Genesis, the Bo-Tree of Bhudda, the Soma-Tree of the Persians, the Tooba-Tree of the Koran, the Olive of Minerva, the Oak of the Druids, the Ygdrasil of Scandinavia, and the sacred trees of other nations.

All that is sweet, and noble, and true in the private life of man or in the public history of nations has been the fruit of this tree. The great poems of the ages have been its luxuriant blossoms; the perpetual aspirations of man have been the freighted breath of its odorous bloom, and the incoming ages shall gather and taste the richness of its immortal fruitage.

The description of this tree, as given in the Old Testament and the Book of Revelation, is true even to the least details. John says that the tree brings forth its fruit successively. And the lower groups of faculties rule in the childhood of persons and of nations, and, then, in the phases of youth and maturity, higher and higher faculties come successively into dominant power. Through past ages the lower branches have borne evil fruit. It has been a tree of "knowledge of good and evil." The lower branches produce downward motions of the body and limbs. Hence the idea that Adam and Eve fell by eating the fruit of these. To produce a perfect life, the fruit of the higher must be eaten with that of the lower branches. Man was made in the divine image, with all its parts and proportions. But he was not unfolded, either intellectually or morally. The Bible does not say that he was wise and pure and good when he was created.

On each side of the tree of life is the great river of life. The rivers of the earth have the same plan as a tree, because they are channels of liquid circulation. Let us lay a man down with his head to the north, and his arms stretched to the west and to the east. The river of life has its four heads in the four chambers of the heart, the two auricles and the two ventricles, shown in the engraving. The branches of this river pass upward to the head, "the land of gold," eastward to the left, and westward to the right arm and lung. But the greatest of all the branches, "the River, or Phrath," are the aorta and vena cava, reaching southward to the trunk and



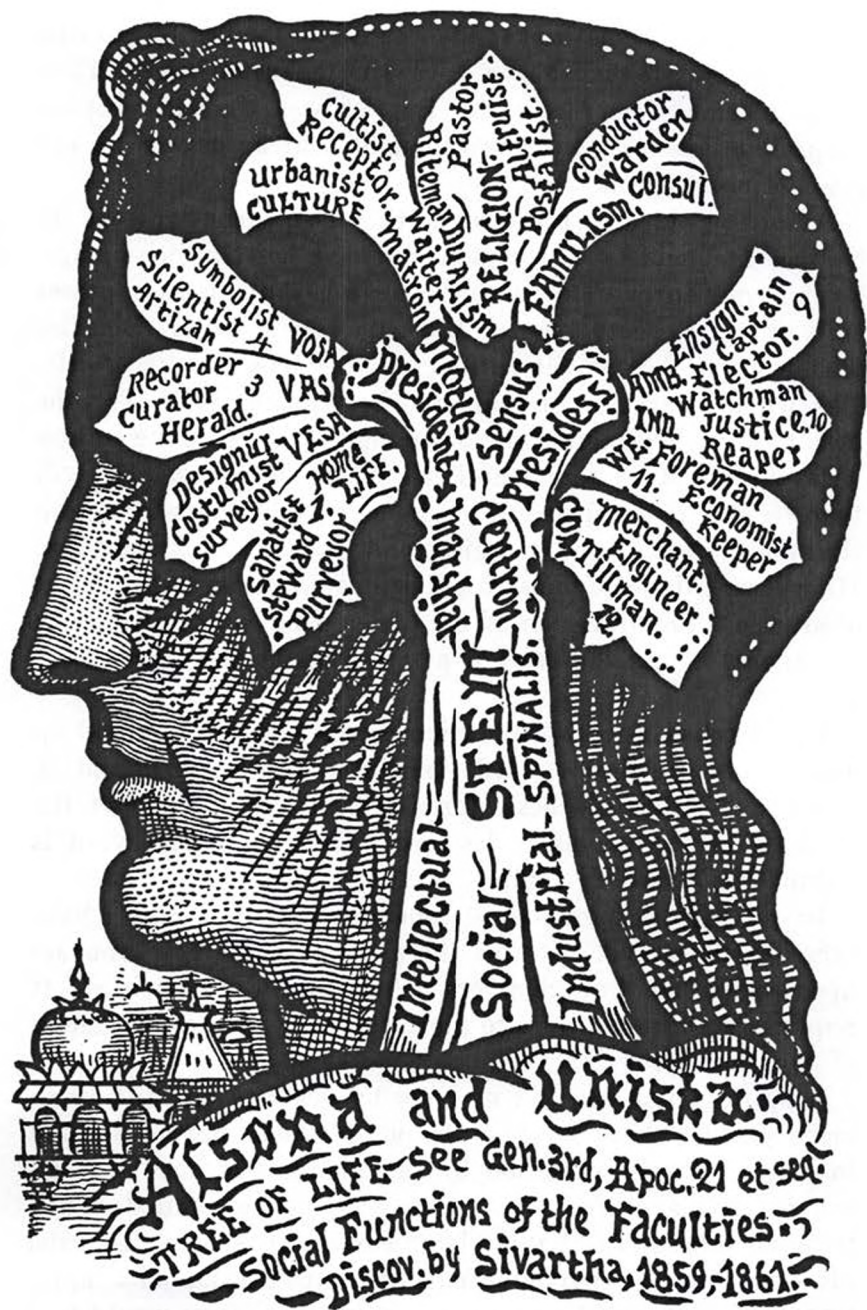
Discoveries By Dr. X. Sivarth, 1861, see Genesis 3rd.

lower limbs. In branching over the body this river divides into four parts at seventeen different points. Two branches of the river form a network around the very trunk of the tree, and spread upward among its expanding branches. The blood is the water of life, and it looks "as clear as crystal" when seen through the microscope, the eye of science. It is three-fourths water, and through this are diffused the red cells and living materials which are to construct and maintain the bodily organs.

The leaves of the tree are for the healing of the nations. The great truth concerning this tree has a most eminently practical side. For it suggested and led to the great system of integral education which we have made the subject of the eleventh chapter. That complete system of culture will meet all the demands of a coming civilization. Each kind of food has a special influence in stimulating and furnishing materials of growth to a special group of faculties. And the kinds of food are related to each other by the same laws of responsive harmony that unite the faculties themselves. On this law will be based a new system of dietetics, which will not only secure a perfect development of the body, but will also sustain the highest mental activity and the most complete spiritual life of man.

We have confined this discussion within the limits of strict and exact science. We have seen that the tree of life is not a myth or a symbol, as many old writers fancied it might be. It is a solid and tangible embodiment of the most universal laws of life. The most perfect of all its old descriptions is that in the Bible. The seers obtained it through inspiration alone, for at that time the facts of physiology and botany were not known. There was no scientific knowledge on which to base the idea in those ages. The truth now revealed in its fullness by science, is rich in its wealth of beauty and in its direct and far-reaching benefits to the human race.

FIFTH SEAL. This covered the doctrine of the Resurrection, another name for the doctrine of Re-incarnation, accepted by so many ancient nations.



Among the Jews, many believed that the spirits of the ancients might come back and occupy the bodies of persons who appeared to have been borne in the usual way. Thus Jesus affirmed that John the Baptist was the old prophet Elijah, and some of the Jews thought that Jesus was an old prophet risen again.

According to the prophecies, this re-incarnation was to become frequent and common during the Harmonic Age. Science now proves to us that when the human race passes fully into its great phase of Maturity, the spiritual faculties of the upper brain will rule in all the departments of life. The whole character of man will be transformed. For the first time his character will be brought into complete unison with the spiritual forces and life of the universe. He will then be able to yield to full obedience to their high laws, and thus counteract all forces which tend to destroy his organism. He will then become himself a Master of Life, through perfect obedience. The duration of his life will be co-extensive with his desires. "As the days of a tree shall be the days of my people."

The English word Resurrection means simply "to stand up again," as the Greek word Anastasia means "to stand in order." Neither of these words tell us anything about the methods or the means to be used. In Hebrew the word is "Qum," to "rise up again."

In our fifth chapter the relations of Spirit and Matter have been briefly stated. It was there shown that these two act upon each other through a very definite series of polarities. It requires no miracle to unite them, but only the normal action of spiritual forces.

A spirit which has lost its body by death is not, therefore, more perfect than before. Its powers have become limited in more than one direction by the change. It does not and can not live a perfect life. Man was destined and designed to be an inhabitant of this planet earth. It is here that exist his most congenial surroundings, his natural range of adaptations. If men could go to some other world they would find

themselves less adapted to its modes of life than they are to this one. They would find that the difficulty here was in themselves. It is in their lack of knowledge of basic laws which belong to this sphere.

The resurrection is a re-birth. And just as the seed of a tree planted in the ground has its life transmitted and comes up with a new body having the same character as the old, so are we to consider must be the manner of the resurrection. At the moment of conception, a spirit is attracted to the germ-cell. This spirit is an organized form. It has all the spiritual parts, not the size of a human being. Through its corresponding qualities it is united, molecule to molecule, with the new body that is being developed in uterine life. When the germ is entirely developed and the term of gestation is reached, the union is complete, and then it is born into external life.

A spirit would naturally be attracted to parents whose characters were of a similar type with its own. Hence a person who is reincarnated may still resemble the persons who were the parents of his body, but not of his spirit. And he may not resemble them. The body which they give him may, or it may not, be the most perfect instrument for his use and manifestation.

A resurrected person may not remember his former life. He may very properly wish to forget many of its unpleasant scenes. It may be to him only like the delirious dream of a long illness. On the other hand, in many cases, he may remember the work of a former life with great distinctness. This was my own case.

In the Resurrection, the men of ancient times will reappear with bodies and features of the face closely like those which they possessed when living on the earth before. Abraham, Jacob and Joseph will recognize each other's faces as readily as two friends who meet day by day. Their likenesses have not been transmitted to us, and they may not bear the same names as before, but other names more fully expressive of their characters. But they themselves will certainly know who they are.

Individuals may be resurrected many times. At the average length of life in this year 1884, there have been one hundred and eighty generations of human beings since the creation of Adam and Eve. There are now about thirteen hundred millions of people on the earth. On an average, human beings may be resurrected at every seventh generation. This would make about 12,000 millions of different persons who have lived upon the earth. Were they all living on the earth now, in a resurrected condition, there would be plenty of room for them.

The general resurrection will last during the entire cycle upon which we have now entered. They will be the most numerous during the first three hundred and fifteen years.

The resurrection is a revival of personal history and consciousness. But these spring from the groups of Letters and Art, or perception and memory. These link the present to the past, and both of them to the future. Without these groups we would care nothing for our past existence and experience, we would not desire to have our life renewed and perpetuated by the resurrection.

In the time of the resurrection will come that change in the texture of the body and the mind which Jesus called the New or Spiritual Birth. Then the spiritual senses will become quickened and refined so much that all persons will see the mental spheres of their associates, and thus the high and intimate communion of souls will be established. The body itself will be illumined and made beautiful by its indwelling and radiated light.

THE SIXTH SEAL. This seal represented the final gathering of the true Israel, the universal brotherhood of man. We have already seen that the nation of Israel was not merely a historical fact. It was the embodiment of an idea; the prophetic type of a perfect social structure, composed of twelve tribes or groups of people of different characters. Each tribe did and must have a ruler.

The Apocalypse describes the sealing of a hundred and forty-four thousand in twelve tribes, as the principal event

under this seal. This was simply a typical number, for it was followed by an immense multitude "which no man could count, of all nations, kindreds and tongues."

In foretelling the Restoration of Israel, the prophets associate this with the redemption and unity of all nations. This restoration is promised, as we may see on the page of *The Prophecies* in more than one hundred and seventy verses.

THE COVENANT. "And when Abraham was ninety years old and nine, the Lord appeared to Abram, and said unto him, I am the Almighty God; walk before Me, and be thou perfect. And I will make My covenant between Me and thee, and will multiply thee exceedingly.

"And Abram fell on his face, and God talked with him saying, As for Me, behold, My covenant is with thee, and thou shalt be a father of many nations. And thy name shall be called Abraham, for a father of many nations I have made thee. And I will make thee exceedingly fruitful, and I will make nations of thee, and kings shall come out of thee.

"And I will establish My covenant between Me and thee and thy seed after thee in their generations, for an everlasting covenant, to be a God unto thee and to thy seed after thee. And I will give unto thee, and to the seed after thee, the land wherein thou art a stranger, all the land of Canaan, and I will be their God. And God said unto Abraham, As for Sarai, thy wife, thou shalt not call her name Sarai, but Sarah shall her name be. And I will bless her, and give thee a son also of her; yea, I will bless her, and she shall be the mother of nations; kings of people shall descend from her."

The nation of Israel was divided into separate kingdoms under Rehoboam, the son of Solomon, 976 B. C. Ten tribes revolted, under the leadership of Jeroboam, and these were from that time ruled by a separate line of kings, and were spoken of in the Bible as the "House of Israel," or Ephraim, because this tribe took the lead in the revolt. The tribe of Benjamin remained with Judah, and these, with a part of Levi, formed the "House of Judah." The House or kingdom of Israel had their capital at Samaria, while that of the

kingdom of Judah was at Jerusalem. It is necessary to keep this distinction of the separated kingdoms in our minds, or we can not understand the prophecies concerning their restoration.

EZEKIEL'S VISION. In the five and twentieth year of our captivity, in the beginning of the year, in the tenth *day* of the month, in the fourteenth year after that, the city was smitten, in the selfsame day the hand of Yehovah was upon me, and brought me thither. In the visions of God brought he me into the land of Israel, and set me upon a very high mountain, by which *was* as the frame of a city on the south.

And these *are* the goings out of the city on the north side, four thousand and five hundred measures. And the gates of the city *shall be* after the names of the tribes of Israel: three gates northward; one gate of Reuben, one gate of Judah, one gate of Levi. And at the east side four thousand five hundred; and three gates; and one gate of Joseph, one gate of Benjamin, one gate of Dan. And at the south side four thousand and five hundred measures; and three gates; one gate of Simeon, one gate of Issachar, one gate of Zebulun. At the west side four thousand and five hundred, *with* their three gates; one gate of Gad, one gate of Asher, one gate of Naphtali. It *was* round about eighteen thousand *measures*: and the name of the city from *that day shall be*, The LORD is there, or Yehovah Sham-mah.

They that serve the city shall serve it out of all the tribes of Israel. Ezekiel, 48th Chapter.

VISION OF JOHN. And there came unto me one of the seven angels which had the seven vials full of the seven last plagues, and talked with me, saying, Come hither, I will show thee the bride, the Lamb's wife. And he carried me away in the spirit to a great and high mountain, and showed me that great city, the holy Jerusalem, descending out of heaven from God; having the glory of God; and her light *was* like unto a stone most precious, even like a jasper stone, clear as crystal; And had a wall great and high, *and* had twelve gates, and at the gates twelve angels, and names written thereon, which are *the names*

of the twelve tribes of the children of Israel: On the east three gates; on the north three gates; on the south three gates; and on the west three gates. And the wall of the city had twelve foundations, and in them the names of the twelve apostles of the Lamb.

And he that talked with me had a golden reed to measure the city, and the gates thereof, and the wall thereof. And the city lieth four-square; and the length is as large as the breadth; and he measured the city with the reed, twelve thousand furlongs. The length and the breadth and the height of it are equal. And he measured the wall thereof, a hundred *and* forty *and* four cubits, *according* to the measure of a man, that is, of the angel.

And the building of the wall of it was *of* jasper, and the city *was* pure gold, like unto clear glass. And the foundations of the wall of the city *were* garnished with all manner of precious stones. And the twelve gates *with* twelve pearls; every several gate had its own pearl; and the Plaza of the city like pure gold, as if it were transparent glass. Apocalypse, 21st Chapter.

THE GATHERED TRIBES. "Thus saith Yehovah, the God of Israel, I will cause the captivity of Judah and the captivity of Israel to return, and will build them as at the first. Again in this place, which is desolate and without man and without beast, and in all the cities thereof, shall be a habitation of shepherds, causing their flocks to lie down. Behold the days come, saith the Lord of Hosts, that I will perform that good thing which I have promised to the house of Israel and to the house of Judah. In those days, and at that time, I will cause the Branch of righteousness to grow up unto David, and he shall execute judgment and righteousness in the land.

"For the children of Israel shall abide many days without a king, and without a prince, and without a sacrifice, and without an image, and without an ephod, and without teraphim. Afterward shall the children of Israel return, and seek Yehovah their God, and David their king, in the latter days." Prophecy of Jeremiah.

“In those days the house of Judah shall walk with the house of Israel, and they shall come together out of the land of the north, to the land that I have given for an inheritance to your fathers.”

JOINING THE STICKS. “The word of the Lord came again unto me (Ezekiel) saying, Moreover, thou son of man, take thee one stick, and write upon it, for Judah, and for the children of Israel, his companions; then take another stick, and write upon it, for Joseph, the stick of Ephraim, and for all the house of Israel, his companions; and join them one to another into one stick; and they shall become one in thine hand.

“And when the children of thy people shall speak unto thee saying, Wilt thou not shew us what thou meanest by these? Say unto them, Thus saith the Lord God: Behold I will take the stick of Joseph, which is in the hand of Ephraim, and the tribes of Israel his fellows, and will put them with him, even with the stick of Judah, and will make them one stick, and they shall be one in Mine hand.

“And the sticks whereon thou writest shall be in thine hand before their eyes. And say unto them, Thus saith the Lord God: Behold, I will take the children of Israel from among the heathen, whither they be gone, and will gather them on every side, and bring them into their own land; and I will make them one nation in the land upon the mountains of Israel; and one king shall be king to them all, and they shall be no more two nations, neither shall they be divided into two kingdoms any more at all; neither shall they defile themselves any more with their idols, nor with their detestable things, nor with any of their transgressions; but I will save them out of their dwelling-places, wherein they have sinned, and will cleanse them; so that they be my people, and I will be their God.

“And David my servant shall be king over them; and they all shall have one shepherd: they shall also walk in my judgments, and observe my statutes and do them. And they shall dwell in the land that I have given unto Jacob my servant,

wherein your fathers have dwelt ; and they shall dwell therein, even they and their children, and their children's children forever : and my servant David shall be their prince forever."

GOG AND MAGOG. "And the word of Yehovah came unto me, saying, Son of man, set thy face against Gog, the land of Magog, the prince of Russ, Meshech and Tubal, and say, Thus saith the Lord God, behold I am against thee, O Gog, prince of Russ, Meshech, and Tubal ; and I will turn thee back, and put hooks into thy jaws, and I will bring thee forth, and all thine army, horses and horsemen, all of them clothed with all sorts of armour, a great company with bucklers and shields, all of them handling swords. Persia, Ethiopia, and Phut with them, Gomer with his bands, the house of Togarmah of the north quarters, and all his bands and many people." Armageddon is Mt. Gilboa by the plain of Jezreel and many battles have been fought there. Identified in 1884.

"Surely in that day there shall be a great shaking in the land of Israel, so that the fishes of the sea, and the fowls of heaven, and the beasts of the field, and all the men that are on the face of the earth, shall shake at my presence, and the mountains shall fall down and the towers shall fall. And I will call for a sword against Gog throughout all my mountains, every man's sword shall be against his brother. And I will plead against him with pestilence and with blood ; and I will rain upon him, and upon his bands, and upon the many people who are with him, an overflowing rain, and great hail-stones, fire and brimstone. Thus will I magnify myself, and sanctify myself, and I will be known in the eyes of many nations, and they shall know that I am Yehovah.

And they that dwell in the cities of Israel shall go forth, and set on fire and burn the weapons, both the shields and the bucklers, the bows and the arrows, and the javelins and spears, and they shall make a fire of them seven years, Thus saith the Lord God, Speak unto the fowl of every wing, and to every beast of the field, Assemble yourselves, from every side, to my slaughter that I sacrifice for you. even a great sacrifice upon the mountains of Israel, that ye may eat the flesh of the mighty

and drink the blood of the princes of the earth, of rams, of bullocks, all of them fatlings of Bashan.”

The House of Israel was taken captive to Assyria, in the year 721 B. C. They were never restored. One hundred and twenty years later, the House of Judah was carried captive to Babylon. Their restoration was promised in Isaiah, 52nd chapter, entire—in Isa. 65th, 9—and Jerem. 29th 10. These prophecies were fulfilled after seventy years, B. C. 536.

The 250 verses on the next page promise the gathering of the whole twelve tribes of Israel, the “whole House of Israel,” as the prophets express it. They can not be filled by simply having the Jews go back to Palestine, though many writers speak of the “return of the Jews;” yet they do this against the plain words of the Bible. When the Jews or House of Judah, are restored to Palestine, it must be in connection with the other ten tribes. Otherwise the words of prophecy would be false. We have shown how each tribe is to be identified by its leading traits of character, and how every Band of Harmonists will be like the nation of Israel in miniature. This places in our hands the power to arrange the tribes in order, the power to seal them according to the divine prophecies.

We must here notice how Christians have turned aside the obvious meaning of the prophets. For they claim that the prophecies apply to the Church; that it is the true Israel.

How false this claim has always been is seen from the direct words of Yehovah. For He says that in the day that the Messiah appears, in that very age, and not eighteen hundred years afterward, He will set forth His hand and gather the twelve tribes of Israel, the ten lost tribes as well as the tribes of Judah and Benjamin; and plant them forever in the land in which their fathers have dwelt, upon the mountains of Israel, and that He will there establish them as at the first, and that they shall no more be two nations, and they shall not again be plucked up, but shall dwell in safety forever. If this language has not a literal meaning, then it would be impossible for God to find words in the whole compass of human language, by which a literal meaning could be ex-

THE PROPHECIES.

This earth shall be redeemed for the abode of man.

See Isaiah 65th, 17 to 19.—Isa. 45th, 17, 18.—Isa. 51st, 3.—Dan. 2nd, 34 to 36.—Zech. 14th, 9.—Hab. 2nd, 14.—Rev. 7th, 13 to 17.—Rev. 21st, 1, 2.—Ezek. 36th, 34 to 36.—Micah 4th, 1 to 4.—Isa. 41st, 15 to 20.—Isa. 60th, 15 to 21.—Isa. 61st, 1 to 11.

2. Universal truth, peace and justice shall reign.

See Isa. 2nd, 1 to 4.—Dan. 6th, 27.—Genesis 17th, 6.—Gen. 18th, 18.—Isa. 25th, 7.

3. Man shall attain health, immortality and perfection on this earth.

See Isa. 25th, 6 to 8.—Isa. 65th, 20 to 25.—Matt. 5th, 48.

4. One standard of Truth shall prevail and destroy all mysteries in science, religion and life.

See Isa. 25, 6 to 8; 35, 5, 8, 9; 60, 19, 20; Rev. 17, 1 to 18; 10, 7.

5. The Nation of Israel shall be restored to Palestine.

See Ezek. 37, 15 to 28.—Isa. 10th, 20, 21.—Isa. 11th, 11 to 13.—Isa. 14th, 1.—Isa. 19th, 24.—Isa. 24th, 13, 15.—Isa. 25th, 7.—Isa. 27th, 6, 12, 13.—Isa. 34th, 16, 17.—Isa. 35th, 1 to 10.—Isa. 40th, 1 to 31.—Isa. 41st, 9, 14.—Isa. 42nd, 1 to 25.—Isa. 43rd, 5.—Isa. 44th, 21, 26.—Isa. 45th, 17.—Isa. 46th, 3.—Isa. 48th, 21.—Isa. 49th, 6.—Isa. 54th, 5.—Isa. 56th, 8.—Isa. 60th, 1 to 22.—Isa. 63rd, 7.—Isa. 65th, 9, 25.—Isa. 66th, 20.—Jeremiah 3rd, 14, 17, 18.—Jer. 5th, 18.—Jer. 12th, 13, 15.—Jer. 16th, 4, 15.—(Jer. 23d, 5 to 8.)—Jer. 30th, 3 to 21.—Jer. 32nd, 37.—Jer. 33rd, 7, 17.—Jer. 46th, 27.—Jer. 50th, 19, 33.—Ezek. 11th, 17.—Ezek. 16th, 60.—Ezek. 34th, 12.—Ezek. 36th, 10, 14, 24, 28.—Ezek. 39th, 25, 26.—Ezek. 48th, 1 to 35.—Obadiah, 17 to 20.—Hos. 1st, 10, 11.—Hosea 3rd, 4, 5.—Amos 9th, 14.—Zeph. 3rd, 13.—Zechariah 8th, 3, 13.—Zech. 9th, 13.—Zech. 10th, 5.—Zech. 12th, 7.—Joel 3rd, 17 to 21.—Ezek. 5th, 5.—Jer. 30th, 18.—Ezek. 36th, 35.

6. "Israel" meant Twelve Tribes ruled by twelve Princes, and it does not mean any Christian Church.

See Genesis 49th, 1 to 28.—Numbers 1st, 4 to 16.—Num. 7th, 1 to 78.—Num. 34th, 17 to 29.—Exod. 6th, 14.—Josh. 3rd, 12.—Josh. 22nd, 14.—I. Chron. 5th, 3 to 8.—I. Chron. 23rd, 2.—I. Chron. 28th, 1.—I. Chron. 13th, 1, 2.—II. Chron. 10th, 2.—Ezra 10th, 8.—See, also, Kitto's History of the Bible, pp. 157 to 159;—Ewald's Hist. of Israel, pp. 362 to 370.—Judges 5th, 14, and 8th, 12.—Matthew 19th, 28.

7. The New Covenant is not the old Mosaic Law.

See Jeremiah 31st, 27 to 40.—Isa. 28th, 14 to 21.—Rev. 21st, 5.—Isa. 59th, 20, 21.—Jer. 33rd, 40.

8. The "Gospel" relates to this Kingdom, and means one Government, one Language and one Brotherhood for all the Nations.

See Dan. 7th, 13, 14.—Zeph. 3rd, 9.—Haggai, 2nd, 6, 7.—Matt. 5th, 17 to 19.—Matt. 19th, 16 to 21.—John 14th, 15.—Mal. 2nd, 10.—Mal. 3rd, 12.—Dan. 7th, 27.—Ezek. 47th, 22, 23.—Isa. 2nd, 2.—60th, 3, 5.

9. The last Battle shall destroy the Beast in Man.

See Ezek. 39th, 1 to 23.—Rev. 19th, 11 to 21.—Isa. 68th, 3 to 12. The above cited verses, numbering more than four hundred, remain unfulfilled in this year 1881 of the Christian Era. The Harmonists look for the entire fulfillment, beginning in the present age.

pressed. The promise is repeatedly expressed in the strongest terms. Indeed, to use the words of another, those who assent to the true laws of language and of symbols, will no more deny or doubt that the prophecies teach that the Israelites are to be actually restored, than those who assent to the definitions and axioms of geometry will deny the demonstrations founded on them.

Jesus chose twelve apostles, to rule over the twelve tribes of Israel. But they did not gather the tribes, they never ruled them, they did not organize the church into twelve departments after the one divine model; six of them sunk out of sight without leaving a trace of their history or of their personal character; and since the days of the apostles the church has never had twelve departments, twelve doctrines, twelve rulers, twelve symbols, or indeed twelve anything. The church never has had a single distinctive mark of Israel.

If the restoration of the people of Israel has only a spiritual sense, and means the Christian church, then the carrying away of Israel to Babylon was only in a spiritual sense, and not literal. For the same prediction speaks of both the dispersion and the restoration. If Shalmaneser and Nebuchadnezzar only took the Christian Church, and not the literal cities of Samaria and Jerusalem, then and only then, may we interpret the prophecies to mean that the Church is to be enlarged and restored, instead of the literal people of Israel, and the literal cities of Palestine.

The church has persistently done all of the things which Jesus forbade in His followers.

The prophets assert in the most positive manner that the kingdom of Messiah shall be one of universal peace. "Nation shall not lift up sword against nation, neither shall they learn war any more." But every Christian Nation, without exception, has engaged in repeated wars, and its priests have sanctioned these wars. Christian nations still fight with the skill of demons, and Christian sects still quarrel with malignant hate, in this year after Christ 1881. In the light of these facts,

to call the Christian Church the kingdom of the Messiah, is to utter an atrocious falsehood.

Nor does the Christian religion, as explained by its teachers, contain the foundations upon which the Kingdom is to be laid. For it does not contain any provisions, or principles, or laws, which could be formulated into a system and applied in a literal kingdom as its constitution. All things must be made new. The confused Babel of Christian sects can not be patched up into the New Jerusalem, into the coming Harmonic Kingdom. At the present time, 1881 C. E., there are 400 millions of church members, or professed Christians in the world. This would be enough to make eight great nations. They have unbounded wealth and material resources. Yet none of these numerous peoples have ever been wise enough or good enough to build even a single city in which there was not vice, crime and poverty. The Christian Church has neither the spiritual power nor the wisdom needed to establish the reign of righteousness.

THE MESSIAH. The prophets have a great deal to say about the coming Kingdom, and but a very little to say about the king, who was to be its great founder. And we have a right to think that this shows that the kingdom was much more important than the king. In contradiction to the prophets, the Christian world centered all of its hopes in a person, and has cared little for the omnipotent and immortal system of truth and life which he was to establish.

In all the Hebrew prophets, there is not even a hint that the Messiah was to be a God, or anything more than an extraordinary man, excelling all other men in his wisdom, his loftiness of purpose, and the enduring beneficence of his government. Had the prophet foretold that God himself was to come as the Messiah, the Jews could not have failed to read it; but they had no such expectation.

At the end of His life, Jesus seemed to realize that He could not fulfill the Messianic prophecies, for He declared that His kingdom was not of that age, but that He would come to establish it in power. Whatever may have been the cause of His

failure, the facts of the history can not be traversed. We must explain it by saying that His mission was to offer the kingdom to that generation before their long dispersion, but that the Jewish mind could not then accept the terms and conditions which He proposed. The Jews could not see that a disconnected collection of moral precepts, and the healing of a few sick people, would deliver them from the hard yoke of Roman power, and from the multiform evils that cursed their social and political life.

And so, guided by fanatical bigotry and blind hate, they put Him to the horrible death of crucifixion. He died because He was true to the spiritual light within Him, a light which could not penetrate or dissipate the darkness of that age.

No system of doctrines and of life was formulated by Jesus. Cut off while His mission was scarcely begun, the work was left to other hands. Christianity was molded into form by monastic teachers, who substituted impractical and false dogmas for the simple precepts of their professed master.

The preachers spent eighteen centuries in trying to convert men so that their souls would go to heaven when they died. But in the whole Bible there is not a single passage which promises that any human being shall ever go to heaven, or to any other place away from this earth, to be happy. The promises of happiness and redemption are all confined to this earth. The direct and oft repeated words of Yehovah are better authority on this question than the unsupported words of the preachers. These men taught a salvation which was opposed to the Bible and which was a perpetual failure.

We must judge of the character of the Messiah by the nature of the government which he was to establish. It involves the unfolding of new forms of knowledge as the basis of a new life. It has been falsely taught that Love was the one distinguishing element in his character. But Yehovah himself has declared differently. Through Isaiah He names four intellectual qualities of the Messiah. These are Wisdom, Sagacity, Counsel and Knowledge. With these He mentions only one quality of Love or feeling, and this is the

fear of Yehovah, with one of Will, the spirit of might or strength.

The law of evolution proves to us that nature prepares special minds for special work. She fitted only one mind, that of Sir Isaac Newton, to discover the law of gravitation. Only one man, James Watt, succeeded in the invention of the steam engine. And so through the whole history of discovery and invention. And this law applies equally to the greatest of all, the discovery and application of the great laws of human society. One man must be the leader in that work. It must not be supposed that he will not realize the nature of his own work and its importance.

The prophets dwell upon the work of the Messiah because it was to be the most important and far reaching of all discoveries and reforms in the history of mankind. These discoveries must be proved by the same methods that are used in testing any science. They do not rest upon personal claims any more than does the science of chemistry or that of arithmetic.

When Jesus looked down through the ages and in a vision saw Himself coming to be re-incarnated, He saw the clouds of spiritual light which would surround any returning spirit of a high order. But it does not follow that when that event actually took place that men in general would see the spiritual clouds or light. Men now say that angels are frequently sent on errands to human beings. But they tell us that they do not see these angels, or the light that is around them. In the fifth chapter of this Book the author has shown that there is a spiritual light around the head and body of every spiritually minded and cultivated person. And many persons can see it.

According to the prophecies, the Messiah was to come into the world through a natural birth, apparently in the same way as other men. Jesus told John that when he came again it would be with a new name.

That the second coming was to be in the name and the au-

thority of Science, is proved by the direct and positive testimony of John in the 19th chapter of the Apocalypse. Under the first seal he saw one come forth on a white horse. This was a symbol of pure reason in a living form. His name (or Noma, LAW) was the LOGOS. Three hundred years before the time of John's vision the writings of the Greeks had fixed the meaning of this word. The most distinguished linguist of our day says: "Logos, that is REASON, literally 'gathering,' a word which most rightly and naturally expresses in Greek both speech and reason. Logos is derived from LEGEIN, which, like the Latin LEGEE, means, originally, TO GATHER. This is the root of Religion. The Latin Intelligo, from the same root, expresses still more graphically, the interlacing of the general and the single. But Logos in the sense of Word, means likewise a gathering, for every word represents the gathering of the single under the general." Max Muller, Science of Language, page 72, volume second.

In more than a hundred names of the subdivisions of modern science this word logos forms the last syllable LOGY. It was in this name that the Rider on the white horse was to fight and win the great battle with the Beast. We are told that the Beast believed in miracles and used them, but his conqueror believed in science. Eighteen centuries ago the people believed that miracles were evidence of authority in teaching. It was well enough at that time for Jesus to work miracles. But in the present age, when people believe in science but not in miracles, it would be very unwise to resort to such kind of evidence as miracles.

The Messianic idea, the hope of a great leader, was common to the religious creeds of China, India, Persia, Arabia and other nations. It was a natural thought and hope, though often overlaid with inconsistent fictions. Its fulfillment is a part of the spiritual growth of our race.

Messianism is not simply a Jewish or an exclusive idea. The prophecies make its blessings extend to the widest circle of the nations.



ADMITTED TRUTHS OF RELIGION.

1st. Truth in our statements is a necessary basis for unity of action in society.

2nd. Honesty of action is essential to certainty in carrying out our plans.

3rd. Wisdom is a security against mistakes, failures and waste of efforts. Wisdom has three branches—arts, learning and science.

4th. Love or affection is essential as a social, uniting force in society.

5th. Kindness and good-will are needed in a world of vicissitudes.

6th. Justice and altruism or unselfishness are essential because all members of society are dependent upon each other. The good of each is through the good of all.

7th. The responsive unity of all ranks of life from the ameba up to the Deific Center. Religion is a balancing force for all the faculties.

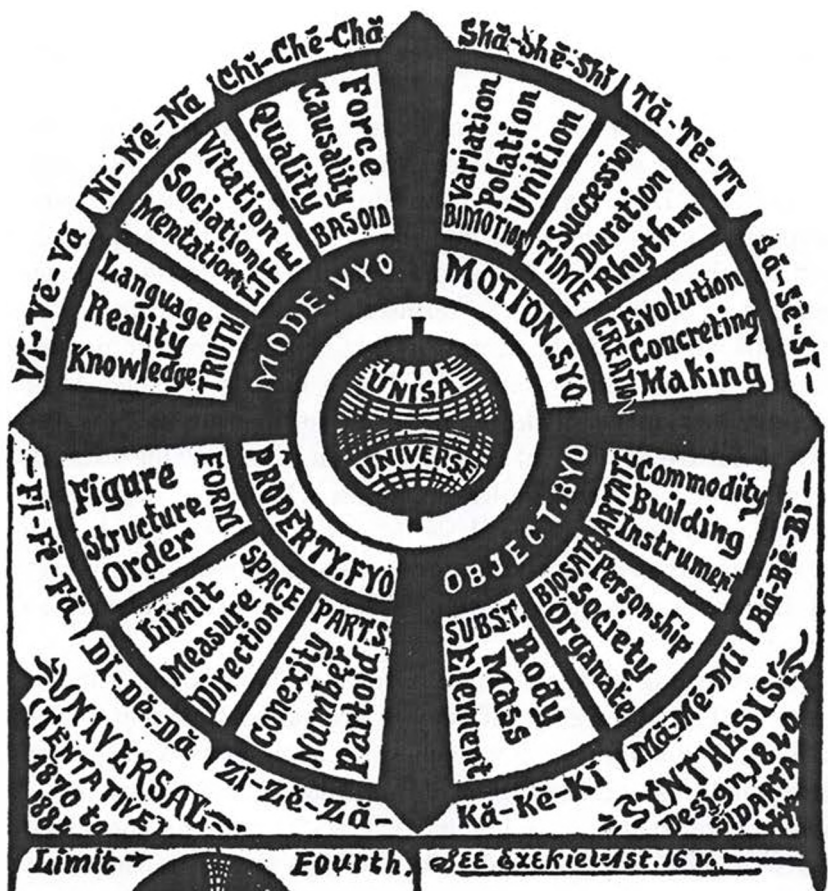
8th. Leadership or guidance is necessary because all are not equal in wisdom, foresight and stability of purpose.

9th. Aspiration to a life in which the higher faculties shall rule the lower and the natural laws shall be fully obeyed.

10th. Universal justice in society, with natural rewards or penalties for all social action.

11th. The higher uses of all material conditions.

12th. As all men have the same faculties and classes of rights, hence there must be equity, peace and organized unity between all nations.



CHAPTER TENTH.
 —
 UNIVERSAL SYNTHESIS.
 —

The unity of all truth is the basis of Science. In the childhood of the world, man looked upon nature everywhere as unstable, arbitrary and disorderly. It is only through science

that we perceive the order and stability, the majesty of her laws. Beneath all the changing and disconnected surfaces of objects and events, science reveals the play of eternal harmonies.

The man of science observes, classifies and analyzes the objects of nature and their actions, in each domain he may seek to explore. He does more than this. He institutes experiments and evokes new phenomena. Through these methods he finds those regular forms of structure and those uniform methods of action which he terms the Laws of Nature.

He discovers that the atoms of spirit and of matter possess inherent forms and powers. Each one has its own modes of behavior, its intrinsic laws of form and action. Thus the laws of nature are within each object, and inseparable from it. They are not external rules or forces which the objects are compelled to obey. Hence these laws were never created, they are as eternal as matter and spirit. God never made any law, but He announced laws to men. The laws were as eternal as Himself.

The grouping of facts into the form of laws is the work of science. The lower steps of science are called Common Sense. In its higher stages of development, science always measures. It reveals to us exact relations of quantity. Thus, for example, common observation teaches us that water may be converted into steam by being heated. But science shows us the exact amount of heat required to produce this change.

All science is practical knowledge, for it is based upon an exact acquaintance with the objects of nature. It differs from other knowledge in possessing system, clearness and certainty, in place of disorder, obscurity and uncertainty.

MIRACLES. In ancient times the unusual display of material or physical power was called a Miracle. The law and force of gravity pulls all near objects toward the earth. This law is neither suspended nor destroyed when I lift a weight from the ground. But simply my muscular force has counteracted the force of gravity. That force continues to pull down on the weight. It is equally true that a spiritual force may coun-

teract a physical force. For all forces are related to each other; they are convertible and counteractive.

FORMS OF KNOWLEDGE. In classifying the branches of knowledge for the purpose of study, two methods present themselves. By the older and now prevalent mode we should form three great branches, Art, Letters and Science, and arrange the subdivisions of these as in the table "Analysis of Knowledge." The central branch is the storehouse of knowledge, while Science explains laws, and Art applies these in the practical work of life.

Or, as defined by an eminent Scientist:

Ordinary knowledge expresses in a single formula a particular truth respecting a particular phenomenon.

Science expresses in a single formula a general truth respecting an entire order of phenomena.

Philosophy expresses in single formula a universal truth respecting all phenomena.

Art consists of rules by which work is to be done. Skill is the mental and physical qualification required for the application of these rules.

METHODS OF SCIENCE. The vague and instant perception of truth is called Intuition. Its discovery by comparison, experiment and analysis is Induction. And when, from one or more known laws we infer certain laws or results, this is Deduction. These are the methods by which science has been developed.

All mature science is practical knowledge. There may be fragmentary knowledge which is still practical, like agriculture in its present state, but all such knowledge is more or less uncertain in its results.

The provisions of science are deductions; as, for instance, when from the laws of astronomy it is predicted that at a given time there will occur a transit of Venus, or an eclipse of the moon. When the historic movements become rhythmical, then the date of human events may be predicted in this way.

The forces which are to produce any given event are in action to a greater or less extent, long before the event occurs.

In case of a seed planted, it may be for weeks; in that of a national revolution, the producing causes may have silently operated for centuries. The organ of Reason may not perceive or detect the tendency of these obscure forces; but the organ of Inspiration is impressed by them, and from their subtle radiations it forms an image of the future.

Many of these forces, in any case, are too faint and obscure even for the delicate receptive powers of Inspiration, and hence its predictions are seldom accurate and minute. In the daily affairs of life, the quick warning voice of Inspiration is of constant value.

The great prophecies of the Bible were made through impressions on this faculty. Yet they were made by spiritual beings who knew the plans and laws which govern the collective life of the human race throughout the unfolding ages.

Nearly all the great truths which compose modern science were perceived in vague outlines long before Reason worked out their demonstration. In this early form they were almost entirely impractical. No truth can mature without the light of reason. Yet the early form of truth may be exceedingly attractive from its abundant use of symbols. Reason alone can tell us all that these symbols mean, and what relation they bear to human life.

Every organ receives impressions from the particular kind of forces to which its functions are directly related. But it is the special office of Reason to take the impressions received by every other faculty; and by comparing, analyzing and combining them, to discover the relations existing among them, and to group these relations so as to show the manner in which the producing forces have acted. Thus it unfolds Law; for Law is an expression of the uniformity of relations among phenomena.

The organ of Imagination greatly assists that of Reason, for it is active in forming hypotheses, and in embodying the results of reason in vivid and formal conceptions. The Intellect could not be creative without imagination. It molds the abstract and apparently intangible work of reason into the

Analysis of Knowledge—baso

SCIENCE VO	LETTERS VA	ARTS VE
Mathematics .. vos	Erudition vas	Esthetics ves
Geometry voso	Teaching vasto	Graphics vest
Formology vofo	Lecturing vaston	Drawing vesto
Topography ... voda	Informing .. vastos	Painting vesta
Trigonoms ... vofao	Exposition ... vastol	Writing veste
Geotics vodö	Learning vasö	Costumles vël
Surveying vodu	Studying vasi	Hat-making .. vëlso
Mensuration .. vode	Memorizing ... vasu	Tailoring vëlso
Engineering .. vodä	Investigation . vasä	Shoemaking .. vëlse
Arithmetic vozè	Culture varo	Sculptics vëf
Algebra vozèn	Exercising ... varos	Engraving vëfo
Booking vozèt	Experimenting . varon	Sculpture vëfa
Calculus vozètt	Practicing varot	Carving vëfö
Biology von	Literature ... van	Home-Arts .. vönd
Mentology vono	Authorship ... vans	Mechanics vënd
Psychology ... vonos	Writing vansom	Architecture .. vëndo
Sociology vonas	Publishing ... vansa	Furniture ... vëndo
Somatics vonä	vanse	Ship-building . vëndi
Physiology ... vokas	Editing vanto	House-Art vënt
Anatomy vokast	Collection ... vantas	Laundry vënto
Functions vokan	Arranging ... vantus	Cooking vënte
Sanatation .. vokars	Reporting .. vantärs	Room-care ... vëntä
Botany vöstël	Bookate vansön	Field-work vëns
Morphology .. vofes	Magazine vansi	Tillage vënsi
Functions vosel	Manuscript .. vansu	Horticult vënsu
Flora vozël	Papers vansür	Stock-care ... vënsä
Physics vors	History vara	Factoring..... vëb
Cosmology ... vorsü	Records vars	Instruments .. vëbïs
Geography ... vorsät	Annals vartö	Tools vëbe
Geology vorsäd	Biography ... vartön	Utensils vëba
Astronomy .. vorsän	Inscriptions .. vartës	Machines vëbä
Chemistry vorsö	Statistics vard	Textiles vebäl
Morphation .. vorsön	Census vardu	Fibering vebäls
Cuisine vorsös	Register varda	Texting vebält
Analysis vorsöt	Catalogue ... vardës	Finishing ... vebart
Dynamics vorstï	Paleons vam	Wares vebës
Mechanics ... vorstis	Library vamo	Cutlery vebëst
Statics vorstit	Museum vamus	Pottery vebënt
Vibratics ... vorstil	Monument .. vamoto	Glass vebëtt

ä as in äll; ö as in too; ë as in mën; ê as in grèy.

distinct and concrete forms and objects of art. In thus dealing with the concrete, Imagination reaches and stirs the entire realm of feeling or emotion.

THE SYLLOGISM. In the act of reasoning, the mind uses a certain formula or method called the Syllogism. It includes the Major and Minor Premise, and the Conclusion, as in the following example:

MAJOR PREMISE—A plant has a circulation.

MINOR PREMISE—An oak tree is a plant.

CONCLUSION—Therefore an oak tree has a circulation. In this case the major premise could only be established by examining and comparing a great number of plants and finding a circulation in each of them. The minor premise likewise requires observations to establish its correctness. If either premise of any syllogism be false, then the conclusion must be untrue or unwarranted. The syllogism is not of itself a test of truth. It only enables us to put all our propositions into a convenient form for examination. We may form a systematic statement which accounts for all the phenomena in any given case; this statement is an Hypothesis. When the parts of this statement become verified or demonstrated, then we call it a Theory. It is often necessary to construct an hypothesis for convenience in a course of investigation.

CRITERION OF TRUTH. As the lungs of all men are adapted to breathe the air, so the intellectual faculties of all men are adapted by nature to perceive and understand the laws which rule our own being, and those which relate us to the varied objects of the universe.

Every truth, every law, bears a fixed relation to the mental constitution of man. Therefore, when it is once fully understood, it must appear essentially the same to all minds. Nature is not a system of jugglery. It was not contrived to mystify and perplex man. Every human being has an eternal right to understand the material and spiritual laws of nature. The methods of science apply to all of these with equal force and completeness.

The means of proof in science are open to all persons. But

they must take the proper steps and institute the necessary conditions of proof. Thus it is a truth of science that in any circle every part of the circumference is equally distant from its center. It is another truth that in a right angled triangle the squares erected on its two shorter sides are together equal to that erected on its longer side. And any person can convince himself of these truths by simply drawing the circle and the squares. And so of all truths in science. They never rest upon personal authority, or the testimony of witnesses, like truths received alone through inspiration. Thus science is the only standard of truth to which all men can agree, for it is the only one where the proof is always open to examination.

It is true that men differ in their capacity to investigate. The scientist makes allowance for this difference under the head of Personal Equation.

If we impose any doctrine or belief upon any person, then we violate a law of his reason. For through that faculty he has an internal right to examine any and every idea presented to him, and to have its truth clearly demonstrated before he is obliged to accept it. When such demonstration is made, then he accepts it by a necessity of his intellectual nature. No persons actuated by the true spirit of science could ever persecute those who differed from themselves, or seek by physical force to make others adopt their ideas and practices.

Science is the only Standard of Truth. It appeals to the universal nature of man. Science explains, but it does not dictate. Its authority is not personal, but is in the very nature of the objects which it describes. It teaches, but it does not command. It counts and it measures. Its sceptre is reason, its throne is common sense.

ABSTRACTION. In the concrete or actual world, many laws are united or concerned in one object. The laws do not stand out separately. For example, let a person lift a ball in his hand. The law of gravitation resists the act of lifting by pulling the ball toward the earth. The laws of physiology are concerned in contracting the muscles of the arm and hand.

This contraction has involved a chemical law, for carbonic oxide has been evolved by the muscles. The laws of thought were exerted to direct the muscular movement, and this movement itself involved the mechanical law of the lever. At least five laws were concerned in the simple action of lifting a ball. Any single force which comes into contact with an object is divided into a number of forces, which differ in direction because they have combined with forces which were in the object itself.

Most laws are so interlaced with others that to discover them we must take our collected impressions and mentally separate those of certain phenomena from their connections with others, and thus reveal the uniformity of action or relations. When we consider the color of an object without giving any attention to its form or other properties, we do not pull or draw the color from the object, we simply give attention to one property at a time. The abstraction is wholly within our own minds. All nature is concrete. The laws of nature are few in number; the facts grouped under each law are many.

CAUSE AND EFFECT. Everywhere around us we see the perpetual transfer of forces. That which at one moment appears as a cause, may at the next moment appear as an effect. The chemical combustion of oil in a lamp causes light, and this is an effect. The light causes an effect in the eye, it impresses the rods and cones. This effect, this impression, in turn causes a vibration of the optic nerve. This effect is transmitted to the brain, and causes a train of thought to be awakened there. This last may cause us to supply the lamp with more oil and fire, and thus keep up or renew the circle of causes and effects. We perceive clearly that Cause and Effect are not things which are of a different nature. They are simply terms which designate different and successive steps in a series of actions.

Each individual effect has a cause. Force has been exerted for its production; but this effect is itself a cause and can exert force in turn. Some old writers affirmed that, as all things must have a cause, therefore the great First Cause is

the Deity. But they mistook the very nature of Cause and Effect. These terms express precedence and succession, they apply to the parts of a series and can not describe the whole. The universe as a whole never came into existence.

NATURE OF SPACE. The ancient philosophers were mistaken in regard to the nature of space itself. They conceived that space could exist whether any object were in existence or not. But this conception was not true. Space is simply one of the three essential properties of matter and spirit. These three general properties are **FORM**, **SPACE** and **PARTS**. Let us take a block of wood for our illustration. This block has **FORM** or shape, for it is a cube. It has **SPACE**, expressed in its length, breadth and thickness. It also has **PARTS**, for it is bounded by six different surfaces or sides. We can not possibly imagine a piece of wood that does not possess dimensions, that has not some form or other, and that does not also possess parts. Nor can we imagine anything else which does not also have these three properties.

Now no matter where we take our block of wood, it will contain exactly the same space that it does now. That is, it will have the space included between its six sides. All the men in the world can not get this space away from the block. When the block is moved, it carries this space along with it. It does not leave this space and get other space as it moves along, any more than it leaves its square shape and gets another square shape as it moves.

In our common experience, the senses only partly inform us of the actual facts of the case. A man walks into a room, and does not see that in order to do so, he had to push a quantity of air, equal to the size of his own body, out of the room. He swings his hand in the air, without seeing that he must move the air in order to move his hand. If the air and the ether had been visible to man, then he would have seen all the objects which were concerned in any of these movements, and he would never have formed the theory of blank spaces or absolute vacancies in nature. He would never have

tried to think of space except as one of the attributes of each object.

All of the space there is in the universe is that which exists as a part of each object. Each has its own space, and never will require any more or any less. Space is not an object by itself any more than shape is an object by itself. We never measure any space except by measuring an object. For instance, we measure the distance of the moon by measuring the angular lines of objects here on the earth.

Our concept of Space involves the sub-ideas of Points, Lines, Surfaces, Solids, Extension, Limits and Direction. A point is the limit of a line, or where lines meet. A line is a limit of a surface, or where surfaces meet. A surface is a limit of a solid. It never was true that "the movement of a point could generate a line." We make lines by the edges of tools and these edges are lines.

Faculties of the mind have fixed locations in the brain. Therefore the mind has space, as truly as the body has. The Psychologists blundered in this matter.

A limit has a twofold function. It both unites and separates objects. Wherever we may go in the universe we shall always find that the last limit of one object is the first limit of the next. Whether we traverse counties, states or continents, or if we could fly across the interstellar ether to distant suns and worlds, we would have the same space-experience that the child has when it creeps across the squares of its mother's carpet. What kind of a fact is it which this universal experience has revealed to us? We can express this fact in one word, Continuity, and its adjective, Continuous. We have learned that the objects of nature are continuous or adjacent to each other. The most powerful microscope shows us this fact just as plainly as our naked eye, but not more so. There is nothing about the subject that is difficult to understand.

The word Infinite means that which has no limits or end. But if each object in the universe has limits then whatever word we may select as the collective name of all things, that

word must not exclude and make impossible the invariable properties of its parts. We may well say that the universe is all-extended or all-extensive. These words express the actual and simple facts of the case. But to say that the universe is limitless is to utter a falsehood. What would we think of a man who should affirm that while each apple in a basket was yellow, yet the whole of them together have no color at all?

It would be much better to name all things, taken collectively, the Omniverse, the All-turning, instead of calling it the Universe or one-turning. The cosmical systems have each one center of movement. But there is no proof and no need of supposing that they all move around one common center.

Every object that was ever formed had to be made out of something else which had just as much space or magnitude as the object has. If it required more room than its component materials had, then there would not be a sufficient place for it. One object can not get any space away from another object.

A Line is not by itself an object. The object itself has breadth, though the line which expresses its limit has none. Lines, limits, points, circles, and all forms, exist only as attributes of objects.

LAW OF RHYTHM, OR TIME. In all motions the central element is Time, and all motions are rhythmical, or have measurable forms and limits, and even when these are reached they tend to repeat themselves or return to equipose. The smallest of these forms are the waves of the forces, and the largest are the paths of the cosmical bodies.

A man swings his hand in a circle. The movement has shape, for it is circular. It has space, say two feet across. But there is another element in this movement. It has Duration or Time. Without this central element, we could not know that a motion had been made. Time is simply and only a part of every motion. It is the central element of motion, just as space is the central property of matter. Time and space are thus counterparts of each other.

A person who has once experienced the sensations of time never can mistake them for anything else. We measure time by the movements of the earth around the sun, or that around its own axis; by the motions of the moon around the earth, or by the movement of wheels in clocks and watches. And, less exactly, by the movements of growth in plants and animals. It is evident that there can be no infinite time. For each motion has its own time, just as each thing has its own space. To say that motions take place "in time" would be like saying that a man's head was in his head. Time can not cease to exist unless motion also ceases to exist. The word Eternity is a collective term expressing time as a whole. Time differs from eternity only as half a cup of water differs from a cup full. Time is always measurable into periods.

A PERSONAL YEHOVAH. Let us turn these thoughts toward a personal Yehovah. All the facts disclosed by science necessitate such a being. But Yehovah is not infinite, any more than the universe is so. "But is He not all-extended, or omnipresent?" I answered that the Bible does not represent Him as having either of these attributes. A man can know what is taking place in a room without being as large as the room is, and without being in all parts of it at once.

The mighty currents of spiritual and material force which traverse the universe form a spiritual telegraph and enable Yehovah to carry on its government without difficulty. The great forces of the earth culminate in man as their crowning center. Science has a right to think that the magnificent forces of the universe likewise center in that majestic Being who is the object of man's highest love and adoration. The Bible represents Yehovah as having the same shape as human beings; man was made in His image. And the science of geometry demonstrates that the human form embodies the highest possible combination of universal forces. The scientists who had never measured or examined a single one of these curves of the human form, yet did talk to us so glibly about God's not having any form, and they ridiculed "anthropomorphism," as they called it. But had they known the

laws of form and the nature of spirit, they would never have indulged in such abortive speculations.

It is absurd to speak of Yehovah as infinite, to attempt to describe His greatness by a term which altogether excludes the idea of extension. But we can readily understand that Yehovah may be a conscious center of the universe, just as the brain of man may be conscious of all parts of the body. The processes of world growth and of universal motion are all in harmony with the attributes of the Divine Mind, the great center of all the acting forces.

The Deity is a personal being, and man is in His image. Man has the same number and kind of attributes, but differs in their degree of development. Through a study of man's nature, we may obtain a true knowledge of the Divine Original from which it was copied. An obedience to the laws of Yehovah is only a fulfillment of the true laws of the human constitution. Our affection for Him may, and should be, direct, conscious and reciprocal. Our entire nature, every faculty of our minds, must find its perpetual and complete response in His all-perfect life.

The old preachers and sages long taught the people that as the Deity is infinite, therefore the finite mind of man can not comprehend Him, but must blindly and trustingly accept God and Religion as sublime mysteries. Such teachings are directly opposed to the demonstrations of science and to the plain declarations of the Bible. The prophets say that in the Harmonic age all persons shall have a knowledge of Yehovah, from the least to the greatest. But where knowledge fills the mind, there mystery can not exist.

For three hundred years past men have been finding answers to questions which had puzzled the human mind for thousands of years. What one man can not solve another may. Science beckons us to a temple of wisdom whose light is all glorious within. It bids us worship a God in whom is no darkness. It does not reveal a nature who is only a tricky magician, always working behind black veils of mystery. Her face, like that of her Master, shall shine as the sun.

In the Mosaic account, God is represented as creating the world. We must now consider the import of the terms used in that account, according to the known laws of the Hebrew language, in which it was written.

The word *Bara*, translated "create," does not mean to produce from nothing. Its number is 203. This number means that at first there are two things, and these, left free to act upon each other, produce a third thing. Now this is precisely true in every act of making or formation. It must have been as true 6000 years ago as it is to-day. The phrase "*Vay-omer Elohim*," "and God said," is used in the account nine times. The number of this phrase is $7 \times 7 \times 7$. As 7 means spiritual force or dynamic energy, this phrase means that spiritual force was used three times, or to the fullest possible extent, as the creative factor. It does not mean that God simply uttered the sounds of the sentences given in the text.

It has been supposed that God has a right to rule the world because He made it. But he is not the God of the dead, but of the living. His rulership depends upon His now being the center of all spiritual forces. My head rules my body, but it did not make it. My brain rules my hand, but it did not make my hand. The President rules a nation, but he did not make the nation.

The highest of the orders is ruled by *Yehovah*. This is the name revealed to Abraham and to Moses as the one word in the Hebrew language which was capable of expressing the divine nature. Again and again through the prophets it is declared that this is His name. See Exodus 3rd, 15, and 6th, 3.—Psalm 83rd, 18.—Isaiah 42nd, 8.—48th, 2, and Jeremiah 33rd, 2.

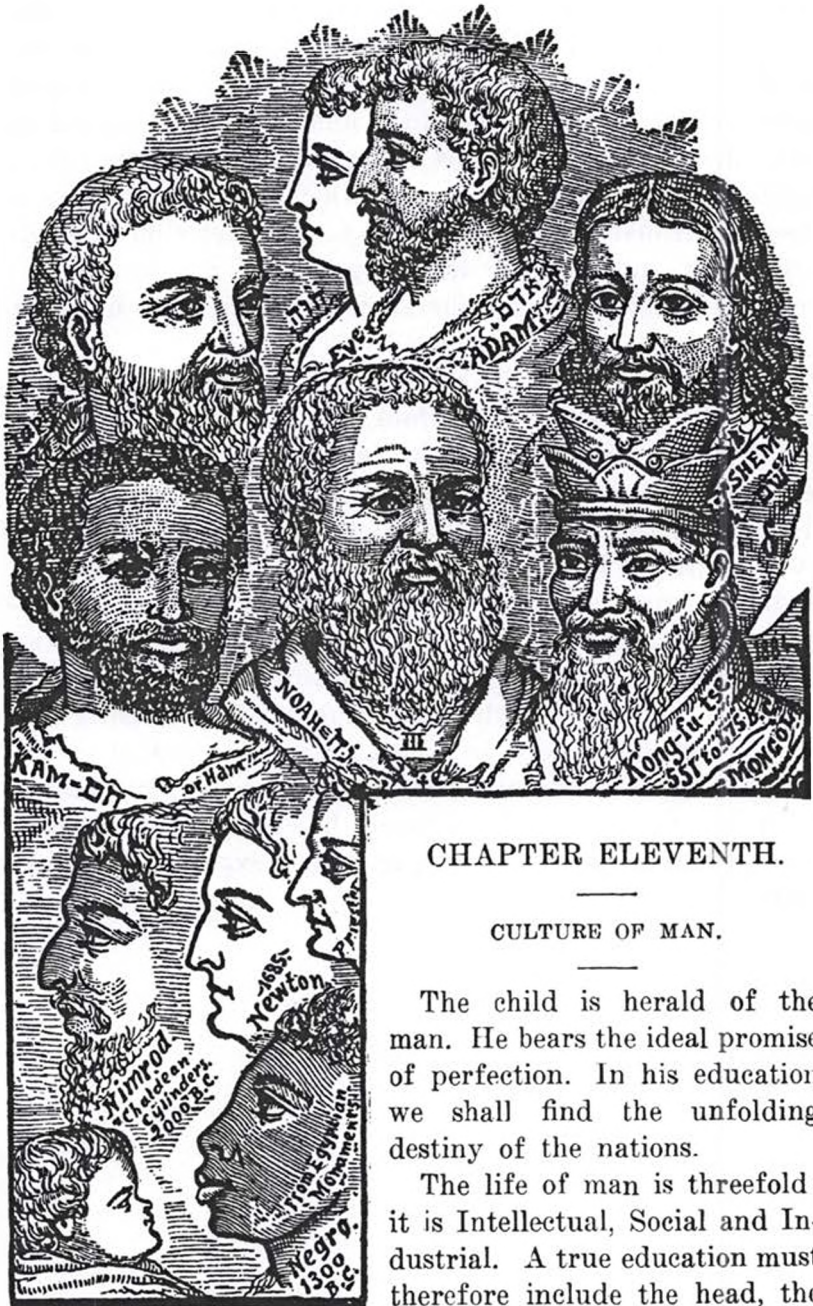
We are told by Moses that "*Yehovah Elohim* created man in His own image and likeness, male and female created He them, and called their name Adam." This word being plural in that language could mean a pair. I have given the likeness of these first parents of the white race in the next chapter.

The words *Tselem*, and *Temunah*, translated "image and likeness," means the same as in English. They mean shape

and form, and every Hebrew scholar knows that they do. The Divine nature is therefore dual, like that of man. It includes a divine Father and a divine Mother, two beings as separate and distinct as man and woman. The one name Yehovah applies to both. This word has the number 26, and according to the laws of numbers, this represents thirteen masculine attributes in perfect development, which could only be in a person of the male sex; and thirteen feminine attributes dominant, which could only exist in a person of the female sex. The word Yehovah can not therefore be a true name unless it represents both a Father and a Mother.

The higher we go in the scale of life, the more distinct do the two sexes become. Therefore, if the power of the two sexes is blended in one person in Yehovah, then He resembles the lowest kinds of life rather than the highest.

In ancient times the position of woman, and of man, too, was so degraded that a knowledge of the existence of sex in the divine being was regarded by Moses as a source of corruption, and so it was kept from the common people, as the "Mystery of the Sacred Name, Yehovah." Its full meaning could only be revealed when the time came to discover the true structure of society, in which woman is elevated everywhere to equality of rank with man. The Jewish Rabbins taught that the Sacred Name would be explained when Harmonism came to save the world, and their expectation is now fulfilled.



CHAPTER ELEVENTH.

CULTURE OF MAN.

The child is herald of the man. He bears the ideal promise of perfection. In his education we shall find the unfolding destiny of the nations.

The life of man is threefold: it is Intellectual, Social and Industrial. A true education must therefore include the head, the

heart and the hand. It must be a system of Instruction, of Culture and of Training. That is, it must impart knowledge by natural and attractive methods, it must cultivate all of the mental faculties in a systematic manner, and it must give a practical training which shall fit the pupil to fill a productive place in the living work of society. And we must base all these upon a scientific knowledge of man's mental and physical constitution. He is the subject we are to work upon.

The old Greek geometer told the king that there was no royal road to geometry. One might think from the civilized methods of teaching that our instructors have taken a sort of grim delight in rendering all the paths of knowledge especially unroyal and disagreeable. We have taught the knowledge which is in books as though it were something essentially different from that which exists in real things. The black, dead letters of a book have no vitality. They do not reach the child's feelings, the quick center of all his intellectual activity. The intellect, the feeling and the will are linked together by responsive laws of mental action. We must use them all together.

As the gymnasts increase their lifting power by harnesses which distribute the pressure on many parts of the body, so we must take the excessive pressure from the intellect of the school child, and let more of it bear on his feelings and his will. We must realize that it is just as natural for a child to acquire knowledge as it is to breathe. If we conform our methods to the natural laws, then education will become a vital growth and not an artificial process.

A few examples will show how these new methods will work in practice. We will describe these partly in the words of another. The school-room is made one of the most attractive rooms in the unitary Home. It is adorned with pictures, flowers, minerals, curiosities, and all that can appeal to the opening senses of the young mind. In the aisles between the desks are carpets to lessen the noise. On these desks are tablets and lead pencils. On the blackboard are words written

with colored crayons, in red, and green, and white. The teacher now says:

“Mattie’s class may copy the red words, Willie’s class may write the green words, and Fanny’s class may take the white words.”

The children take their tablets and copy the colored words; they learn to write and to distinguish colors at the same time.

Another class which does not know the alphabet is standing before a blackboard. “What do I hold in my hand?” says the teacher. Every hand is raised. “What is it, Charlie?” “A cat.” “Can you tell me a story about it?” Every hand is up again. “Well, Susie?” “I see a cat.” “Very well, now look at this on the board.” She writes the word “cat.” “What is that?” Not a hand is raised, but every eye is studying the unfamiliar letters. The teachers sketches a cat on the board.

“Now, what does this stand for?” pointing to the word. Two hands signal. “Sophie?” “A cat.” “Oh, no. Carrie?” “Cat.” “Right. Now I will add our old friend,” prefixing the adjective “a.” “Now, Sophie is right—‘a cat!’ Who can find another?” With this suggestive leader, the word “cat” is written on different parts of the board, but among other words, and the children eagerly search it out.

The teacher writes the sentence, “I see a cat.” That puzzles the little heads at first. But one hand is raised, and another, and another. “Carrie?” “I have a cat.” “No. Artie?” “I see a cat.” The word see is wholly new to the class, but the context has suggested it to them, and it becomes fixed in their minds by association. “Now you may copy this on your tablets. Good-bye.”

The class return to their seats, to write and re-write these two new words. The pronoun and adjective they had learned before, and they have fixed the looks of all the four words in their minds. They have learned to substitute written words for pictures. They are not told anything. They find out by their own thinking. Each one is required to “tell a story”; he must form a complete sentence, however short it may be.

In learning to count, actual wooden blocks are used. Take a class of six young pupils, who have learned to count as far as five. The teacher begins, "I have five blocks, two, and two, and one," separating them into these numbers. "Now I hold one more. How many blocks have I now?" Several hands are raised. "Well, May?" "Seven," answers the confident May. "How many of you think that May is right? None. Well, Georgie, tell us about it." "I have five blocks, and I add one, and have six." "Six what?" "Six blocks."

"How many noses have we around the table? Well, Willie?" "Eight." "No, we will not count our visitor. Tell me something about it." "I see seven noses." "Now we'll all go to sleep." The little heads all bend down, and the teacher removes two blocks. "Wake up and find something." Every eye is on the blocks. "Tell us about it, Jamie." "There were six blocks and two have been taken away." "How many are left, May?" "There are four blocks left."

Thus the lesson proceeds with concrete numbers. The children SEE the numbers. They do not merely hear words, the objects are before them first. But they have embodied each newly found idea in words of their own. Though quickly acquired, it is fixed in the memory. The class is now weary. A little change will rest them. The teacher leads in a merry song and a brief play, and then all are ready for fresh work.

The whole school is now called up. Their lesson will combine grammar and arithmetic, and at the same time exercise their imaginative faculties. The teacher writes a number of simple sums on the blackboard. The pupils are to match and explain each one of these sums with a story. A dozen eager hands are up. "Well, Leona?" Leona rises and says: "I was walking in the lane, and I found two butterflies, and then I saw two more, and that made four butterflies." "Very well." The teacher puts the answer under the proper example, and then calls another child. "I had two yellow apples, and my brother gave me five red ones, and then I had seven apples." The whole school is interested. Each one is eager to tell a story and win one of the sums.

Suggestive whispers are freely allowed. The little inventive brains soon capture the entire board with exactly fitting stories. Now the exercise is changed to work in subtraction, and the answers are in stories as before. The children form their answers from their own range of experience, in the house, the field, or the street. They are encouraged to name the properties of the objects which they use to make their answers. They do not merely say "apples," but "red apples."

Let us try a class in fractions. They deal with dividing objects. And the first thing must be to let them see the division take place. The class is seated around a table, and before each is a lump of clay. Each one pats his lump down to a square cake. The cake is now divided into two equal parts, and these are again divided and their size and weight are compared. They see the meaning of wholes, and halves and fourths, and they state these distinctions in words.

In the same way they study the addition of fractions. One child's cake is divided into eight parts, then four are taken away and half a cake is added from another cake. They see at once that putting together one-half and four-eighths make one whole thing. They have learned a real fact, not a mere string of words in a book. Now they are ready for a diagram. They draw four white bands on the blackboard. Then they divide these by cross lines in red, and subdivided them by lines of green. Tracing the colors through each band, the pupil sees the exact relation of halves and fourths to the whole.

A class in geography is before us. They are to study the geography of Great Britain. They choose one of their number as a scribe. They have already read its description in their text-books. A table is before them with a pile of brown molding sand. They must first spell out the name of the country, and, as they proceed, all the important words of the lesson are spelled, and written by the scribe on the blackboard. They are to study the surface, with its mountain ranges, its plains, lakes and rivers, and its indented sea-coast, by molding all these in the sand. Each pupil contributes some fact on these

topics, and gives his fact expression by shaping the pile of sand.

The general form of Great Britain is first made in outline. Then this outline is modified by molding its edges into capes and bays and the interior into mountains and plains. If a mistake is made, either in describing any part, or in molding its form, the class take a vote to see if a majority can correct the fault. In one lesson they are able to construct a complete map in relief on the table. They have touched almost every topic in geography. Where sand would not serve their purpose, they have helped themselves out with modeling clay.

Once they would have been merely taught that "an island is a portion of land entirely surrounded by water." But these children take a lump of clay and are taught to make a little clay island on the table. This table has a slightly raised rim, so that they can actually cover it, and surround their island with water. The table itself may be painted blue, to represent water, and then the land is appropriately shown by the brown sand.

Let us still further illustrate by a reading-class. They are taught in a way which impresses them with the truth that "reading is simply talking or speaking out of a book." Each pupil has a book, and is required to first read his sentence over in silence, and then to look up, and with his eyes off the book he must repeat the sentence in a natural manner, as if he were only talking to the teacher.

This lesson done, they turn back to a previous lesson and reconstruct it in their own words, sentence by sentence. This cultivates their language, their powers of expression and analysis. They may now take a picture and translate its story into words. One says, "I see a dog." "The dog is an animal," adds another. "The dog will bark at the hen." Each child contributes his eager mite to the description, until it is done.

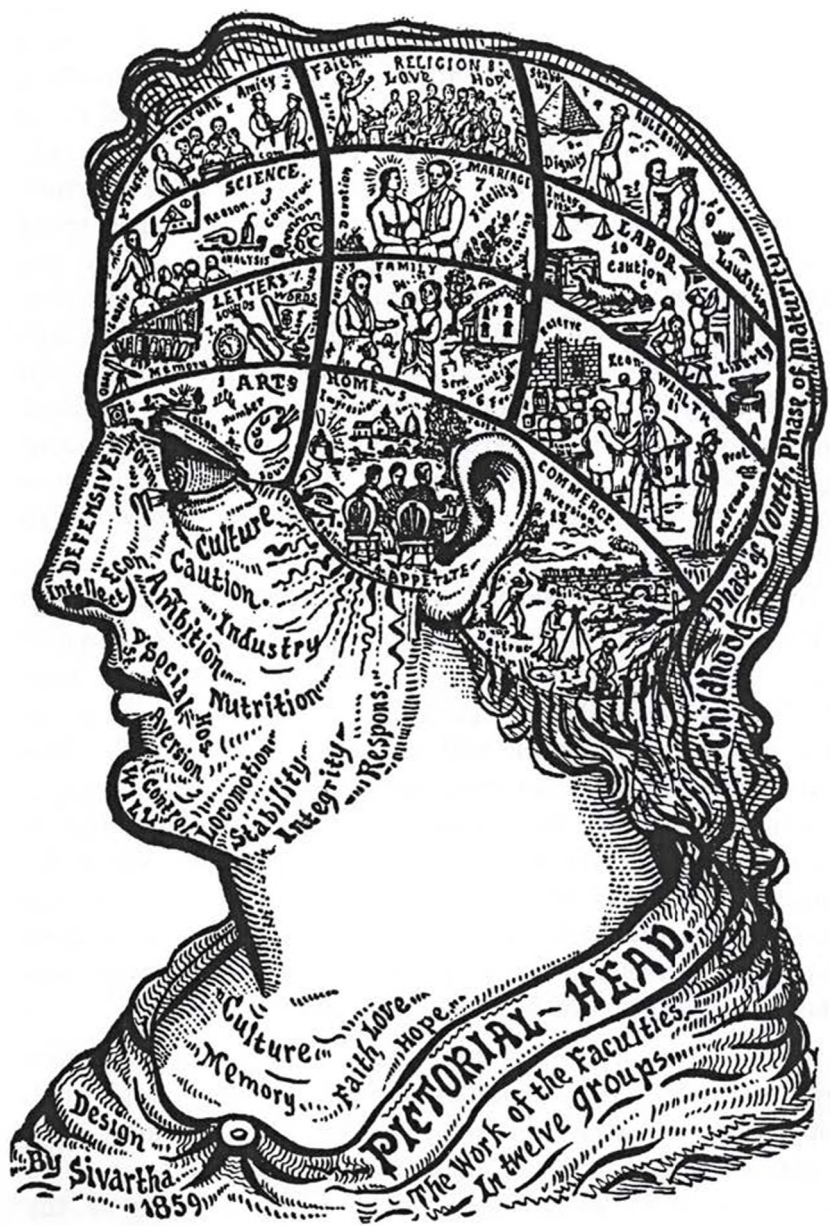
We speak to all the senses of the child. These are the doors through which all his materials of knowledge must come. To him this world is a concrete world. It is made up of things. All truths are embodied. They have an outward clothing

of substance. Analysis may distinguish separate properties; we may consider the color of an orange without paying any attention to the fact that it is spherical. Only in this way can knowledge be abstract. It is in this world of objects that the keen senses and active imagination of the child are perpetually delighted. It is to bring this objective world within the schoolroom that we invent the color-balls and blocks, the tablets and weaving slats, the paints and patterns and leaves for the younger pupils. It is for this that we organize the training shops for the older hands and brains.

Now this is the very method which has already proved successful in the highest scientific classes of the universities. The specialists are there required to study by direct contact with the objects. The chemical student must actually combine chemical substances; the student of mineralogy must handle and fuse minerals; and one studying zoology must examine and dissect animals. The same method can be used with success in all the grades of study. It vitalizes and fills each one with fresh interest.

SYSTEMATIC CULTURE.—A still more vital part of our subject must now be considered. It is how to arrange all the school studies so that they will secure the systematic and daily culture of every mental faculty, and thus develop the character into complete symmetry. This is the very center of a true education. We have described the way to make knowledge attractive; we have now to learn how it may be made the high and successful instrument for the integral culture of man.

The object of the school is to fit the child to become a valuable member of society. How much of this work of preparation shall the school undertake to accomplish, and how much should be left to the family and other influences? Our answer is given by certain basic laws of man's nature. We look into the marvelous brain of man, and we see that the radiant lines of all its organs are united in two common centers of action. They were all made to work together. If



we attempt to cultivate a part of these, and leave the rest untouched, we shall violate a fundamental law of the mind.

All scientific men are now agreed that the mind consists of three great classes of faculties. These are the Intellect, the Feelings and the Will. They further know that in mental action the feelings are the starting point, while the intellect and the will are the instruments employed in gratifying them. For example: The sensation of hunger arises in appetite, one of the feelings; but in order to satisfy this hunger we must use the intellectual faculties to remember about food, to reason about how we may get it, and to guide us in the search. Then we must use the faculties of the will in procuring, preparing and eating the food. If my friendship is excited, I must perceive, remember and think about my friend through my intellect, and my will must then move my muscles to express my feelings of friendship in words or in deeds.

Every feeling is governed by this law of interdependence.

Even religious feeling is fully subject to its imperial sway. Wisdom and will are the natural servants of love. The brain is so constructed that each time the feelings are excited the intellect and the will are inclined to respond. This is the natural law of internal harmony, from which none of us can escape. We may attempt to break the law; but in the end it will break us; we had better obey it. While the normal law is that of responsive action, it is true that the intellect and the will may both be excessively used without involving the feelings to any great extent. But nature exacts a heavy penalty for such one-sided action.

Now let us apply this basic law to education. We see clearly that we can not rightly succeed in training the intellect without we also train the two other departments of our mental nature. Yet the schools of civilism have attempted to accomplish this absurd thing. The direct bearing of the studies and the methods pursued in our schools, so far as training is concerned, is upon the intellect alone, and chiefly,

too, upon its two lower groups, perception and memory or letters.

In the higher grades of schools and the colleges, some little attempt is made to address the reasoning faculties. Day after day a part of the intellect is brought under the stimulus of systematic exercise and study, while the emotions and the will are only appealed to in a slight and irregular way. The pupil must exert his will to preserve order in the school room, and to keep his mind fastened upon his studies. That is all. Once a week the Sunday school or the church will spend an hour in appealing to his religious group of faculties. Three groups of mental powers out of the whole twelve are thus brought under somewhat systematic influences. The other nine, three-fourths of the whole, are left to develop as best they may, under the irregular, accidental and unorganized influences of the home and the playground.

But an imperative law of brain-growth tells us that the conditions which are supplied to each faculty will determine its amount and kind of development. We know that in civilism when the child is a man, and enters upon manhood's duties, his intellect will act with consistent clearness when he applies his knowledge of arithmetic, of geography and of writing. In these they have educated him, and he will not say that twice two are ten, or that a triangle and a circle are the same thing. But we also know, with fearful certainty, that in his social relations, his industry, and his politics, his life will be as uncertain as its one-sided schooling promised. At the end of his days, he will write over the record of these two parts of his life the regretful words, "disappointment and failure." He may say that it is the common lot of man, but it is also the common and logical result of a grossly deficient system of education. The tree of life in Civilism has borne the astringent, wild apples of discord.

NATURAL METHODS. The laws of mental unity require that we should cultivate the intellect, the feelings and the will in concert. The school must organize the intellectual, the social and the industrial or physical life of the child. One hour

of each day is given to the direct culture of each group of faculties, taking them in a natural order of response and succession. We regulate the entire life of the child. His plays are turned into instructive means of mental training. The whole school is formed into groups, and each group has an elected leader, who helps to direct its studies and its plays.

In all this we are guided by a great natural law. For the young of all animals, man included, attempt to do in sport and play just the kind of things which they are going to do as the serious business of life when they reach adult years. The young kitten chases a ball, watches it and springs upon it as though it were a mouse. The incipient mouser is there, struggling for utterance and discipline. The lamb does nothing of the kind, but he skips and wanders about, betraying and preparing for the ultimate grazing occupations of his mature kindred. The little girl plays at keeping house with a doll; the boy must have his horse and wagon.

Now we can easily take these instinctive tendencies and organize the plays of the child so that they shall be important and successful means of teaching. And after the fifth year they may become more or less productive to society. It does not satisfy the child that all of his plays should be abortive and none of them real. Many light industries can be so organized that they will be in every way attractive to the unfolding mind and the developing physical system. But no employment and no study must continue long at a time. Frequent change of thought and action is the law of rapid and normal growth for childhood.

The engraved model of the school will bring this plan for integral culture vividly before the mind. The special hours for the culture of each group are here given in figures, and three of the principal studies are indicated. In the table of studies one hundred and forty-four divisions of these are given. The studies are classified with reference to their distinctive influence.

Commencing at five or six o'clock in the morning, we take up the sensitive or Domestic group. We spend the hour in

teaching the pupils the art of bathing, toilet and dressing, with the effects of different kinds of clothing, in its material, color and form. Second, we teach them the art of eating, including the subjects of odors, flavors and digestion; and, third, we instruct them in house cares, cooking and table serving. All these studies tend directly to stimulate and develop the faculties of the domestic or Home group. The next hour, from seven to eight A. M., the Art or perceptive group is the object of culture. Here we use geometry, arithmetic and measuring; we teach the elements of drawing, painting and penmanship, and we give object lessons in geography, botany and zoölogy. These studies tend to develop the perceptive faculties.

In this way we proceed with all the twelve groups, giving an hour to each one, taking them in the responsive order of their mental action. As an example of these responses, consider the groups at the base of the brain. The sensitive or domestic group stimulates us to make houses and other buildings. In these, Art can produce her works, and then Commerce responds to art and distributes her products to foreign countries, and brings back their commodities in return. If we had no houses or buildings, there would be no art or commerce. These responses belong to all the groups, and determine the order in which the studies succeed each other.

As far as possible, each faculty is cultivated through its own proper objects of action, and not simply through verbal instruction. Thus the friendship of a child is cultivated by its doing friendly deeds; its integrity by showing it how to treat its fellows justly, and its construction by teaching it to make articles of use and play. A child learns naturally by seeing others do things as well as by the trial of its own powers. It must form its abstract ideas from seeing them exemplified in concrete objects. During the first ten years of the child's life, the chief instruments used in teaching are object lessons, conversations and industrial plays. The table of studies gives a sufficient guide for subdividing the many topics required in the detailed work of the school-room. Each

text-book must contain a more extended analysis of its special subjects.

When we are in the act of reading, the intellect is chiefly exercised. But when listening to a conversational lecture, the voice of the speaker naturally excites our social faculties, and the speaker and hearer are in social sympathy. The gestures and experiments address our volition. This form of instruction, uniting the mental and the physical, is therefore the highest of all, for it addresses all three classes of faculties at the same time.

This ideally perfect plan gives four hours a day for intellectual, four for social and four for industrial culture. The four groups of Rulership, Labor, Wealth and Commerce exert their influence directly on the muscular system, and their culture therefore belongs to the physical side of education. Yet more or less labor is used as a means of teaching in the other groups. When night comes we are certain that every faculty, in every one of the pupils, has been brought under systematic training. We have not proceeded by guess work nor relied upon good fortune. We have instituted a direct relation and correspondence between each part of the school, and the plan of the human mind. In no other way can we secure integral culture with certainty.

It is not "moral education," or "technical education," or "intellectual education" that we need. None of these partial remedies will answer the pressing demands of this age. It is integral education alone that can save civilization from social paralysis, from intellectual dry-rot, and from industrial convulsions. When all the twelve fruits of the tree of life shall have a true culture, then indeed will their rich flavor bear the strength of healing to the nations.

The studies in our table have been arranged with direct reference to their bearing on the practical departments of actual life—art, letters, science, culture, religion, marriage, familism, home, commerce, wealth, labor and government. All these are the concrete realities of life; they touch the ques-



PLAN OF STUDIES.

NORMAL METHODS, SYSTEMATIC CULTURE, PHYSICAL TRAINING.

Group of Home, 5 to 7 o'clock. ART OF DRESSING—bathing, toilet and costume. ART OF EATING—flavors, odors and digestion. HOUSE AND FIELD—house-care, messages and field culture.

Art Group, 7 to 8 o'clock. MATHEMATICS—geometry, arithmetic and measuring. GRAPHICS—drawing, painting and penmanship. OBJECT LESSONS—geography, botany and zoölogy.

Commerce Group, 8 to 9 o'clock. ENGINEERING—civil, mechanical and locomotive. FERTILITY—textile culture, fertilizers and stock-raising. COMMERCE—distribution, traveling and transportation.

Familism, 9 to 10 o'clock. LEARNING—obedience, guidance and study. AMUSEMENTS—plays, festivals and work. SERVICE—waiting, altruism and patriotism.

Letters, 10 to 11 o'clock. HISTORY—civilization, biography and chronology. LANGUAGE—grammar, speaking and music. PUBLICATION—books, newspapers and correspondence.

Wealth, 11 to 12 o'clock. FACTORIES—order in work-tools, and machinery, fictiles and textiles. ECONOMICS—expenses, ownership and exchanges. STORAGE—providence, warehouses, harvesting.

Marriage, 12 to 1 o'clock. DUALISM—sex-structure, floration and rites. HEREDITY—transmission, permanence and variation. LUXURIES—recreation, caressing and pleasures.

Science, 1 to 2 o'clock. LAWS—logic, mentology and rules. BEAUTY—esthetics, symbolism and adornment. SCIENCE—mechanics, cosmology and dynamics.

Labor, 2 to 3 o'clock. JUSTICE—rights, duties and penalties. UTILITY—labor groups, industrial plays and trades. ENVIRONS—climate, forestry and horticulture.

Culture, 3 to 4 o'clock. HOSPITALITY—entertainment, conversation and friendship. REFORM—discoveries, teaching and adoption. MANNERS—mimetics, morality and elocution.

Rulership, 4 to 5 o'clock. LEADERSHIP—authority, training and ranks. ELECTIONS—voting, grouping and transferring. DISPLAYS—standards, exhibitions and processions.

Religion, 5 to 6 o'clock. WORSHIP—ceremonies, spirituality and belief. UNITY—philanthropy, interchanges and discipline. ENTERPRISES—reclamation, improvements and undertakings.

tions of our daily happiness; they sum up all the vital interests of the individual and of society.

If we arranged the branches of study purely with reference to their intellectual relations, we should simply adopt the classification into Art, Letters and Science, with the various subdivisions of these, such as grammar, history, geography, dynamics, etc. But these common divisions of knowledge do not correspond to its use in the actual work of life. They are theoretical rather than practical. They are of value, because they show certain and extensive relations which exist among the laws of nature. The arrangement of text-books with us is a matter of more importance than it was in the old methods, although we no longer depend upon our text-books exclusively. Extended tables of analysis have been prepared, and these show the minute classification of every branch of human knowledge. They include all the words and all the ideas which have been expressed in language. These tables serve as a guide in studying any and every subject.

If we were to have only six hours of school per day as at present, then we would give half an hour to each group, instead of an hour. This, of course, would be much less thorough and complete, and much greater prominence would need to be given to some branches than to others.

Our system must be adapted to the successive phases of life. In the first years of childhood, the lower faculties are dominantly active; they are ruled by sensations, perceptions and impulses. As life advances, successively higher organs come into prominent activity. In the home or common school, the children under ten years of age form three groupets or classes, of art, home and commerce. The youths from ten to fifteen form three groupets—letters, familism and wealth. Those from fifteen to twenty-one years form the six groups, of science, culture, marriage, religion, rulership and labor.

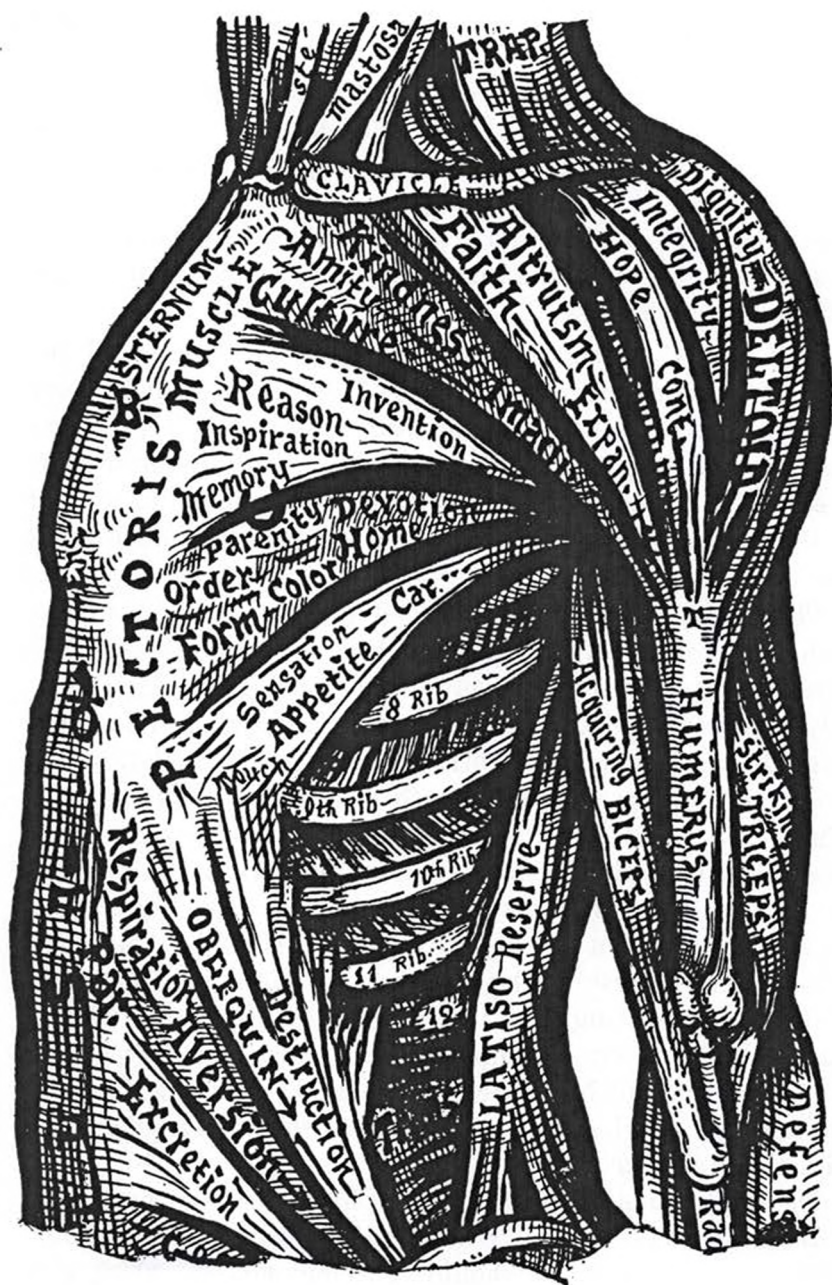
As some children develop faster than others of the same age, this limit of years must be varied somewhat in different cases. The children are grouped as far as possible according to their characters. Those with ambitious faculties dominant

are placed in the group of rulership; those with large reasoning organs form the group of science, and so of the rest.

There are truths belonging to the higher faculties which are so simple that a child can understand them without difficulty. There are other truths which make a vivid impression through their symbols and ceremonies. It is chiefly through these that the higher faculties of the child must at first be cultivated. The symbols of religion may impress a child of three years. At seven he may form some idea of his relations to the human family from that which he bears to his brothers, sisters and parents. The community itself is only an extension of the family, as the history of our race abundantly teaches. We would teach the laws of sex at first from the study of flowers and fruits.

At the age of fifteen years the character and tastes of the youth have been well studied by his teachers; he has learned the use of various tools in the workshop or on the farm, and hence he is ready to choose his profession for life. So far, the studies have been similar for all the pupils. They have included such facts and principles as all classes of persons will find of use as they pass through life. There are truths in chemistry which are of value to us, no matter in what employment we may be engaged. The laws of health must be understood by us all, or we shall be constantly falling a prey to disease. Each one of us must take care of his own body. The laws of dynamics enter into almost every pursuit of civilization. There are many tools which every child should learn to use. The laws of society require a constant obedience from its members, hence they must learn these.

A series of primary text-books could cover these essential parts of universal knowledge, and yet not be so elaborate but that they might be mastered by every pupil in the course of study and the amount of time allotted in the common school. These text-books would include separate treatises on geometry, spacies, arithmetic, chemistry, cosmology, dynamics, mental science, physiology, botany, language, æsthetics and hand-craft. These books should all be planned together and with



reference to each other, although the separate treatises might be written out by different authors who were skilled in each branch.

The youth now makes a choice of some trade or employment, and, taking up the special and elaborate studies which belong to it, he follows these until his graduation at twenty-one. During these years he is under the direct practical instruction of teachers, who are masters in his chosen employment. It will be observed that this system applies, and is alike adapted, to both sexes.

PHYSICAL CULTURE. The education of the brain and the body must be carried on together. They are related by very definite laws of responsive sympathy. Physiology proves that each part of the brain exerts a controlling influence over some one special organ of the body. From the summit of mental to the base of bodily life, we have a sympathetic and responsive scale of forces.

The brain, the face and the body, each contain a similar scale of powers, pitched upon higher and lower keys. The mind does not dwell exclusively in the brain. Each mental faculty also uses a specific part of the face and body as its instrument of expression. The entire class of intellectual faculties act in responsive sympathy with the nervous system as a whole. The social faculties, the realm of feeling or affection, does the vital work of organization and growth in the development of society. In a similar way, and on a lower scale, the organs of nutrition in the body, the heart, lungs, digestive organs, and the rest, do the vital work of taking the materials of life and organizing them into its complex structures. Affection is thus in close sympathy with nutrition. The four groups of the will lead directly to action. But this involves the muscles, and hence these faculties are in direct sympathy with the muscular system.

The application of all this to the physical side of education is readily seen. When we wish to cultivate the groups of rulership and labor, we should use employments which call the muscles of the arms and shoulders into action. The

muscles of the thighs and legs are used while training the group of commerce. Strong muscular labors would be out of place while cultivating the higher social faculties, for these are related to nutrition. Thus we have a definite guide in classifying the physical exercises of the school. It is not enough that all the muscles be called into action. The various systems of gymnastics accomplish that. But these systems do not secure the responsive action of the mind. They attempt to employ the body alone. And in this they violate a fundamental law of physiology. The mind and the body should exert their force in the same direction at the same time. In our system, we substitute real labors for the fictions of gymnastics, and we make these labors attractive by arranging them in accordance with the laws of mental harmony. But it is true that more or less physical exercise is used when we are cultivating the other groups. Yet in these the muscular side is not a leading element.

HIGHER SCHOOLS. Such is the plan of integral education for the common school. The college and the university have the same plan on an enlarged scale. But with this difference, that every one of the twelve groupets in these has a male and a female teacher, and there is over the whole a President and a Presidess. The course of study in the college would preserve the same order as in the school, but each subject would be entered into far more elaborately. The university course would carry these studies still higher.

The school is presided over by the Teacher and Nurse, assisted by the members of the Family groupate, and these become the twelve sub-teachers of the school.

THE COLLEGE. In each county one entire society may be devoted wholly to education, and it is then called a College. Its twenty-six officers all become its theoretic and practical teachers, and its members become the assistants of these teachers.

The Centers of the College are Master and Mistress.

THE UNIVERSITY. This is the highest of all the grades. Students may be admitted to the Universities only who have

passed through the Colleges. The average age of entering the College would be twenty-one years, with a three years' course for those who were preparing for the University, and an additional year for those who go directly from the College into the duties of practical life.

The central officers of the University are called the President and Presidess.

CULTURE IN MATURITY. After the youth has left school he still finds the means of integral culture around him during life. The school furnishes a model for the orderly succession of daily employments among the adult members of society. They also give an hour of each day to each one of the group-ates, taking up their labors or employments in the same order as shown in the diagram of the school, or else in some polar order. In every society regular courses of lectures and discussions are held, in which systematic explanations are given on art, philosophy and science, with all the new discoveries. The school is a home, and the home is a school. Our education is perpetual.

The Sabbath of the Israelites was a type of this arrangement. They set apart a special time for the culture of the religious group of faculties. The law given above completes the ancient type, for it gives a special hour to each group of faculties, and makes each day a consecrated Sabbath of work, rest and unity.

UNIVERSAL LANGUAGE.



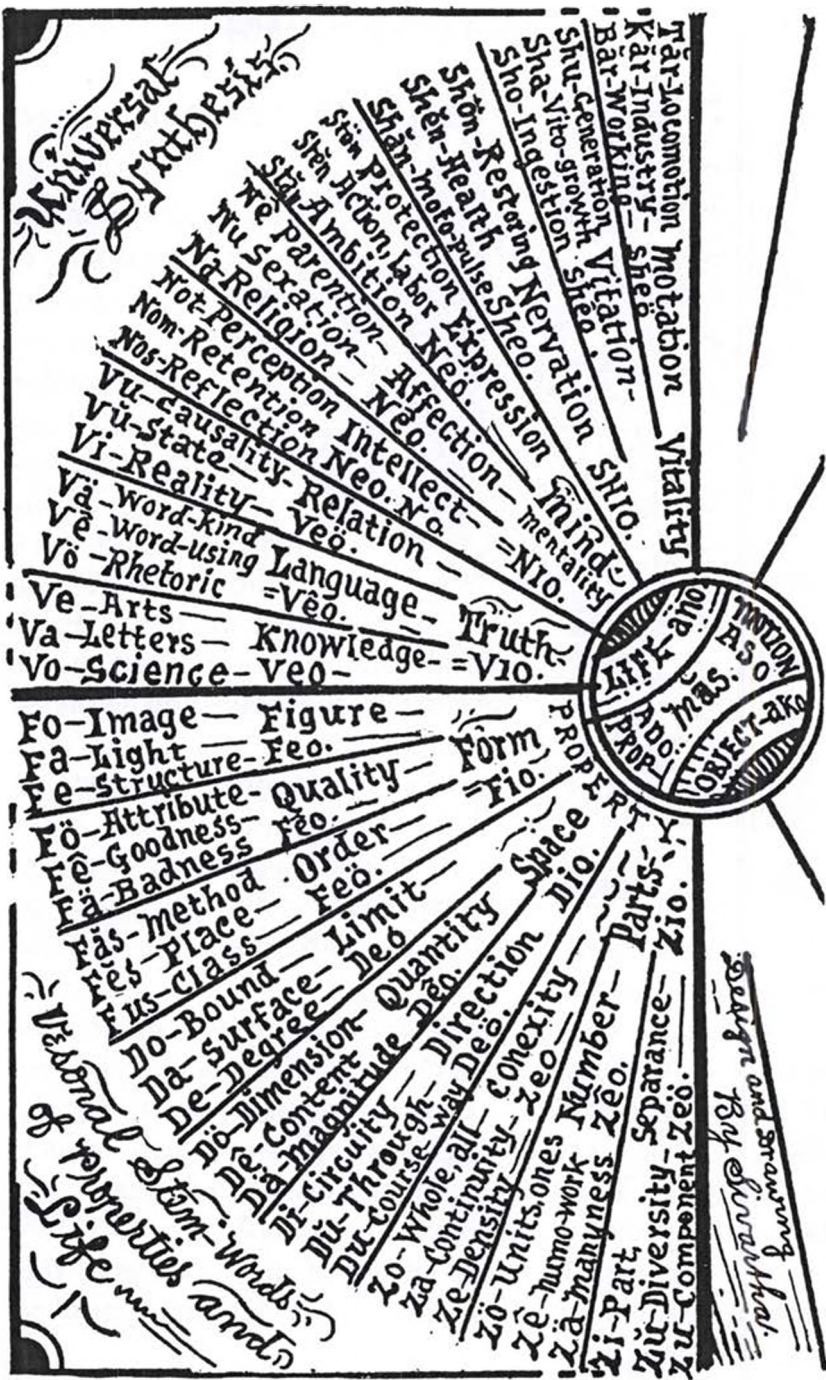
Vesona or Universal Language is based upon the natural meaning of the vocal sounds. And in its structure we combine these sounds according to the inherent laws of human thought and the universal laws

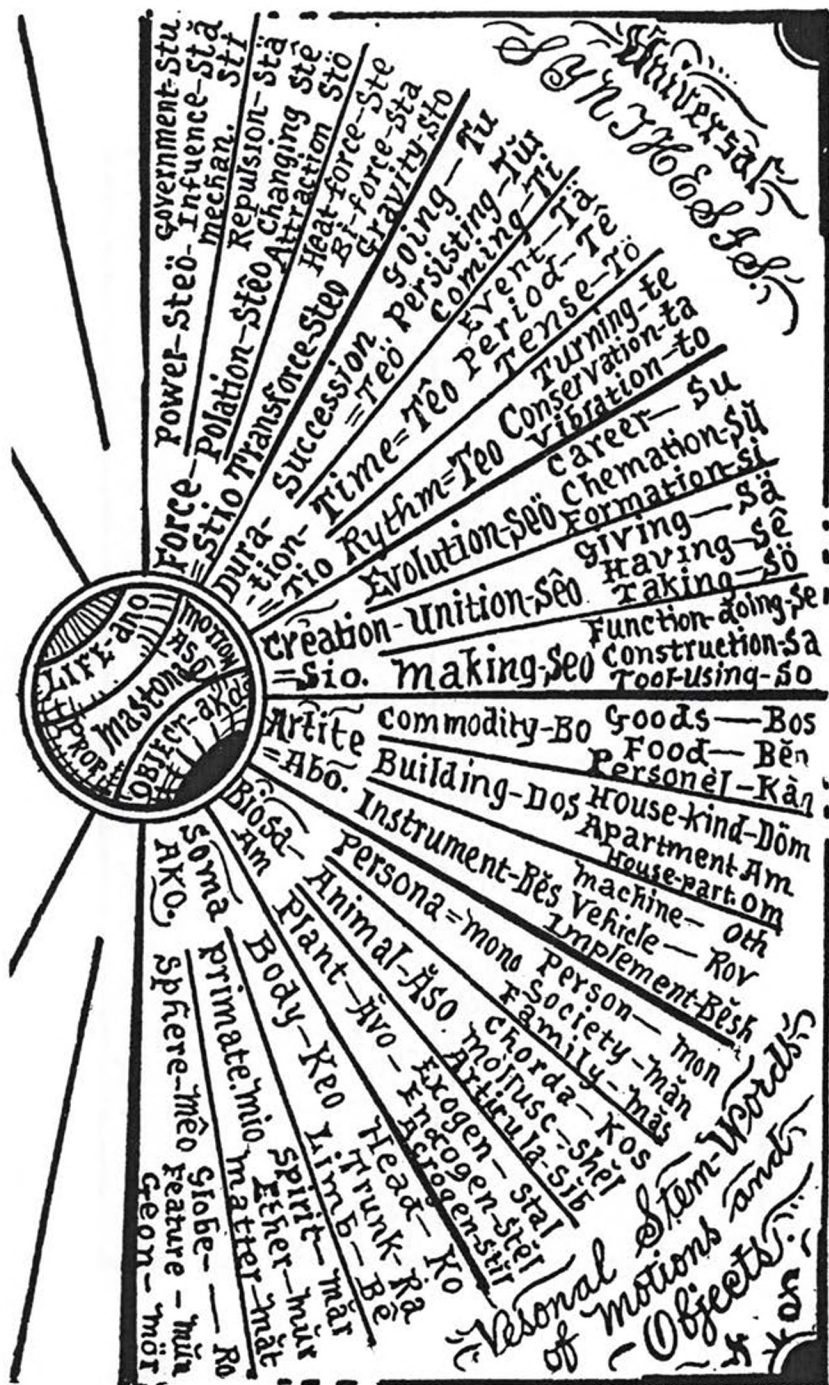
and analogies of nature. Each vocal sound is produced by a gesture of the voice and is therefore subject to the same laws that give meaning to gestures of the hands and limbs. And every sound is composed of waves which have a definite shape or

character. These two facts determine the natural meanings of sounds.

We make a circular diagram in twelve great sections and in these we include a Universal Synthesis of human knowledge. It is arranged so as to display those relations and analogies which unite each branch to the rest. The table of stem-words and the extended tables carry out these sections in detail.

The first two or three letters of any word give the general meaning. And the added letters specialize these meanings.





—one | sed = The Duzenal Measures

With its 7 Factors, 12 is the true Radix. 8. x.

Linear Measure.

1-12 of an inch = 1 sid
 12 sidx, 4 inch = 1 sed
 12 sedx, 1 foot = 1 sad
 12 sadx = 1 sod
 12 sodx, 144 ft = 1 sed
 12 sedx, 1128 ft = 1 sad
 1 mile - 96 ft = 1 sid
 3 inches = 1 sede
 6 inches = sedä; 6 ft = sadä

Surface or Square.

1-12 inch sq = 1 fid
 12 fidx sq = 1 Fed
 1 sad sq = 1 Fad
 1 sod sq = 1 Föd
 1 sed sq = 1 Fed
 12 sedx sq = 1 Fad
 1 mile - 96 ft sq = 1 Fid
 1 yard sq = 1 Fed
 27 inches wide = 1 Fede.

Cubic Measure.

1-12 of cu. inch = 1 kid
 1 cub. inch = 1 ked
 12 cub. inches = 1 kad
 144 cu. inches = 1 kod
 1 cub. foot = 1 ked
 12 kedx = 1 kad
 13 kedx = ^{kedel} (kus)

Units of Weight.

1-12 cu. in. Water = 1 Bid
 1 cu. in. 952 gr. = 1 Bed
 12 c. in. = 1 Bad
 12 Badx (5 lbs) = 1 Böd
 1 cu. ft. = 1 Béd
 12 cu. ft. = 1 Bäd
 3 Bädx = 1 Bäd

Units of Time, n.

1 second (pend.) = 1 Tin
 60 sec. minute = 1 Ten
 5 minutes = 1 Tan
 12 tanx. hour = 1 Ton
 12 tonx. (day) = 1 Ten
 Day and night = 1 Tin
 30 tinx, 1 mo. = 1 Tin
 12 tinx + 5 days = 1 Tan

Units of Work.

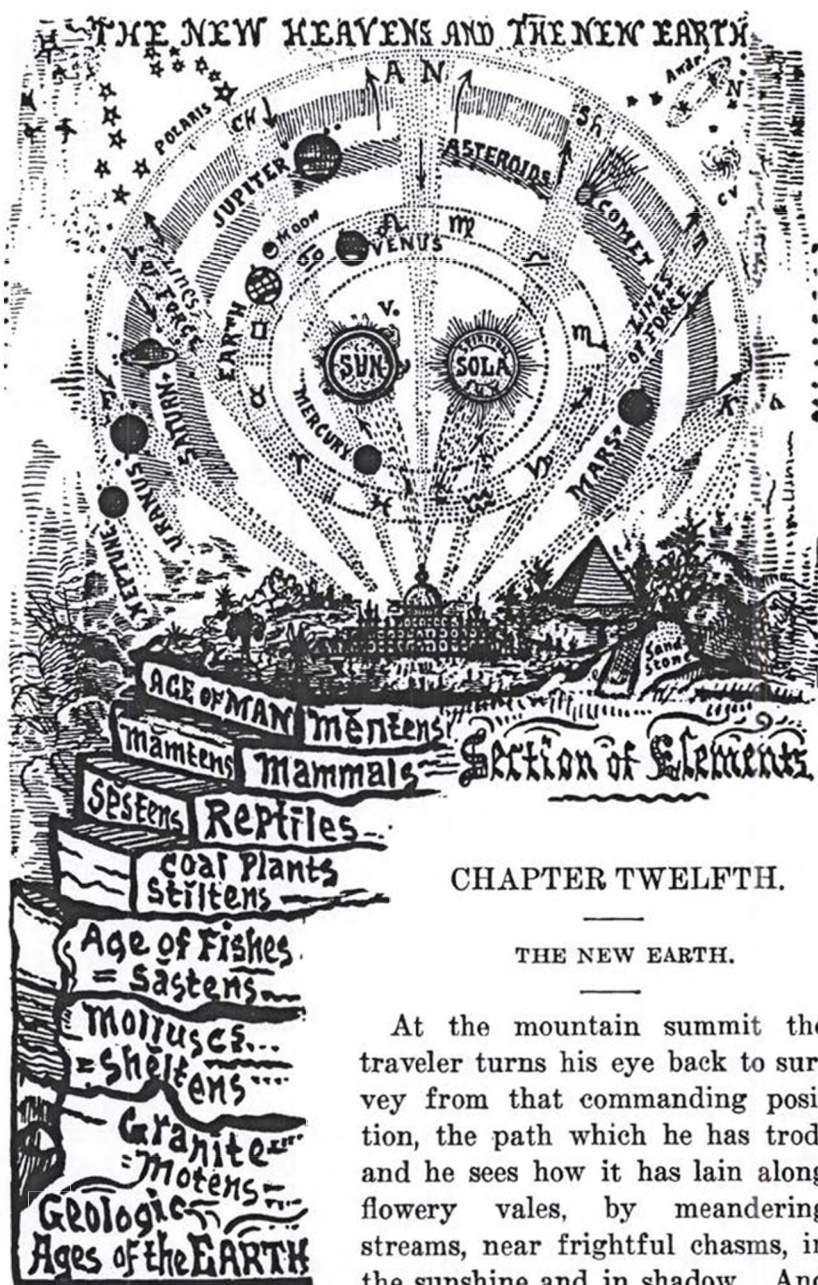
5 minutes = 1 sid
 1 Hour of Labor = 1 sed
 1 hours, day = 1 sad
 Horse or mech = 1 stöd
 Heat 1 deg. F. = 1 sted
 Electrom = 1 städ
 Photome = 1 stid
 Velocity = 1 sted.



Düzenal Scale of Numbers.

The number 12 is a perfect Radix for Counting.

1=0z	13 axtö	25 exlö	37 öxtö	49 èxtö	61 äxtö
2=ax	14 axta	26 exta	38 öxta	50 èxta	62 äxta
3=ex	15 axte	27 exte	39 öxte	51 èxte	63 äxte
4=öx	16 axtö	28 extö	40 öxtö	52 èxtö	64 äxtö
5=öx	17 axtè	29 extè	41 öxtè	53 èxtè	65 äxtè
6=äx	18 axtä	30 extä	42 öxtä	54 èxtä	66 äxtä
7=äx	19 axtä	31 extä	43 öxtä	55 èxtä	67 äxtä
8=èx	20 axtè	32 extè	44 öxtè	56 èxtè	68 äxtè
9=ix	21 axti	33 exti	45 öxti	57 èxti	69 äxti
10=ix	22 axti	34 exti	46 öxti	58 èxti	70 äxti
11=ix	23 axtü	35 extü	47 öxtü	59 èxtü	71 äxtü
12=ux	24 axtu	36 extu	48 öxtu	60 èxtu	72 äxtu
<hr/>					
73=äxtö	85=èxtö	97=ixtö	109=ixtö	121=ixtö	133=ixtö
74=äxta	86=èxta	98=ixta	110=ixta	122=ixta	134=ixta
75=äxte	87=èxte	99=ixte	111=ixte	123=ixte	135=ixte
76=äxtö	88=èxtö	100=ixtö	112=ixtö	124=ixtö	136=ixtö
77=äxtè	89=èxtè	101=ixtè	113=ixtè	125=ixtè	137=ixtè
78=äxtä	90=èxtä	102=ixtä	114=ixtä	126=ixtä	138=ixtä
79=äxtä	91=èxtä	103=ixtä	115=ixtä	127=ixtä	139=ixtä
80=äxtè	92=èxtè	104=ixtè	116=ixtè	128=ixtè	140=ixtè
81=äxti	93=èxti	105=ixti	117=ixti	129=ixti	141=ixti
82=axti	94=èxti	106=ixti	118=ixti	130=ixti	142=ixti
83=axtü	95=èxtü	107=ixtü	119=ixtü	131=ixtü	143=ixtü
84=axtu	96=èxtu	108=ixtu	120=ixtu	132=ixtu	144=ixtu



so have we, standing upon the heights of wisdom, glanced over the history of the human race, marking its wonderful course, and rightly estimating the importance and the meaning of the great events which have distinguished its long career.

That career has often been compared to a journey, or to the course of a river. But with equal felicity and with the advantage of strict scientific truth, it may be compared to the whole life course of a single human being. Under that supreme analysis the great facts of history assume a consistent order. They indicate the successive steps through long ages of national growth, the upward path from the reign of beastly passions to the realms of spiritual light and goodness. With all its varying features, the upward march of humanity has been under the dominion of law. And the law assures us of the final triumph of all that is noble and good in man's nature.

In prophetic writings, as well as in common language, the power of the lower faculties and back brain are symbolized by the beast, the dragon, the wolf, the lion, the serpent and other lower animals, in which these lower faculties are ruling elements. The gentle qualities of the lamb, the horse and the dove, led to the adoption of these as symbols of the higher parts of man's nature.

The lion and the ox, the wolf and the lamb, the serpent and the dove, represent the polar organs of the human brain. In the engraved head of the Reign of Peace, the names of these animals are placed in their appropriate localities, and around these are the organs with underscored lines.

In the early ages of the world, and up to the time of writing this Book, the base and back brain, the lion and the wolf in man, have always devoured the lamb and its work. The Lamb in man, in all men, has been slain from the foundation of the world. But the prophets declare that in the age of the Messiah these shall be at peace, the wolf and the lamb, the lion and the ox, shall dwell in unity, and a little child shall lead them.

The child belongs to the Family group, where the parental, filial and patriotic faculties are located. We see on the head that its location is midway between the animals which are to be reconciled. The prophetic language is in a high degree figurative, yet to an equally high degree it is also scientifically exact and literal.

In the New Life of Harmonism, the organism of society is so planned that the lower faculties must always be subordinate to the higher ones. The once conflicting interests of society are then adjusted and balanced by fixed and natural laws of harmony. The fierce and selfish passions which led to war and oppression can no longer rule the nations. The whole character of these lower passions will be changed, softened, and directed to new objects by the higher powers.

The great Battle with the Beast is already begun. It is the conflict of both spiritual and material forces, of both institutions and nations. And woe to the statesman who puts on his followers the "mark of the Beast." And he does put his mark on them if he says that self-interest, or in other words, the beastly faculties, must rule in politics or in social life. The Cotton and Railroad Kings, the Merchant Princes and Bankers of Christian Civilization, have the same brand of darkness on their right hands.

The Seer of Patmos saw the word Mystery, in Greek, "Mysterion," written on the forehead of the great image of Babylon. The forehead is the seat of the understanding, the intellect, the eye of the mind. Hence a mark on the forehead must mean a mark on the understanding, in our intellectual conceptions of knowledge. The lower faculties specially delight in mystery, in secret methods, in great swelling words of vague import, in things which perplex our reason, and foil philosophy. In deliberately affirming and teaching "that the Doctrines of Religion are Essential Mysteries" not to be penetrated by the reason of man, in teaching and believing this, the Protestant, the Catholic, and Greek Churches have alike branded themselves on the forehead with the accursed

mark of the Beast and of Babylon. There is no other possible interpretation to this mark of darkness.

LAW OF SYMBOLISM. The process of Construction or growth always involves a succession of steps, taken in a definite order. Thus in the construction of a house, there must first be a foundation, and then the framework, the walls, the roof, floors, plastering, and finally the finish of paint and paper. In the growth of a plant, there is the succession of the seed, the plumule and radicle, the stem, branches, leaves, flowers and fruit. But conversely, the process of Destruction requires no regularity. We may destroy a house or a tree in a hundred irregular ways. We may burn it, or cut it down, or tear it in pieces, or let it perish by natural decay.

This great law, governing constructive and destructive processes, must apply fully to prophetic symbolism. Those symbols which refer to the formation of new institutions should be fulfilled with exactness of form and order. But those which refer to the destruction of old institutions and modes of life need never be fulfilled with any precision. In the latter class of symbols there are many monstrous objects, such as never had or will have a literal existence. The Great Red Dragon, the Beast with seven heads and ten horns, and such monstrous images, do not require an exact fulfillment. For they represent destructive things or events. In vain may commentators exert their wits to make these and similar figures fit the events of history with any sort of exactness. The law does not require it. These destructive symbols occupy four-fifths of the Apocalypse. The remaining fifth describes the Throne in Heaven, the People sealed in twelve Tribes, the New Jerusalem, and the Tree of Life. These have been the subjects of the present and of the preceding chapters. They all require an exact fulfillment.

It is as easy to distinguish between the figurative and the literal language of the prophets, as it is to distinguish these in the common speech of every day life. When the prophets speak of a great day of burning against the wicked, they no more mean a fire like that of wood and coal, than when we

now speak of "burning hate," "fiery passions," "getting into hot water." The figure of speech means that a force would be used sufficient to destroy the evil referred to.

When Yehovah declares that "the heavens shall be rolled together as a scroll" when Idumea was destroyed, in Isaiah 34th, and when David says that the "hills and mountains skipped," we need be at no loss to understand the import of these bold figures of speech. They were not more extravagant than the figures of speech in which men now indulge.

The laws of symbolism are exact, they are based upon analogies, upon fixed laws of relationship in the nature of things. No person can think of using a tiger as the symbol of mercy, or a fox as the type of candor.

"The wolf also shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together; and a little child shall lead them. And the cow and the bear shall feed; their young ones shall lie down together; and the lion shall eat straw like the ox. And the suckling child shall play on the hole of the asp, and the weaned child shall put his hand on the cockatrice's den. They shall not hurt nor destroy in all My holy mountain: for the earth shall be full of the knowledge of Yehovah as the waters cover the sea."—Isaiah, 11th chapter.

This beautiful and striking symbol is not to be fulfilled in a literal sense. The large carnivora, like the lion, the bear, the tiger and the wolf, will disappear from all parts of the earth, just as the bear, the wolf and the puma have already disappeared from many of the states of America. If the lion should live on vegetable food, he would cease to be a lion. As we have already said, this symbol represents what is to take place within the nature of man.

EARTHLY AND HEAVENLY. The seven upward pointing groups form the heavenly side, and the five lower ones form the earthly side of man's nature. Each of these two sides has twelve great personal types in the Hebrew Scriptures. In

this table the person who represents the earthly side is placed first in each pair:

Adam—Eve.	Ishmael—Isaac.	Caleb—Joshua.
Cain—Abel.	Esau—Jacob.	Eli—Samuel.
Japhet—Shem.	Reuben—Joseph.	David—Solomon.
Abraham—Sarah.	Moses—Aaron.	Aleyah—Alesha.

When the colors of the seven upper groups are mixed they produce light or bright tints. Those of the five lower ones produce darkness. The upper ones are called the seven Lamps, the seven Eyes of God, the seven Spirits. Through them comes the spiritual light of the mind.

THE CROSS was used as a symbol from the earliest ages. It occurs frequently in the ancient Egyptian temples, and in Arabia, Assyria, India and other countries. The manner in which it is used, and its surroundings, show in an unmistakable way the objects and ideas which it was intended to symbolize.

The studies of antiquarians and the whole history of Phallic worship proves that the cross in ancient times was used to symbolize the organs of Reproduction, the generative forces in creation and in man. When composed of straight lines it was a symbol of the masculine forces only; but with an oval at the top it formed a Yoni cross, and was used to represent those of both sexes. It was one of the most common of the hieroglyphs in Egyptian writing.

The great forces of nature are dual and polar. They are positive and receptive, repulsive and attractive, masculine and feminine.

These polar lines of force have a natural tendency to arrange themselves at right angles to each other, and thus they form a cross. This is a mechanical necessity, for every object must have at least two axial lines of construction, measuring its length and its breadth. This is seen in the axial lines of crystals; in those of the leaf and tree; in the axes of the organic cells and of animals; and finally the major and minor axis of the human brain give the highest example. This

cross measures the four great lines of movement, the celestial mechanism of the human soul.

The Cross is an eternal and universal reality. By this sign the world of life was built. And by this sign the world of death will be conquered.

The Cross is a symbol of life and not of death. The base genius of the ancient Romans led them to use the cross as an instrument of punishment. They would put the criminal out of the world by the symbol of that by which he came into the world; thus expressing the utmost contempt and ignominy. This was an extreme perversion of its true symbolism.

In Harmonism we restore the cross to its true place as a type of the dynamic basis or the polar forces of the universe. A cross composed of curved lines is adopted as the universal badge of membership. This beautiful symbol is figured in the initial engraving of the eighth chapter. Each arm of this cross is formed of a three-lobed leaf, and the material used is silver.

On a large scale, the cross forms the basic lines of construction in the New Jerusalem. In the earth itself the great lines of electric force run east and west, while the magnetic currents run north and south, forming a cross of magnificent proportions.

THE SERPENT has been associated with religious symbols from the very dawn of history. And this symbol is based upon a fundamental law of our physical life.

The back and base of the brain, the sphere of darkness and evil in man, are most closely associated in their action with the spinal cord. The serpents have the most extreme development of the spinal cord and these base tendencies. Hence they are the best possible type of these faculties in man.

The law of cephalization, as already explained in the seventh chapter, shows that the whole growth of organic life and human history has been a passage from the rule of the base and back head faculties to the rule of those at the top and front. The expanding brain means the contracting spinal cord. The spinal cord and its power is the serpent in man.

Man can rise higher only by tramping this power beneath his feet, by "bruising this serpent's head."

But under the influence of the higher organs of the brain the repulsive power of the spinal cord is used to repel evil things and conditions. It becomes a mighty power for good. It is the axis of uprightness in the just man. A good backbone is an essential element of moral strength and greatness.

It is not less necessary as the guardian of physical health, as a power to resist and throw off the causes of disease. What was once the cause and the instrument of evil in man, while it ruled him, is the very citadel of moral defence and the strong arm of health, when it becomes the servant of his higher nature.

It was with the extreme propriety of exact truth that the serpent was chosen to symbolize evil, and was associated with the Tree of Life in the beginning of man's sinful career. It was with equally exact scientific truth that Moses lifted up the serpent in the wilderness as a symbol of healing, and that the Messiah was called the good serpent, who was to bind and destroy the old serpent, the leader of the hosts of evil with his myriad followers in the animal nature of men. This is vividly described in the Apocalypse of John.

This truth of the Cross and the Serpent, like other truths explained in this book, is not less great and vitally important because of its scientific interpretation. It reaches and controls every human life.

THE NEW COVENANT. The Bible gives a very careful description of the kingdom, and represents it by types which have mathematical exactness. And Yehovah tells us, through Jeremiah, where the laws of the kingdom may be found, as we see in the following passages:

"Thus saith Yehovah, 'Behold, I will bring back again the captivity of My people Israel and Judah and will cause them to return to the land of their fathers, and they shall possess it, and the city shall be rebuilt upon her own heap of ruins, and the palace shall be inhabited after its ancient manner. Behold I will bring the remnants of Israel from the north

country, and I will gather them from the farthest ends of the earth. With weeping shall they come, and with supplications will I bring them in. I will lead them by brooks of water in a straight way, whereon they shall not stumble, for I am become a father to Israel, and Ephraim is My first-born.

“ ‘When that day comes,’ saith Yehovah, ‘I will make with the house of Israel and with the house of Judah, a new Covenant. Not like the covenant that I made with their fathers in the day that I took hold of them by their hand to bring them out of the land of Egypt, which My covenant they have broken, although I was become their husband,’ saith Yehovah. ‘That Mosaic covenant was written upon tables of stone, but this is the covenant that I will make with the house of Israel, I will place my law in their inward nature, and upon their hearts will I write it. And they shall not teach any more every man his neighbor, and every man his brother, saying, ‘Know ye Yehovah,’ for they all shall know Me, from the least of them, even unto the greatest.’ ”

Here we have the express declaration of Yehovah Himself that the laws of the Kingdom are to be discovered in the constitution of man. In the eighth chapter of this Book these laws are elaborately given. All other plans of government and society, ever yet proposed, were the inventions and devices of men. No man had ever before searched in the inner nature of man for the plan and laws of society. No one could therefore show a divine authority for the plan he proposed. Measured by this final and true test, all the past systems and professed attempts to fulfil the Messianic prophecies, are proved to have been vain delusions or impositions. And if any person claims he is the Messiah, and yet can not prove that the plan and laws of society which he proposes are a part of the very constitution of man, and therefore a transcript of the divine laws, and equally adapted to the people of all nations; if he can not prove this, then we may be certain that he is either self-deceived, or an impostor.

UNIVERSALITY. The laws and plan of the great kingdom must have the character of universality. They must be equally

adapted to the European, the Chinamen, the Hindoo, the Semite and the African. If its laws and plans bear the mark of local prejudices and customs, if they are the outgrowth of particular phases of the feeling and thought of some one nation, then they can not be the guide and standard for the common and universal conduct of the human race. The prophets assert with emphasis that the Kingdom will be universal and will take the place of all others, "covering the earth." It must therefore possess the qualities of universal adaptation. It must equally satisfy the rigid scientific analysis of the Englishman, the subtle speculation of the German, the delicate precision of the Frenchman, the expanding enterprise of the American and the warm imagination of the Asiatic mind.

The constitution of man, or the faculties of the human mind, are the same among all men. It is only in the degree to which these faculties are developed that men differ from each other in different nations and ages. The laws and plan of the kingdom are a true statement of that constitution, and therefore will never need to be changed, they will permit of the continued development of man through all coming times. And these laws having now been discovered, they will never need to be discovered again. The peculiar work of the Messiah will therefore, by its very nature, only require to be done once. In every age there must be great leaders and discoverers, but the work of the Messiah, once done, endures forever.

The Mosaic Polity undertook to establish the unity and fatherhood of God, and the rule of His laws, the unity of national and domestic life; civil liberty and political equality; an elective magistracy, with all officers responsible to their constituents; universal education with an enlightened public opinion; the sacredness of the family relation; and the inviolability of private and public property, sustained by universal industry.

It was for human good, for their own welfare that Yehovah made the provisions of the law. He declares of His own char-

acter that He is merciful and gracious, long-suffering and abundant in goodness; keeping mercy for thousands; forgiving iniquity, transgression and sin, and will by no means clear the guilty.

In that age, and with the small degree of knowledge which then existed in the world, the Mosaic laws were as well adapted to secure these ends as any which could have been given. At their conclusion, Moses declared that their binding force arose from their being found in the very hearts of the people, Deuteronomy, 30. 19. Harmonism aims to secure the same great ends. It is not a contradiction or setting aside of Mosaic laws, it is only that fuller and complete statement of them which is made possible by the enlarged spiritual growth, and the precise scientific knowledge of the present age.

It is Yehovah Himself who has said, through Jeremiah, that a new covenant should be given. And this word is as true as what He spake through Moses. It will be new in its fullness, its completeness, and its practical results. The Rabbis have taught that the 365 positive and the 248 negative precepts of the Mosaic law corresponded to the same number of parts which compose the human body. We know this is not the exact number of parts. Yet the chosen people themselves, in the number of their tribes and rulers, and their great national symbols, contained the identical numbers which are now proved by mathematics to constitute the framework and measure of the body and mind of man. The truth is even greater and deeper than the Rabbis imagined.

The Divine mind is threefold. It consists of Wisdom, Love and Will, just as the human mind is constituted. We may be certain that this trinity of powers exists, for man is in the divine image, and these form the mind of man.

The nature of the Divine Mind fits it for a system of government with parts and offices like those best adapted to the wants of human beings. We must reason here from analogy, for the names of the divine rulers who are directly under Yehovah are not revealed in the Bible. The four angels,

Michael, Uriel, Raphael and Gabriel, were and will be, especially interested in the establishment of Harmonism.

rites of the Law. In the ninth chapter the restoration of the sacrifices has been described. The rite of circumcision was a sign of the Covenant made with Abraham. The covenant engaged that the posterity of Abraham should forever inherit and occupy the land of Palestine, and that in them all nations of the earth should be blessed. When the Restoration of Israel takes place, and the Kingdom is set up, then that rite will be no longer required or be practiced, any more than we would continue to give the presents which were used to witness the title-deed, after we had taken possession of the property. The rite of circumcision mutilated the person, and so in being faithful to that covenant the Jews have been physically mutilated by their enemies, through numberless persecutions, down to the time of this writing, 1880.

RELIGION is the keystone in the arch of society. From the religious organs we trace the fibers down the minor axis to the brain centers, the motus and sensus. These centers are the common meeting ground for all the brain organs. At every waking moment of our lives the swift currents from front and top and back, from the intellect and feelings and will, from all these the currents meet and blend with each other in the two centers.

Here the nerve-force from each faculty modifies that which has come from the other faculties and that which will flow back to them. The soft, rounded waves of faith flow down to the centers. They return with a changed character, for they have met the sharply defined currents from reason, and now faith will no longer be satisfied with vague promises; they must be explicit and exact.

The currents which flow around the surface of the brain, through the cells, also carry the influence of each organ to every other one. No organ can escape from being affected by the rest unless it could burst the solid bony walls of the cranium.

Whatever our religion or theological belief may be, it will

be profoundly affected by our scientific ideas, or the want of them. It will be modified by the hand of art, by the pen of letters, by the want of the school teacher, by the system of government, the condition of labor, yea, by the very food we eat and the clothing we wear.

The true office of religion is to unite and harmonize all of the faculties, and thus bring the entire man into adjustment with the divine beings who are the spiritual centers of our universe. An imperative law of our nature declares that we can not have a true or a practical system of religion unless we also have at the same time a true system of education, a perfect form of government, a well developed science, a true form of marriage, an organized system of labor, and so all the way through all wants of society. All human wants are united by inherent laws of our nature.

The Bible declares that man is in the image of Yehovah. He must therefore have the same mental constitution, and if he fulfills its laws he will be obeying the laws of the divine mind. The laws of Yehovah are not issued like the mandates of an autocrat. They are in the inner nature of man.

The modes of Angelic life very much resemble our own. Every evidence goes to show that the spirit must have organs or parts like all those of the body; and this would fit them for the same great methods of existence.

Our relations with the spirit world can only be adjusted by harmonizing our relations with each other here, and for this reason it is not necessary to dwell at length upon this part of our subject.

Our communion with the angelic world takes place through the nerve-spheres, and the laws which govern these have been stated in the fifth chapter.

When the institutions of society are all in harmony with the nature of man, then the religious faculties will have full and free scope for the exercise of their beneficent influence. Our faculties and their laws of action will remain the same in all spheres of being. Science decides what forms of life are best adapted to our natures here, and, consequently, it

determines what the forms of life must be in a spiritual existence.

The faculties which compose the groups of culture, religion, sexation and parention have a most important law of social action. In the true and natural action of these organs, their nerve force flows out from one person to another as its object, and is then answered by a returning current from the latter person. Thus, when I exercise my Friendship, the current flows from this organ to my friend, and from his organ of Friendship a returning current flows to me. On the other hand, only four organs, and these are all low ones, have self as the first object upon which their actions terminate. Our high and true life must flow through that of others. We can maintain it only by perpetual interchange. We must look out and not in. The members of a harmonic society must be as vitally related to each other as are the parts of our physical organism.

If we are selfish and seek to draw everything to ourselves, we must, of necessity, contract our minds and our pleasures. Selfishness defeats itself. Expansion of the mind means outward growth, and this law explains its method. To give is the way to live. Through the social law which we are discussing, all humanity is made one, and we receive the full benefit of its common growth and advancement.

We are by nature social beings, and a universal sympathy may through this law unite all nations and communities in one vast, composite life. To effect this sublime result and give full sway to this beneficent law, the institutions and government of society must be formed in harmony with the nature of man, as already shown.

Humanity must be regarded as a unit, made up of the past, the present and the future. We all inherit the results of many centuries of human culture and improvement; and we should violate the deepest law of social unity if we did not labor for the present and the future welfare of humanity.

Great teachers affect the world profoundly, not alone by their doctrines and example, but also by the impartation of

the vital currents of nerve-force. They become, in a literal sense, the life and soul of great movements. It is perfectly natural that the affections of the people should center in these leaders. But that affection and reverence must never be carried so far as to blind us to the great truths which these leaders represent. Truth is always greater than Persons. It reaches through the universe.

It is the union of human lives that we are to seek; not the substitution of one life for another. The glory of Yehovah is to be attained, not by the absorption of all lives into His life, but by the union of our lives with His, and by our exemplification of the divine image in our persons. Yehovah is not supremely selfish, seeking His own glory for its own sake. The same unselfish law of love that should rule man is also a part of the divine mind.

Our most secret thoughts and emotions extend their nerve-force to our fellow-beings, and affect them for good or ill. Whether we are conscious of it or not, the effects are as certain as those of gravitation. We can not sever our relations with humanity. The good of one is in the good of all. To a great extent we must all rise or fall together.

We must directly seek to promote the welfare of others in preference to our own. But as we are a part of humanity, and others are to be governed by the same rule, the benefits of our unselfish conduct are reflected back upon ourselves, not only by their direct personal actions, but in the vast results of concerted social activities.

When we thus directly seek to promote the welfare of others, our actions are not selfish, although we may know that the ultimate result will be the securing of our own happiness. Those actions are selfish which are planned without regard to the welfare of others.

UPWARD AND ONWARD. The major axis of the brain is the great line of onward movement. The progress of the race must depend upon the intellect and knowledge as its direct instrument, and upon the embodiment of these in the works of industry. Religion is on the minor axis, which reaches

up and down. The natural tendency of religion, like that of all the other feelings, when not influenced by the intellect, is to desire stability without advancement. The whole realm of the social faculties is conservative. The human race can only advance truly when the upward forces of religion are united with the forward tendencies of the intellect, then our progress is both onward and upward. The realm of Affection is in sympathy with the organs of nutrition in the body. But nature does not make the upward progress of life in the animal kingdom depend upon the evolution of the organs of nutrition. But it does depend upon the process of perfecting the nervous and muscular systems of the animals, and these parts correspond to the intellect and the will. Therefore we know from a permanent law of our nature that the hope of religion as a saving power depends upon its union with science and industry.

MARRIAGE. The polarity of the sexes finds its most intense expression in the high and enduring attraction of Marriage. The mental force of sex-love has its focus of intensity in the group of Sexation, but it originates from and permeates every part of the mental and physical system.

All marriages must be based upon the existence and duration of mutual love and adaptation between the parties. Persons who do not love each other have no right to live together in this relation, for it derives its sanctity from love only. No ceremony and no legislative act can justify that which is a violation of natural law. The bond of union is internal, not external. We can not compel any one to love another; but we can repress its expression. If persons make mistakes in choosing their mates, they should be allowed every opportunity to rectify their mistakes, and form true unions.

Two persons who are united through Sex-love should also have their other faculties developed in harmony with each other. There should exist between sex-mates a sympathy of ideas, tastes and aspirations; and this sympathy may result from either similarities or complements of organization.

If a person have an organ somewhat deficient, he may make

WORDS OF THE TEACHERS.

Thou shalt love Yehovah with all thy heart, and thy neighbor as thyself. MOSES, 1492 B. C.

To those of a noble disposition, the earth itself is but one family. Religion is tenderness toward all creatures. HESTOPADES, VISHNU SARMAN, B. C. 1000.

The wise man avengeth his injuries with benefits. LAO-TZE, 604 B. C.

If thine enemy hunger, give him bread to eat; if he be thirsty, give him water to drink. SOLOMON, 1000 B. C.

Hatred does not cease by hatred at any time. Hatred ceases by love. This is the eternal law. DHAMMAPADA, 600 B. C.

The true doctrine consists in having the heart right, and in loving one's neighbor as one's self. Reciprocity is the one rule of practice in life. What you wish done to yourself, that do to others. KONG FU-TSE, 551 B. C. in Lun Yu, 15, 23.

All things whatsoever ye would that men should do to you, do ye even so to them, for this is the law and the prophets. JESUS OF NAZARETH, 31 A. C.

The love of all to all, is the moral rule of life. PYTHAGORAS, 500 B. C.

He who commits an injustice is ever made more wretched than he who suffers it. It is never right to return an injury. PLATO, 387 B. C.

As for the Truth, it endureth and is always strong; it liveth and conquereth forever more. It is the strength, the kingdom, the power and the majesty of all ages. ZERUBBABEL, 520 B. C.

To live, is not to live for one's self alone; let us help one another. MENANDER, 293 B. C.

Nature has inclined us to love men, and this is the foundation of the law. Justice devotes itself wholly to the good of others. CICERO, 30 B. C.

The moral condition of the world depends upon three things—Truth, Justice and Peace. RABBI SIMON, 150 B. C.

up or neutralize the deficiency by uniting with a mate who has the organ better developed. But persons of widely contrasted characters should not unite, for they would not see things in a similar light, and could not work together in that close sympathy demanded by this kind of love.

The same qualities which make a man and a woman adapted to love each other, also best adapt them to work together in the offices of society. Hence in a complete state of harmonism the two officers or workers of each pair are husband and wife.

The permanence of sex-love must be secured by carefully teaching youth, of either sex, the physical and mental laws of sex-harmony; by giving them opportunity to make an intelligent choice of mates; and by surrounding them after marriage with conditions which are favorable to its perpetuity and perfection. The Riteman and Matron are the leaders in securing these conditions, in each society.

The group of sex-love, or Sexation, is surrounded by the faculties of Integrity, Self-control, Imagination, Faith, Love and Hope. The action of all these faculties is constantly required to develop, perfect and sustain sex-love. These organs have the same location and sustain the same relations after marriage that they did before.

If we would make love perpetual, we must exercise it in connection with the full activity of these higher organs, and not allow it to be led by those at the base of the brain, by mere sensation and impulse.

In the most complete expression of love—the physical union of the sexes—the highest faculties of the mind must be called into dominant activity. If they are not, it will surely debase both parties, and the physical pleasure itself will lose the best of its sweetness and intensity. If impulse takes the place of self-control, if modesty and reverence cease between sex-mates, if they cease to refine and inspire each other, then their love will certainly be made impure and its beauty will be destroyed; its golden fruit will turn to dust and ashes.

Purity is in the right and normal use of any organ, not in

its disuse or suppression. It is a positive and active, not a negative quality. Purity of the stomach does not consist in its not digesting food. The lungs would not be pure if they did not work actively in changing the blood. We must not define sexual purity as the absence of all sex-relations. Nor must we imagine that an external ceremony is sufficient to secure purity here. That is not a pure sex-relation which brings forth children who are badly organized in mind and body. In our eating and drinking, purity is not less central, and its violations are not less corrupting, than in the relation of the sexes. It requires all the different kinds of purity to make a pure character.

Like all the other faculties, those of Sex-love have their harmonies of thirds, fifths and octaves, as shown in the table of mental chords. Love is therefore an art no less definite than that of music. In the expression of love by conversation, by caressing, or in labors, these harmonies should be secured.

A gentle, or even close contact with any part of the body, greatly increases and intensifies the exchange of nerve-force. By placing our hands upon any part of another person we may receive the force peculiar to that part, or we may excite it to activity by communicating our own force. Thus caressing the bosom, which is connected with Sex-love, Parental, and Filial love, tends to excite these affections. The signs of these faculties and that of Friendship are also in the lips, and hence kissing is a natural expression of either or of all these kinds of love. This reception of pleasure and of force is as real as that through the food which we consume.

In caressing we should, therefore, touch the different parts of the body in such a way as to excite together, or in succession, such faculties as are thirds, fifths, octaves, or polates of the second degree. The touch may be made by the hand, or by corresponding parts of the body, or by parts which are polar to each other. A careful study of the mental chords in connection with the map of the body will place this art within our power.

For example, it will produce harmony if we caress in suc-

cession, the faculties or signs of Ambition, Culture and Religion; of Impulsion, Rulership and Culture; of Sex-love, Labor and Intellect; or of Intellect, Sensation and Ardor.

The faculties may also be excited in polar harmonies by the current of conversation, by material surroundings and by our employments. Love may and should use all these as its instruments. All thoughts and actions, all desires, whatever thrills the human frame, all find their centers of intensity in the aural glow of love, and feed the raptures of its flame.

Before these laws of harmony were known, sex-love was subject to all the mistakes of instinctive impulses and erroneous notions. The few high harmonies it secured were reached more through accident than through wisdom.

The relation of two sex-mates is one of equality of rank. Therefore the exchanges of labor and employment between members of higher and those of lower groups do not involve a physical relation of sexes between the lower and higher members.

Among the lower animals, mere instinct is sufficient to rule the sex relations. But the nature of man is so complex that sex-love stands at the center of a vast multitude of forces, and any one of these may disturb its harmony if wrongly exerted, or if properly united and controlled, each may contribute to its lofty symphony.

THE TEMPLE. Art is but that higher unfolding of nature which takes place through man. The stately temple or the powerful engine are as truly the products of nature as the tree of the forest. Art is applied and embodied science. Through these two great instruments man has made all of his great and permanent advancements in goodness and happiness in all ages of the world.

As we have already explained in the fifth chapter, each external form exerts a definite effect in molding our characters and thoughts, so we should surround ourselves with those which are best adapted to excite and unfold our highest faculties. The symbolism of forms need no longer be arbitrary,

it has here a solid foundation in natural law. All the laws of art are a part of our mental constitution.

Poetry and Art are the first-born children of wisdom. When the later-born child, Science, attains his growth, his measuring eye may give nature a more critical survey than the others did, but this is not to destroy the rounded outlines and glorious tints of her beauty. The odorous breath of her spiritual enchantment still sweeps across his soul with the same thrills of exalted pleasure. She still sings to him the morning hymn of perpetual creation.

The parts of a building can have form, color and arrangement. The geometric law teaches us how each form and curve affects the mind, and the mental laws of the trinity and of the nerve-force show the same thing in regard to the arrangement and the colors of the parts of a building. On these three laws is based the system of unitary architecture. They unite the fragmentary parts of all ancient architecture into a system of surpassing beauty and enduring utility.

The Temple of Solomon was a copy of the Tabernacle in the wilderness, only twice as large. The symbolism used in these partly represented the old and incomplete dispensation. For example, those buildings as a whole had straight lines, without curves, the physical without the spiritual. The outer, middle and inner court of Solomon's Temple illustrated the same truth as the threefold arrangement of the large rooms in our Harmonist temples. The twelve loaves of show bread of course stood for the twelve tribes. The veil of the ancient temple is not appropriate now that the mysteries are unsealed.

The Unitary Temple is constructed on the general plan of an ellipse, like the brain. Its great rooms are on the major and minor axes, and private rooms, for offices and members, fill the corner spaces.

The temple or dwelling is a medium of protection placed between man and the external world, and hence it should reflect the laws of both. In its structure we are obliged to use straight lines, such as characterize the mineral world.

But we also use curves extensively, such as belong to the human form.

On the outside of the temple the capitals of the upper and lower rows of columns are shown in side figures.

The domes represent Intellect, Affection and Volition. The eastern side dome contains in its ceiling a painting of the northern celestial hemisphere, showing its constellation of stars. The western dome has a painting of the southern celestial hemisphere.

The bath-rooms may be repeated in each story, making eight in all.

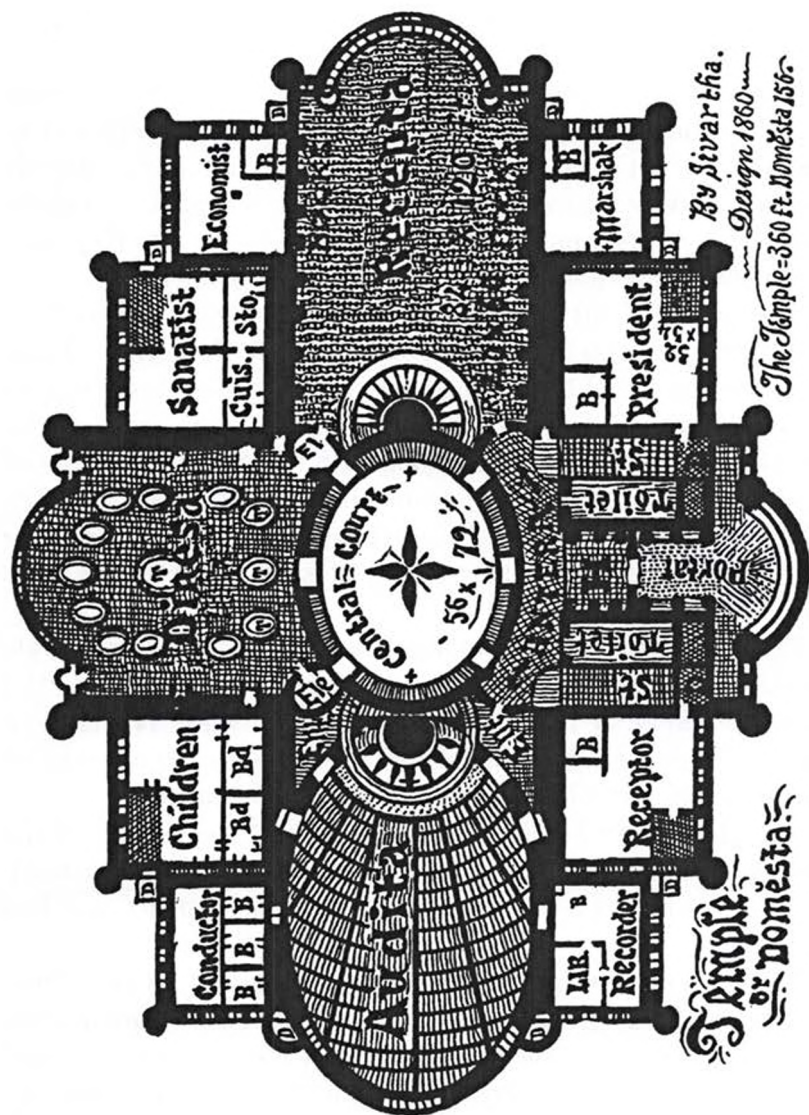
The Golden Portal, or front entrance, has three columns on each side, and three arches, symbolizing the three classes. The stones of these arches represent the twelve groups in order. The groups of the brain form a series of arches, whether we measure it from the front to the back or from side to side. And they support and balance each other, like the stones of an arch. For example, on comparing the map of the brain with that of the groups, we shall see that the groups of Science, Culture, Religion, Rulership and Labor form an arch. Religion is the keystone. On its two sides, and equally supporting it, are Culture and Rulership. Farther down Science and Labor balance and support it. These principles were stated under the law of Polarity, but they are mechanical as well as vital laws.

In Free Masonry there was an instinctive sense that some truth existed here, but it was not guided by any real or exact knowledge of the Mental organism it symbolized, and their architectural symbolism was both crude and impractical.

The groups are represented by the flower, the sun, and the stones in the floor of the portal shown in the eighth chapter.

The central court reaches from the first floor to the dome, from which it is lighted. It is surrounded by twenty-six columns. This is a passageway; and through the gallery around each story the members of the home pass from one part of the building to another.

The Councilion is used as a counsel-room and also as a parlor.



CENTRAL BUILDING IN THE VILLESTA PARKS.

Above it a similar room, the *Mimeta*, forms the general parlor. The *Auditum* on the first floor is devoted to physical, and on the second floor to theoretic, instruction. Above the *Appeton*, or dining-room, is the children's playroom, or *Formation*.

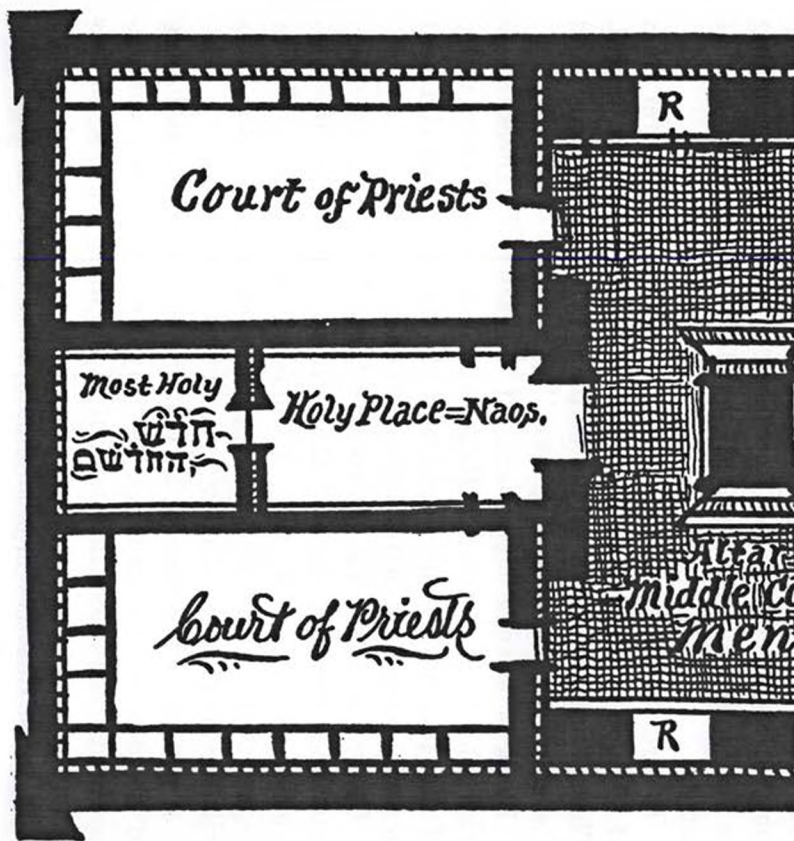
At the four corners of the great ellipse are the private rooms for officers and members. These rooms are arranged in series of six, with bed-rooms attached. The four stories include one hundred and forty-four of these private rooms. Temples may vary in size from 240 to 360 feet in length. Or they may be still larger.

The colors of all rooms, private and common, are in harmony with the relations of the colors to the faculties. Thus, the rooms occupied by the members of the *Ambitious* groupate are tinted with delicate crimson and purple, and trimmed with complementary colors. The rooms of members in the *Parental* groupate are tinted amber; and so of the rest. And thus the colors, the furnishings, and the arrangement of each room are in harmony with the character, tastes and attractions with its occupants.

From the largest part to the minutest details, the temple illustrates the varied series of mental harmonies. In societies devoted wholly to instruction, where the temple is simply a school, its plan remains the same; for the school is a model of society itself, for which it is to prepare its members.

The plan of the *Workshops* is much the same as that of the temple. But the walls of the great rooms in these are usually straight instead of curved, and the corner rooms are less numerous.

The plan of the unitary *Dwelling* completely secures three great requisites. First, it gratifies the individual taste of each member. Second, it secures the utmost required privacy and seclusion to each member, along with the greatest facility in associating and working with those who are attractive and congenial. Third, it gives the greatest economy of material in its construction, and the greatest convenience in carrying on the various departments of domestic labor.



COSTUME. Our costume should secure three things:

1. Protection from the elements, from variations of cold, heat and moisture. This will depend chiefly upon the material and the texture of our clothing, things which can easily be arranged from the abundant resources of our civilization. It also depends partly upon the form of the dress.

2. Our dress should secure freedom of muscular movement. To do this, the dress should not be too tight; and when there are skirts, these should never reach below the knee. The costume of the two sexes certainly should not be any more different than their forms and characters.

3. The third requisite in costume is beauty of form and color. No dress can supersede the divine beauty of the human form by greater beauties of its own. The general form of the body and the limbs should not be concealed, nor should any long, straight, unyielding lines occur. Long skirts reaching to the ankles or the ground obviously violate this law of beauty.

In proportion as dress follows or echoes the natural lines of division of the human body, will it be beautiful and useful. These lines are shown in the map and plan of the body, and the engraved "measure of man."

Dress is a social expression of character, it affects those with whom we associate. Hence there should be some unity of its forms. Slight variations of the dress, in different persons, would simulate their characters.

COLORS OF COSTUME. In nature, Light is a far more important and essential element than Sound; and when the harmonies of color are fully established in all the different departments of art, we have a right to expect that the effects will far surpass the noblest symphonies of sound.

A person should wear in his costume the colors which belong to his dominant organs; or he may wear the polar complements of these colors in some one of the three degrees. A few examples will illustrate these applications clearly. A person with large Coactive organs should wear scarlet as the dominant color in his dress, and this might be trimmed with its

complementary colors—green, salmon or purple. A person with large Fraternal organs would wear green, or its complements—red, amber or scarlet. Those with the Reasoning organs large would wear light blue; those with Ambition large would wear crimson or purple. This law would not cause persons to wear colors which did not agree with their complexions. For difference of complexion indicates difference in character. The blonde and the brunette differ as much in their mental traits as in the tints of their faces.

The male and female of each pair differ by wearing darker and lighter shades of the same color. The centers wear brown and white, the masculine and feminine colors of unity.

THE BANNER. The Banner and other official symbols of the Harmonism, are given in the initial engraving of the eighth chapter. The Banner has a dark brown or maroon border on each side, and the middle is a deep orange. On this is placed the twelve-rayed sun, an emblem of the twelve departments.

Each group may also have a banner of the color belonging to that special group. That of the group of Culture would be green, and that of Labor scarlet.

The twelve-rayed sun is the Sun of righteousness, for it shows the balance of all the groups and the righteous laws of response which rule the upright man. Its twelve rays have the same arrangement as the corresponding parts of the City. The members wear silver crosses, and the Centers wear the same, except that the male Centers have a ruby or garnet stone in the center of the cross, and the female centers have an emerald or a topaz in the center of the cross. The Prince and Princess wear a twelve-rayed sun.

The precious stones used for the twelve groups or tribes are as follows: For Art, the smoky topaz; Letters, sapphire; Science, turquoise; Culture, emerald; Home, light carnelian underlaid with gold; Familism, amber topaz; Marriage, light ruby underlaid with gold; Religion, straw topaz; Rulership, purple ruby, or amethyst; Labor, sard, scarlet; Wealth, ruby; Commerce, garnet with dark underlay.

INFLUENCE OF COLORS. Every color is a definite kind of force.

The orange, yellow and green rays of the sunbeam are the chief ones employed in constructing the delicate tissues of life. Now these are the very colors which the Author's observations and experiments have shown are radiated by the social groups of the brain—those of Affection. The Sensitive group radiates salmon; the Parental, amber; the Sexual, orange; the Religious, yellow, and the Fraternal, green. All of these faculties are related to the organs of nutrition in the body, those which organize its materials and build up its tissues. In the brain, these faculties attract human beings together, and produce all the complicated organizations of society. The colors of the intellect—different shades of blue tinged with green—are most closely related to the chemical force. The red of Expression is allied to heat. Hence we speak of a COLD intellect, of WARM affection, and of HOT tempers.

In the sanitarium the different colors are important factors in toning up and restoring the diseased organs of the body. The Nervous system is toned and stimulated by colors in which blue predominates; the Nutritive system by those in which yellow leads, and the Muscular system by those in which red predominates. The details of these can be learned from the colored maps of the brain and body. By sifting the sunlight through differently colored glasses, we may select and use any one of these colors.

CORRELATION OF THE SENSES. We have dwelt largely upon color, although Vision, which is its channel, is only one out of the seven senses. The harmonies of one sense may give us a clue to those of the rest. The figures of speech in habitual use would seem to indicate an instinctive perception that there are fixed and close analogies between the different senses. Thus we say that we SMELL of a flower and SEE that it is sweet. Here we apply the word SEE to the sense of smelling, although it really belongs to that of vision. So we speak of sweet faces, sweet flowers and sweet sounds. We say that love, friendship and social intercourse are SWEET; and that hate is BITTER; sar-

casm is PUNGENT and tempers are sour. The basis of these correlations is believed to exist in the fact that light, heat, sound, odors and flavors, all consist of waves, and that between these, in the different forces, are definite relations of length and form.

The organs of sense—the skin, the ear, the eyes, the nose and the tongue—are each adapted to a certain range of vibrations. The waves of sound are too long to set the rods and cones of the eye in vibration, and thus produce the sense of sight; and the waves of the nerve-force are not adapted to vibrate those rods and cones, except in unusual states of excitement and exaltation of sensitiveness. In this case, the rods are rendered more tense, and, according to a well-known law, they will then vibrate to the shorter waves of nerve force. Then we see the nerve-force as light.

These explanations enable us to understand how one force can be converted into another. We have but to change the form and length of its vibrations and the work of transformation is done.

We may perceive the vibrations of sound through the sense of touch, recognizing its pitch and intensity. Yet in this case, as the Author's experiments have shown, the sensation is not precisely the same as it is when perceived through the ear. Probably no description of a sensation or an emotion could convey a perfect idea of it to a person who had never felt it in his own experience. Each mind must perceive them for itself. Yet the correspondences between the senses are so extensive that the scale of harmonies for them all must be alike. The scale of musical accords and that for colors have already been worked out by science.

The senses are arranged in a system of octaves, and what appears as Sound to one of the senses, if transferred to the higher octaves, would appear as Light or as mental Feelings.

Shall the artist tell us that certain colors are complementary, or produce a sensation of pleasure when they are placed side by side? Science will apply her measurement, and though the tiny waves be but the forty-thousandth of an inch in length,

yet she will prove that in these accordant tints the wave-lengths are such that they touch and vibrate the rods and cones of the eye in serial order; nay, more, that when they finally strike on the convoluted shores of the brain they respond to the same serial law in the realms of thought and emotion. For the faculties are in thirds, fifths and octaves.

The notes and strains of music have definite relations. Each has power to excite some one organ or group of organs. If the notes succeed each other, or are sounded together in the same order in which the faculties naturally follow or respond to each other in mental action, then the music will create a feeling of pleasure in the mind. It is harmonious; it awakens the faculties in their natural order. They respond in thirds, fifths and octaves, as already explained in the chapter on Polarity.

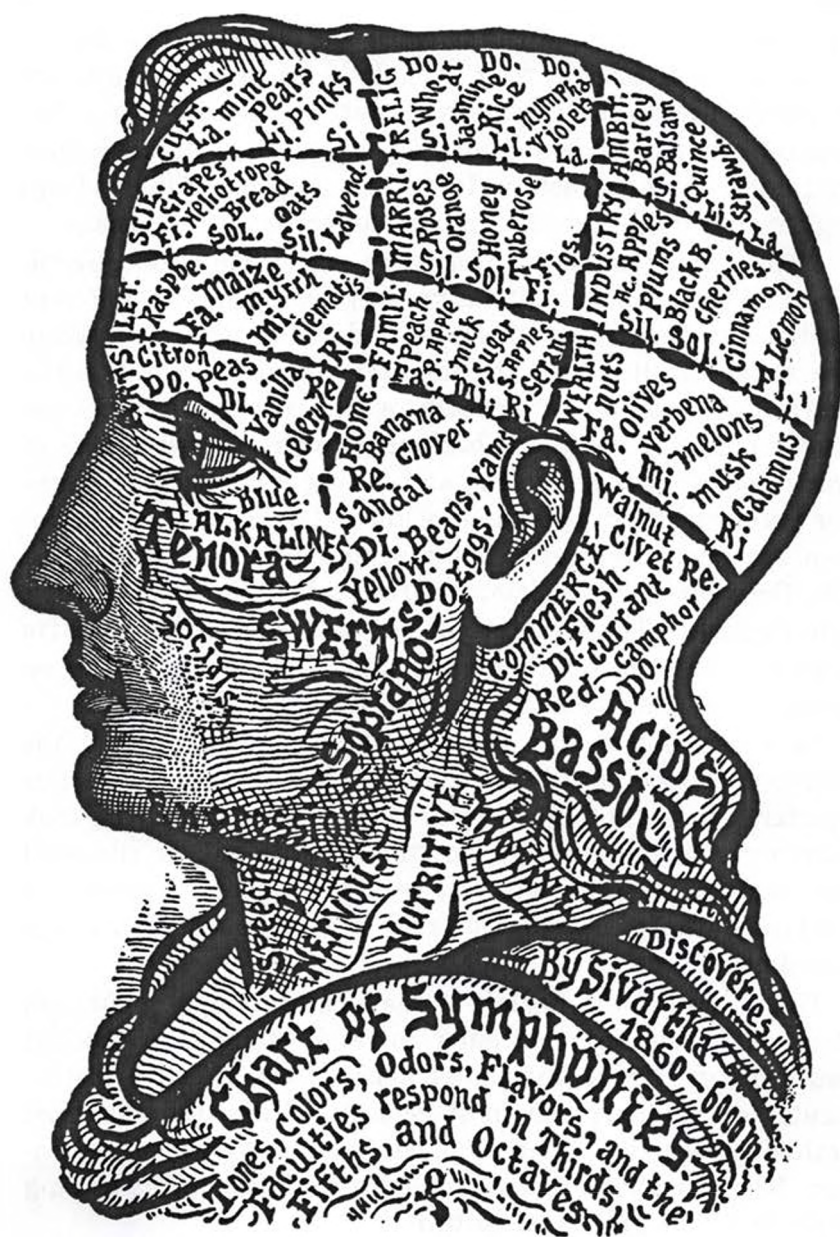
Each odor and each flavor normally affects some special faculty or group. Hence we may have a scale of accords for eating, and arrange the articles of food so that their odors and flavors shall succeed each other in such an order as will excite the faculties harmoniously.

The Chart of Symphonies exhibits the more important of these sense-harmonies in sounds, in odors, flavors and food. Each of these is placed on the faculty to which it belongs. The faculties of the Will are affected by the series of chromatic tones which form the base in music; the Affections are affected by the scale in soprano, and the Intellect by that in the baritone. We can tell the chords of odors and flavors by comparison with those of the sounds.

RELATIONS OF FOOD. Food can affect the body and the mind in three ways:

First. From the simple nutrition of its chemical elements. It must contain the carbon, oxygen, hydrogen, and other elements required in the body.

Second. Food may modify character; may mold, develop, or depress the different faculties by the effect of its odors and flavors. For illustration, we would feed a person in whom the social organs were deficient upon food in which the sweet



odors and flavors predominate. When we wished to develop the intellect we would feed the person upon wheaten bread or other foods having alkaline odors and flavors. The flesh of animals, when used as food, stimulates the base of the brain. It chiefly excites the Impulsive, Defensive, Sensitive and Perceptive groups. It is not adapted to develop a noble, refined and intellectual character. Its use as an article of diet belongs legitimately to savage life and the lower phases of society.

Third. Our food may affect us by calling the various faculties into exercise in cultivating and procuring its different varieties. The culture of grains and fruits tends to develop the social faculties and the intellect. When a people settle down to the pursuits of agriculture, it is at once an indication that the arts of peace are beginning to prevail over those of war. In savage life, hunting and fishing were common means for procuring food, and these required the exercise of perception, sensation, destruction, cunning and mobility. In civilized life, the slaughter of animals for food called the same faculties into exercise. The structure of the teeth and other digestive organs in man proves that he is naturally adapted to live on grains and fruits when he arrives at man's full estate.

In a harmonized life, the cook must understand well the relations of food, and be as truly an artist as the musician or painter. In a far higher sense than in past times, the cook must cater to the appetite, but the appetite will be educated and trained to appreciate and seek the higher harmonies of food; and the pleasures conferred are increased to a corresponding degree.

The senses are the Portals of the Mental Temple. Through them all harmonies must enter to reach the halls of thought and feeling. These harmonies must be the effective instruments for reaching the most refined culture and the most exalted spirituality which a human being is capable of attaining. The education of the senses must therefore take a leading place in a true system of culture.

The color of the skin has an effect on the development of the senses. The most perfect complexion, in all respects, is

that between the blonde and the brunette. It belongs to the Caucasian race, distinguished alike for its high energy and sensibility, and its capacity for advancement.

THE FLOWER. At the annual and semi-annual conventions, the members of similar groups from all the societies will unite into one group, numbering many hundreds of thousands. They will then arrange themselves in the form of a vast flower with twelve petals, each petal representing a group with its many shades of costume. The members will then pass through a series of evolutions, each of which will change the appearance of the flower and bring together new harmonies of colors and of characters. The same plan is observed in dancing. A star may be taken for a model, or a cross, instead of a flower. These evolutions do not merely amuse, but they afford a positive and harmonic cultivation of all the faculties.

The eyes of the soul all have common centers in the brain. Whether we look out of the precise lens of reason, the iridescent eye of religion, or the glowing orbs of imagination, the impressions we receive are transmitted to these soul-centers, and by the mental laws of conservation they exchange hospitalities, they don each other's costume, and they become alike willing servants of the Prince of Life.

Previous to the discoveries of this Book, the wisest of men knew a scale of harmonies for only one of the senses—that of hearing, as expressed by music, with part of the scale of harmonies for color. The discoveries elaborated in preceding pages have proved that there is a scale of harmonies for each one of the thirty-six mental faculties. Each of these scales must consist of the special kind of objects which naturally belong to that faculty. Consider for a moment the abundant riches that science now stands ready to confer upon the redeemed race of men. Let us note these for the twelve groups, without details:

SYMPHONIES. The Art group reveals a series of form and color harmonies which reach up and include all the realms of thought and emotion.

The group of Memory or Letters links us with a rhythmic

series of movements which involve the evolution and phases of persons, nations and cosmic systems.

The group of Science unfolds the great series of Laws and Forces which interlace the universe and give us our true place in the eternal procession of order and beauty.

The organs of Culture unite us through the Harmonic Bands with the fraternal series of a universal brotherhood, responding through all nations and races.

The Religious faculties give man his harmonic place in the vast series of living beings; they respond to the eternal pulsations of an all-pervading life.

The faculties of Marriage answer to the series of Creative forces. They move in periodic times, they touch and reproduce the chords of vital movement in all the graded spheres of life.

The group of Familism unites the long generations of men in the measured periods and cycles of historic succession.

The organs of Sensation or group of Home answer through the Vital Force to that octave of forces which vibrate through the eternal music of the spheres.

The group of Commerce will encircle the world with highways and lines of transit, whose pulsations beat in measured response to recurring harvests and seasons.

The organs of Wealth respond to the perpetual laws of supply and demand, they measure the gathered stores of each season to the returning wants of man and turn the wheels of industry for the common good of all.

The organs of Labor organize the groups of workers into serial bands, who work in harmonic accords throughout all the lands of earth.

The faculties of Rulership grade the Bands, with their members and leaders into the series of town, county, state, nation and Unation, and place these in rank with the descending files of life below man, and with the shining bands of light in celestial realms.

All these twelve kinds of harmonies are governed by laws

which involve a rhythm of either form or movement, each includes a series of answering parts, like those of music. From the pleasures of music with which men have long been familiar, they may form in advance some small idea of that vast accession to the pleasures of life which must come with the whole twelve series. For those of music are the least important and the narrowest of them all. These new revelations of science, this union of science with religion, this maturest growth of wisdom, brings to the human race sources of pleasure and harmony which are thirty-six times as great as those which they had anticipated. The ancient prophets used the few harmonies with which they were familiar as types of all the rest. The science of man, the divine Logos, has shown us the definite methods through which to attain that magnificent heritage of ancient promises.

Science is a builder. Its work is constructive. Behind its working hand is the warm and throbbing heart and the radiant brain. The idealizations of one age become the scientific verities of the next. The telescope has crumbled the old crystalline spheres in which the planets moved with noiseless majesty; but in place of these we have the mighty chains of gravity, binding together the universe. The dragons of Homer and Isaiah have been ground to fine dust in the mill of historical criticism, but the atoning science of geology has peopled the prehistoric lands and seas with saurians and pterodactyls of not less monstrous mien. The protoplasm of the scientist had its counterpart in the primal sea of chaotic milk of the old Hindoo dreams. The winged heels of Mercury were tardy snails besides the zinc plates of Morse and Bell. The fairies of folk-lore are outrivaled in activity and delicacy of work by the organic cells which science reveals as the microscopic builders of the temples of life.

The tremulous chains of thought and emotion traverse the labyrinths of the brain in obedience to laws as exact as those which build up the theorems of geometry. The realm of poetry and art has been a natural outgrowth from laws of the human mind. The riper thought of science explores this realm with

the same eager care which has been so abundantly repaid with discoveries in the purely physical world. Science questions all things. But it does not do this to summon the demons of chaos and misrule. It lifts the veil only to show truth in her complete loveliness.

THE GREAT TRANSITION.

The nations of Europe and America are now entering upon their great phase of Maturity. Masses of men have passed upward across that line of destiny, the major axis of the brain. Below this line the faculties point downward to the earthly influences. Above this line the organs radiate upward and will yet glorify the world by their dominant activity.

Stimulated by faculties above this transline many able thinkers have come to see the gross selfishness of our social and political institutions. The United States Census shows them that the employers, doing no work, yet take or "receive" two-thirds of all that the workers produce. This is only one of their evil methods. "Business" is everywhere pervaded by secret plots and selfish evasions in favor of Capitalism.

The higher faculties affirm that *institutions should secure the welfare of all the people*. But this has never been done.

Yet here are the mighty laws of Evolution that have carried the earth itself through its long ages of development. The same law will force the nations up across the line of Transition and will certainly establish institutions which will give the conditions of universal happiness. No hand of conservatism can turn back that vast upward movement of the human race.

The laws of Evolution have been amply discussed by Lyell, Carpenter, Huxley, Le Conte, Agassiz, Dana and various other authors of note. But they did not give us a complete chart of the Head, like our chart *Historia*, which shows us how far upward civilization has now reached and also gives a scientific and sure guide in completing the work of social reconstruction.

THE MARCH OF NATIONS across the earth has been guided by the great facts of physical geography.

Take a map of the Eastern Hemisphere. Stretching across the upper part of the map lies the great Zone of Civilization,

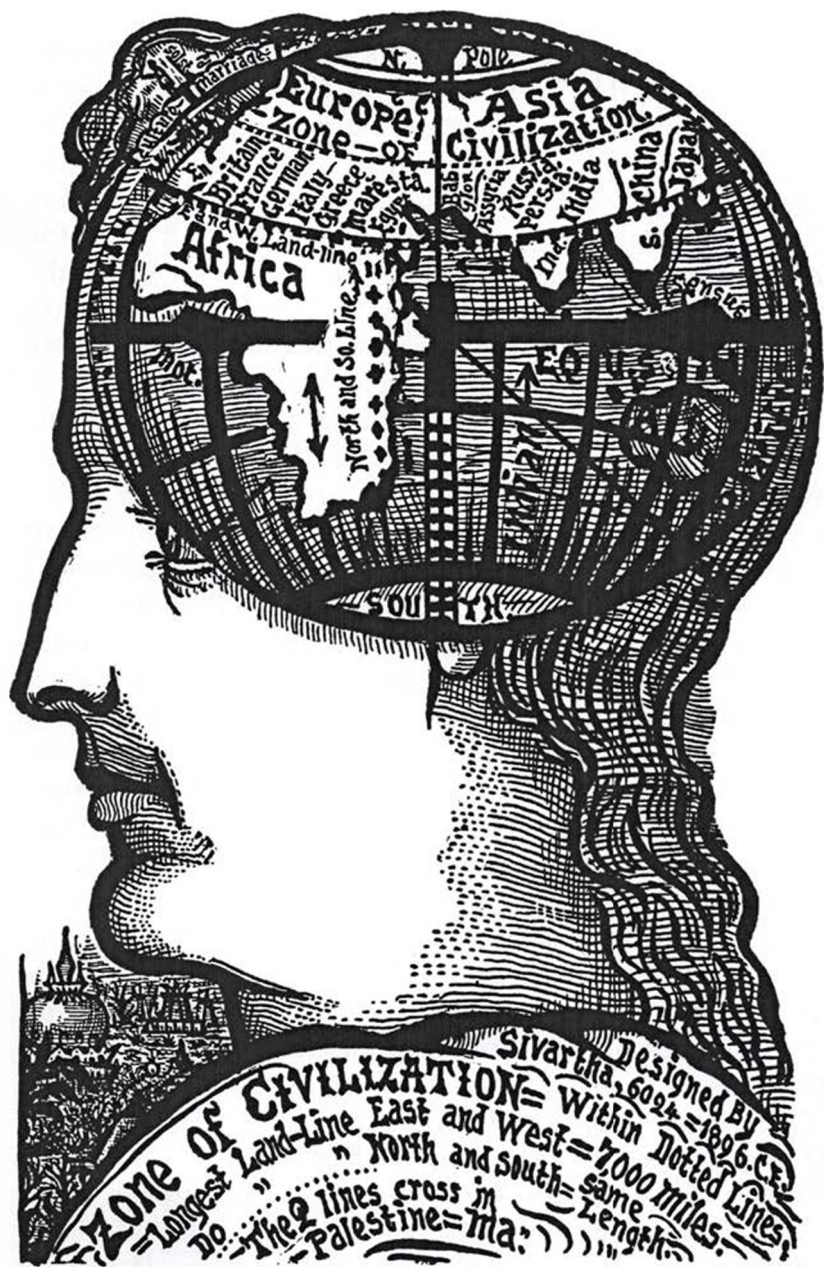


seven thousand miles from east to west. In this direction it is the longest land-line on the earth. Here were the best conditions for the physical life of man. Here are felt the greatest effects of the forces which are poured forth from the sun. Every day, as the earth on its axis rolls over toward the east, the broad band of the sun's light, heat, chemic force and electricity, sweeps westward around the earth. Here then, the great historic nations and cities sprang up and flourished.

Counting from the east side on the map we have Japan, China, Mongolia, India, Persia, (on the north, Russia), Assyria and Babylonia united as Ashura, then Maresta, the new name for Palestine, Greece, Italy, Germany, France and Britain. In the United States the zone reaches from New England, New York and Virginia, westward to California, three thousand miles, or about one half as long as the zone on the eastern side of the world.

Along this zone of Civilization history shows us the great cities of Tokyo, Pekin, Shanghai, Canton, Delhi, Benares, Bombay, Lassa, Bokhara, Persepolis, Nineveh, Babylon, Bagdad, Constantinople, Memphis, Jerusalem, Alexandria, Athens, Rome, Paris, Berlin, Vienna, London, New York, Philadelphia, Chicago, and San Francisco. Here in this zone the great men of the world were born and the best brains of the world were produced.

There is a most vital and a deciding fact which we must note and consider at this point in our extended survey. Measuring north and south, along the 30th meridian, from the north of Europe to the south of Africa we have in this direction the longest land-line on the earth. By being the strongest magnetic line on the earth, this stands in contrast to the east and west line of the zone which is electric. Now, since the time of Faraday we have known that magnetic and electric lines in crossing each other may produce a polarized focus of intense action. The two longest land-lines cross in Palestine, Egypt and Babylonia. Therefore these three countries must remain the great focus for the most tremendous and vital



forces that sweep around the surface of the earth. From its elevated surface we should say that Palestine would be the most intense and definite part of this mighty focus of vitality. In some part of this focus, according to the laws of science, we should expect to find the best natural conditions for the highest types of animals and plants. And it is here, in the Euphrates valley, that the Mosaic account places the creation or first appearance of the Roseate or Ruddy-faced men, the Race to which we belong, though we are often called the "White Race" by color-blind writers. It was here, too, that the most perfect single food for man was indigenous. Here wheat grew wild and abundant, long before it was cultured by the fostering hand of man. From Babylonia and Palestine this useful grain spread over the world.

Where these two broad Bands of power cross each other, the east and west and the north and south, here in this grand contact of polar forces, originated the great civilizations of Egypt, of Babylon, Assyria, Phenicia and of Palestine, with the Hebrews and the Bible, and of the Greeks in Asia Minor and the Islands of the Archipelago, where their civilization started and where their greatest men were born. All that is greatest and best in modern civilization can trace its ancestral lines back to these, for its parentage and inspiration. The records of History can easily give us this important lesson. The north and south Band is some six hundred miles wide where it crosses the east and west zone.

In this sketch we have been grouping well-established individual facts, but which had not before been studied in their important connections and their bearing on the unity of nations. We are justified in affirming that Palestine is the great Geographical Center on the surface of the world. But is that country, considered in itself, worthy of such a distinguished place? We shall answer briefly:

That country extends from the "River of Egypt" wady El Aïresh, and the gulf of Akaba on the south, for five hundred miles northward to the river Euphrates. It reaches eastward one hundred and seventy-five miles from the shores



of the Mediterranean. A part only of the country was conquered under Joshua. The conquest was completed under David, who ruled over the whole and left it to his son Solomon. With 84,000 square miles, Palestine was as large as the Island of Great Britain or as the six New England States. This, then, was the Land promised to Abraham, to Isaac, and to Jacob as an everlasting possession for their descendants.

Looking at the surface of the country we see that it has less barren land than England. The plains of Sharon, of Philistia, of Gallilee, the Lebanon Valley and the tableland east of Jordan, these will easily produce wheat and other grains enough to supply 20,000,000 of people. The climate is sub-tropical, modified by the long but low mountain range, north and south. Speaking from personal knowledge, and study, I should compare the climate to that of California, say from the Kern Valley south to San Diego. Any plant or tree that will grow in a moderate or tropical climate will also flourish here in Palestine. Indeed, we may say with truth that, in its varieties of climate, of soils and natural products and of landscape scenery, Palestine is the most cosmopolitan country in the world. Well might the Hebrew prophets foresee that with a better system of social order the "whole Land would be made like the Garden of Eden."

Viewing all of these attractive physical conditions, with the fact of its position as the Geographical Center, we must agree that a better country could not have been chosen as the permanent, international pivot of unity for the world. The prophets assert that the New Jerusalem shall be what we would call the world's Capital City. And, also, that it should occupy the exact site of the old and the modern City. The City now is located in a "mountain basin," the highest portion of it, Mt. Zion, being 2,550 feet above the sea. On three sides the mountain ridge rises a hundred or more feet above the city. On the north side you can see four miles to Neby Samuel, which blocks the view in that direction. Suppose that a new city is built there, 4 or 6 miles on each of its four sides, as Ezekiel indicates. Then the city would extend over

the rim of the basin on its four sides. If the buildings were no taller than those we put up in England, still from the peculiar surface of the country, this would be true, that is, from all four directions the new city could be seen at greater distances and by more people than any other city. In other words, it would be the most conspicuous city on the broad surface of the world. It would be visible for a hundred miles, north, south, east and west. On the north side of the city, at the summit of Neby Samuel, 3,000 feet above the sea, will be built the international Astronomic Observatory. The plans for this building are already drawn. On such an elevated site, and rising 360 feet above its broad base, it will command a more extensive view of the earth's surface than any other building of the kind in any country. It will have the advantage of being on the longest magnetic line in the world.

In the year 1878, I drew out the plan of the new City as it is described in the last chapter of Ezekiel. It was after a thorough study of the accounts in the Old Testament and that of John in the Apocalypse, correcting the wrong translations in the latter. Much to the surprise of everybody, I found that the plan was a perfectly practical one. In showing it to many architects and civil engineers, they have all agreed that its twelve departments make systematic provision for all the natural wants and inventions of civilized life. For that work of drawing, I already had the benefit of training as an architect and civil engineer.

At the close of the Russo-Turkish war in 1877 the Eastern Crisis was lulled by the sitting of the Berlin Congress. At the present time (1913) the Eastern crisis has again arisen, but in a more opportune form. It now behooves the statesmen and rulers of Europe to consider well their duty to civilization. They should decide and do what they only talked about and approved at that time. That is, they should release Palestine from the rude grasp of its present Masters; they should make that country independent and neutral, as Switzerland was made in 1815, with a guarantee of protection

from at least four of the great Powers; they should provide the new nation with a free government and institutions based upon our most recent knowledge of social science, and the natural rights of man; and they should crown their work by making a basis for universal peace through a recognition of Palestine as the great geographical center and the natural pivot for the permanent unity and co-operation of the nations, the "Federation of the world."

When all nations have the same political and social constitution, the jealousies and quarrels which have so long divided them will come to an end. The common interests and common knowledge of all nations will demand a universal Language, the Vesona, as its symbol and instrument of expression.

It has been well said that Palestine is so remarkably situated that it forms the bridge between two continents and a gateway to the third. Were the population and wealth of Europe, Asia and Africa condensed at central points, Palestine would be the center of their common gravity. And with the amazing facilities of modern intercourse, and vast extent of modern traffic, it is not easy to estimate the commercial grandeur to which a kingdom may attain, placed on the apex of the world, with three continents spread out beneath its feet. It was a part of divine wisdom to ordain this land as both the mart of nations and the spiritual center of the human race.

THE TURNING. The great law of the Phases of Life is now sweeping the human race upward across the line that divides the lower from the upper spheres of the brain. That great transition will occupy from 1880 to 1914, of the Common Era. To this period all the great dates of prophecy point. And the actual growth and discoveries of the present time indicate the same thing in a not less decisive manner. After that time, the higher faculties will exert their beneficent sway over the earth. A great spiritual growth has been proceeding through past ages. But it could not have an external form, it could not be embodied in social life or political institutions, until the plan and laws of the Kingdom were demonstrated. Since



that was done, in 1878 C. E., the whole path before us is clear. Our own hands must be instruments in building that magnificent structure of the new heavens and new earth. We are to work after the divine and eternal pattern. And whenever we do this, the whole spiritual force of the angelic world will work with us, until success crowns our labors.

The Kingdom does not rest wholly upon Prophecy and interpretation. If all prophecies were swept away, its foundations would remain eternal and unshaken. For they are fixed in the constitution of man, they reach to the center of the universe, and are proved by the sure tests of science.

A mistake in these dates can not change our knowledge of the methods and means by which we must reach the great consummation.

THE NEW EARTH. "For behold I create a New Heavens and a New Earth. And the former shall not be remembered nor burden the mind.

"But be ye glad and rejoice forever in that which I create, for behold I create Jerusalem a rejoicing and her people a joy, and the voice of weeping shall no more be heard in her.

"Infancy shall no more be reckoned by days, nor old age by years; for a person dying an hundred years old shall be called a child. And they shall build houses, and inhabit them; they shall plant vineyards and eat the fruit of them. They shall not build and another inhabit, they shall not plant and another eat, for as the days of a tree shall be the days of My people, and Mine elect shall live to wear out the work of their hands. They shall sit every man under his own vine and under his fig tree, and none shall make them afraid.

"They shall not labor in vain, nor give birth to children for trouble; for they are the seed of the blessed of Yehovah, and their offspring with them. And it shall come to pass that before they call I will answer, and while they are yet speaking, I will hear.

"The people shall beat their swords into plowshares and their spears into pruning hooks. And nation shall not lift up sword against nation, neither shall they learn war any

more. And it shall come to pass in the last days, that the mountain of Yehovah's house shall be established in the top of the mountains, and shall be exalted above the hills, and all nations shall flow unto it. And many people shall go and say, "Come ye, and let us go up to the mountain of Yehovah, to the house of the God of Jacob, and He will teach us of His ways, and we will walk in His paths; for out of Zion shall go forth the Law, and the word of Yehovah from Jerusalem. And He shall judge among the nations, and shall rebuke many people."

"And a highway shall be there, and a way, and it shall be called the Way of Holiness; the unclean shall not pass over it; but it shall be for those: the wayfaring men, though fools, shall not err therein. No lion shall be there, and no ravenous beast shall go up thereon, it shall not be found thereon; but the redeemed shall walk there."

From the time of the Hebrew prophets down to the close of the old dispensation, a multitude of writers have offered partial interpretations of the Bible. But when tested by close analysis all of those explanations have failed to fit the ancient symbols with exactness, and still more signally have they failed to meet the collective wants of man's spiritual and physical nature.

The cause of all those failures lay in the fact that those writers did not unite the light of revelation with that of science, and neither were their conceptions of man's nature broad and deep enough to include the rhythmic sweep of its twelve laws of form and movement.

It required equally the lofty spiritual insight, the perpetual communion with supernal teachers, and the long trained powers of scientific discovery, it needed all these to disclose and lay the twelve foundations of the divine and immortal life.

It needed a gathering into one form of the accumulated wisdom of the ages, the ripe harvest of many centuries, and the union of all these results, in the light of new discoveries, into one consistent body of truth. With the approbation of

those high teachers, and with its own scientific proofs, the work is now presented to the world.

In the time of Isaiah the ancients looked upon the Heavens as a crystalline vault, in which were fixed the stars, and along which moved the sun and planets. The earth beneath them was a vast amorphous mass, bounded on all sides by impassable barriers of seas and mountains.

In our own time, in the beginning of the Harmonic age, the discoveries of science have indeed revealed a "New Heavens" with the mighty systems of worlds, sweeping in vast orbits and traversed by marshalled bands of harmonic forces. They have revealed a new earth beneath our feet, in the massive strata of rocks, once teeming with organic builders and living harbingers of the human race. The science of life has done still more. It has crowned the long work by revealing within the nature of man the physical and spiritual laws which will make our collective life a respondent part of the universal symphony.



THE END.

The Book of Life

The Spiritual and Physical Constitution of Man

By DR. ALESHA SIVARTHA

Published by *Holmes W. Merton, New York City*

Postpaid, \$2.00

Publisher's Note:—From 1859 to 1884, and since, Sivartha issued a large number of monographs upon the subjects of his discoveries. Thousands of copies of these were sent out over the world and became the basis of much of the radical thought of the age. In 1884, *The Book of Life*, 412 pages, was written, and ran through six large editions. In 1888, a *Universal Synthesis*, already begun, and a re-examination of the vast field of natural laws upon which the work was based, influenced the author to delay the further publication of the work. After twenty-four years of incessant research in the constitution of man, *The Book of Life* is reissued with only minor changes and additions to the text, and the *Universal Synthesis* will be published at an early date in the tables of the new language, *Vesona*.
HOLMES W. MERTON.

A Few Words of Praise

These discoveries in mental and social science have received the favorable attention of eminent scientists, and in the language of a distinguished critic "fully entitle the discoverer to rank with Kepler and Sir Isaac Newton, and place him with the foremost thinkers of the age."—*Cincinnati Gazette*.

Through his own discoveries this author has carried forward the crude work of Gall and Buchanan, of Carpenter, Spencer, and others, to a system of human science which bears the strong impress of completeness, of exact and convincing demonstrations, and of direct application to the affairs of life. The literary style of the book is one of noble and dignified simplicity, with a rare fullness of artistic expression.—*U. S. Monthly*.

Sivartha is one of the most profound thinkers and writers of the country. No one in America has devoted more time to research in this science.—*Chicago Express*.

Sivartha is a scientist and looks at the Labor question from a scientific stand-point—the only logical position from which it can be considered. In his writings *Social Science* is made so plain that any one can easily understand it.—*Labor Enquirer*.

The Author of *The Book of Life* is one of the most careful and critical thinkers of the age.—*Religio-Phil. Journal*.

Sivartha is a clear and logical reasoner, arranging his arguments with mathematical precision, and showing deep study of the subjects he handles.—*Allegan Democrat*.

We most cordially commend this charming, original, and learned discussion of the fundamental principles of history and human science.—Hon. Geo. Willard, M. C.

"I wish to speak before this Convention of the discoveries and plans of *Social Order* by Sivartha, now sitting in the audience. These natural plans apply to the whole scope of both city and farm life, and it is my conviction that they are destined to become the basis of all future statesmanship. It seems to me that in their elaboration Dr. Sivartha has reached the very foundation of all these questions, and that in his work he has displayed the most profound thought and extensive scientific knowledge."—Hon. George W. Julian, M. C., at Battle Creek, 1873 State Convention.

The immense value of these discoveries lies in the fact that they absolutely demonstrate the great truths of the Bible, and that they place within our hands the knowledge which is necessary for the practical work of building up the Messianic life.—Rev. Jonathan Cummings.

This work is full of astounding discoveries and new and remarkable theories, yet it is fully sustained by the well settled facts of science as far as they go. Its Author is a ripe scholar and in his prime. Every philanthropist will wish him success, and will read his book with profit and delight.—Rev. J. Fletcher Wilcox.

The address upon the Tree of Life was brim full of scientific knowledge, and it was received with enthusiastic applause by the large and unusually intelligent audience.—Prof. W. P. Wilson, Harvard University.

These discoveries in Mental and Social Science are the most important yet made, and they deserve the attention of every one who is interested in his own culture or that of the race. They give the author a rank among the most eminent of scientific men.—Cyclopedia of Dates.

Among the world's great books, *The Book of Life*, by Sivartha, ranks next to the Bible.—Rev. Archdeacon Webber, D.D.

The most wonderful and practically the most important of all Bible discoveries are those made by Dr. Sivartha. He has been the first to apply scientific methods and proofs to the Messianic prophecies and to give us the actual plan and laws of the coming Kingdom of Christ.—Rev. Joseph Wild, D.D., Toronto.

I heartily endorse the position taken by Dr. Sivartha that in the scientific study of man's constitution must be found the solution of all the great problems of government, education and the institutions of social life.—Hon. George Bancroft, Historian and Statesman.

The writings of Sivartha treat in a striking and original manner all the religious and social problems of the day. His scientific works on Physiology, Astronomy and Geology are used in thousands of schools and colleges of this country.—The Chicago Inter-Ocean.

The scientific work of Sivartha stands in the highest rank for its exactness and perfection of detail.—Prof. Asa Gray, LL.D., Harvard.

These newly formed truths guide us safely through the Temple of Truth and we are so charmed with its splendors that the present lives of men seem like the uncertain shadows of a dream.—Rev. T. C. Edwards, Cambridge.

The Author of *The Book of Life* has reduced the structure, functions and relations of the brain to a science, and demonstrated, as well, the only true basis of Sociology. His clear, scientific statements, his eloquent language and beautiful illustrations, will be a rare treat to all lovers of truth.—Prof. J. H. Cook, Joplin College.

An important contribution to the doctrine of the physical basis of mind was made by Dr. Alesha Sivartha and published in his work *The Book of Life*. We must concede to the author the possession of great genius superposed upon an intimate knowledge of the anatomy and physiology of the brain and nervous system. He undertakes to set forth a new mental science or Mentology and his book is a most painstaking and elaborate production, well worthy of a wide publicity.—David Allyn Gorton, M.D., in *The History of Medicine, Philosophical and Critical*. Vol. II. (Putnam's.)

Other Works by Sivарtha

THE MARCH OF NATIONS. (Out of Print.)..... \$2.00

THE PHYSIOLOGICAL CHARTS OF LIFE. Five lithographs
in colors, 26 x 42 inches, in case.....\$20.00

Used in over 8,000 High Schools, Academies and Universities.

Re-issued by the Union School Furniture Co., as The Sivарtha
Charts of Life, at \$20.00 per set.

Among the thinkers of the present age Dr. Sivарtha has been the first to present a scientific and natural basis for all the institutions of society and at every step to establish the plan and details of that basis by easily understood proofs of science.—Gen. James B. Weaver, M. C.

I believe that the plan for the new organization of our Government and other institutions in twelve great Departments, as so carefully wrought out by Dr. Sivарtha, must be the next great advance step in securing universal justice and peace and I shall be glad to take some active part in bringing about that great consummation.—Hon. J. J. Gosper, Gov. Arizona.

The "Charts of Life" convey very vividly the many important facts in anatomy and physiology, and are accurate and reliable for all purposes of education.—E. H. Pratt, A.M., M.D., Prof. of Anatomy, Chicago Homeopathic College.

I have examined the "Physiological Charts of Life," and can say without hesitation, that I think them the most accurate, and, without doubt, in mechanical execution, superior to any charts extant. The original drawings have been made by one who is thoroughly acquainted with the anatomy of the human system, and as a physiologist he has no superior. He has made practical use of his knowledge in these "Life Charts." I take pleasure in recommending them.—Milton Jay, M.D., Professor of Principles and Practice of Surgery and Clinical Surgery, Bennett College, Chicago.

I take great pleasure in recommending the Physiological "Charts of Life," which demonstrate very strikingly the internal dissections of the human body. The charts are especially excellent in showing the relations of the different organs, and in illustrating the nervous and cerebral system.—T. G. Comstock, M.D., One of the attending Physicians, Good Samaritan Hospital, St. Louis.

Works by Holmes W. Merton

Descriptive Mentality, From the Head and Face (1886, 1899, 1912). Large octavo, 224 pp.....	\$1.50
Helmer and Merton's Anatomical Charts.....	5.00
Merton's First Aid Charts.....	5.00
Miller-Merton Vocal Atlas, for Vocal Teachers. Joint Authorship, Dr. Frank E. Miller and Holmes W. Merton.....	1.00
Harmonism in Civil Life (in press).....	1.50

Works by Kathrine V. Grinnell

The Coming Social Order (in press).....	\$1.50
---	--------

Commendations

AMERICAN RED CROSS

Hon. William H. Taft President	Hon. Frederick W. Lehmann Counselor
Mr. Robert W. De Forest Vice-President	Mr. Ernest P. Bicknell National Director
Hon. A. Piatt Andrew Treasurer	Mr. Charles L. Magee Secretary

EXECUTIVE COMMITTEE

Miss Mabel T. Boardman	Brig.-Gen. George H. Torney, U. S. A.
Mr. Robert W. De Forest	Surg.-Gen. Charles F. Stokes, U. S. N.
Hon. James Tanner	
Hon. Charles Nagel	Major-Gen. George W. Davis, U. S. A.
Hon. Huntington Wilson	Chairman Central Committee

First Aid Department

Major Charles Lynch, Medical Corps, U. S. A., In Charge
Room 715, Union Trust Bldg. Washington, D. C., Dec. 16, 1911.
My Dear Dr. Merton:

I have at last heard from Dr. Shields to whom as you know a set of your charts was sent. Dr. Shields tells me that he has heard high commendation of these charts from a number of physicians and nurses, and that he believes they would be of great utility for advanced courses in First Aid. He also particularly mentions the artistic excellence of the charts. I concur fully with Dr. Shields in what he has said. You are at liberty to use this letter.

Very truly yours, CHARLES LYNCH,
Major, Medical Corps, U. S. Army,
In Charge, First Aid Dept.

New York City, October 31, 1911.

I have long used and admired the anatomical paintings of Dr. Merton. His new illustrations for the demonstration of first aid are of real value to students, teachers and lecturers.—Luther H. Gulick.