GOD, EVOLUTION AND MIND HEALING

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INTRODUCTORY

THE manner of delivering an important message is not so important as the contents of the message itself. Any imperfection in the manner of presenting the subject treated in the following pages will, perhaps, be atoned for by the importance of the truth which the writer has endeavored to convey. The hope is entertained that the main points of the subject have been presented with sufficient clearness for the reader immediately to grasp them, and in the end to completely understand the message intended.

The points to which attention is especially called are the **shape** and **substance** (tissue) of the organs and bodies of organic beings. The question is put, What is the force which produces the particular shape and deposits the particular tissue of organs, in embryonic formation, and in evolutionary development when such occurs? The attention of scientists, philosophers and thinkers of every class is respectfully invited to this question.

The answer to this question herein given is **an intelligent creative force.** The claim is put forth that the particular shape of each organ is produced, and its particular tissue deposited, in its embryonic formation, and in

its evolutionary development into a different organ if such occurs, by an intelligent creative force, which **we know as God.**

It is maintained that this is the only answer to the question propounded that will stand every test of science, philosophy or religion. This answer includes every factor and accounts for every phenomenon in the formation and development of organic beings. It includes every possible requirement of a correct answer to the question. There are no "unknown factors," no uncertainties, in the theory of creation and evolution embodied in this answer, as there are in any theory of creation and evolution that does not recognize an intelligent creative force as their principal and dominating factor. No other answer to the question propounded can or will ever be found.

The first aim of this treatise is to present the evidences of God in science—not all those evidences, perhaps, but enough of them to implant themselves in the mind of the reader beyond eradication. There is a crying demand for evidences of God and religious truth that accord with science, and that appeal to the analytical powers of the mind with all the directness and force of the facts and truths of mathematics. In this age of religious and scientific discussion, the advocate of religion should be informed as to the relation which science bears to religion, and should know that

science, when correctly understood and interpreted, proclaims in stentorian tones the truth of religion.

Especially should the scientific education of the young fortify their minds against agnosticism and atheism, which blight and blast the higher and finer faculties of the mind and heart, as the frosts and snows of winter chill and freeze the flowers of early spring. My idea has been herein to present **facts** or **principles** of science which may be safely inculcated in the minds of the young, without the possibility of those facts or principles being disproved or overthrown by future scientific progress and discovery.

While all should avail themselves of the teachings of the seers and prophets of old concerning the divine being, yet each may perceive the Creator in science and nature directly for himself. If the direct perception and consciousness of an intelligent creative and sustaining power are not obtained on the first reading of the treatise, further attention and rereading will, without doubt, result in that delightful consummation.

To procure a knowledge of Arithmetic or Grammar, those subjects are **studied.** Their principles and definitions are committed to memory. Those principles and definitions are often not understood at the time they are committed; but, when they have been acquired by

the memory, the mind naturally hovers over them and dwells upon them, and later perceives their correctness and truth.

In acquiring an education, the average student commits principles and definitions to memory at twelve years of age, which he does not fully understand until he is sixteen or eighteen, or perhaps older.

Memorizing is an infallible method of concentrating the mind upon the thing memorized; and it is only by concentrating the mind that we make great intellectual progress. The mind may sometimes, indeed, in a propitious moment, be so concentrated as to perceive some great and valuable truth instantly, without the necessity of preliminary study or memorizing; but the concentration of mind by which most education is acquired is secured by first memorizing the fundamental principles and definitions of the subject.

To arrive at the perception of an intelligent creative and sustaining force in nature and science, the same method is recommended as is followed in education in any line. The principles of adaptation, which are explained in full in chapters II and III, may first be committed to memory, as follows:

The principles of adaptation are **substance to use, shape to use,** and the **shape of a part to the shape of an adjacent part.**

After thoroly committing the preceding

sentence to memory, observe how every tool or instrument with which you daily come in contact, even to the knives, forks and spoons with which you eat, illustrate, as explained in chapter II, the first two or all these kinds of adaptation.

After becoming familiar with adaptation in things that you daily handle, then observe the same adaptation in the teeth, hoofs and claws of animals; then in the more internal organs, as the bloodvessels, bones, eye, etc.

Thus, sooner or later, the indisputable truth of adaptation will permeate your mind as powerfully and as convincingly as any arithmetical or grammatical principle you ever learned; and you will see, since adaptation in tools and instruments can be produced only by human intelligence, so, in the organs mentioned, it can be produced only by creative intelligence.

Since the adaptation of the substances of organs to their uses, of their shapes to their uses, etc., is deemed infallible evidence of God in science; and since the phrases "substance to use," "shape to use," etc., are **foundation principles** and **cornerstones** of the theory of creation and evolution herein presented, those phrases are embodied in bold face type to indicate their relative importance. Other relatively important words or statements also stand in bold face in other portions of the book.

Generally speaking, it is, of course, to be presumed, that the more a subject is studied, the more benefit will be received. Practically all of chapters II and III, as well as other parts of the book, may be committed with additional benefit. Indeed, the more the present subject is studied, the more inspiring will be the view into the beauties and glories of the Universe.

While nothing will take the place of private or individual thought and study, this book is also designed for class use in institutions of learning. Also, where two or more in a community are disposed to pursue the subject, clubs or classes for its study and discussion will result in mutual benefit.

Near the latter part of the treatise will be found Models for Analysis of Human and Divine Productions. Analyzing objects according to the Models there given will also prove beneficial.

The creative intelligence which is pointed out in the ensuing pages, and which operates in the formation, sustenance and development of the body, is also connected with the mind. An extended discussion of creative mind in Psychology is not within the province of the present treatise. Most that is said on this point is contained in chapters X and XII. However, a few words on this topic, in addition to what is said in the context, will not be out of place here.

Recent writers on Psychology mention the dual nature of the mind. Some of them even hold that man has two separate minds. These two minds, or two kinds of mind, are designated respectively as the conscious mind and the subconscious mind, or as the **objective** and the **subjective.**

The objective mind, psychologists say, is that which we see ordinarily manifested in man, consisting of his five senses, his power to reason, his will, etc.

The subjective mind they describe as "universal" mind; as "a spark from the divine"; and as "possessing all the potentialities of God."

It is evident, therefore, that in dealing with what they usually term subconscious or subjective mind, psychologists are dealing with creative or divine mind, which is manifest, not only in the body, but also in the mind of man.

The terms **mortal** and **immortal** are also used by some to distinguish between the two minds, or two kinds of mind, that are manifested in man; while the terms **human** and **divine** are also often used in the same sense.

This difference in terms or classification does not necessarily indicate any irreconcilable difference between students of mind. The difference between the latter consists principally in the difference of language used by them in describing the same truths. C. L. C.

I

INTELLIGENT PRODUCTIONS

THE forces of gravitation, chemical attraction, electricity, etc., have been familiar to mankind for decades or centuries.

There is another force which operates around us, which is greater and more wonderful than either of the forces named. I allude to **the intelligent creative and sustaining force** which has been recognized more or less clearly by mankind for thousands of years, as the creative and sustaining power of the world.

This force was clearly perceived as the formative power of animals and plants by the ancient writer who penned the immortal statement that God formed the fishes of the sea, the fowls of the air, the beasts and plants of the field, and latterly man. This force is especially manifest in the animal and vegetable kingdoms.

We prove the existence and operation of this intelligent creative and sustaining force by the intelligent productions which it creates and sustains.

When we say that an object that has been produced either by man or by a higher intelligence, is an intelligent production, we do not mean that the object itself necessarily possesses

intelligence, but that it bears in itself and upon itself the evidence that it has been produced by an intelligent being.

Animal and vegetable organs and bodies are intelligent productions. While divine intelligent power is undoubtedly displayed elsewhere in the world besides in animal and vegetable bodies, as, for example, in the mind and heart of man; it is the special purpose and province of this treatise to show that plants and animals, as God's creatures, are especially rich in evidences of such a power.

If a Supreme Ruler actually forms and sustains animals and plants, and governs and controls the affairs of men and of the Universe, he must in some manner come in contact with them. No other way of forming and controlling things than by contact is conceivable.

We do not know just how gravitation comes in contact with objects it controls. We do not know just how it passes thru space from a larger to a smaller body and takes hold of the particles of the latter, but we know that it does so, by the action it produces in the smaller body.

So, while we may not be able completely to describe just how the intelligent creative force comes in contact with the things it creates and sustains, we may and do positively know that contact takes place between this force and its productions.

The old religious tenet that an intelligent Creator formed animals and plants is absolutely and literally true. Any theory or doctrine which does not recognize an intelligent creative force as the dominating force and factor in the formation and development of animals and plants, runs counter to the truth, and must, therefore, ultimately fail.

Whether the Creator made the various species of animals and plants in the beginning as we now see them, or whether he developed them from other species; in either case, the animal and plant body **bears within itself indisputable evidence** that it is the product of an intelligent creative force, and in either case the inspiring truth that all living beings are created and sustained by an intelligent creative and sustaining power, is ours.

The intelligent force which creates living beings, is, as a matter of course, the same force which sustains them. When, therefore, but one of the adjectives "creative" and "sustaining" is herein used in referring to that force, the other may be understood.

While we may profit by the teachings of the sages and prophets of old in regard to the divine, we may also perceive the intelligent creative and sustaining power which is displayed in the animal and vegetable kingdoms first hand for ourselves, and thus come in personal touch and relation with that power.

Some perceive the creative intelligence which is displayed in animal and vegetable organs and bodies with comparative readiness, while to others this truth comes more slowly.

As illustrating how the perception and consciousness of the divine intelligence which is displayed in nature sometimes come to people, an elderly Scotchman of my acquaintance told me how this perception and consciousness first came to him.

He said he happened to be looking at a flower, and was observing its different parts. He thought of how the ovary and pollen of the flower were made for one another; how the pollen must come in contact with the ovary to fertilize it, or to develop it into fruit. He said the thought or query came to him, "Is it possible there is mind in that thing?"

From that moment on the thought grew with him. Nature took on a new meaning; and for the remainder of his life he was sustained and inspired by the direct and personal knowledge that an intelligent creative and sustaining power exists and operates in every member of the animal and vegetable kingdoms.

While the perception and consciousness of this power doubtless come to some thus readily and easily, it is to be presumed they do not come to the majority of people without some effort. The writer's own experience on this subject leads him to the latter conclusion.

In view of the fact that it is necessary for most people to make an effort in acquiring for themselves the great truth that an intelligent creative force operates in the formation and sustenance of animal and vegetable organs and bodies, a course of thought or study of the subject is here presented, which, if pursued with ordinary diligence, will, the reader is assured, reveal that truth, as certainly as the study of language or mathematics reveals its truths and principles.

By carefully considering the qualities of animal and vegetable organs and bodies, with a sincere desire to perceive the creative intelligence which is manifested in them, one may feel assured of catching at least a glimpse of this great truth, which in time will blossom into a fuller perception and a richer consciousness of **the divine intelligence and power that throbs thruout the physical and spiritual Universe.**

If those who doubt the existence of an intelligent creative power would spend the time in the earnest endeavor to perceive it that is often spent in indifference or denial of its truth, their assent to its existence would be more readily obtained.

So, also, if religious people would supplement their religious knowledge by discovering for themselves this power as revealed in nature or science, their religious faith would not only

be broadened and strengthened, but they would extend more hearty aid and welcome to scientific progress.

Thus the seeming conflict between religion and science would be at an end. There is no conflict between **true religion** and **true science.** Any seeming conflict is due to the imperfect knowledge and understanding of parties to the controversy.

An intelligent production is an intelligent arrangement of matter; and now let us more fully observe the qualities of an intelligent production, or an intelligent arrangement of matter, both in human productions and in the so-called works of nature.

When any material object or substance is carelessly or aimlessly deposited or thrown around, it is not intelligently arranged. But when the same object or substance is so placed or deposited that it serves a definite and useful purpose, it becomes an intelligent arrangement of matter.

Illustrations:

When ashes is cast away or aimlessly strewn upon the ground, it is not intelligently arranged; but when it is banked against the foundation of a building for the purpose of keeping out wind or water, it is an intelligent arrangement of matter.

A stick of wood lying aimlessly upon the

ground or in the roadway, is not intelligently placed or arranged; but when the same stick becomes a post in a fence or a brace in a building, such an arrangement of the stick is an intelligent arrangement of matter.

Mud which is deposited at the bottom of a drainage canal, damming its current and causing the canal to overflow its banks, is not an intelligent arrangement of matter; but when this mud is dredged by man from the bottom of the canal, and arranged along its banks so as to heighten them and prevent the overflow of the canal, it is an intelligent arrangement of matter.

The miscellaneous pieces of lumber that are to constitute a house, each occupying such a position in a pile of lumber that it serves no definite or useful purpose, are not intelligently arranged in the pile; but when these pieces of lumber are arranged into the form of a house, they are each an intelligent arrangement of matter.

The arrangement of each floor joist so as to support the floor of the house above the ground, and maintain the floor in a level position for the repose of furniture and for the comfort and convenience of the occupants of the house, is an intelligent arrangement of matter.

The erection of each upright or stud for supporting the plastering and weather-boarding

of the house, is an intelligent arrangement of matter.

The fastening of each piece of weather-boarding or siding against these uprights for the purpose of protecting the plaster and other interior parts of the house from the weather, is an intelligent arrangement of matter.

Each shingle placed at a downward slope so as to direct the rainfall to the outer parts or eaves of the house, is an intelligent arrangement of matter.

Every possible separate part or piece of lumber about the house is placed and secured in its position to serve some special and useful purpose, and is, therefore, when so placed and secured, an intelligent arrangement of matter.

We also speak of the house itself as an intelligent arrangement of matter, or an intelligent production, because, as a whole, it serves the general or final purpose of protecting or sheltering its occupants.

When iron or steel teeth are arranged close enough to one another in a mill to crush and grind grain for food, they are intelligently arranged; and the box or hopper which is arranged above them to contain the grain which they grind, is also an intelligent arrangement of matter.

So, when we find the teeth arranged in such a manner in the mouth that they will masticate food; the lower incisor teeth meeting the upper

incisors, so as to cut and sever food, and the protrusions on the molar teeth fitting into depressions in other molars, so as to crush and grind food, we also have **an intelligent arrangement of matter.**

When we see a tube or spout at the bottom of the hopper in which grain is ground, we recognize that the tube is attached to the hopper for the purpose of conducting the meal from the latter. Such an attachment of the tube is a further intelligent arrangement of matter.

Likewise, when we find a tube—the esophagus—attached to the rear part of the mouth, which receives and transmits the contents of the mouth as rapidly as those contents are crushed and ground by the teeth, we cannot escape the conclusion that the esophagus is attached to the rear end of the mouth for the purpose of receiving and transmitting its contents. Thus, the arrangement of the esophagus at the rear of the mouth and behind the teeth is an intelligent arrangement of matter.

The esophagus is superior as a transmitting tube to the tube which is attached to the hopper, because the esophagus possesses within itself the power of acting and forcing its own contents thru it. When food enters the esophagus from the mouth, the esophagus contracts or closes immediately behind the food thruout its length, or from above downward, and thus

carries the food thru it more effectively than if the esophagus did not possess the power of contracting behind the food.

The tube which is attached to the hopper does not possess the power of transmitting and discharging its own contents, but must be so placed that gravitation will carry its contents thru it; while the esophagus possesses the power itself of transmitting and discharging its own contents.

Even more intelligence is displayed, therefore, in attaching a tube of such superior qualities as the esophagus possesses to the mouth, than in attaching a tube to the hopper which cannot transmit and discharge its contents without the aid of gravitation.

At the outer end of the tube which is attached to the hopper, a sack or other receptacle is placed for the purpose of catching the meal. This is a further intelligent arrangement of matter, because it is desirable and necessary to save the output of the mill. It is more intelligent to save the output of the mill in a receptacle than to let it run to waste upon the ground.

At the lower end of the esophagus, which receives and transmits the food from the mouth, is attached a sack or receptacle for the food—the stomach.

The arrangement of the stomach in this position is equally intelligent with the arrangement

of the sack at the outer end of the tube leading from the hopper, if not more intelligent; for the stomach not only receives the output of masticated food thru the esophagus from the mouth, but the stomach is peculiarly fitted by the gastric juice for further dealing with the masticated food. On entering the stomach, the masticated food is transformed by the gastric juice into health and strength.

Thus we find that the mouth, teeth, esophagus and stomach are even more intelligently arranged than the hopper, teeth, tube and sack of the mill; and if intelligence is necessary to arranging the latter in the position they occupy to one another, then surely, also, is intelligence necessary to so arranging the former.

When we attach a hose to a faucet or hydrant for conducting water to the lawn or garden, we arrange the hose intelligently; but if we should attach it where there is no water supply, such an attachment or arrangement of the hose would not be an intelligent arrangement of matter.

So, when we find hose, in the form of arteries and veins, in connection with the fluid or blood supply of the heart, and conducting the blood pumped into them by the heart to and from the various organs, we have an arrangemnt of matter similarly intelligent to the arrangement of the hose in connection with the faucet or hydrant.

Further intelligent arrangement of matter in the body is seen in the intelligent arrangement of the hands with reference to the mouth. In order that the mouth, esophagus and stomach may be used for maintaining health and strength, there must be some means of placing food in the mouth and between the teeth, similarly as grain must be placed in the hopper to be ground. Observe that the hands are placed at the correct distance from the mouth to serve the purpose of putting food in the mouth. Not only this, but the fingers and thumb are so arranged in apposition to each other on the hand as to enable it to grasp and hold all forms and objects of food.

Still further intelligent arrangement of matter among the bodily organs, is that of the eyes, with reference to the hands and mouth. Food must be seen before it can be reached by the hands and placed in the mouth. Without here entering into a description of the intelligent and wonderful arrangement of matter in the crystalline lens of the eye and other organs of the body, let us merely observe the position and usefulness of the eyes in relation to the hands and mouth. Not only would the usefulness of the hands, mouth and other organs be much hindered without the eyes; but if the eyes were posteriorly instead of anteriorly placed, their own usefulness and the usefulness of other organs would be much impaired.

Then we have the lower limbs, which are so arranged as to co-operate with each other in walking forward to food and other objects, as the eyes direct; and every other part of the body is intelligently arranged in connection with other parts, all taken together forming a complete machine for maintaining life and health.

Wherever, either in art or nature, we find an intelligent arrangement of matter, there mind must have operated; and if, as we have found, the various organs of the body are intelligently arranged, then they must have been so arranged by an intelligent creative force.

From the intelligent results which we perceive in the formation and arrangement of organs, we are compelled to conclude, either that an intelligent being endowed matter in the beginning with the power to assume intelligent forms thruout time without any further direction and assistance, or that intelligent forms are produced by the immediate action and supervision of an intelligent creative force.

Indeed, not a few people are inclined to the view that the Creator endowed matter in the beginning with some force, by which matter continues to assume intelligent forms in the creation of animals and vegetables, without the immediate presence and supervision of creative intelligence.

The principal objection to this view is, that it

leaves the Creator with little or nothing to do after he created the world. There seems to be no good reason for thus retiring the Creator from active participation in the affairs of the world. If an intelligent being created the world to begin with, it is likely he takes sufficient interest in it to busy himself with it, and to come in as close contact with it at all times as when he created it.

But, suppose the view just stated were the correct one. It is, after all, only equivalent to saying that the Creator forms animals and plants in an indirect way, rather than in the direct way of immediate contact with and control over matter, in forming, sustaining and developing animals and plants. And while this view is, perhaps, not so inspiring as the belief that the divine power is at all times everywhere present and active in the Universe, it is infinitely superior to the materialistic view, which destroys all human hope, and which condemns man to final and utter annihilation.

II

HUMAN INTELLIGENCE IN INVENTION AND MANUFACTURE

THE reader may now have caught a glimpse of the creative intelligence which is displayed in the arrangement of the various organs of the body.

In order, however, to obtain a fuller perception and a deeper insight into the creative intelligence which operates in nature, let us further consider intelligent productions, and proceed to analyze them more completely.

In further analyzing intelligent productions, such as human implements and animal bodies, attention is especially called to the **use, substance,** and **shape** of such objects, or of their parts, when they consist of parts.

How, for example, does man display intelligence or design in making a simple iron poker?

The use of the poker is to poke the fire.

Man's intelligence is displayed in the selection of the kind of substance, as iron, out of which he forms the poker, and in the shape he gives that substance in the manufacture of the poker.

If the substance of the poker were inflammable or easily broken; or if its shape were

globular instead of oblong, so that it would not pass between the coals and the grates, it would not perform the use of poking the fire, and no intelligence would be displayed either in its substance or shape.

But, in a poker of any use and value, there is a suitability or adaptation of the substance of the poker to its use, and of its shape to its use; and thus intelligence is displayed in its formation.

Let us next analyze a hoe, for the purpose of seeing how intelligence enters into its construction.

A hoe consists of two parts; the blade and the handle.

The use of the blade of the hoe is to cut noxious vegetation and to enter and stir the ground.

To perform such a use, the blade must possess a hard, resisting substance, such as steel, and a sharp, thin shape. Man displays his intelligence, in constructing the blade, by choosing such a substance for its construction, and by giving that substance a thin, sharp shape, so that it will cut useless vegetation and enter and stir the soil.

The use of the hoe handle is, to be grasped by the hands and to drive the blade of the hoe thru noxious plants and into the ground, by the muscular force exerted thru the handle.

To perform such a use, the substance of the

handle must be light enough to be comfortably lifted, and yet strong enough to withstand the force applied to it for the purpose of striking with the blade, such as wood; and the shape of the handle must be slender enough to be grasped by the hands, and yet long enough to extend in an oblique direction from the ground to the hands. Man displays his intelligence, in the manufacture of the hoe handle, in selecting for it a light, strong substance, and in endowing that substance with a long, slender shape.

Now, when an intelligent production consists of two or more parts, those parts, such as the blade and handle of the hoe, must be joined together, in order to be used. To be well joined, they must fit one another; that is, the shape of each of them must be adapted to the shape of the other, where they are joined. Man further displays his intelligence in constructing the hoe, by giving each of its parts such a shape that it will correctly fit the adjacent part. The only way in which one thing can be made to fit another, is by holding the shape of the other in mind or intelligence while the thing is being made.

In each part of the hoe, then, we find the adaptation of the substance of that part to its use, of the shape of that part to its use, and of the shape of that part to the shape of an adjacent part; and this is evidence of intelligence in the construction of the hoe.

And so we might go on analyzing still larger and more complex objects constructed by man. In every useful object made by man, from the first stone ax found beneath the geological deposits of past ages, up thru all the countless contrivances of modern civilization, such adaptation and intelligence is displayed.

If the object is simple, consisting of but one piece of matter, as an iron poker, its substance is adapted to its use, and its shape to its use.

But, if the object consists of two or more pieces or distinct parts, as a hoe, the substance of each part is adapted to the use of that part, the shape of each part is adapted to the use of that part, and the shape of each part is adapted to the shape of any adjacent part.

The adaptation of **substance to use,** that of **shape to use,** and that of **shape to shape of adjacent parts,** may be called **the principles of adaptation.** No useful thing in the vast catalog of human contrivances has ever been or can ever be invented and manufactured without employing two or more of them. On this account, they are entitled to be called **principles.**

Size is, also, often adapted to use, and sometimes color; but the adaptation of size to use and color to use is less common and conspicuous than the adaptation of substance to use, shape to use, and shape to shape of adjacent parts, in useful objects made by man.

The way in which man adapts substance to use, shape to use, and the shape of a part to the shape of an adjacent part, in constructing useful objects, may be still further illustrated by observing for a moment the psychology of invention and manufacture.

Prior to the invention and manufacture of a useful object, a want is felt which it will supply, and its future use is thus foreseen.

Holding in mind the want to be supplied, or the use the object is to fulfill, the inventor or manufacturer then thinks of such a substance for its construction as will enable it to fulfill its use, and of the shape it must have for the same purpose.

The inventor may think of the substance the object must have, first, and then of the shape; or he may first think of the shape it must have to fulfill its use, and then of the substance.

Before the poker was designed, the want of something with which to stir the fire was felt.

Holding in mind the function of stirring the fire, the designer of the poker chose a substance for its construction that fire would not destroy, and planned its shape such as would enable it to penetrate between the coals and the grates.

After these psychological processes have taken place, the poker is constructed in accordance with them.

When the object under construction is to be

part of a larger object, as the handle of a hoe or the door of a house, one more psychological step is necessary in its construction, than if it were to constitute a whole object in itself.

Being a part of a larger object, it must be joined to some other part; and the designer must not only foresee the use it is to perform as a part, and adapt its substance and shape to that use, but he must also hold in mind the shape of any adjacent part of the larger object, and adapt the shape of one part to that of another.

In constructing a hoe handle, the designer must not only hold in mind the particular use of the handle, and endow it with such a substance and shape as will perform that use; but he must also hold in mind the adjacent part or blade of the hoe, and endow the handle with such shape where it joins the blade that it will fit the latter.

In constructing a door, in addition to foreseeing its use, and procuring a substance and producing a shape for it which will fulfill that use; the maker of the door must also foresee the shape of the adjacent part or door frame, and shape the door according to the shape of the frame.

III

CREATIVE INTELLIGENCE IN ANATOMY

NOW, by turning to animal organs and bodies, we shall find **precisely the same kinds or principles of adaptation** as those displayed in human productions. If such adaptation is evidence of **intelligence and design** in the latter case, it must also be regarded as evidence of intelligence and design in the former.

Since animals as a class are more highly organized than vegetables, animal organs and bodies will be herein principally used to illustrate the intelligent creative and sustaining force that is displayed in both the animal and vegetable kingdoms.

Highly organized animal bodies consist of many parts or organs. For the complete analysis of an animal body, each part or organ should be considered separately, as we considered the parts of the hoe; that is, the use or function of each organ should be pointed out, and its shape and substance (or tissue) minutely described.

However, the organs of most animal bodies are too numerous to examine them all separately, in order to show how clearly and beau-

tifully creative intelligence is manifest in each and every one of them. We can only consider a few of the principal animal organs.

Let us consider, first, as an object of daily observation, an animal hoof.

The use of the animal hoof is to come in forcible contact with the ground, while supporting the weight of the animal above it.

For the purpose of resisting the abrading effects of pebbles and other hard materials found in the soil, a tough, hard tissue in the hoof is most suitable. We find that man could not select or imagine a better tissue for the use which the hoof fulfills, than that selected and deposited by the force which produced the hoof.

Suppose, at the birth of the animal, that portion of its body which is applied, in walking, to the rough particles of the soil, were as soft and delicate as the eyeball. Laceration and destruction of the organ, if not of the entire animal, would ensue, and we could see no intelligence in the choice of the tissue of the hoof. But we find in the hoof a perfect correspondence and adaptation of tissue to use, and we conclude that an intelligent creative force selected and deposited that tissue.

Observe the shape of the hoof, as compared with its use. It is flattened beneath, so as not to penetrate the soil when the weight of the animal is exerted upon it in walking.

Suppose the hoof were sharp, like a horn; it would penetrate the ground to such depth in walking or running that it would impede the locomotion of the animal, and its use would be practically destroyed. We thus find in the hoof the adaptation, also, of shape to use, which is further evidence of the creative intelligence which formed it.

It is erroneous to suppose that the use of the hoof in walking gave it its shape, or caused it to become flattened. If such were the case, we should expect that butting or hooking with the horns, and biting with the incisor and canine teeth, would also blunt or flatten them. But these organs have become pointed or wedge-like in shape, regardless of the fact that their use in butting and biting tended to produce exactly the opposite effects upon their shape.

The force which produces the shape of an organ acts wholly from within it. This force produces the correct shape and deposits the correct tissue in organs, for dealing with particular external objects or environment, as surely as man's intelligence selects the proper substance and produces the proper shape of a tool for performing a particular thing; and when environment changes, and organs become modified or developed into different organs, it is this force which changes the shape and tissue of organs for dealing with the changed environment.

Altho use and external objects or conditions may act against the shape of organs, as in the case of the horns and the teeth, the creative force within the organ produces the correct shape and deposits the correct tissue in the organ for dealing with the external conditions, in spite of the opposing effects of use and external conditions.

The shape and tissue of every organ is adapted for dealing with some object or condition external to itself. No organ exists, whether developed from some other organ or not, in which shape and tissue are not exquisitely adapted for dealing with some particular environment, or doing some particular thing. The production of the correct shape, and the selection and deposition of the correct tissue, in organs, for dealing with particular environment, are in all cases intelligent results. We therefore conclude that the force which produces these results is intelligent.

The effects of use, external conditions, etc., upon the formation and development of organs and bodies, will be further described in a separate chapter.

The hoof is a part of the animal body; and the parts of the body, like the parts of a human production, are shaped by intelligence in their formation to fit one another. That is, the shape of one part is adapted to the shape of adjacent parts. This is true of the hoof.

The upper portion of the hoof is joined to bones above it. Each depression in the upper surface of the hoof is met by a corresponding protrusion in one of the bones to which the hoof is joined. The protrusions exactly fit the depressions. There is a perfect adaptation of shape to shape in the joining or articulating surfaces, which is the third kind of adaptation herein cited as evidence of the creative intelligence which acts in the formation of organs.

An especially striking example of the adaptation of the shape of a part to the shape of an adjacent part of the animal form is the ball-and-socket joint, such as the hip-joint of a quadruped, which may be easily procured for observation. In this it will be seen that the ball fits into the socket with beautiful precision. But the adaptation of shape to shape of adjacent parts, as well as the two other kinds of adaptation mentioned, may be found in every organ that is connected with one or more other organs, in the entire realm of the science of Zoology.

Let us next observe the teeth of animals, including man.

The use of the teeth is to cut and grind substances used as food, reducing those substances to minute particles, so that the digestive juices may more readily act upon them. Thus, by the mastication and digestion of food, the life of the creature is maintained.

Exceedingly hard substances are often encountered as food, both by man and animals; so that a very hard and firm tissue is necessary in the teeth to withstand the force brought to bear against them in crushing such substances.

Suppose the tissue which man and animals instinctively exert against hard food substances, were as soft as the tissue of the lips or tongue. No intelligence would be displayed in selecting and depositing such a tissue for the teeth, for it would be useless for the function of crushing and grinding food. But we find perfect adaptation of tissue to use in the teeth, and we conclude that an intelligent creative force selected and deposited that tissue.

Observe the shape of the teeth.

Their use, as stated, is to cut and grind food; and in the human body, those teeth occupying such a position in the mouth as to be most useful for cutting, have a cutting or incisive shape, while those lying farther back in the mouth, and which are used for grinding, are broader and better fitted by their shape for that purpose.

Suppose the incisor teeth were cubical or spherical; by such a shape they would not sever bread and butter, or other substances used as food. And suppose that the molar or grinding teeth presented flat, smooth surfaces to one another, instead of cusps and depressions, for the purposes of grinding; little or no intelli-

gence would then be manifested in their shape. But perfect adaptation of shape to use exists in the teeth, and hence we conclude that their shape was produced by an intelligent creative force.

Each tooth is joined to other parts of the body; viz., to the jaw bone, and in a manner to the tooth above or below it. Each tooth has one or more roots; and there is a socket in the jaw bone for each root, into which it fits with great precision. Here is the adaptation of shape to shape of adjacent parts.

But this kind of adaptation is found still further in the teeth, from the fact that each tooth comes in contact in chewing with a tooth above or below it.

To cut food, as in the case of the incisor teeth, one sharp edge must fit against another, somewhat like the blades of a pair of scissors. Each incisor tooth has a sharp edge, and is matched, scissor fashion, with another incisor, making incision of food substances possible and easily performed.

To grind food, as in the case of the molars, cusps or elevations on one tooth, fitting into depressions in another, are the most effective contrivances than can be conceived for the purpose, when we remember both the up-and-down and sidewise motion of the lower jaw. These corresponding elevations and depressions we find on the surface of the molar teeth.

Not only, therefore, is the shape of the tooth adapted to the shape of the socket in the jaw bone, but its shape is also adapted to the shape of the tooth above or below it. There is no escape from the conclusion that an intelligent creative force not only selected and deposited the tissue, but also produced the shape, of the teeth.

Let us notice the use, tissue and shape of that wonderful organ of special sense—the eye.

The use of the eye is to receive light thru it, and thereby to form images on the retina at its back part. Light (the x-ray excepted) will pass thru only transparent substances, or those substances that can be seen thru by daylight.

For many centuries men have used the substance of glass for admitting light into their dwellings and public buildings, which, on account of its transparency, may be said to be perfectly adapted for the purpose of admitting light.

The crystalline lens, and other tissues of the eye, are as transparent as glass. Thus these transparent tissues of the eye are adapted to the use or function of admitting light thru it, by which seeing is made possible.

Seeing by means of light can be accomplished only by the use of a transparent substance having a more or less rounded form, like that of a lens. The direction of the rays of light coming from any object must be changed

in a regular and uniform manner in order for them to produce an image of the object upon the retina after they have entered the eye. This regular and uniform change in the direction of the rays of light is produced by its passing thru any transparent substance shaped like a lens.

The shape of the crystalline lens of the eye is exactly such as to produce this necessary change in the direction of the rays of light that enter the eye from any object, and a perfect and beautiful image of the object is thus thrown against the retina of the eye.

In the lenses of man's microscopes and telescopes, by which he has brought to view worlds infinitesimally small, as well as other worlds almost infinitely distant, he has merely imitated the crystalline lens of the eye. The same is true of his eye-glasses. The adaptation of the shape of the crystalline lens to refracting the rays of light, by which, in connection with its transparency, seeing is accomplished, is evident.

The eye-ball is round; and anyone who has examined the human skull will remember the deep, round sockets in the skull that were once the resting place of the eye-balls. Similar sockets for the eyes may be seen in the skull of the ordinary quadruped. Here we have the adaptation of shape to shape of adjacent parts.

In the adaptation of the tissue of the crys-

talline lens to its use, of its shape to its use, and of the shape of the eye-ball to the shape of the socket in the skull, we have evidence that the tissue of the lens was selected and deposited, its shape produced, and the shape of the eye-ball determined, by an intelligent creative force.

Let us now take a representative organ of each of the four great systems of bodily organs —the **osseous, muscular, nervous** and **circulatory**—for the purpose of illustrating the different kinds of adaptation in all those systems, and demonstrating how an intelligent creative force is manifest in the formation of each and every organ of the body.

As a representative bone of the human skeleton, let us notice the upper bone of the arm, or humerus.

The use of this bone, in connection with the other bones of the skeleton, is to form the frame work of the body. Its special use is to serve as a basis or support for the biceps muscle, which rests upon it; to reach for food and other objects; and to withstand the weight or pressure of things brought in contact with the hand.

To serve these purposes, it is necessary for the tissue of the humerus to be very firm and strong, and capable of withstanding the weight of objects brought to bear against it; and such we find the tissue of the humerus to be.

Suppose the tissue of the humerus and other bones of the skeleton, instead of being firm and strong, were soft and flexible; notice what the effect would be in attempting to stand erect, or lifting a heavy weight with the hand. The tissue of the bones would give way, the body would crumple in the attempt to stand erect, and it would be impossible to lift a weight with the hand either obliquely or horizontally. Here, then, in bold relief, we see the adaptation of the tissue of the humerus to its use—one of the three kinds of adaptation mentioned as evidence of creative mind in the formation of organs and bodies.

The shape of the humerus is long and slender—adapted to the use of reaching for objects and supporting the long, slender biceps buscle, thus illustrating the adaptation of shape to use—another one of the kinds of adaptation given as evidence of creative intelligence in the production of animals and plants.

The third kind of adaptation which is presented as evidence of creative mind in the formation of organic bodies—that of shape to shape of adjacent parts—is clearly and wonderfully illustrated in the humerus. Its upper end is a ball, which fits perfectly into a socket formed by the scapula or "shoulder blade." At the lower end of the humerus, it forms, with the ulna, the hinge of the elbow, which, for illustrating the adaptation of the shape of one

part to that of another, equals, it seems to me, the ball-and-socket joint.

The bones of the foreleg of a quadruped correspond to the bones of the arm in man, and are more easily procured for study. Notice the adaptation of the shape of one of those bones to the shape of an adjacent bone. For every depression in the end of one of them there is a corresponding elevation in the end of the other. For every groove in one there is a corresponding ridge in the other. Elevation fits into depression, and ridge into groove. As each of these bones were formed, the shape of the other must have been considered by the creative intelligence.

As a carpenter makes a pin to fit a hole, he retains the shape of the hole in mind as much as that of the pin. So, in the formation of one part of the body to fit another part, creative intelligence must have foreseen the shape of one part as it formed an adjacent part.

The bones of the arm and hand, and the bones of the lower limbs, must be swung to and fro at the joints, and handled in various directions, in order that they may be useful. These motions in the bones are produced by the muscles. The muscles are of suitable shape with reference to the bones, and composed of a contractile tissue, which is capable of being contracted and relaxed upon the bones, to produce their desired motions.

As a representative muscle, notice the use, tissue and shape of the biceps—the larger muscle on the humerus, which we have just examined.

The use of the biceps is to extend a distance of twelve or fifteen inches between the shoulder and the lower bones of the arm, and, by being contracted upon the humerus, to cause the lower bones of the arm to swing at the elbow, like a door on its hinges. This motion of the lower bones of the arm is very necessary in the performance of labor and other duties of life, for without this motion the arm would be inflexible and useless.

The tissue of the biceps muscle is soft and pliable, and capable of contraction and relaxation—a tissue of exactly opposite qualities and entirely different from bone tissue. Here again, then, in beautiful display, is the adaptation of tissue to use.

The biceps muscle extends between the bones of the shoulder and those of the lower part of the arm, and, as just suggested, produces motion in the latter. The shape of the biceps is necessarily long and slender for the performance of this function. Here is the adaptation of shape to use in the biceps muscle.

At the upper end of the biceps it is attached to both the scapula and the clavicle, the double attachment rendering the muscle stronger and

more powerful for lifting weights by the hand. In order to be so attached, the biceps must have two projections, or two heads. So it has; from which fact it obtained its Latin name biceps. The biceps is especially so shaped where it is attached to the scapula and clavicle as to fit both places of attachment. Thus in the biceps we have the adaptation of shape to the shape of adjacent parts.

The muscles of the body are not self-acting, but are made to act principally by the external agency of the nerves, which extend from the brain or nerve ganglia to all the muscles. The nerves convey a motor force from the brain or ganglia to all the muscles; and their tissue and shape are exactly adapted to this use.

As a representative nerve, let us notice the use, tissue and shape of the sixth cervical nerve, which supplies the biceps muscle with motor force.

The use of this nerve is to convey from the nerve center to the biceps muscle a force or fluid bearing some resemblance to electricity. If the nerve which supplies a muscle with the nervous force be detached from the brain or nerve center and attached to a galvanic battery, the electric shock causes muscular contraction, producing a similar effect upon the muscle to that which the nervous force produces. Thus electricity and the nervous force seem to have some qualities in common.

Now it is well known that some substances are conductors of electricity, and some are non-conductors; and the same is true of nervous force. But it so happens, or rather it is so designed, that the tissue selected and deposited for the construction of the nerves is a perfect conductor of the nervous force, as is the case with the sixth cervical. But for this perfect adaptation of the tissue of the nerves to conducting the nervous force, massive muscle would be useless, and the giant would be no stronger than the dwarf. The adaptation of tissue to use is here clear.

The shape of the sixth cervical nerve is long and sinuous, and such in all respects as to enable it to reach the biceps muscle and best perform its function. It wends its way over hills of bone and muscle, across streams of blood, and thru tunnels of bone, with all the direction and certainty of design of a telegraph line as it holds on its course over hills, across streams, and thru tunnels, from city to city. Here is the adaptation of shape to use.

When this nerve reaches the biceps muscle, it branches out to all parts of the muscle. Thus the shape of the nerve is adapted to the shape of the muscle or part to which it is joined.

The circulatory system of animals and of man is a network of vessels which carry nutriment in the form of blood to all parts of the body, refreshing and enlivening them, as a sys-

tem of waterworks carries water thru all parts of a city to the famishing residents.

Let us, as briefly as possible, notice the use, tissue and shape of the subclavian artery, as a representative organ of the circulatory system.

The chief use of this artery is to carry blood to the biceps muscle, which is forced thru the artery by the pulsations of the heart, similarly as water is forced through hose by a force pump.

By the action of a force pump, or by the pulsation of the heart, the liquid to be transmitted enters the transmitting tube intermittently, or at each stroke of the pump or each heart beat. In violent exercise, especially, the heart beats powerfully, and heavy jets or pulsations of blood enter the arteries or transmitting tubes at each heart beat.

If the tissue of the subclavian artery were perfectly rigid, its rigidity would to some extent resist each jet or pulsation of blood and retard its flow. But the tissue of the artery is elastic, so that the artery enlarges before each wave of blood and allows it to flow onward, instead of resisting it. Thus the tissue of the artery is adapted by its elasticity to the use of receiving and transmitting blood to the biceps muscle.

The lining of the subclavian artery is also non-porous and closely knit, so that the blood will not exude thru the walls of the artery and

be lost on its way to the biceps muscle. Thus the tissue of the artery is further adapted to its use by its non-porosity.

Observe the shape of an artery. An artery is a tube or closed vessel. Notice that the blood could not in any manner be forced thru an artery, were it not closed all around, or on all sides. If it were open like a trough, the current of blood could not be controlled within its walls, and circulation would be impossible. Man has recognized the absolute necessity of a closed vessel in his manufacture of iron spouting and rubber hose for the purpose of forcing liquids thru them. Here, then, in beautiful display, we see the adaptation of the shape of the subclavian artery to its use.

There is a point in regard to the shape of the heart and veins, the wonder and ingenuity of which man recognizes, but which he has not yet been able to imitate in his aqueducts. I refer to the valves, which by their position inside the heart and veins, greatly facilitate the circulation and flow of blood.

The valves are located in pairs within the walls of the heart and veins, and shut against each other, somewhat as double doors that are hung on hinges in the opening between two rooms. At each pulsation of the heart, the valves open in the direction in which the blood is flowing as doors open between two rooms, let the blood pass thru, and then close im-

mediately behind it, preventing it from flowing backward and in the wrong direction. The circulation of the blood is accelerated by the opening and closing of the valves at each pulsation of the heart. Particular adaptation of the shape of the heart and veins to the use or function of circulating the blood is thus shown by the valves which they contain.

In each of the representative organs mentioned, therefore, as well as in other organs, we have found **the adaptation of tissue to use, shape to use, and the shape of the organ to the shape of an adjacent organ**; and this adaptation is indisputable evidence of the intelligent creative force which operates in the formation of every organ and body in the animal and vegetable kingdoms. Thru these kinds or principles of adaptation, we arrive at a perception of the intelligent creative force which forms and develops organs and bodies under all circumstances and conditions, whether in the embryonic state or during life under new or changed environment.

IV

CREATIVE INTELLIGENCE IN EMBRYOLOGY

IN THE study of the science of Embryology, or the formation of animals and plans in the embryonic state, has anything been discovered that conflicts with our conclusion that intelligence controls their formation? No; but everything that has been discovered confirms our asseveration that the formation of animals and plants in the embryonic state is accomplished **purely and solely by an intelligent creative force.**

The human body originates in the germ cell or ovum, which, so far as the eye or microscope can descry, is a little, disc-shaped body of ordinary matter, about one-hundredth of an inch in diameter.

The first process in the change of the germ cell into the bodily organism, is segmentation, or a division of the germ cell into more cells.

By the aid of the microscope, the germ cell is first seen to divide into two parts, each one of these parts now presenting the appearance of a cell. Each of these new cells again undergoes segmentation, producing two cells, each of the latter producing two more, and the pro-

cess continues, until a large number of cells are produced.

After segmentation, the cells are seen to move from place to place in the embryo, and to group themselves into the shapes of the various organs of the body.

Tho all the cells of the embryo are, up to this time, composed of the same kind of substance, and chemically speaking, possess affinity for the same thing; the groups of cells that have assumed the shapes of the various organs, now absorb from the fluid of the embryo **different** things, for the construction of the various tissues of the organs. At the point where cells composed of the same substance begin to absorb different substances, evidently some other force than a chemical force must control them. They are controlled at this point by the same intelligent creative force that causes them to group themselves into the correct shapes, and to absorb the correct tissues, of the bodily organs, in their embryonic formation.

The two actions of the cells, viz., assuming the proper shapes and absorbing the proper tissues for the future use of the organs, are **intelligent actions;** equally intelligent with the action of a manufacturer who selects and procures iron or steel, instead of chalk or sponge, for the drive wheel of an engine, so that it will sustain the load and withstand the force exerted against it, and who forms the wheel cir-

cular instead of forming it square, so that it will revolve upon a track when it is propelled. For, a group of cells which, for example, are to compose a tooth, select and procure from the nutrient fluid a substance as hard as iron or steel, instead of absorbing the substance of flesh or fat, for cutting and grinding food, and they assume a cutting or grinding shape, instead of a globular or cubical shape, for cutting and grinding food. Since these two actions of the cells in the formation of organs are intelligent, we conclude that the cells are directed and controlled in such actions by an **intelligent creative force.**

Let us trace the action of the cells in the complete formation of some portion of the body in the embryonic state, as, for example, an arm.

At an early stage of the change of the ovum into the bodily form, a portion of the cells arrange themselves into the form or outline of an arm. The cells of the arm then subdivide further into two parts, which arrange themselves side by side, and extend the whole length of the arm. These parts now absorb from the nutrient fluid different substances, one part absorbing such a substance as to make that part hard and inflexible, while the other part absorbs such a substance as to make it soft and contractile. Thus bone tissue and muscle tissue are formed.

The cells of the muscle tissue then further arrange themselves into several distinct muscles, the leading muscle being the biceps, or the large muscle on the upper part of the arm.

The cells at the lower end of the biceps muscle now diligently attach themselves to the lower part of the bone tissue of the arm, and those at the upper end of the muscle firmly attach themselves to upper portions of the body. Is there any **purpose,** any **intelligence,** in these acts of attachment? Let us see.

The muscle tissue is contractile, and its tendency or use is to move, by contracting, anything to which it is attached. If we can discover that it will be possible or practicable for the biceps to move the object or body to which its cells attached themselves, intelligence in the acts of attachment will begin to appear; for, intelligence in or above the attaching cells may have contemplated moving the object to which the cells of the muscle were attaching themselves.

If we find the muscle cannot move the object or part to which it is attached, we see no intelligence in the acts of attachment. If the bone tissue of the arm to which the cells of the muscle attached themselves remains stiff and inflexible thruout its whole length, we find that the biceps muscle cannot move the object to which it is attached, and we discover no intelligence in the acts of attachment.

But, about midway of the bone substance of the arm, the cells of the bone tissue, by virtue of the creative intelligence which controls them, contemplate the action of the cells at the ends of the bicep muscle, while the latter cells are forming their attachments.

Acting in concert with the cells at the ends of the biceps muscle, the cells near the middle of the bone tissue of the arm so arrange themselves as to form the joint of the elbow. By means of the elbow the object or body to which the cells at the lower end of the biceps muscle attached themselves is made movable, and the purpose and intelligence in the acts of attachment are plain.

The elbow is a hinge, which equals or surpasses in workmanship and inventive genius any hinge formed by human mind and skill.

A portion of the cells at the elbow, foreseeing, by the intelligence which controls them, that a hinge, for long and vigorous service, should be lubricated, arrange themselves in such a position, and make themselves of such a tissue, as to be able to secrete a viscid fluid from the blood and pour it over the joint in life. These cells compose the synovial membrane. This membrane secretes the synovial fluid, which lubricates the elbow, as well as all other movable joints of the body. The elbow is completed, lubricated, and ready for use by the time the cells at the ends of the biceps muscle

have firmly attached themselves, and by the time the muscle possesses sufficient contractile power to operate the hinge formed between its two ends.

Meanwhile the cells at the outer end of the arm, conscious of **the plan** to produce a prehensile, movable instrument, which is being executed in the formation of the elbow and in the attachments of the biceps muscle, conspire, by the intelligence which controls them, in perfecting and extending the use of this instrument, and arrange themselves into several rods of bone and strips of muscle running parallel to one another, which are to compose the hand. The cells at the two ends of any one of these strips of muscle now attach themselves to the same rod of bone.

As in the attachments of the biceps muscle, we could see no purpose or intelligence in these attachments to the rod of bone if the rod remained stiff and inflexible between the two attachments of the muscle. If the muscle of the finger, when contracting, could not move the part or object to which it is attached, its attachment would seem purposeless and unintelligent to us.

But, like the cells at the elbow, the cells of the bone tissue lying between the two attachments of any finger muscle, perceive, by the intelligence which controls them, the attachments which are taking place, and form a fin-

ger joint, **unerringly between the two attachments.** Thus the rod of bone to which the cells at the ends of the muscle attached themselves is made movable at the intervening joint, and the purpose and intelligence of the attachments are clear.

As in the case of the elbow, some of the cells at each of the finger joints, foreseeing, by the intelligence which controls them, that the ends of the bones at the joints are to wear against each other thru life, assume such a position, and absorb and appropriate such a tissue, as to be able to secrete the synovial fluid from the blood and pour it out upon the joint for the purposes of lubrication.

The cells in the formation of one of these joints, or in the attachments of one of these muscles, must not only have perceived, by the creative intelligence which controls them, the action of the cells in the attachments of the muscle or in the formation of the joint, with which they are most intimately connected; but they must also have perceived the attachments of muscles and the formation of joints in all the cases of the arm and hand; for **a conspiracy—a oneness of purpose**—is manifest in all the cells in producing one thing—the prehensile, movable instrument of the arm and hand. Hence we conclude that the arm and hand are produced by an intelligent creative force.

Not only, however, is there a oneness of pur-

pose manifest in the cells in producing the arm and hand, but a oneness of purpose is manifest in the cells in producing the entire body; for the arm and hand are only a part of a larger and more complete instrument or device for the maintenance of life.

By the contraction of the muscles which operate the joints of the elbow and fingers, not only do the arm and hand grasp food and place it in the mouth, but the eyes first point it out; the teeth then masticate it; the salivary glands pour saliva upon it, moisten it, and partially digest it, so that it passes freely from the mouth to the esophagus in swallowing; the esophagus transmits it to the stomach; the stomach and other organs supply the digested food to the tissues, by which health and strength are maintained.

In the formation of all these parts or organs of the body in the embryonic state, the cells which form them proceed with the same degree of intelligence that is manifest in the formation of the arm and hand.

The cells in the formation of the esophagus, for example, by the intelligence which controls their actions, not only arrange themselves into the form of a tube, and attach themselves near the back part of the mouth at the upper end of the esophagus, and to the stomach at its lower end, so as to be capable of conveying food from the mouth to the stomach; but, in the forma-

tion of the esophagus, its cells, thru the intelligence which controls them, must also evidently have been aware of the existence of food substances in the external world, of the necessity of conveying food from the mouth to the stomach thru life, etc., etc. The esophagus is evidently formed by creative intelligence with all these facts of life and the world in view.

Thus, every action of every cell in the formation of all parts and organs of the body in the embryonic state, is controlled purely and solely by creative intelligence.

When we say that an intelligent creative force purely and solely controls the formation of organs and bodies in the embryonic state, of course we do not mean to assert that physical and chemical forces do not also act in such formation. But, where physical and chemical forces operate in the formation and sustenance of the body, **they are directed and utilized by the dominant intelligent force,** as steam, electricity or gravitation is dominated by man's intelligence, in the manufacture and operation of machines.

We say that a machine is manufactured and operated purely and solely by man's intelligence; so, also, we say that the body is formed in the embryonic state and sustained in life purely and solely by an intelligent creative and sustaining force.

Let us see if we can clearly discriminate be-

tween creative mind and the material substances and forces which it uses in the formation and sustenance of organs and bodies.

It is as easy to distinguish between the part which creative mind performs and the material forces and substances which it utilizes in creating and sustaining organic beings; as to distinguish between the part which the human mind performs and the material forces and substances which it utilizes in constructing and operating implements and machines, when once we glimpse **the great and splendid truth** that organs and bodies are intelligent productions, and that creative intelligence bears a similar relation to organic beings as human intelligence bears to human productions.

In the beginning of the formation of an embryonic creature, the cell or ovum from which the creature is formed is largely surrounded by fluid conditions. When the ovum has multiplied by segmentation into many cells, intelligent creative force avails itself of the supporting physical force of the fluid, in assembling the cells into the shapes or forms of organs. In the formation of organs, the cells are assembled by the intelligent creative force into the shapes of organs thru the medium of the fluid in which the cells float, somewhat as ships are assembled in formation from different places on a body of water which bears them up.

As man avails himself of the sustaining force of water in assembling ships for naval action, creative intelligence avails itself of the sustaining force of the fluid in which the cells float, and thru which they pass, in assembling them into the forms of organs.

Thus, creative intelligence utilizes the physical force contained in the surrounding fluid in the formation of organs.

The material substances from which the tissues of the embryonic creature are constructed by the intelligent creative force, are held in solution by the physical and chemical force contained in the fluid surrounding the embryo, somewhat as the particles of cement and sand which compose a concrete mixture are more thoroly dissolved by water.

The dissolved state of the substances out of which the tissues are formed, renders those substances more easily absorbed by the cells in the formation of tissue, similarly as particles of cement and sand which compose a concrete mixture run together more freely when thoroly dissolved.

As human intelligence avails itself of the dissolving power of water in forming a concrete mixture, creative intelligence avails itself of the dissolving physical and chemical force contained in the fluid of the embryo, when it uses the dissolved material substances contained in the fluid for the formation of tissue.

In the construction of tissue in the embryonic state, certain material substances possess chemical affinity or attraction for other substances. These substances combine in the formation of tissue, similarly as cement and sand combine in the formation of concrete.

As human intelligence uses the force of attraction that exists between the particles of cement and sand in the formation of concrete, creative intelligence uses the force of attraction that exists between various substances in the formation of tissue.

When the absorption of tissue has advanced to a certain stage in the formation of organs in the embryonic state, small tubes or capillaries are formed within the tissues, thru which the fluid, which contains in solution the substances from which the tissues are formed, flows from the main body of the fluid.

The force by which the fluid flows thru the capillaries is called capillary attraction.

Instead, therefore, of directly exerting the force necessary for collecting or absorbing the tissue from the main body of the fluid, intelligent creative force now utilizes the physical force of capillary attraction, which brings the fluid closer to the place where the substances out of which the tissues are formed are finally deposited therein.

As human intelligence uses the force of gravitation in conveying dissolved or slush concrete

thru spouts or troughs to the place of formation in forms constructed for it, creative intelligence uses the force of capillary attraction in conveying the substances out of which tissues are formed to their place in the organs.

As man's intelligence is manifested in constructing the hard substance of concrete for withstanding the weight or pressure to which it is subjected in foundations, pavements, etc., so creative intelligence is manifested in constructing, for example, the hard substance of the teeth for withstanding the pressure to which they are subjected in cracking nuts, candies and other articles of food.

Since the substances of concrete, dental tissue, etc., are so pre-eminently intelligent productions, we know that the force of intelligence dominates all other forces that operate in constructing them.

As man uses the substances of cement, sand, etc., in constructing concrete, creative intelligence uses the substances necessary in constructing all the bodily organs, by causing the cells of each organ to absorb the appropriate substances for the construction of that organ.

Creative or sustaining intelligence uses the material substances and forces contained in the food, in the sustenance of the body in life.

Thru the demands of hunger, and the instinct to take food—which are parts of the nutritive system, and are, therefore, produced and con-

trolled by creative or sustaining intelligence—we voluntarily place food in the mouth.

All voluntary actions, intended and directed as they are by the human mind, we attribute to human intelligence; while all the involuntary actions of the organs, tho intelligent, but yet not intended and directed by the human mind, we attribute to sustaining intelligence.

As soon as food is placed in the mouth, the sustaining intelligence, which controls the organs of the nutritive system, sets all these organs in action, for the digestion and assimilation of the food.

The salivary glands immediately pour the saliva upon the food in the mouth.

Following the voluntary action of swallowing the food, the esophagus involuntarily seizes it, and, by its constricting action, transfers the food to the stomach.

The latter organ pours the gastric juice upon the food, and, by its peristaltic action, carries the food on to the small intestine.

That organ pours the intestinal juice upon the food, and also acts peristaltically, by which action the food is carried further along in the alimentary canal. Other digestive juices are poured upon the food in the intestine, after which the food is transferred by the lacteals to the circulatory system.

By the action or pulsation of the heart, the food is distributed, thru the circulatory system,

to the organs, where it is used in the reconstruction of tissue.

When the food reaches the organs, we experience the renewed strength or force which the material substances of the food contribute to the tissues. A hearty meal and good digestion culminate in fresh bodily vigor.

The nervous force is the means by which sustaining intelligence produces action in the esophagus, stomach, intestine, glands, etc. For a real understanding of the problem of physical life, we must look more deeply than the commonly accepted physiological statement that the nervous force, in itself, produces the motions of the body and its organs.

We have seen that creative intelligence causes the cells to select and absorb the tissue of organs from the fluid or blood in embryonic formation, and it does the same in the reconstruction of tissue during life. In the absorption of tissue in the formation of organs in the embryonic state, the cells are not stimulated in their action by nervous force, for the nerves are not in existence at this time; but they are constructed contemporaneously with the construction of other organs in the embryonic state. Therefore, the nervous force could not produce the action of the cells in the formation of organs.

Nor does the nervous force stimulate or produce the action of the cells in the absorption of

tissue during life; for, the nerves do not extend to each cell of the body. But the action of the cells is produced in life directly by the creative or sustaining intelligent force, as well as in the embryonic state.

Creative or sustaining intelligence constructs the nerves and nerve centers in the embryonic state, and reconstructs them in life, for generating and conducting the nervous force; and it uses this force as a means of producing action in the esophagus, stomach, heart, etc.

It is, in reality, therefore, creative or sustaining intelligence which produces the action of these organs.

As man's intelligence uses gravitation and other forces in forcing substances thru spouts and tubes, sustaining intelligence uses (in addition to gravitation), the constricting force of the esophagus, the peristaltic force of the stomach and intestine, the propelling force of the heart, etc., in forcing the food thru the alimentary canal and the circulatory system, to the organs of the body.

Sustaining intelligence also utilizes the physical and chemical forces contained in the various digestive juices, for dissolving and liquefying the food, and preparing it for absorption by the cells in the reconstruction of tissue; and, as creative intelligence uses physical, chemical and capillary forces in the formation of tissue from the surrounding fluid in

the embryonic state, so sustaining intelligence uses physical, chemical and capillary forces in the reconstruction of tissues from the liquefied food or blood during life.

Creative or sustaining intelligence utilizes the material substances and forces of the bones, muscles, bloodvessels, etc., in providing or performing (with the co-operation of man) the labor necessary for the care and support of mankind, individually and collectively.

To be sure, creative and sustaining intelligence does not manipulate material substances and forces before our vision, as human intelligence does. It is not clothed in human form, and does not manipulate objects with human hands. Nevertheless, its contact with material things is just as real as that of human intelligence. The examples given may sufficiently illustrate how creative and sustaining intelligence utilizes material substances and forces in the creation and sustenance of the body, and in the performance of its physiological functions.

Comparing the higher intelligence which is manifest in the Universe, with human intelligence, is sometimes depreciatingly termed anthropomorphism, or otherwise unfavorably characterized.

Some writers who, unfortunately, have not themselves, clearly and forcibly perceived the existence of an intelligent creative and sus-

taining power in the world, find it easier to disparage the claims and convictions of others on this subject, than to make the necessary effort to perceive the truth themselves.

If the supreme intelligence were not in some respects like human intelligence; and if the supreme intelligence did not manifest itself in some respects like human intelligence, then it would be impossible for human intelligence to recognize the higher intelligence in the Universe. Except for some resemblance between human and divine intelligence, man could not recognize the existence and jurisdiction of a supreme intelligence at all.

Nor could man recognize the attributes of divine love, wisdom, mercy, etc., except by comparing them with such love, wisdom and mercy as he himself possesses.

Says John Fiske:

"As a matter of history, the existence of a quasi-human God has always been an assumption or postulate. It is something which men have all along taken for granted. It probably never occurred to anybody to try to prove the existence of such a God until it was doubted, and doubts on that subject are very modern. Omitting from the account a few score of ingenious philosophers, it may be said that all mankind, the wisest and the simplest, have taken for granted the existence of a Deity, or deities, of a psychical nature more or less similar to that of Humanity. Such a postulate has formed a part of all human thinking from primitive ages down to the present time."

So far as man has been able to discover, no

creature comes into life, at the present period of the world's existence, by spontaneous generation, or without parentage. The simplest living creature, which consists of a single cell, is, so far as man has been able to discover, derived by division from the body of a parent cell.

While the substances which compose the body of this minute organism are collected or derived from the body of a parent cell, the first cell or organism that came into existence could not have been so derived; but the substances of which its body were composed must have been collected directly from the external or surrounding elements.

If creative intelligence now collects the substances composing one cell or organism from the body of another; and if creative intelligence collects the substances composing the bodies of millions of cells, in the embryonic state, from the body of the parent organism, or from the fluid surrounding the embryo, and arranges those cells into a highly organized creature; it is entirely conceivable that creative intelligence could and did collect the substances of the original cell or cells directly from the external elements.

Since it appears that the substances composing the bodies of organisms, however minute, are not, at the present period of time, collected directly from the external elements,

but that they are collected or derived from or within the body of a parent organism, we conclude that the Creator no longer follows the original method of creating even so small an organism as a single cell.

Should the discovery be made, however, at any time in the future, that cells or organisms still sometimes come into existence by spontaneous generation, or without parentage, and that the substances composing their bodies are collected directly from the water, air, or other element in which they are found, we should only have discovered that the Creator still follows, in rare or obscure cases, the method which he probably employed in creating the first or original cell.

Since the original cell was the beginning of a long series of organisms that have developed from it, and in which creative intelligence is increasingly manifest, we conclude that the original cell was formed by creative intelligence, even tho, in the simplicity of its organism, it is not so replete with the evidences of creative intelligence as are the higher organisms and species of which it is the progenitor.

Material forces, unassisted and uncontrolled by an intelligent force, are as unlikely to have assembled cells into the intelligent shapes and tissues of the organs of organisms in nature, as to have produced implements and structures in the world of art.

No one ever saw a knife sharpen a pin, unless it was wielded or driven by an intelligent force; nor did any one ever see a cyclone blow lumber, nails, doors, hinges, window panes, etc., into the form of a house, with the shapes and substances of all the different parts properly formed, selected and arranged.

In the study of Anatomy, Physiology, Embryology, etc., men of science have hitherto devoted their attention almost exclusively to the material substances and forces which exist and operate in organic bodies.

The study of these sciences, and of the material substances and forces contained in organic bodies, cannot be too highly commended. No one should, for a moment, belittle the achievements and value of material science, nor underestimate the importance of the task it has performed in ridding the world of ignorance and superstition, and replacing them by enlightenment and progress.

In the study of these sciences, however, the student should not confine himself wholly to material substances and forces—to the laboratory and dissecting room. He should also look for evidences of an intelligent creative and sustaining force in these sciences.

In dissection and chemical analysis, the student relies mainly or wholly upon the sense of sight. He merely sees the bones, muscles and other bodily organs, and the action or effect of

one chemical substance upon another. He does not see the intelligent creative force which produces the particular shape and deposits the particular tissue of the organs, and which assembles and directs certain chemical and physical forces in the digestion and assimilation of food and the maintenance of life. For mind, either human or divine, can neither be seen, heard, touched, tasted nor smelled.

Different methods are necessary for perceiving the intelligent creative and sustaining force in the formation and sustenance of the body, from those ordinarily used in the study of Anatomy, Physiology, etc. The omission or failure to vary from the ordinary methods of study of these sciences, for the purpose of perceiving the intelligent creative and sustaining force that is manifest in them, explains why many students of these sciences do not perceive that force.

The great intelligent factor of formation, sustenance and development is discovered by methods similar to those by which we discover human intelligence in material objects.

The only evidence we have of the existence of certain races of people is the intelligent productions that they left behind them.

In the southwestern part of North America, for example, evidences of an ancient race of people have been found. In the region mentioned, ditches or canals, leading from ancient

water sources to lower-lying, arid but productive agricultural lands, are seen.

The surface of the ground thru which these canals run often varies in elevation and depression. In crossing depressions, the sides of the canals are raised, as if to prevent the water from overflowing the sides.

In crossing very deep depressions, even the bottom of the canal is raised or built up in the depression, as if to keep the bottom at that place on a regular slope with the bottom in other parts of the canal, so that water would not stand in the depression, but would continue onward to the agricultural district.

Numerous ancient water sources were thus connected with arid agricultural districts by intelligently constructed canals, in the region mentioned.

When the Spaniards first explored this region in the sixteenth century, the Indians who occupied it at that time stoutly maintained that neither they nor their ancestors had constructed the canals, and that they had never seen nor heard of any tribe or race of men who had constructed them.

Notwithstanding all this, we are positively convinced, from the signs and evidences of intelligence which we find in the canals, that intelligence designed and constructed them for conveying water from water sources to arid lands.

By the aid of powerful telescopes, astronomers see, on the planet Mars, what appears to be canals leading from water sources to arid but apparently productive parts of the planet.

In the opinion of scientists, there is a great scarcity of water on Mars; and if they could be sure that the lines which they see on the surface of the planet are what they seem to be, viz., canals leading from water sources to arid agricultural districts, they would be in complete accord in believing that intelligence constructed the canals of Mars, and, therefore, that intelligent beings inhabit the planet.

By the same method that we discover human or finite intelligence in such cases, we may discover creative intelligence in organic bodies.

For, let us think a moment! Is an open ditch or canal, which will conduct its contents only over a downward slope, equal for conducting fluids, to a tube or closed vessel, which will conduct its contents in any direction, up an incline or even perpendicularly upwards, without the possibility of any of the fluid escaping?

Yet we find in the animal body a complete system of tubes, which conduct their contents in every conceivable direction, from their source to all parts of the body, without the loss of a drop of the life-giving fluid.

If we are firmly convinced that an open canal was constructed by intelligence for conducting fluid, imperfect as a canal is for the purpose,

should we not also be convinced, beyond a doubt, that the system of closed vessels which constitute the circulatory system of the body, perfect as that system is for conducting the fluid it contains, was also constructed by intelligence?

By observations no more extensive than these in the sciences of Anatomy, Physiology, etc., many a person has first caught sight of the intelligent creative force which is displayed in the animal and plant body. Either before or after such perception, the study of this force may be pursued according to methods for perceiving it elsewhere presented in this treatise.

Thus the sciences of Anatomy, Physiology, Embryology, etc., are direct avenues to the discovery of the sublimest of all truths; viz., that a great intelligence not only forms and sustains all organic beings, but that the same intelligence beyond doubt **vibrates thruout the remotest parts of the Universe.**

The sciences of Anatomy, Physiology, Botany, and all other sciences that treat of organic bodies, become glorified when studied in the light of the evidences of divine intelligence and power which they contain.

The problem of life in the biological sense will never be correctly solved until an intelligent creative and sustaining force is recognized as the principal factor of so-called physical existence.

Some scientists assume that students of the problem of life should seek only material or physico-chemical forces as its cause; and that the moment one begins to look for a higher cause or force in the Universe than physical and chemical forces, he places himself outside the bounds of legitimate investigation. In other words, such scientists assume that, unless one proceeds, in his investigations, upon the materialistic or atheistic theory of life and the Universe, he is not a legitimate student of such problems.

It seems to me there is no more to be commended in this attitude of mind than in that of the religious fanatic who declaims against the study of science, in the belief that such study is destructive of religion. This mental attitude on the part of a scientist or anyone else, so long as it is held, hinders the mental action necessary on the part of him who holds it, to perceiving the intelligent creative force that is manifest in science.

One is not apt to find a thing unless he looks for it; nor can one perceive a deep truth clearly unless he earnestly desires to perceive it. Before the schoolboy can find the answer to a difficult problem in arithmetic or algebra, he must sincerely desire to find it, and then exert his mind in accordance with his desire.

A lack of desire, on the part of anyone to perceive the intelligent creative force that is mani-

fest in organic bodies; or a bias or prejudice in favor of the materialistic theory of life and against the theistic theory, is, indeed, a serious mental impediment to perceiving that force.

The conflicts of life, in which one is made to realize the limitations of his own strength and his need of help from an outer or higher source, tend to remove such impediments. On this account, those who have struggled hard and suffered much are apt to be more cognizant of a higher power than those who have been much aided in life, or who have never been placed in positions in which they have felt the limitations of their strength. For the latter reason, many who have been carefully trained and educated are less susceptible to the idea of a higher power than others whose opportunities have been more limited.

The great teacher once said something about "these things" being "hid from the wise and prudent," and being perceived by or "revealed unto" people of humbler intellectual pretensions. Just what "things" he referred to may be debatable; but the assertion is applicable to many things in the realm of human experience.

A later teacher said: "There are more wonders . . . in heaven and earth than our philosophy has ever dreamed of."

Whether either of these instructors of mankind referred definitely to the creative and sus-

taining power of the world, it is, at any rate, a remarkable thing that men may pursue Biology, Physiology, Embryology, etc., and often attain eminence in different phases or departments of these sciences, without perceiving the intelligent creative and sustaining force which directs and controls all their phenomena, and which is **by far the most valuable and most inspiring truth** which they contain.

However, the time comes sooner or later in the life of every one, unless prematurely cut off from life's scenes, when he is confronted by the thought of his own dissolution, and when he must naturally inquire whether, thru his connection with a creative and sustaining power, he may not hope that his spirit will survive the dissolution of his body.

It is needless to argue the inestimable value to mankind of the idea and perception of divine intelligence and power in the world. Upon this idea and belief depend the welfare and happiness of mankind. All the great and good things of human life are fostered and sustained by this idea.

No force, whether material or immaterial—whether physico-chemical or mental—is fully understood. All forces are perceived and known only by their results.

No other force in the Universe has produced and is producing results as extensive and as tangible as the creative and sustaining force

which operates in all the phenomena of life. Hence, that force may be perceived by the same faculties as all other forces are perceived by.

Nor should any one fear that science, when correctly understood, disproves the existence and operation of divine power in the world.

On the other hand, science proves, beyond the question of a doubt, the essential truths of religion.

Science should be studied, not alone for its every-day, practical value to individuals and to society, but for the actual support and confirmation it gives to religious truth.

Among the names of eminent scientists who have recognized an intelligent creative power in the creation of organic beings, that of Agassiz is one of the most illustrious. An eminent scientist of the present day, who in his young manhood was a pupil of Agassiz, says of him:

"Agassiz was essentially an idealist. All his investigations were to him, not studies of animals and plants as such, but of the divine plans of which their structure are the expression. . . . The work of the student was to search out the thoughts of God, and as well as may be to think them over again."

Agassiz rejected evolution as presented by Darwin, because the latter advanced what he termed natural selection as the principal factor of formation and development.

It was Darwinism, however, rather than evolution as understood at the present day, that Agassiz rejected. Agassiz saw that the great factor in the formation of animals and plants was an intelligent creative power, or God; and he could not accept any theory that did not include that factor, or that attempted to substitute some other cause or factor for formation and development.

The divine mind cannot express its plans in the structures of animals and plants, as Agassiz maintained, without in some manner coming in contact with them. In this contact and expression, divine mind selects and deposits the substances and produces the shapes of the organs of which animals and plants are composed.

Creative and sustaining intelligence is a force which exists and operates in nature, as positively as gravitation or chemical attraction. This force acts upon the cells or particles of matter, in the creation and sustenance of organs and bodies, causing the cells of each organ to assume the correct shape and absorb the correct tissue, as positively as gravitation acts upon the particles of a body in causing it to move in the direction of a larger body, or as chemical force acts upon particles of matter in chemical analysis.

The existence and action of this living, intelligent, all-pervading force is as easily demon-

strated as the existence and action of gravitation and chemical attraction, when studied with the same energy.

For untold centuries, man went about his life on earth without suspecting the existence and action of the force of gravitation around him, and without any knowledge of the force of chemical attraction.

Nor did man know, until comparatively recently, that a force, known as electricity, exists and operates around us, which, besides its other marvelous powers, is capable of sustaining and transmitting the human voice on wireless wings across land and sea with practical instantaneity.

Many people are even yet as incredulous or unconscious of the actual existence and operation of a divine intelligent force as man formerly was of gravitation and chemical attraction.

This force not only forms and sustains animals and plants, but it blossoms in the brain of man in the form of thought and feeling. It exists and operates in the spiritual world, as well as in the physical, impelling mankind to higher and nobler purposes, and controlling the destinies of individuals and of nations. It is the greatest of all forces; for, it not only utilizes and controls all other forces, but it rules in the spiritual realm.

We do not know just how this force comes

in contact with cells in causing them to assume the correct shapes and absorb the correct tissues of organs, similarly as we do not know just how gravitation comes in contact with the particles of a body in causing that body to move in the direction of a larger body.

But, as the movement of a smaller body in the direction of a larger body can be explained only on the supposition that a force called gravitation passes thru space from the larger to the smaller and conveys the latter toward the former; so, the movement of cells in assuming the correct shapes and absorbing the correct tissues of organs, intelligent as this movement is, can be explained only by the conclusion that the cells are controlled in their movement by an **intelligent creative force.**

"Not in the world of light alone,
Where God has built his blazing throne;
Nor yet alone in earth below,
With belted seas that come and go,
And endless isles of sunlit green,
Is all thy maker's glory seen;
Look in upon thy wondrous frame—
Eternal wisdom still the same."

V

CREATIVE INTELLIGENCE IN PHYSIOLOGY

THE physiological functions of the organs of the body, by which life and health are maintained, are **intelligent actions.** These actions are called involuntary actions. They are not under the control of the human will, or performed by the human mind. The heart beats, the lungs expand and contract, the stomach and kidneys act, without any effort of the human mind, and even without its knowledge or consciousness.

If, then, the physiological functions of the organs of the body are intelligent; and yet if they are not performed by human intelligence, they must be performed by creative or sustaining intelligence.

The physiological functions of the organs are equally intelligent to the actions of workmen in a factory where there is a **division of labor,** one workman performing one part, and other workmen performing other parts, of the same thing; for each organ performs a part of the work of transforming food into bodily tissue, or otherwise assists in maintaining life and health.

When food is taken into the mouth, the salivary glands pour saliva upon it to assist the teeth in masticating it, and to produce in it one of the chemical changes necessary to the formation of bodily tissue. These glands secrete saliva from the blood and store it within their walls, and later pour it out upon the food, when the latter enters the mouth.

The salivary glands perform the part of workmen in a factory who store a liquid in tanks, and later mix it with the raw material used in the factory while it is being reduced to pulp, for the purpose of moistening it and putting in it one of the elements necessary in the finished product. The intelligent action of the glands in secreting and storing saliva and casting it out upon the food the instant the latter enters the mouth, is thus apparent.

At the rear of the mouth is the esophagus, which conveys the food from the mouth to the stomach.

The esophagus performs the part of a workman in a factory who is employed in merely transferring the material of the factory from one workman to another in the process of its manufacture; for the esophagus produces no chemical change in the texture of the food. The action of the esophagus is similarly intelligent to the action of a workman in a factory who assists other workmen by transferring material from one of them to another.

As soon as food enters the stomach from the esophagus, the former organ pours out the gastric juice upon the food, by which another important change in the manufacture of bodily tissue is accomplished. The stomach also secretes and stores away gastric juice in glands or tanks located in its walls, to be used in digesting food.

These actions of the stomach are similar in intelligence to the actions of a workman in a factory who not only mixes a necessary liquid with the material used in manufacture, but who also prepares that liquid and stores it in tanks for use when needed.

The stomach also carries the food onward to the small intestine, by its wave-like or peristaltic action.

The peristaltic action of the stomach, tho differing in manner from the constricting action of the esophagus, is similar in intelligence to the latter action, or to the action of a workman who transfers material from one part of a factory to another, in order to facilitate the process of manufacture.

When the food enters the small intestine, that organ pours the intestinal juice upon it, by which another change in the formation of bodily tissue is performed. The small intestine also secretes and stores the intestinal juice in tanks or glands situated in its walls, to be used in the manufacture of bodily tissue.

These actions of the small intestine are similar in intelligence to the actions of a workman, again, who mixes a fluid with the material of a factory used in manufacture, and who also prepares and stores the fluid in tanks for use when needed.

The small intestine also acts peristaltically, by which the food is carried onward to the vessels of absorption.

In carrying the food onward to the vessels of absorption, the small intestine acts similarly intelligent to a carrier in a factory who transfers material from one part of the factory to another in the process of manufacture.

The liver and pancreas pour respectively the bile and the pancreatic juice into ducts leading from each of these organs to the small intestine, where these juices are mixed with the food, thus bringing nearer completion the final change of food into tissue. The liver and pancreas are large glands, which secrete their respective juices from the blood, and store them within their tissues for use when food enters the small intestine.

The liver and pancreas perform the part of workmen in a factory who pour fluids prepared and stored by them, into pipes leading to a reservoir containing the material out of which the finished product of the factory is to be made. The intelligence of the actions of the liver and pancreas is manifest.

The lacteals, or vessels of absorption, now transfer, by their action, the liquefied food from the small intestine to a network of tubes leading to all parts of the body, called the circulatory system.

The action of the lacteals in transferring the liquefied food from the small intestine to the circulatory system, resembles in intelligence the action of workmen in a factory who dip the substance or material used in manufacture from a reservoir, and pour it into tubes which lead to compartments of the factory where the product is completed.

At the head of the circulatory system is the heart, which, by its contraction and relaxation, pumps or forces the liquefied food thru the circulatory system to the organs of the body, where the final change into tissue takes place.

The action of the heart is equal in intelligence to the action of a workman who pumps the fluid substance out of which the final product of the factory is completed, thru tubes leading to compartments of the factory where the product is finished.

In the course of the circulation of the blood thruout the body, carbonic acid gas enters it from tissues undergoing **katabolism** or decomposition. For the health and strength of the body, this gas must be removed from the blood, and replaced by oxygen from the air. This work is performed by the lungs.

The action of the lungs in casting out carbonic acid gas from the blood, and transferring oxygen to the blood from the air, resembles the intelligent action of workmen who, by some process, extract a poisonous gas which has entered the material of a factory in its passage thru the tubes of the factory, and replace it by a gas which is needed in the final product.

During the circulation of the blood, other impurities also, besides carbonic acid gas, enter it from the decomposing tissues. These impurities must also be eliminated from the body, for the preservation of health. This work is accomplished by the excretory organs, the chief of which are the kidneys and the perspiratory glands.

The kidneys are large or medium-sized glands, and each of the two kidneys is provided with a duct or tube, which leads to outer portions of the body. The kidneys transfer impurities from the blood into their own substance, and then discharge those impurities into ducts, thru which they pass to outer portions.

Both the action of absorbing the impurities from the blood, and that of discharging them into the ducts leading to outer parts, are intelligent; similarly so to the action of a workman in the factory who strains or in some other manner removes from the material used

therein impurities which have inadvertently entered it, and pours those impurities into tubes or troughs which lead beyond the walls of the factory.

The perspiratory glands are each provided with a sac, and a tube leading to the exterior of the body. Each gland or sac transfers impurities from the blood to its own cavity, and then discharges its contents into the tube, by which the contents are properly led off to the exterior of the body.

The action of the perspiratory glands resembles in intelligence the action of the kidneys, or that of workmen who extract impurities from the material used in manufacture, and removes those impurities from the interior to the exterior of the factory.

Since the physiological actions of the involuntary organs of the body are intelligent, but not performed by human intelligence; we conclude that the involuntary organs are controlled and their actions produced, in the maintenance of life and health, **by an intelligent creative** or **sustaining force.**

VI

FURTHER ILLUSTRATION OF CREATIVE INTELLIGENCE IN ANATOMY AND PHYSIOLOGY

THE anatomical arrangement and physiological action of the organs of the body resemble the arrangement and action of the parts of a machine; and, since the parts of a machine must necessarily be constructed and arranged, and their action produced, by human intelligence; we correctly conclude that the organs of the body are formed and arranged, and their action produced, purely and simply by an intelligent creative and sustaining force.

Not only does man display intelligence by adapting the substance of a part of a machine to its use, the shape of that part to its use, and the shape of that part to the shape of a part that adjoins it, in manufacturing the machine; but man further displays intelligence by so arranging the parts among each other in manufacturing the machine, and so applying to the parts the motive force of the machine in operating it, that the actions of parts placed or arranged near each other **correspond in time and perform intimately related parts of the same work,** or the work performed by the

machine as a whole; the action of each of these parts being **timed** to the action of the other part, and the approximately arranged parts performing intimately related portions of the work performed by the machine as a whole.

Notice, for example, a self-binder reaping machine.

The motive force of the self-binder, which is either engine or horse power, is applied, by the supervision of man's intelligence, thru the tongue of the binder; and the motive force is further directed or applied to the parts of the machine thru cog wheels, spindles, chains, etc.

Observe the arrangement and action of the reel, sickle, straw-carrier and binding apparatus of the self-binder.

The reel is arranged just above and in front of the sickle.

The use of the reel is to bend the standing grain toward the sickle; while the use of the sickle is to cut the grain when in its bent position.

The motive force of the machine is so applied to both the reel and the sickle that the action of the one is timed to the action of the other; that is, the sickle cuts the grain when the reel bends it.

The reel and the sickle perform intimately related parts of the work performed by the machine as a whole, which is the formation of

sheaves from the standing grain. The part of the work which the reel and sickle each performs is more intimately related to the part of the work performed by the other, than to parts of the work performed by parts of the machine remote from the reel and sickle.

Bending the grain is more intimately related to cutting it than, for example, to binding it; for the bent grain is prepared, by its bent position, to be cut, but it is not prepared, in such position, to be bound. While bending the grain and binding it both are parts of the work of forming the sheaf, they are not intimately related parts.

The straw-carrier is arranged behind the sickle.

The use of the straw-carrier is to carry away the grain when the latter is laid prostrate upon it by the action of the sickle.

The motive force of the machine is so applied to the carrier as to cause it to act at the proper time, and with the proper speed, to carry away the prostrate grain as rapidly as it is cut by the sickle. Thus the action of the carrier is timed to the action of the sickle.

The part of the work performed by the carrier is also intimately related to the part performed by the sickle; for cutting the grain is immediately preparatory to carrying it away.

The straw-carrier deposits the grain which it removes from behind the sickle, upon a table,

for the formation of a sheaf. Near this table is arranged a binding arm or needle.

The use of the latter instrument is to encircle the grain upon the table with twine and tie it, when a sufficient amount of grain has been deposited by the straw-carrier for the formation of a sheaf.

The motive force of the machine is so applied to the binding arm that it acts only when enough grain has been deposited upon the table by the carrier to constitute a sheaf. Thus the action of the binding arm is timed to the action of the straw-carrier.

The part of the work performed by the binding arm is intimately related to the part performed by the straw-carrier; for the part performed by the carrier is immediately preparatory to binding the sheaf.

So, also, does creative intelligence display itself, not only by adapting the tissue of an organ to its use, the shape of that organ to its use, and the shape of that organ to the shape of an adjoining organ, in the formation of the body in the embryonic state; but creative or sustaining intelligence further displays itself by so arranging the organs among each other in their formation in the embryonic state, and by so applying to the organs the nervous or motive force of the body in energizing it in life, that the actions of organs arranged near each other correspond in time and perform intimately re-

lated parts of the same work, or the work performed by the body as a whole; the action of each of these organs being **timed** to the action of the other organ, and these approximately arranged organs performing intimately related parts of the work performed by the organs or the body as a whole.

The nervous or motive force of the body is applied, by creative or sustaining intelligence, to the organs thru the nervous system.

The teeth and the salivary glands are arranged approximately to one another in or near the mouth.

The use of the teeth is to cut and grind food and reduce it to small pieces or particles; while the use of the salivary glands is to moisten the food with saliva and partially digest it.

During mastication by the teeth, the nervous or motive force of the body, thru the reflex action* of the nervous system, is so applied to the salivary glands, that they become active and pour saliva freely upon the food, assisting in its mastication by moistening it, and beginning, with saliva, the process of digestion. Thus the action of the salivary glands is timed to the action of the teeth.

The teeth and the salivary glands perform intimately related parts of the work performed by the organs or the body as a whole;

* For further explanation of reflex action, see chapter on Mind Healing.

viz., dissolving and assimilating food and maintaining life and health. The reduction of food to small pieces or particles by the teeth is preparatory to moistening and partially digesting it with saliva by the glands.

Arranged at the rear of the teeth, in the upper portion of the body, is the esophagus.

The use of the esophagus is to carry the food away from the mouth as rapidly as it is masticated and dissolved by the teeth and salivary glands.

When the food reaches the upper part of the esophagus from the mouth, the nervous force is so applied to the esophagus, thru the reflex action of the nervous system, as to cause the esophagus instantly to contract from above downward, thruout its whole length, thus carrying the food in the proper direction to remove it from the mouth. The action of the esophagus is so timed to the action of the teeth and salivary glands as to remove the food as rapidly as it is masticated and dissolved by the teeth and glands.

The part of the work of preparing the food for the maintenance of life and health which the esophagus performs, is intimately related to the part performed by the teeth and salivary glands; for the food must be removed from the mouth when it has been masticated and dissolved, in order that it may reach the tissues, and in order that a sufficient amount of food

may pass thru the mouth to sustain the body in life and health.

The esophagus carries the food to the stomach, which is arranged and attached at the lower end of the esophagus.

The use of the stomach is to digest the food by means of the gastric juice, and also, by peristaltic action, to carry the food onward to the small intestine.

When the food passes from the esophagus to the stomach, the nervous force is so applied, thru the reflex action of the nervous system, to the latter organ, that it pours the gastric juice vigorously from its walls, and also acts peristaltically, by which actions the food is further digested and carried onward toward the small intestine. These actions of the stomach occur only when food is deposited in the stomach by the esophagus. Thus they are timed to the action of the esophagus.

The part of the work of the body which the stomach performs is intimately related to the part performed by the esophagus; for the stomach performs the next necessary actions to the action performed by the esophagus, in preparing the food for maintaining life and health.

Arranged below the stomach and attached to it is the small intestine.

The use of the small intestine is to digest, by means of the intestinal juice, portions of the

food not digested by preceding organs, and, by its worm-like or peristaltic action, to carry the food further along in the alimentary canal.

When the food passes from the stomach to the small intestine, the latter organ is so influenced by the nervous force that it pours the intestinal juice vigorously upon the food, and, by its peristaltic motion, carries the food further onward toward its final destination. These actions of the small intestine are timed to the actions of the stomach in digesting and pouring the food into the intestine.

The part of the work of sustaining the body performed by the small intestine is intimately related to the part performed by the stomach; for the small intestine performs the next necessary change after that performed by the stomach, in the preparation and conduction of the food for the maintenance of life and health.

The liver and the pancreas are arranged in the region of the small intestine, and each of these organs is connected with the intestine by a duct or tube, thru which the contents of the organ pass to the intestine.

The use of the liver and pancreas is to cooperate with the small intestine and other digestive organs in the digestion of the food, by pouring the bile and the pancreatic juice which they respectively secrete from the blood, into the ducts thru which they flow into the intestine.

As the food is carried along in the small intestine by the peristaltic action of the latter, the nervous force, thru reflex action, is so applied to the liver and the pancreas that they set up vigorous action, and pour out respectively the bile and the pancreatic juice upon the food in the intestine, by which the digestion of the food is completed. So vigorous is the action of the pancreas at this particular time that it even changes color. Thus the actions of the liver and the pancreas in casting their respective fluids into ducts leading to the intestine, are timed to the action of the small intestine in doing its part in the digestion of the food and bringing the latter to the place where the bile and the pancreatic juice may act upon it.

When the digestion of the food is completed in the small intestine, it is forced, by the peristaltic action of the intestine, to the lacteals, or vessels of absorption, which are arranged in or near the walls of the intestine.

The use of the lacteals is to absorb the liquefied and digested food from the small intestine, and transfer it to the circulatory system for distribution thruout the body.

When the liquefied and digested food is carried to the lacteals by the peristaltic action of the small intestine, the nervous force so acts upon the former organs that they initiate vigorous action, and dip the liquefied food from

the intestine as rapidly as the latter organ supplies the food by peristaltic action. Thus the action of the lacteals is timed to the peristaltic action of the small intestine, and to the actions of the intestine, liver and pancreas in completing the digestive process.

The part of the work of sustaining the body which the lacteals perform; viz., that of absorbing the liquefied and digested food from the small intestine and transferring it to the circulatory system, is intimately related to the part which is performed by the small intestine, the liver and the pancreas; for the lacteals could only absorb the food in the thoroly liquefied and digested state to which it is reduced by the trio of organs named.

As above mentioned, the lacteals transfer the food from the small intestine to the circulatory system, important parts of which, in connection with the heart, are arranged in the locality of the lacteals.

The use of the circulatory system, as also mentioned, is to distribute the liquefied food to all parts of the body.

When, by the action of the lacteals, the food is transferred to the circulatory system, the nervous force, thru reflex action, is so applied to the heart that the latter beats with such power as to shake the whole body in its effort to force the liquefied food or blood thru the circulatory system, to all the tissues of the

body. The action of the heart and circulatory system is thus timed to the action of the lacteals in filling that part of the circulatory system which is located near them with liquefied and digested food.

The part of the work of sustaining the body performed by the heart and circulatory system is intimately related to the part performed by the lacteals; for the heart and circulatory system take up the work of circulating the liquefied and digested food where the lacteals leave it, and can distribute the food only in the thoroly dissolved and digested condition in which they receive it from the lacteals.

The lungs are so arranged in the thoracic cavity that they come in contact with the liquefied food soon after it enters the circulatory system.

The use of the lungs is to extract oxygen from the air and transpose it to the liquefied food or blood; and to remove carbonic acid gas from the blood. Oxygen must be taken into the blood, and carbonic acid gas removed from it, in order to keep it pure and nutritious.

When, by the increased action of the heart and bloodvessels, an increased quantity of blood reaches the lungs, the latter organs are so affected by the nervous force that breathing becomes deeper and more frequent, by means of which oxygen is more rapidly taken into the blood and carbonic acid gas expelled

from it. Thus the action of the lungs in increased respiration is timed to the action of the heart and circulatory system in conveying the blood in increased quantities to the lungs.

The part of the work of sustaining the body which is performed by the lungs is intimately related to that performed by the heart and circulatory system; for when the latter organs force the blood to the lungs in an impure state, it is oxidized and purified by the lungs for the nourishment of the tissues.

The kidneys and perspiratory glands, which are the principal organs of excretion, are also arranged in such position as to come in close contact with the contents of the circulatory system.

The use of the kidneys and perspiratory glands is to remove other impurities and poisons from the blood than those removed by the lungs. The removal of these impurities and poisons is very necessary to the health and strength of the body.

Simultaneously with or immediately following the increased action of the heart and blood vessels in circulating the blood, and of the lungs in oxidizing it and removing carbonic acid gas from it, the nervous force, thru the reflex action of the nervous system, so influences the kidneys and perspiratory glands, that they set up vigorous action, by which they remove impurities from the blood in propor-

tion to the rapidity with which it is supplied to them by the increased action of the heart and circulatory system. Thus the action of the kidneys and perspiratory glands is timed to the action of the heart and circulatory system.

The part of the work of maintaining life and health which is performed by the kidneys and perspiratory glands, is intimately related to the part performed by the heart and circulatory system; for the purification of the blood by the excretory organs is dependent upon its being supplied to them by the heart and circulatory system.

If, therefore, human intelligence is necessary to such arrangement and action of the parts of a machine as have been pointed out; so, also, must creative and sustaining intelligence be necessary to similar arrangement and action of the organs of the body.

There is as much reason to expect matter to arrange itself intelligently in the world of art as to expect it to arrange itself intelligently anywhere else, or in an animal or plant body. Matter never arranges itself into the intelligent forms of houses, furniture, vehicles, or agricultural implements. Neither does it arrange itself into the intelligent forms of animal and vegetable organs and bodies.

Numerous apt illustrations of the impossibility of matter ever arranging itself intelligently—either in the shapes which organs

acquire, or in their arrangement among each other so that approximately arranged organs act together in time and perform intimately related portions of the work performed by the organs as a whole—unguided by intelligence, have been given by writers in dissertations upon the evidences of a Supreme Intelligence.

Especially striking is the illustration that a printer's outfit of type, when accidentally displaced from its position on the shelf, would be as likely to fall into a poem upon the floor, as matter would be to arrange itself intelligently in the shapes of animal and vegetable organs and bodies.

Not only are the shapes and arrangement which organs assume in their formation indisputable evidence of an intelligent creative force, but the tissues which they absorb are equally incontrovertible evidence of such a force.

Like the forces of gravitation, chemical attraction, etc., the intelligent creative force is not as commonly and easily perceived as the simple objects of every day life. It lies beyond the sphere of the senses. It is not seen with the eyes nor heard with the ears. It does not attract attention either by sound or paraphernalia.

But when one seeks with a sincere desire and a real effort to perceive the intelligent creative and sustaining force which operates

in every body, organ and cell of the animal and vegetable kingdoms, it becomes to him a reality. And when one has discovered for himself the creative and sustaining intelligence which upholds and governs the Universe, he has acquired at once **the sublimest and the profoundest truth** that is inscribed on its infinite pages.

"The spirit floats in thoughts of God,
As birds float on the wing:
Strong currents of the upper air
Support them while they sing.
So rest I in this thought as broad,
As deep, as wide as heaven, and dare
To rest while mighty currents swing
On their majestic way.
'Thou art my God!'
When this I say,
My soul draws breath in utter rest,
As if I leaned upon his breast!"

VII

RELATION OF CREATIVE INTELLIGENCE TO ORGANIC BODIES

AS previously suggested, creative intelligence operates upon matter in the formation, development and sustenance of organic bodies, similarly as human intelligence operates upon matter in the manufacture, improvement and operation of machines.

Human intelligence selects and procures suitable material substances for the parts of a machine, and gives those substances the correct shapes in manufacture, for performing the uses of the parts.

Creative intelligence selects from the fluid which nourishes the embryo, and deposits at the proper location, suitable material substances (or tissues) for the organs of the body, and gives those substances the correct shapes in forming the organs, for the performance of their functions.

Human intelligence gives the parts of a machine the correct shapes in manufacture, to fit the parts to which they are joined.

Creative intelligence also gives the organs the correct shapes, in forming them, to fit adjacent organs.

Human intelligence so arranges the parts of a machine among each other in manufacturing it, and so applies to the parts the motive force of the machine in operating it, that the actions of approximately arranged parts correspond in time, and perform intimately related portions of the work performed by the parts as a whole.

So, also, creative intelligence so arranges the organs of the body among each other in their formation, and so applies to the organs the nervous or motive force of the body in operating or sustaining it, that the actions of approximately arranged organs correspond in time, and perform intimately related parts of the work performed by the organs as a whole.

In operating a machine, the intelligence of the operator not only cares for all its parts, and replaces them with new material when needed, but the operator constantly supervises the motive force of the machine, whether horse power, steam, electricity or some other motive force, in order to keep up its supply.

In case of horse power, the operator or driver maintains the strength of the horses, or replaces them with fresh ones when they become exhausted.

In case of steam, the operator or some one under his direction constantly applies heat to water to keep up the supply of steam.

If the motive force be electricity, the batteries and wires, or other means by which elec-

tricity is generated and conducted, are kept intact by the operator.

So, in operating or sustaining the body, sustaining intelligence not only cares for all the organs, and keeps them in repair by **anabolism,** causing the cells of which each organ is composed to continue to absorb from the blood the proper tissue and maintain the correct shape, of the organ, for the performance of its function; but sustaining intelligence supervises the nervous or motive force of the body, and keeps up its supply by causing the cells of the nerves and nerve centers to continue to absorb from the blood the proper tissue and maintain the proper shape, of the latter organs, for generating and conducting the nervous force.

The nervous or motive force of the body more closely resembles electricity than any other force applied to matter for producing motion; for, if a nerve which conducts nervous force from a nerve center to a muscle be severed, and, instead of the nervous force, electricity be applied thru the nerve to the muscle, contraction of the muscle will ensue. Supplying nervous force as the motive force of the body, therefore, more closely resembles supplying electricity as the motive force of a machine, than supplying any other motive force.

Man's method of forming and repairing objects, however, differs in one respect from the method of creative or sustaining intelli-

gence, in that man is external to the objects formed and repaired by him, and forms and repairs them from without; while creative or sustaining mind is in the objects formed and repaired by the higher intelligence, and forms and repairs them from within.

In operating a machine, man largely relies upon the material substances and forces contained in it for performing its work.

So, also, in operating or sustaining the body, the Creator relies, to a large extent, upon the material substances and forces contained in it for the performance of its functions. This is the reason that food, medicine, air, etc., assist in restoring and maintaining health.

When the matter composing a machine wears out, the machine is abandoned by human intelligence and laid aside.

When the matter composing the body wears out or wastes away, sustaining intelligence no longer operates within it, and death ensues.

Thus we find that creative intelligence not only forms our bodies, but that sustaining intelligence watches over our lives internally, with equal care and constancy to that which an operator exercises over a machine in action.

No doubt divine intelligence also cares for our lives externally, in many ways that lie beyond our scrutiny or wisdom.

But God has endowed us with mental faculties and physical organs by which he evidently

expects us also to care for ourselves. Clearly he expects us to look after our own safety, and to avoid dangerous situations, by the use of our senses of sight, hearing, etc. Sustaining intelligence will not extricate us from dangerous positions which we might have avoided by the exercise of our God-given powers. If, for example, we do not get out of the way of an approaching locomotive by the use of our senses, and of our own volition, we shall physically suffer or perish.

When disaster and death from fire, flood, famine or plague overtake man, it is usually traceable to his own neglect or that of his fellows. It behooves man to exercise care and caution concerning his existence, and to order his modes of life in accordance with the laws and forces by which he is surrounded.

The question may be asked, Why, if, as herein maintained, an intelligent Creator forms the organs of the body and controls their physiological functions in life, does he permit bodily imperfection and disease?

The above question is included in the more general question, Why, if God is omnipotent or all-powerful, does he permit evil of any kind to exist?

Many thinkers hold the doctrine that good comes out of evil; and that God permits evil and imperfection to exist in order that good may come out of them.

The question may also be asked, Why, if God created all species of animals, are some made apparently for devouring others?

The fact that this and similar questions are difficult to answer, does not in any degree disprove **the great truth** that animal and vegetable beings are produced and sustained by the operation of an intelligent creative and sustaining force. We should remember that, in this sphere of existence, man does not and never can know the ultimate purposes and intentions of the Creator with relation to his creatures. When we reflect that there are purposes both in life and in death that we cannot comprehend, and that, even to our limited view, death for any creature is not an unmitigated evil, we have at least a partial answer to such questions.

The following question, in connection with evolution, which will be discussed in the next chapter, may be here asked, and answered as completely as possible:

If, as herein contended, each organ is formed by creative intelligence for performing a particular function, or for dealing with a particular external object or environment, what is to be said of rudimentary organs, which seem useless and purposeless, such as the incisor teeth of ruminants, which never cut thru the gum?

In answer to this question, we reply that the Creator works according to law; that in

producing offspring, he follows more or less closely the pattern of the parent; and that, as a consequence, ruminants inherit rudimentary incisor teeth from ancestors in which the incisors were fully developed. By the law of heredity, incisor teeth in a rudimentary form continue to be reproduced in ruminants, altho they no longer perform any useful function.

The Creator works according to law in the formation of organs and bodies not only, but also in controlling their physiological functions; and in this, as in the formation of rudimentary organs, creative or sustaining intelligence appears, so far as our knowledge or wisdom extends, to act perhaps with less intelligence in certain instances, than if it had acted differently, or not acted at all.

Thru the connection of the human mind with creative or sustaining mind in the body, it is a law of action of sustaining intelligence, for example, that, when the body is in need of nourishment, and food is perceived or thought of by the human mind, sustaining intelligence so controls the salivary glands thru the nervous system, that the glands pour saliva into the mouth. As we sometimes say, the "mouth waters" when we think of something good to eat.

Sustaining intelligence causes saliva to flow into the mouth during the consumption of food, for the evident and intelligent purpose of

moistening the food in mastication and partially digesting it. But, when the body is in need of nourishment, the mere thought or mental picture of food is attended by the flow of saliva in the mouth, even tho no food is placed in the mouth, or none is immediately to be had.

Now, the action of sustaining intelligence in causing saliva to flow into the mouth when there is no food present or at the time to be had, may not appear as intelligent to us as such action appears to be when food is present or in the mouth. But, in causing saliva to flow into the mouth, sustaining intelligence acts according to the law that **it always acts** when the thought or picture of food is in the individual mind, whether food is present or not.

"God is law, say the wise, O Soul, and let us rejoice,
For if he thunders by law, the thunder is yet his voice.
Speak to him thou, for he hears, and spirit with spirit can meet;
Closer is he than breathing, and nearer than hands and feet."

VIII

EVOLUTION

AS we have seen, animals and plants **bear within themselves the evidence** that they are the products of an intelligent creative force, whether the various species were formed in the beginning as we now see them, or whether they were developed, thru long periods of time, from lower organisms.

When one perceives that an intelligent creative force has formed animals and plants, and has produced whatever development that has taken place in them, he positively knows that **these results** have not been and **cannot be produced by any other force or factor.**

In the discussion of evolution use, external conditions and natural selection are sometimes given as factors or causes of the development of one species from another.

But knowing positively, as we may, that animals and plants are formed and developed by an intelligent creative force, it becomes unnecessary, so far as finding the real factor of formation and development is concerned, further to debate the subject. It becomes unnecessary to show, by any other means or method, that use, external conditions and

natural selection, either singly or taken together, do not and cannot form and develop animals and plants. Nevertheless, a few observations on the points of use, external conditions and natural selection may not be without profit.

Ordinarily when we speak of forming a thing, we mean simply producing its shape; but when we speak of the formation of an organ, we include, or should include, also the deposition of its tissue.

Development is a somewhat broader and more extensive term than formation. When we use the term development with reference to the individual body, we usually mean the change which the body undergoes from the ovum or germ cell to the fully developed individual.

In the discussion of evolution, we also speak of the development of an organ into another organ, and of one species into another species. When either of these kinds of development is meant in the present discussion, the endeavor will be made to indicate the meaning intended by explicit language.

Let us first notice the effects of use upon shape and tissue in the evolutionary development, for example, of the claw of a cat.

According to the theory of evolution, the cat's claw has been developed into the perfect instrument for climbing, scratching, and catching and holding its prey, which it now is, from

a small, fleshy protuberance on the end of the toe of the progenitor of the cat, which was softer in tissue, and straighter and blunter in shape, than the present claw.

Granting this to be true, let us observe the development of the claw from this small protuberance, into the present claw, which has a very hard and stiff tissue, and a very sharp and curved shape, closely resembling a fishhook in stiffness, sharpness and curvature.

The cat, or the animal from which the cat developed, used its claw, in the course of the development of the claw from a less perfect organ, for climbing trees, catching and holding prey, etc. In climbing trees, catching and holding prey, etc., the cat, or its progenitor, inserted the point of its claw, such point as the claw possessed in the course of its development from a less perfect organ, into the bark of trees and into the flesh of its prey, and then exerted its muscular force and its bodily weight upon the claw.

Exerting the muscular force and bodily weight of the animal upon the claw, as in climbing trees and catching and holding its prey, would, it will be observed, straighten or tend to straighten, the claw—as pulling upon a hook which is fastened into an immovable body tends to straighten it—instead of endowing the claw with the greater curvature which, according to the evolutionary theory, it

actually assumed in its development from a less perfect organ into a curved and sharpened instrument.

Inserting the claw into external objects, such as the flesh and bones of prey and the bark of trees, also blunted and dulled the point of the claw—as the point of a pick becomes dull by being thrust into the ground—instead of endowing the claw with the increased sharpness which, according to evolution, its point acquired in the development of the claw from a duller, less perfect organ, into a sharper, more perfect one for climbing, scratching and seizing and holding prey.

Thus, the use or increased use of the claw in climbing trees, catching and holding prey, and scratching and fighting enemies, instead of producing the increased curvature and sharpness which the claw assumed in its development into a sharp and curved instrument, produced or tended to produce exactly the opposite results.

Now, if use does not produce curvature and sharpness in the claw in the creature; use cannot produce curvature and sharpness in the claw in the formation of its offspring; for, if the effects of use are inherited by offspring at all, since these effects tend to destroy the shape of the claw during the life of the parent, they also tend, by hereditary transmission, to destroy the shape of the claw in its offspring.

Yet, some force must have produced the curvature and sharpness of the claw in its formation in the embryonic state, and in its gradual development from a less perfect organ, if the claw was so developed. The matter or substance composing the claw cannot assume curvature and sharpness, under any circumstance or condition, unless conveyed and arranged by some force. Some force curved and sharpened the claw, both in its formation in the embryonic state and in its development from a less perfect organ, as surely as the hand bends or curves a stick and a knife sharpens it.

What, then, is the force which curved and sharpened the claw, either in its embryonic formation, or in its evolutionary development?

Since the use of the claw tended both to straighten and to dull it, the force which curved and sharpened the claw, either in its formation or development, evidently counteracted the effects of use upon the claw, and caused it to become sharper and more curved, in spite of the adverse effects of use or increased use upon it. While the effects of use upon the curvature and sharpness of the claw were destructive of its shape, the force which actually curved and sharpened the claw was constructive thereof. This force overcame the opposing and disintegrating effects of use, and forged the claw into a curved and sharpened instrument in spite of them.

No material force has ever been found, in the entire realm of science, which caused the claw to assume curvature and sharpness, or which produces the shape of any other organ, in its formation and development. Nor can any such force ever be found and named, because no such force exists.

On the other hand, both the assumption of the shape and the absorption of the tissue of the claw, as of all other organs, under all circumstances and conditions, are absolutely intelligent results. Such results can be achieved only by an intelligent force.

Our conclusion is, therefore, that **an intelligent creative force**, acting upon the cells of the claw in its embryonic formation, and in its evolutionary development, **actually produced** its curvature and sharpness.

If the claw of the cat developed from a soft, fleshy protuberance on the toe of the progenitor of the cat, into the hard, stiff organ which it now is, the tissue of the claw, as well as its shape, evidently underwent great change.

Use did not deposit or change the tissue of the claw, any more than use produced its shape.

It is a well known physiological fact that the use or exercise of an organ internally breaks down and wears away its tissue. The same effects also occur externally in the use of the claw, on account of the contact of its point with external objects.

An organ is reconstructed wholly from within. In the **anabolism** or rebuilding of an organ, the intelligent sustaining force within the organ or body causes the cells of the organ to continue to assume the correct shape and absorb the correct tissue for the performance of the function of the organ. If any change in the organ takes place by way of development into a different organ, the creative or sustaining force within it causes its cells to assume a better shape, or to absorb a better tissue, for the performance of its changed function.

If, then, use does not deposit or change the tissue of an organ during the life of an animal, use cannot, thru hereditary transmission, deposit or change the tissue of the organ in the formation of offspring, even tho we grant that the effects of use can be transmitted to offspring.

We find that the shape and tissue of organs, for the performance of their functions, are intelligent consummations; that the change in the shape, as well as in the tissue, of organs, in their development into different organs in case such has occurred, has everywhere been identical with or superior to the change which man's intelligence would have made, in adapting the organs for dealing with their changed environment, or for performing the function of dealing with the changed surrounding objects or conditions.

For holding elusive prey or climbing trees, an instrument having a hooked shape and an inflexible substance, resembling a cat's claw, is such as man's intelligence would produce under such environment; for man has constructed a very similar instrument for catching and holding fish.

A transparent substance, having an oval shape, like that of the crystalline lens, is necessary for admitting and refracting rays of light, and producing images upon the retina; and man's intelligence has recognized the necessity of a transparent substance having an oval shape, under the environment of light and for the purpose of seeing, in constructing and using glass lenses in his eye-glasses, microscopes and other instruments of vision.

For conducting fluids thruout the body, tubes having a shape and substance resembling that of the veins and arteries, would be devised by man's intelligence, similarly as man makes and uses rubber tubes in the shape and substance of hose for conducting the fluid of water.

For grasping objects of every kind, an instrument like the hand, having adjustable hooks, in the shapes and tissues of the fingers, whether the hand was gradually developed, or whether it was originally made in the shape and tissue it now possesses, surpasses any instrument man's intelligence has been able to invent or manufacture for such a purpose.

Since the results of the force which operates in the change of the tissue, as well as the shape, of organs, in their development into different organs, when such occurs, are in all cases identical with that which intelligence would produce; we are entirely justified in concluding that the force which produces those results is intelligent.

The fact that organic beings are so widely adapted to external conditions or environment; and the fact, also, that organs appear to have been modified in some instances for dealing with changed external conditions, have led some to believe that some material cause or force in the external conditions must have produced or modified the organs.* This is a superficial conclusion, and has **no foundation in fact.**

There is no force in any external object or condition that molds the shape or deposits the tissue of organs, either in their embryonic formation or evolutionary development. There is no force, for example, in the bark of trees, the flesh and bones of prey, etc., that curves and sharpens the cat's claw when it is inserted into them and the muscular force and weight of the cat are exerted upon it.

On the contrary, the external objects or conditions that surround the cat conspire with use

*As an example of the view that external conditions produce the form (or shape) of organs, see "Origin and Metamorphoses of Insects," by Lord Avebury, pages 38, 39 and 40.

to destroy the shape, and to wear away and diminish the tissue, of the claw. The bark of trees, the flesh and bones of prey, etc., dull and wear away the point of the claw when it is inserted into them, and thus they destroy its shape and diminish its tissue; and these external objects or conditions, acting against the curvature of the claw in conjunction with the muscular force and bodily weight of the cat, tend still further to destroy its shape.

Only as external conditions serve as **a motive in creative mind** for the formation and development of organs having a suitable shape and tissue for dealing with those conditions, can external conditions be said to influence or control the shape and tissue of organs.

Similarly as man's external conditions control, thru his mind, the shapes and substances of tools and instruments which he invents and manufactures for dealing with those conditions, may external conditions be said to control, thru creative mind, the shapes and tissues of organs which it forms and develops for dealing with those conditions.

As the external condition of water, for example, in lakes, rivers and seas, controls, thru man's intelligence, the shape and substance of oars and propellers of boats and ships for dealing with that condition; so, the same external condition controls, thru creative intelligence, the shape and tissue of the fins and

floating bladders of fish and the web feet of birds for dealing with it. As the water to be conducted by hose and pipes controls, thru man's intelligence, their shape and substance in their manufacture; so, the bodily fluids to be conducted by arteries and veins control, thru creative intelligence, their shape and tissue in their formation. And so on thruout nature.

We have seen that creative intelligence recognizes, in the embryonic state of a creature, its external future environment; for creative intelligence endows the creature, in the embryonic state, with organs that are constructed purely for manipulating external future objects in life. The eyes are formed, in the embyronic state, for dealing with the future external condition of light; the hands, for grasping future objects in life; the feet, for being planted on the ground after birth and performing the future act of walking. Thus creative intelligence recognizes and provides for the future external conditions and necessities of the creature.

No doubt creative intelligence also recognizes the external conditions of a creature in life; and where an organ is modified during the life of an animal, or where sufficient change takes place in the shape or in the tissue of an organ to cause an animal or its descendants to be classed as a new species, granting that such change occurs; creative intelligence rec-

ognizes the necessities of the animal under changed environment, and molds a better shape, or selects and deposits a more suitable tissue, in the organ, for dealing with the changed environment.

The fact that creative or sustaining intelligence is cognizant, during the lives of animals and plants, of their external conditions or environment, is illustrated, in the animal kingdom, for example, by the guidance of new-born quadrupeds to the maternal organ which conceals the sustaining fluid upon which their lives depend; and in the vegetable kingdom, by the growth of the roots of a plant or tree thru the ground in the direction of a stream or body of water; by the growth of a vine in the direction of a support or trellis, and by many other examples that might be adduced.

Every one has observed how the new-born quadruped passes to the parental organ which contains its food, and makes the proper motions with its mouth to extract the fluid thru the tubular structure, altho the creature has had no previous opportunity to know the whereabouts of its food, the tubular shape of the teat, nor the precise motions that will extract the milk thru the latter.

All are familiar with the fact, also, that the roots of trees standing in the neighborhood of wells and cisterns often grow into them, sometimes bursting strong brick and concrete walls

in finding their way to the water; of which they absorb, for their nourishment, many gallons daily. No such growth of the roots of a tree will be found in any other direction than in the direction of the body of water. Roots have been known to travel astonishing distances in their growth to reach water, from which they convey new life and vigor to the tree.

A vine will grow in the direction of a support or trellis. Not only is this true, but it is said that the direction of the growth of the vine will even change with the change in the location of the support, in order that it may finally reach the latter.

"A climbing plant, which needs a prop, will creep toward the nearest support. Should this be shifted to a spot several feet from its former position, the vine will, within a few hours, change its course in the new direction. . . . . If the plant grows between two mounds or ridges, and behind the ridge stands a wall which will afford good climbing but is invisible from the position of the plant, while behind the other ridge is no form of support, the plant will invariably bend its course over the ridge which is before the wall. Examples of this may be found wherever climbing or creeping plants grow."

The only thoro, correct and final explanation of these phenomena of the animal and

vegetable kingdoms is that a **higher intelligence** within the organism is conscious of the objects toward which the organism moves or grows. Every member of the animal and plant kingdoms is pregnant with this intelligent creative and sustaining force.

Various other phenomena in nature illustrate that creative or sustaining intelligence recognizes the external conditions of a creature in life.

In "protective coloration," the color of some animals changes temporarily to the color of their changing or temporary surroundings; while the color of other animals is permanently such as to correspond with the color of the surroundings under which they pass most of their lives. This provision prevents animals being discovered and disturbed in their surroundings, and contributes to their comfort and well-being.

The chameleon, and certain species of toads and fish, change their color in accordance with the color of their temporary surroundings. Dr. Summer even found that flounders in the aquarium of Naples changed their color to correspond with various designs painted on glass and placed in the water they inhabited.

Some species of hares turn white in winter, to correspond in appearance with the snow fields which they inhabit.

As winter approaches, also, the hair of many

animals thickens and lengthens for protection from cold, and is shed again in spring and summer for relief from heat.

It may be said that the temporary change in the color of animals to correspond with their changed surroundings; the thickening of their fur as the cold of winter approaches, etc., are chemical results, produced in the skin by the condition of the light, the degree of heat or cold, etc., in the surroundings. Grant that this is true; it must still be remembered that the proper substance or tissue has been selected and deposited in the skin to so combine with the external chemical conditions as to produce such results.

These results are intelligent; as intelligent as the action of naval and military authorities who camouflage their naval and military equipment by rendering it the same color as its surroundings, and who secure fur and woolen clothing to protect their sailors and soldiers from the cold of winter.

Wherever material forces, either chemical or physical, operate in any manner or to any degree in the life, formation or development of animals and plants, they are **arranged, directed and controlled** by the intelligent creative and sustaining force.

Some who believe in an intelligent Creator are not quite convinced that intelligent results in nature are produced by his direct supervision

and action; but they prefer to believe that the Creator merely endowed matter at the beginning of organic life in the world, or at the beginning of the life of each creature, so that the matter composing the body of the creature acts intelligently, without the immediate presence and action of creative and sustaining intelligence.

No one can have any serious objection to the belief in this indirect method of divine government; for in the end it amounts to practically the same thing as if the Creator governed the world directly. But this belief excludes the Creator from a part of his former dominions. I do not see why the Creator should not be as near to matter now as at the beginning.

If God communicates directly with each individual spiritually, as most people believe, I see no reason why he does not also communicate directly with each individual physically, both in physical formation and in the sustenance of life.

The evidences and proofs that matter is controlled by an intelligent creative and sustaining force in the formation and sustenance of organic beings, are the same whether that control be direct or indirect.

Evolutionists hold that organs develop into different organs by changing or varying more or less in successive generations of the species.

For an organ to change or vary in any degree

from its original form and tissue is far less wonderful than the production of the entire creature, with all its organs complete, which occurs in the embryonic state preceding the birth of every creature. The same power which causes the latter might easily cause the former.

Many evolutionists have sought for a material cause of change or "variation" in organs. To such the cause of variation has proven an insoluble mystery, because there is no material cause of variation. All the talent in the world may be arrayed in the search for a non-existent object, but such object can never be found, regardless of the fact that the most brilliant minds of earth may be engaged in the search for it.

As created beings did not originate in the beginning, and do not originate now, in material causes or forces, so neither do changes or variations in their structure, when such occur, so originate.

As created beings first originated, and still originate, **in the mind and force of God,** so does change or variation in their bodily structure, by which they become adapted to new or changed environment, when it occurs, so originate.

Since the cause of change or variation exists in mind, and not in matter, it eludes him who, in his search for causes, seeks only for material causes or forces.

Darwin toiled a lifetime to find material causes of variation; but thruout his works he continues to the end to deplore what he terms "our ignorance" of its cause.*

We are necessarily ignorant of any material cause of variation, for the same reason that we are ignorant of a second sun shining at noonday; viz., for the simple reason that it does not exist.

The long array of evolutionists and biologists who, in modern times, have with the best intentions sought but not found a material cause of life and variation, is added evidence that no such cause exists. It also serves to emphasize **the incontrovertible truth** that animals and plans are formed and developed by an intelligent creative force, and to show the futility of the effort to prove that they are formed and developed by any other power.

A thing can be found only where it exists. Since the cause of life and variation exists in the realm of creative mind, it is a wholly impossible task to find that cause anywhere else.

Creative intelligence utilizes material forces in variation in the same manner as it utilizes material forces in the formation and sustenance of organs and bodies; for variation is only continued formation and sustenance. Material

* Origin of Species, pages 119, 146, 178, 465.

forces or causes have no part in variation, except as they are utilized and controlled by the intelligent creative force.

True, those who seek only for material causes of life and variation, sometimes imply that only those who are exclusively devoted to the search for material causes are capable of explaining the origin of organic life and the development of species; apparently never dreaming that their insistence upon this point is the principal obstacle in the way of their finding the very thing for which they are seeking—the actual and final cause of life and development.

Did the reader ever reflect that everything made by man, including his implements, machines and structures of all kinds, originate in and are caused by mind.

The cause of the Woolworth Building, in New York, for example, was the mind which first conceived it. This mind, entertaining a mental picture of the Woolworth Building, became actuated by the desire to bring it into existence. The innate force within this mind enabled it to call into action certain material forces, such as the physical power of men and machinery, necessary to the erection of the structure. These material forces, acting under the organizing and dominating force of the designing mind, procured the proper material substances, gave them their proper shapes, and

deposited and secured them in their proper places, for the completion of the structure.

If all the commonplace things in the ever-enlarging catalog of human productions are caused by mind, it should not be difficult for us to conclude that objects which originate so subtly, and which are so wonderful, as living beings, may also be caused by mind.

When the so-called material forces are fully understood, if they ever are, they may, after all, be found to be only parts or phases of the one supreme intelligent creative and sustaining force.

The force of electricity, for example, which is capable of conveying the human voice on invisible wings at the rate of 188,000 miles per second, or nearly eight times around the globe, certainly almost resembles God-likeness in wonder and power!

It is evident to anyone that the strongest and best adapted animals and plants have a better chance to live under given conditions than weaker and more poorly adapted ones. It is a matter of common observation that the strongest and best adapted animals and plants endure hardships and adverse conditions that destroy weaker and more poorly adapted animals and plants.

The "survival of the fittest" animals and plants is called natural selection. Such animals and plants are said to be "selected" by

nature, or favored by the natural conditions which enable them to live, but which, at the same time, act unfavorably upon weaker animals and plants to such extent as to destroy them.

Now, it is self-evident that an animal or plant must be formed and brought into existence before it can be "naturally selected." It is, therefore, manifestly inaccurate and incorrect to say that natural selection forms it. After an animal or plant has been formed and brought into existence **by the intelligent creative power**, then, and not till then, can natural selection act upon it. Natural selection does not form or create anything.

The development of an organ or body into a better adapted organ or body also takes place prior to its natural selection; for, according to the theory of natural selection itself, the organ or body is naturally selected on account of its prior superior development. Therefore, natural selection could not have caused the development.

Dr. Alexander Graham Bell says:

"Natural selection does not and cannot produce new species or varieties, or cause living organisms to come into existence. . . . . It may permit the fit to survive, ... if they are already in existence; but it does not bring them into existence, or produce improvement in them after they have once appeared."

Few or no scientists of the present day, even

among those who do not recognize an intelligent creative force as the dominating factor of formation and development, but who are still seeking for material causes, accept the theory of natural selection as an adequate explanation of the formation and development of individuals and species. Many scientists reject it altogether, holding it to be "a vagary and an artifact of logic."

If animals and plants develop into new species of animals and plants—and it is now the general belief of scientists that they do—they are developed just as an animal or plant is formed and developed in the embryonic state. The manner in which a creature is formed and developed in the embryonic state may be safely accepted as correctly illustrating how animals and plants develop into new species.

In the embryonic state, organs and bodies are formed and developed wholly by the creative force or energy within the embryonic body. Use, external conditions and natural selection are foreign, unnecessary and even impossible to such formation and development; for a creature cannot use its body or its organs, be exposed to external conditions, nor be naturally selected in competition with others, until after it is born. Organs and bodies are completely formed and developed in the embryonic state in the total absence of these so-called "factors" of evolution.

If use, external conditions and natural selection do not form and develop organs and bodies in the embryonic state, neither do they form or develop organs and bodies in any state or under any condition.

Whatever evolutionary development takes place in an organ or body proceeds wholly by the creative force or energy within the creature. That organs and bodies seem to develop, and often do develop, in accordance with external conditions, is not denied; but use, external conditions, etc., are not necessary to such development, any more than they are necessary to formation and development in the embryonic state.

If the movement of the cells, in their assumption of the correct shape, and their absorption of the correct tissue, of organs in the embryonic state, is not and cannot be caused by use, external conditions, or natural selection; even less can the production of the original cell or ovum from which the embryonic creature is formed, and the turning of the original cell by segmentation, thru mitosis or amitosis, into many cells, be so caused.

Not only is the original cell or ovum brought into existence and turned into many cells; the shape of organs molded, and their tissue selected and deposited, in embryonic formation and development, purely and solely by an intelligent creative force; but, also, if organs de-

velop in the direction of different organs either in the embryonic state or during life, their shape is molded or changed, and their tissue selected or altered, **wholly by the intelligent creative and sustaining force** that operates within the creature.

IX

CREATIVE INTELLIGENCE IN INSTINCT

NO created being possesses any knowledge or developed intelligence at birth. No creature is aware at birth of the properties of objects by which it is surrounded; such as the solidity of the earth, the fluidity of water, or the gaseous state of air. No new-born creature knows that animal organs perform particular functions; that web-feet sustain their possessor on the surface of water, that wings sustain birds in air, that hands are suited for grasping objects, eyes for beholding them, lungs for inhaling and exhaling air, and so forth.

Tho new-born animals know nothing of the objects by which they are surrounded, or of the powers and functions of animal organs, yet at birth animals turn to the particular objects for dealing with which they are organically equipped, and correctly use their organs in dealing with those objects. In this they are evidently controlled and guided by a **higher intelligence** than their own.

The power by which animals find their proper environment at birth, correctly use their organs under that environment, and perform

kindred actions, is commonly called instinct; but instinct is only another name for control or guidance by creative or sustaining intelligence.

Young ducklings, tho having no knowledge of the fluidity of water, or of the powers or possibilities of their web-feet for sustaining themselves upon its surface, tumble pell-mell into it, tho hatched by a hen which endeavors to prevent their access to it.

Young birds, possessing wings suited for flying, tho unaware of the difference between air and water, and not knowing that their wings will sustain them in air, turn to air to use their wings, instead of jumping into water.

The young chick, when newly hatched, does not know that, by the more or less hooked form of its claws, they are adapted to scratching or tearing the ground; and that its straight and pointed bill is adapted to penetrating and puncturing objects.

Tho knowing nothing of the use of these organs, the chick makes exactly the proper motions in the use of each of them for the first time. In using its claws for the first time, it makes a backward or drawing motion; while, in first using its bill, it makes a forward or projecting motion.

If, in first using its claws, it should make a forward motion, as a man kicks forward, its claws, having the form of hooks, would not

enter and rend the ground, and no worms or seeds would be unearthed.

If, in first using its bill, it should draw backward, as it moves backward in scratching, its bill would not penetrate and puncture the shells or husks of seeds, and would be of no effect.

But, in first using its claws, the young chick draws backward, thus unearthing worms and seeds; and, in first using its bill, it plunges its head forward, by which motion the straight and pointed bill is thrust into objects, and thus serves the purpose for which it was constructed.

The young fish, tho not knowing that it possesses within its body a floating bladder that will enable it to float, and fins that will propel it in water, starts directly on its journey thru water, instead of experimenting with air or any other external object or environment for dealing with which it does not possess suitable organs.

More wonderful, perhaps, than the instinct manifested by either of the creatures mentioned, is the familiar sight of young quadrupeds, such as calves, pups and kittens, passing at birth to their food, which is concealed within the body of the parent.

As in the case of the creatures mentioned, the young quadruped knows absolutely nothing of its surroundings at birth, having had no previous opportunity to know anything of

them. It does not know of the existence and whereabouts of its food in the parental body. It does not and cannot perceive its food that is concealed in the parental body, by sight or any other sense; yet, immediately after birth, it starts in the direction of its food.

In some quadrupeds the eyes remain closed for several days after birth; yet, even under such circumstances, the young creature passes in the direction of the parental organ which contains its food, and, before reaching it, opens its mouth sufficiently wide to prehend the teat.

When the teat is reached, the young animal, tho having no knowledge of the tubular form of the teat, or of the fluid form of the milk, makes exactly the proper motions with its mouth to force the fluid substance thru the tubular organ.

Tho a young creature has no knowledge or developed intelligence of its own at the time of the first or initial movements in its life, yet a knowledge of the external objects by which it is surrounded, of each of its organs as adapted to dealing with certain of those objects, and of the correct motions for using its organs in dealing with them, is evidently displayed in its movements at this time. **Greater intelligence and knowledge is exhibited,** for example, in the young animal's passing to its food in the parental organ for the first time, and in its making the correct

motions with its lips and tongue for first obtaining its food, **than the animal itself possesses.**

Even the highest human intellect cannot pass with comparative directness to a thing, the whereabouts of which it has not previously learned, nor make exactly the proper motions to embrace or prehend a thing, the form of which it does not know.

Yet, the young quadruped does both these things. Without previously knowing or learning the whereabouts of its food, it passes with comparative directness to it in the parental organ; and without previously knowing or learning the form, either of the teat or of the milk, it makes exactly the proper motions upon the teat to induce the flow of milk thru it.

If the knowledge of the location and form of external objects, of each of the organs of the creature as adapted to dealing with certain external objects, and of the correct motions for using its organs in dealing with them, does not exist in the mind or intelligence of the creature, where does it exist?

It exists **in the creative and sustaining intelligence** which formed the organs of the creature in the embryonic state for dealing with particular objects of life, and which now guides the creature in the direction of those objects, and in making the correct motions with its organs for manipulating them. Creative or

sustaining intelligence produces instinct in the young creature, fully controlling its actions in its first approach to the external objects for dealing with which its organs are adapted, and in making the correct motions with its organs in dealing with those objects for the first time.

Producing the milk in the body of the parent for the support of the young; directing the new-born creature to the milk that is concealed in the parental body; and controlling the young creature in making the correct motions with its mouth to extract the milk from its hidden source, are, taken together, a powerful illustration of the operation of creative and sustaining intelligence in both **the internal and external physical life** of its creatures, and of the care which the Creator exercises in providing for the wants of the creature.

As the period of maternity in those animals which suckle their young approaches, the fluid which is to sustain the life of the young creature is secreted and prepared in the mammary glands of the parent; so that, just at the moment of the birth of the young, the glands overflow, so to speak, with the sustaining fluid.

Is not providing the milk in the parental body, adapted as that fluid is with chemical exactness to sustaining the life of the young, and flushing as it does the mammary glands just at the moment of the birth of the young creature, **an act of higher intelligence?**

Providing water in a well in a desert land to quench thirst and sustain life, we unhesitatingly pronounce an intelligent action on the part of man. Shall we falter in recognizing sustaining intelligence in providing milk for the young in the parental body, only because we are less familiar with the origin of the milk in the body than with water in a well, or because we cannot see sustaining intelligence secreting the milk in the glands as plainly as we can see a man constructing a well or cistern?

When we once perceive that creative or sustaining intelligence performs such physiological actions as secreting the milk for the young, as well as all the other physiological functions, the conclusion that the same intelligence extends its sway into the external lives of its creatures, provides for their material wants, and guides them in such a manner as to enable them to fulfil those wants, naturally and legitimately follows.

The instinct of new-born animals in passing to their food is paralleled in the vegetable kingdom in the passage of the roots of trees thru the ground in the direction of water. Vines will also grow in the direction of a framework or trellis, in order to cling to it for support. The operation and control of creative or sustaining intelligence in the vegetable kingdom is apparent in such cases, as well as in the

adaptation of the shapes of parts or organs to their uses, of their tissues to their uses, and of their shapes to the shapes of adjacent parts or organs, which occurs in plants, similarly as in animals.

In his book, "The Living Plant," Prof. William F. Ganong says:

> "It may seem . . . . that I am reading into nature a principle closely akin to intelligence. If I seem to do this, it is because it is my intention. I believe that the evidence now accumulating is sufficient to show that the same principle that actuates intelligence also actuates all the workings of nature; or . . . . all living matter thinks," etc.*

Of all the baseless and unfounded ideas which men of science sometimes entertain in their effort to state material forces or causes for such a combination of things as the preparation of the milk in the mammary glands of the parent for the support of the young just at the time it is born, and the miraculous passage of the young to, and its skillful imbibition of, the milk immediately after birth; the idea that such a combination of phenomena is the result of mere happenings, that have been "naturally selected," until such a result has been produced, is the most meaningless and senseless.

It is interesting to observe how birds are

* Page 14, 1913 edition.

controlled by the higher intelligence during their sitting period.

In sitting upon her eggs, the domesticated hen, for example, knows nothing of the process which they undergo by her sitting upon them. She has never seen the hatching of chickens from eggs, and she does not know that, after a certain period of sitting, she will hatch chickens. She merely feels the instinct or inclination to sit, without knowing or being in any manner conscious of what the results of her sitting will be. During the sitting period, she becomes aggressive and pugnacious, while, at all other times, she is timid and flighty. By her temporarily transformed nature, the hen endures hunger, thirst, and confinement on her nest, altho, at other times, she is fond of actively ranging in search of food.

Notwithstanding that birds do not know that they will hatch young by sitting, they act in every respect in sitting as if they did possess such knowledge. The only explanation of the instinct of birds in sitting, is that they are controlled in their moods and actions in sitting **by creative intelligence,** in which the knowledge of the formation of young birds within the shells of the eggs, and of the subsequent hatching of the young, exists.

The cell-making instinct of the hive bee is proverbially wonderful. "In the construction

of the cells of bee, there is a perfection about the result which reasoning man could not have equalled, except by the application of the higher mathematics to direct the operations carried out."

How remarkable, also, is the instinct manifested by the ant in keeping other ants as domestic servants, and aphides as milk cows!

The sagacity and wisdom displayed by the ant and the bee do not exist in their own intelligence, but **in the higher intelligence** which acts both in their internal and external physical lives.

The solitary wasp, after making a suitable cavity and depositing therein its egg, goes hunting for a particular kind of prey which is the suitable food of its larva when hatched, altho never having witnessed such actions either in its own or other species. After capturing the prey, it conveys it to the cavity, places it therein with the egg, seals both food and egg in the cavity, and then leaves, never to return.

The knowledge of future events manifested by the wasp in such actions, of the particular kind of food upon which the larva feeds, etc., cannot, of course, exist in its own mind or intelligence; but **such knowledge exists in creative mind,** which controls the actions of the wasp under such circumstances, for the

purpose of continuing the creative process and bringing into life new creatures.

Some spiders suspend pebbles from the center of their webs to steady the latter.

In this they manifest a consciousness or knowledge of the weight of the pebble, of its power to steady the web, etc., which they have had no means of acquiring, and which, therefore, they cannot in their own intelligence possess. But this knowledge exists in the creative or sustaining intelligence which guides them in their instinct in weighting down their webs with pebbles.

The fact that the instinct to suspend a pebble from the center of its web, may in some cases be of no advantage, or even harmful, may be regarded by some as evidence that the creature is not, in such cases, controlled by a higher intelligence.

But, in instinct, as in all other phenomena in the animal and vegetable kingdoms, creative and sustaining intelligence operates according to law. Suspending a pebble from its web is the law according to which sustaining intelligence controls the spider's action, because this law is, in the majority of cases, useful and beneficial to the creature; tho in some cases it may not be so, and does not, therefore, in those cases, to our view seem intelligent.

Instincts, like organs, may vary in accordance with change in the environment of a crea-

ture. Since different actions are necessary to the life of a creature under different environment, creative or sustaining intelligence may cause its instincts to vary in accordance with change in its environment. In other words, a creature may instinctively act differently under different environment.

Creative intelligence doubtless controls creatures in instinct, as well as in other bodily functions, **partly or largely by means of matter**; that is, by selecting and depositing such tissue in the brain or nervous system, and by endowing that tissue with such shape that the action of the tissue, under the control of creative or sustaining intelligence, results in what we call instinct.

Especially, in chemo-reflex actions, chemotropism and chemo-taxis, in which an organ or body acts by the chemical stimulus of some external substance, creative intelligence previously selects and deposits such tissue in the organ or body as will chemically respond to the given external substance or stimulus, and endows the organ or body with the proper shape, for the necessary movements in sustaining the life of the creature or the species under the given external condition or stimulus.

The materialistic theory of instinct is founded upon the materialistic theory of creation and evolution. In demonstrating that organs and bodies are formed and developed

by an intelligent creative and sustaining force, and not by material force or forces, we refute the materialistic theory of formation and development; and with the disproof of the latter theory, the materialistic theory of instinct collapses.

X

MIND HEALING

TO secure the benefits of mind healing in self-treatment, it is more important **to act** than to theorize. It is better to put into practice the **central principle** of mind healing at once, and in one's own way, than to consume time in the endeavor to understand any particular **theory** of mind healing before acting.

The various schools of mind healing agree upon one central principle in the healing of disease; viz., the invariable rule of **excluding the thoughts and sensations of illness from mind.** This may be accomplished in a number of ways.

The Christian Scientist accomplishes this result by holding in mind certain formulas; such as, "mind is all," "matter is nothing," etc. In occupying the mind with these and similar statements, the thoughts and sensations of the physical ailment are excluded.

Others advise holding in mind images or ideals of health, by which thoughts and sensations of illness are excluded.

Any harmless line of thought that takes the mind off of the ailment, or that results in largely or wholly excluding the thoughts and

sensations of it from the mind; such as music, amusement, or interesting mental employment, without doubt tends in the direction of healing. But neither of these latter lines of thought, or methods of occupying the mind, is recommended as the surest and best method of mental healing.

The method of excluding the thoughts and sensations of illness from mind which the writer has pursued for many years, is to assume a **resolute state of mind,** in which the thought or sensation of the physical ailment is resisted, as one steels himself, for example, against feeling a cut or burn.

A few words of personal experience along this line will, perhaps, be of more practical use and benefit to the reader than whole pages of abstract philosophy on the subject of mind healing. Asking the reader's indulgence, therefore, for a few personal references, the writer will here state his own experience along the line of mind healing.

When I began to investigate mind healing, more than a quarter of a century ago, I first took up the principle which is more or less clearly expressed by all schools of mind healing, and around which all systems of mind healing revolve; viz., that, in self-treatment, the thoughts and sensations of disease should, as completely as possible, be excluded from the mind.

When feeling indisposed, therefore, I endeavored, in the simplest and most natural way, to exclude such thoughts and sensations from my mind. I tried to keep them out of my mind just as one tries to keep from feeling or thinking of anything—by shutting the mind against them.

In doing this, I found myself inclined to compress the jaws and lips together, and, in fact, was aided by doing so, similarly as one compresses the jaws and lips in striking a hard blow with a hammer or other instrument.

In early and middle life, I was subject to periodical indigestion. I tried drugs, but received no permanent benefit from them.

In beginning the investigation of mental healing, when feeling indisposed with indigestion, I assumed the resolute state of mind above described, endeavoring to steel myself against physical sensation, and to exclude from mind the thoughts of the ailment.

In the effort to exclude the thoughts and sensations of illness from mind, the idea that one is strong rather than weak tends, by the law of association, to occupy his mind. The ideas of effort and of the strength to make the effort are naturally associated in the mind. When you make an effort, you cannot avoid thinking, even tho vaguely, of the mental and physical strength necessary to it and included in it. Thus in this effort you necessarily sug-

gest to yourself the idea of your independence and freedom from illness, in place of your subjection to it.

So here, then, we have **suggestion,** or **auto-suggestion,** of which we hear so much in these days of psycho-therapeutics.

The resolute mental state, and the thoughts or ideas which by association tend to accompany it, so act upon the latent powers and forces of the body that the ailing and indisposed parts and organs are restored to healthy action.

Within a few minutes or a half hour after assuming the resolute state of mind, when I was oppressed by indigestion, belching invariably followed. This was an indication of renewed digestion, by which the gas emitted in belching was set free in the stomach.

The effects of the resolute state of mind, or of the effort to exclude from mind the thoughts and sensations of illness, will not, perhaps, at first, be exactly alike on any two people, even tho they are similarly afflicted; but I will venture the assertion that those effects will be sufficiently apparent to any ordinary ailing or indisposed person, to thoroly convince him of the **efficacy and value** of such a state of mind.

By persisting in the state of mind described for three or four hours, the condition of indigestion in my case was always removed or "cured," at least for the time being; and at the

end of the three or four hours, or at the next regular meal time, I found myself able to eat with relish and to digest what I ate. But, without the assumed mental state, the condition of indigestion would have continued for several days.

As soon as the indigestion was removed for the time being, and I was able to eat and digest food again, I made no further voluntary mental effort to control my thoughts and sensations; for, indeed, with the removal of the indigestion, I no longer at the time had any thoughts or sensations of it.

But, when indigestion occurred again, which, in those years, happened every two or three months, the above experience was repeated; and even tho the tendency to indigestion had not at last been permanently overcome, it was of great value to have found **an effective means of alleviating it** at least when it did occur.

My digestion steadily improved, however, until the periods of indigestion ceased altogether; so that, at my present age of more than three score years, my digestion is better than it was at middle life, or at any time of life prior thereto.

I was also more or less afflicted with headache from childhood to middle or later life. Spells of headache occurred once or twice a month, and were usually of a day's duration—from morning till night.

On waking in the morning of the day on which headache occurred, I would experience it in light form; and as the day advanced it would grow more severe, reaching its worst stage by night, and sometimes ending in sick headache. I was often compelled to recline before bedtime, but after a night's rest and sleep I was generally relieved.

I undertook the cure of headache in the same manner and by the same means as the cure of indigestion; that is, by endeavoring resolutely to exclude the thoughts and sensations of headache from mind.

Upon doing this during the day on which headache occurred, I found that by night I was practically well; while, without the assumed mental state, the headache would have been at its worst stage by night.

As with indigestion, so with headache, I made no effort to exclude the thoughts and sensations of it except when it existed, and on the day on which it occurred; and as with indigestion, it finally disappeared to such extent that it now very seldom occurs, and then only in the lightest form.

I believe that all who are in any manner indisposed can assume the resolute state of mind which has been described, with regard to physical indisposition; and that, in this simple practice alone, they will find **inestimable physical benefit.**

Each person will have his or her own particular experience in the practice of excluding the thoughts and feelings of illness from mind, which, perhaps, will not be exactly like the experience of any one else. But by persisting for a few hours in this practice when one feels indisposed, the benefits will be so apparent that one will be induced to adopt the practice as a permanent means of relief from physical disability.

Of course one should and, indeed, must be in earnest in practicing the exclusion of the thoughts and sensations of physical indisposition. A mere passing thought or feeble resolution to exclude such thoughts and sensations will probably produce no noticeable benefit. A frivolous or irresolute mind, which cannot or does not hold steadily to one idea or one purpose for at least a few hours at a time, will perhaps realize no noticeable benefit from this practice.

One should, if need be, approach this subject with nothing less than religious earnestness; for, in reality, the benefits received flow from the divine. It is not meant by this that it is necessary to include any theological doctrine or practice any religious rites in the method of healing just described. But, if one is physically indisposed, he or she should go about the work of restoring health as about any other great work—in positive earnestness. One

should be ready to do all and be all that God himself can require of a true man or woman.

The healing which results from the resolute state of mind described, is due to the **reflex action** of the latter upon the organs of the body. Let us, as briefly as possible, consider the subject of reflex action, and observe the tremendous power which it exercises over the functions of the body.

The nerves are white or gray threads or cords of nerve substance, which extend from the brain and spinal cord to all parts of the body. The nerves are charged with the nervous force, which has some resemblance to the force of electricity. The nerves conduct the nervous force, similarly as wires conduct the electrical force.

There are two principal kinds of nerves in the body; viz., **motor** nerves and **sensory** nerves. The organs are supplied with both these kinds of nerves. The motor and sensory nerves of each organ are connected by the brain, or by some other mass of nerve substance called a nerve center.

The sensory and motor nerves are also called **afferent** nerves and **efferent** nerves; the term afferent meaning "bearing to" the nerve center, and the term efferent "bearing away from" the nerve center.

The sensory nerves conduct sensations, or afferent impulses of nervous force, from the

organ to the brain or nerve center; while the motor nerves conduct motion, or efferent impulses of nervous force, from the same nerve center back to the organ. In other words, afferent impulses are converted into efferent impulses by the brain or nerve center which connects the motor and sensory nerves of an organ, and returned to the organ in the form of motion.

The return to an organ of an afferent impulse of nervous force as an efferent impulse, is called reflex action. Dalton, who was a great physiologist in his day, said:

"Reflex action expresses the **whole secret** of the nervous system."

If one burns his hand, the sensation or afferent impulse is conducted to the nerve center by the sensory nerves. There it is converted into an efferent impulse, returned to the hand in the form of motion by the motor nerves, and the hand is quickly withdrawn from the source of heat.

In cases of paralysis from injury to the spinal cord, by which communication between the brain and the lower limbs is cut off, and on account of which the mind can neither perceive sensation in the lower limbs nor move them; when the soles of the feet are tickled with a straw the feet will move or "kick" vigorously, to rid themselves of the disturbing object.

These actions of the hand and feet are reflex or involuntary; that is, they are not produced by the will. It is said that the hand is removed from the fire before one has had time to think of being burned; and in the case of paralysis, there is of course no question about the inability of the mind or the will to move the feet.

When one hears a loud and sudden noise, the whole body recoils from the sound without thought, by reflex action arising from the afferent auditory nerve.

In addition to involuntary action, however, the hands, feet, etc., when in health, also possess the power of voluntary action. They can be moved by the will. We can decide to move the hand or foot, and then move it in accordance with our decision.

The vital organs of the body, such as the heart, lungs, stomach, etc., are involuntary organs. Their actions or functions are not controlled by the will. They even act without the knowledge or consciousness of the mind. But each of these organs is provided with motor and sensory nerves, and each action of an involuntary organ is said to originate in an afferent impulse, which is converted into an efferent impulse by a nerve center and communicated to the organ as motion.

The afferent impulses in which the actions of some of the involuntary organs originate

can be perceived as sensations, by fixing the mind upon them; while the afferent impulses in which the actions of other involuntary organs originate cannot be so perceived. We can perceive as a sensation the afferent impulse arising from lack of air when we hold the breath, in which the action of expanding the lungs originates; but we cannot perceive the afferent impulse arising from lack of blood in the tissues, or from the presence of blood in the heart, in which the pulsation of the heart originates.

The actions of the involuntary organs are **timed** to one another. When an organ acts, another organ near it also acts at the proper time to take up the work of the body where the former organ leaves it. The constrictive action of the esophagus, for example, in conveying the food to the stomach, is immediately followed by the peristaltic action of the stomach, in carrying the food farther along in the alimentary canal. The peristaltic action of the stomach here principally originates in the afferent impulse caused by the presence of food in the stomach conveyed to it by the esophagus.

By the arrangement of the sensory nerves of the organs of nutrition in such a position as to come in contact with the food as it passes along the alimentary canal and into the system, afferent impulses arise in each organ as the food reaches its sensory nerves. These

afferent impulses are converted into efferent impulses, by which the organ is caused to act.

But the actions of the organs of the body may originate in other sources besides in their own sensory nerves and afferent impulses. This is seen in the action of the body when it recoils from a loud and sudden noise, in which the action of the whole body originates in the afferent impulse of the auditory nerve.

The afferent impulses conducted by the auditory, optic and other nerves of special sense, however, may result in thought or knowledge in the brain or nerve center. By such afferent impulses we acquire a knowledge of the external world; and this knowledge may have both a voluntary and an involuntary, or reflex, effect upon the organs.

Thought or knowledge of an awe-inspiring scene, as the loss of life in a conflagration, results from the afferent impulse conducted by the optic nerve. The first effect of this knowledge may be wholly reflex or involuntary; as when the hands are raised in horror, the heart throbs, the eyes dilate, and the lungs expand and contract in gasps.

After the first momentary excitement has subsided, one may decide to act voluntarily in rescuing the victims of the conflagration; but much involuntary action attends the voluntary action. In the voluntary act of extending the arm and hand to aid a sufferer, other organs

are affected by reflex action. The beating of the heart becomes more powerful, the lungs respire more deeply, and all other bodily organs are accelerated in action.

The thought of food arouses or accelerates, by reflex action, the action of all the organs of the nutritive system, including that of the stomach. When the mind contemplates food, the glands that contain the digestive juices emit them for the digestion of the food. In contemplating choice viands, saliva pours into the mouth, or the "mouth waters," and the gastric and intestinal juices flow into the alimentary canal. The thought of food accelerates the beating of the heart preparatory to circulating the liquefied food thruout the system, and deepens the respiration for oxidizing it.

The thought of sex, by reflex action, influences or accelerates the organs of the generative system. When the mind contemplates sex, it so acts by reflex action upon the creative powers and organs as to arouse or accelerate their action as a part of the process of creation.

The thought of somebody attempting to inflict injustice or violence upon one, causes by reflex action the fists involuntarily to clench in self-defense, the teeth to grit, the eyes to flash, the heart to palpitate, the lungs to inhale deeply, and, indeed, doubles or trebles the physical powers.

If, therefore, the different thoughts men-

tioned produce such **profound reflex effects** upon the organs of the body as the effects described, other thoughts than those mentioned likewise profoundly affect the organs by reflex action. In fact, every thought or condition of mind produces a more or less profound reflex effect upon the powers and functions of the bodily organs.

Altho the actions of the involuntary organs are not performed by the human mind or will; yet, as we found in the chapter entitled, "Creative Mind in Physiology," their actions or functions are intelligent. If their actions are intelligent, those actions must be controlled by intelligence. If they are not controlled by human intelligence, then they must be controlled by creative or sustaining intelligence.

If the actions of the involuntary organs originate in the sensory or afferent nerves and are completed by the motor or efferent nerves; then we must conclude that the sensory and motor nerves are the means used by sustaining intelligence for controlling the actions of the organs.

Thru the sensory and motor nerves sustaining intelligence **times** the actions of the organs to one another. Thru the sensory nerves, sustaining intelligence perceives the approach or presence of masticated or liquefied food in the region of an organ, and thru the motor nerves arouses the organ to action for performing its

part in the nourishment of the body. Thru the sensory nerves, sustaining intelligence perceives injury or danger, and thru the motor nerves withdraws the body or its parts from it, without the intervention or necessity of thought. Thru the sensory or afferent nerves, sustaining intelligence perceives the varying climatic conditions of heat, cold, etc., and thru the motor or efferent nerves adapts the body to those conditions.

If the actions of the involuntary organs are performed by sustaining intelligence; and yet if those actions are influenced and accelerated, as we have seen, by thoughts of food, sex, personal violence, etc., then we must also conclude that thoughts of the human mind affect creative and sustaining mind in accelerating organic action. In other words, **in reflex action the human mind is in touch with the divine mind.**

Thru the connection of the human mind with creative and sustaining mind in the body, the former possesses the power to co-operate with the latter in controlling the physiological functions and in producing health. If, as maintained thruout this treatise, creative and sustaining intelligence is the sole or dominating factor in forming and sustaining the body; and if, as is equally apparent, the human mind is connected with creative and sustaining mind in the body, then it is not surprising that the

thoughts and conditions of the human mind should exercise so profound an influence upon the functions of life and health.

The resolute state of mind described may also be assumed in excluding **useless worry** and **grief.** It will also prove a **moral aid,** in excluding improper or sinful thoughts.

I should further say that I found an aid to health in certain other mental states and practices, in addition to the benefit received from the voluntary mental effort of excluding the thoughts and sensations of the physical ailment from mind.

I found improved and sustained health in keeping my mind employed in ordinary daily duties. The thoughts that come to us in the common employments of life are in touch with the infinite mind; for, that power endowed us with faculties and organs by which to perform the work of life, and must, therefore, along with ourselves, be interested in our work. It is especially true that such thoughts so affect the creative and sustaining mind of the body, that the most healthy bodily conditions result from strenuous toil.

The mere thought of attending to daily duties, such as making a garden, repairing a building, or doing a washing, exercises a healthful influence upon the body; while the actual performance of the work is still further conducive to health.

Physical exercise is often recommended for health. No one disputes that physical exercise is usually attended by improved health. But it is the thoughts that occur in the mind in physical exercise, and their reflex action in the body, rather than the mere mechanical motions of exercise, that cleanse the body of impurities and heal disease.

Physical strength is largely contributed to the body directly from the mind. Every one knows **the power of an inspiring idea** to increase bodily strength and endurance. Some of the greatest battles of history have been won thru the power of an idea to contribute physical force and endurance to the soldiery.

The increased bodily strength which seems to flow from inspiring thoughts and ideals is due to the reflex action of those thoughts and ideals, and, in reality, has its source in sustaining mind and force.

The espousal of some high purpose in life, as doing good to others, not only occupies the mind, and, by reflex action, refreshes and rebuilds the body, but it radiates happiness to others. The endeavor to do good to others not only helps them, but it especially helps him or her who makes the endeavor.

Perhaps the greatest good that one can render to those with whom one associates, is kind and considerate treatment; and one need not be endowed with worldly possessions to grant

that. The good that can be accomplished by kind and gentle words alone is beyond calculation.

A few kind words, tactfully spoken, possess the power to restore sunshine and happiness to the home, and to win back to the path of right and gentleness both children and adults who have become distrustful or rebellious. The magic power of kind words, tactfully chosen and persisted in, will work great changes in the moods and dispositions of those whose state of mind is thus unfortunate. In fact, one's disposition and character, whether fortunate or unfortunate, are largely **formed out of the words,** or the effects of the words, addressed to him or her, similarly as a building is built of bricks.

I once read a newspaper account of a woman who had not spoken a word for thirty-five years, because her husband had told her in a domestic dispute that he hoped he would never hear her voice again.

She took him at his word. When the ardor of the dispute had worn away, and the husband would have resumed pleasant relations, she refused to speak. For thirty-five years she constantly brooded over his words, and maintained unbroken silence. During all those dreary years, the husband received no more communication or response from her in the home than if she had been a corpse.

It seems not to have occurred to the husband that there was a remedy for this awful domestic condition.

He should have plied the wife with kind and loving words. She might have ignored or spurned them at first. She might have even tried to add to his discomfiture.

But his mind should have been centered on a campaign of kindness, with the same determination to win that a military leader manifests in pushing a military expedition to a successful conclusion. By his words the husband had put the wife into her morose condition; and he should have considered it his duty to extricate her by his words from that condition.

Or even if her condition had been wholly her fault, he would only have shown the loftiness of character that every true man and woman should possess, to have stooped and **lifted her up** to his own level.

As surely as a sufficient number of gems will fill a vessel, so surely would a sufficient number of kind words have touched and melted the woman's heart, and dispelled the gloom of her mind. Nobody but a human monstrosity can long resist the power of kind words, earnestly and persistently applied.

People sometimes hesitate to speak in a kind tone because they do not feel it; thinking it is false or hypocritical to speak or act kindly if they do not feel so.

But this should not deter anyone from adopting and persisting in a kindly course. One becomes kind by endeavoring to be kind. Even tho kind words are at first only assumed, they will not long remain so; and whether they are assumed or not, they can produce only beneficent results. They go on their divine mission, and do their work, whether they are uttered from a heart full of love or not.

The actor acts out his part on the stage whether he feels it or not; and he sways and influences his audience, even tho he is **only acting.** The actor may at times feel that his acting is poor and ineffectual; but he persists in the performance of his part, and succeeds in influencing and educating his hearers. Any one who acts the part of kindness to the best of his or her ability cannot fail to influence others in the desired direction.

In endeavoring to be kind and speak kindly to others, one is not to consider their faults, but to concentrate one's mind and effort upon being kind in **word and tone.** One word, kindly uttered, has revolutionized many an unpleasant situation.

It is doubtful whether we should ever condemn another for a fault; for, in our limited knowledge, we cannot fully analyze another's fault. Until we can do this, we have no right to condemn.

It is said that a professor was conducting a

class in reading and elocution in a prominent educational institution, in which the rule was to hold the book in the right hand. A young man was called upon to read, and rose with his book in his left hand. The professor said:

"Young man, what do you mean by thus flagrantly violating the rules of this institution? You have laid yourself liable to expulsion from its privileges and immunities."

The young man replied:

"Sir, I have no right hand."

We do not know what physical or mental defects, natural or thru no fault of their own acquired, people may be laboring under whom we venture to condemn.

It may not be amiss sometimes to kindly and firmly call the attention of people to their faults. This is true of children, and often necessary for their instruction.

But kindness and patience is the only sensible and philosophical method of dealing with human faults and frailties. It is the only effectual method of reaching the root of the trouble, and permanently removing it.

But, after all, we are only fulfilling the demands of Christianity when we school ourselves in kindly utterance and learn to bear with another's fault in patience and charity, even tho it were not the means of preserving the sacred relations of husband and wife in the home, of the proper training of children,

and of the most successful intercourse with our fellow men in all the relations of life.

Christ said "judge not." He said "thou hypocrite" to one who condemns another for a fault when he himself is not faultless. He admonishes us first to correct our own faults, before we undertake to criticise another's fault.

And when Christ said "love your enemies," he even demanded more of us than merely to love our domestic companions or our children. But it is possible to conceive, and to give utterance to, a kind expression, even to an enemy. It is not an easy thing to do, but it can be done.

When Christ said "love your enemies," I interpret his meaning was that one should at least first speak and act in a kind and conciliatory way toward an enemy. By kind treatment an enemy—even tho an unattractive character—often manifests or develops traits that render him positively lovable. Then it is easier to love him in the full sense of the word.

If men and women would apply the doctrine of kind words and deeds in their relation to others, not only would the millenium for all mankind be brought nearer, but a very large percentage of the divorces and broken homes that are increasingly occuring would be prevented.

The thought which I wish especially to make

clear is that **every word,** which in any manner or to any degree has either a complimentary or a condemnatory meaning, **has a sure effect** upon the person to whom it is spoken. People quickly understand either a compliment or a reflection.

Begin at once, then, as the actor performs his part, to arouse pleasant and grateful emotions in friend or associate. The least expression of kindness, awkward and assumed tho it at first may be, will never be forgotten. "Kind words can never die."

Choose as appropriate words as you can, holding steadily to your purpose of arousing pleasant and grateful emotions and allowing nothing to discourage or deflect you from your course. By patience and perseverance you will win or regain the affection and love of the recipient of your kindness.

The term "dear," or "dear one," and similar tender expressions, have a pleasing and soothing psychological effect upon husband or wife. The idea that tender expressions between husband and wife sound foolish or silly should be abandoned. In a home where they have been sparsely used, their sudden and profuse use by one may surprise or astonish the other. But let that deter no one from using them. Astonishment, or even opposition, on the part of the other should not prevent anyone from practicing kindness.

When the preservation of a home depends, as it sometimes does, upon prompt and bold measures, no one can afford to flinch in taking them.

A man of my acquaintance went out of his way to meet his wife at the proper distance on the street to lift his hat and smile at her, altho they had seen one another at home the previous hour. He had not tipped his hat to his wife since their wedding day twenty-nine years before. An apathetic and resentful state of mind had come over her, due to some real or fancied fault of her husband, and also, to some extent perhaps, to advancing years and failing powers. Relations between husband and wife were gradually becoming such that the former had reason to fear that the result would be a wrecked home.

Dreading such a consequence, and feeling that something must be done, the husband decided to practice all the courtesy and kindness toward his wife, both publicly and privately, of which he was capable. Altho at times meeting with discouragement, he persisted in this practice, for there was no alternative but destroyed affection. By endearing terms and kind actions he entirely regained the affection of his wife in a few weeks or months at most. Her disposition again became as sweet and gentle as when she was a bride. In place of heated disputes, perfect harmony reigned in

their home. In their mutual suffering (for they both suffered in their domestic gloom) they found a degree of conjugal happiness they had never before known.

Avoid unkind or cynical expressions, for all the more effort will be required to remove their effects from the mind of husband or wife, and to produce a harmonious domestic condition.

Every one likes to see a love story in a book or on the screen end well. Such an ending to love stories ought to be as attractive in real life as in fiction. Especially should every one strive to make his or her own love story end well and happily. It will be very largely as he or she wills.

Persist in the practice of kind words and deeds toward husband or wife, and the results can be only good. "Wait, as waits the husbandman for harvest, patiently, knowing God will ripen the fruit in his own time, and that one day it will fall or you will take it with gentle hand when the hour shall come."

The terms "please" and "thank you," in table etiquette, have a harmonizing and refining effect upon upon both children and adults. The little courtesies and kindnesses of life may be regarded lightly by some; but careful observers and students of human life and psychology universally recognize their importance in maintaining pleasant and happy

relations both in the home and in society at large.

Personal magnetism is often mentioned as a factor in influencing others. It is not necessary to study magnetism or occultism for applying the rule of kindness. However, a few words on the subject of personal magnetism will not be irrelevant.

When an iron or steel magnet is brought near a loose nail, it projects a force toward the nail which attracts the latter and causes it to roll toward the magnet. This force is called magnetism.

A similar force exists and operates between people, as between the magnet and the nail. This force draws or tends to draw one person toward another, as the nail is drawn toward the magnet. It is called personal or animal magnetism.

Now, kindness is a sure method of exerting personal magnetism. Physical proximity to another, and the attraction of his or her attention to the same thought one has in mind, open the way for the operation of personal magnetism. When you attract the attention of another by a kind expression, being the aggressor in kindness and your desire and will power being therefore for the moment the stronger and more positive, you control or tend to control the other both mentally and physically.

A public speaker exerts personal magetism

upon his audience, not only because of his physical presence and proximity to them, but also because of the vigor of his desire and will power to convince them of the thought upon which his mind and the minds of his audience are centered.

It is believed, in fact, that when the mind is strongly centered upon one thought or desire, both the mind and body act as a magnet in so influencing others as to bring or tend to bring that thought or desire into material existence. If, for example, one's mind is centered upon the acquisition of wealth by legitimate means, it is believed his personal magnetism so influences others as to induce them consciously or unconsciously to assist him in actually acquiring it. Some even believe that personal magnetism may attract material objects.

More than eighteen hundred years ago Pliny, who was a profound student of man and nature, said: "There surely exists in man a certain power of changing, attracting and binding whatever he desires or wills to attract, change, bind or impede"; and many modern thinkers concur in this belief.

Especially when the mind and heart are set upon worthy purposes in life, one seems to radiate some power, "called magnetism, lacking better word," which works with him or her for the certain realization of those purposes.

Personal magnetism is one of the results of the physiological action of the body. Like the digestion of food, the circulation of the blood, and other results of organic action, personal magnetism is, in the last analysis, produced by sustaining intelligence. Thus, the operation of personal magnetism in the accomplishment of high ideals and worthy purposes is a phase of divine aid.

It is an established scientific fact that one person may also influence another at a distance or in the absence of the other, by telepathy or thought-transference. Since all human minds are connected with sustaining mind, all human minds are connected with one another. Thru the medium of sustaining or universal mind, the thoughts and mental states of one human mind may be transferred to another.*

All means of doing good are justifiable; but telepathy or thought-transference should not be relied on for influencing others to the neglect of the certain and well known method of **overt kindness.**

To assist others in mind healing, they may first be shown how to assume for themselves the resolute mental state for excluding the thoughts and sensations of illness from mind.

* For a clear statement of the method of operation in telepathy, thought-transference, etc., see Warman's "Psychic Science Made Plain," Volume I.

This is perhaps the greatest physical boon and blessing that can be bestowed upon them.

But they may also be treated by telepathy, thought-transference, etc., by which the resolute mental state and the exclusion of the thoughts and sensations of their ailment from mind, is transferred from your mind to theirs. This may be done either in their presence or absence.

As above remarked, all human minds are connected with one another thru the medium of sustaining mind; and the thoughts and conditions of one mind may be transferred to another mind thru this medium.

To transfer the resolute mental state to another, he or she should be conceived, wherever they are, as becoming resolute for themselves, and as excluding from their own mind the thoughts and sensations of their ailment.

Then they may be conceived as receiving the same mental state from you; that is, as remaining quiet while you send, or think of sending, in their direction and to their mind, the resolute mental state and the exclusion of the thoughts and sensations of illness. In other words, think of the resolute mental state as passing thru space from your mind to theirs.

As the mind is situated within the skull, the resolute state of your mind may be conceived as passing thru space in thought waves to that region of the body of the patient; and then,

from there, in thought waves, over his or her body and to the ailing part.

We have seen that the functions of the organs are performed by sustaining mind. Not only does the Creator think in creating an organic body, but he also thinks in sustaining it. That is, the action of an organ is the execution of a sustaining thought.

As the operation of a pump handle by the hand for forcing water thru the spout, is the execution of a human thought; so, the contraction of the heart for forcing blood thru the arteries is the execution of a sustaining thought. So, also, the peristaltic action of the stomach, the expansion and contraction of the lungs, the action of the cells in casting off waste particles and absorbing new and proper tissue, and all other physiological actions, are each the execution of a sustaining thought.

Not only then, as Agassiz held, may we think after the Creator the thoughts he had in creating an organic body; but we may also **think with him** the thoughts he momentarily has in sustaining it. In other words, we may think with him the physiological actions or functions of the organs. We may think, or think of, a stroke of the heart, a wavy motion of the stomach, an anabolic or katabolic action of the cells, as near as we can as they actually occur.

In health and vigor, all the organs of the body act in a healthy and vigorous manner.

To produce such action of the organs, then, we should think it. We should think strong strokes or pulsations of the heart, energetic peristaltic actions of the stomach, vigorous metabolic actions of the cells, etc.

Assuming the resolute mental state as described will no doubt be all that is necessary for producing positive results in all ordinary cases of self-treatment. But thinking and co-operating with sustaining mind in the performance of the physiological functions are entirely logical, and may be pursued with good results either in self-treatment or in the treatment of others.

While mind healing is without doubt the greatest single curative agency in the world, for the reason that it reaches **the source of physiological or organic action** as nothing else does; yet no one contends that it is an absolute cure-all. Cases arise in which it should be supplemented by medicine or surgery, and sometimes by both.

XI

MODELS FOR ANALYSIS OF HUMAN AND DIVINE PRODUCTIONS

A VALUABLE exercise is to compile a list, more or less extensive, of objects made by man, and then to analyze them, according to the Models for Analysis of Human Productions given below.

Objects may be analyzed both orally and in writing.

Practice in analyzing human productions as suggested, observing closely the uses, shapes and substances of such objects, or of their parts when they are composed of parts; observing, also, the correspondence or adaptation that exists between shape and use, substance and use, etc., of those objects or parts of objects, **trains the student's powers of observation** and disciplines his mind. It gives him both an **extensive** and **intensive** knowledge of the tools, implements and machines of modern civilization. Last and most important of all, it prepares the student for accurately observing the uses (functions), substances (tissues) and shapes (forms) of animal and vegetable organs and bodies, and for perceiving **the intelligent creative and sustaining force** which operates in

their formation, sustenance and development.

This analysis may be pursued indefinitely, until objects ranging in size from the small brass or steel pin of household use, to objects of the size and complexity of the most intricate machine, have been examined and analyzed.

It is not often practicable, however, in the life of the ordinary person, to name and number all the parts of an intricate machine, on account of their inaccessibility. In such cases, only the external or accessible parts need be named, and the parts of the object only approximately numbered. Since the benefit derived from the analysis consists in selecting a part or parts for complete analysis, and in accurately observing the use, substance and shape of the part or parts selected, rather than in naming and stating the exact number of parts, it is not absolutely necessary, in analyzing a complex or intricate object, to name and number every part.

After analyzing human productions, the student may analyze divine productions, according to the Models given for such analysis.

MODEL FOR ANALYSIS OF HUMAN PRODUCTIONS

When the object to be analyzed consists of one piece or part, as a teaspoon.

I

1. Name of object—Teaspoon.
2. Number of parts—One.

3. Use of teaspoon—To contain fluid tea.
4. Substance of teaspoon—Impervious metal.
5. Shape of teaspoon—Concavo-convex or bowl like.

MODEL FOR ANALYSIS OF HUMAN PRODUCTIONS

When the object to be analyzed consists of two or more pieces or distinct parts, as a common wooden chair; which consists of legs, rungs extending horizontally between the legs, seat, uprights of back fastened to rear of seat, an upper and lower crossbar extending horizontally between the uprights, and rungs extending perpendicularly between the crossbars.

When some of the parts of an object can be included in a group or class, only the name of the class is given; as legs, rungs, etc.

I

1. Name of object—Chair.
2. Number of parts—Twenty-five.
3. Name of parts—Legs, rungs, seat, uprights, crossbars.
4. Name of part chosen for further analysis—Seat.
5. Use of seat—To support body in sitting position.
6. Substance of seat—Wood.
7. Shape of seat as adapted to use—Flat.
8. Shape of seat as adapted to shape of adjacent parts—It contains round holes for entrance of round legs and uprights.

While the adaptation of the substance of a part or organ to its use, of its shape to its use, and of its shape to the shape of a part or organ which joins it, is not, perhaps, as distinct and

striking in the vegetable body as in the animal. nevertheless such adaptation exists in vegetable organs and bodies.

Indeed, many people first recognize the higher intelligence in the vegetable kingdom, particularly in the world of flowers. The beauty, fragrance and intelligent arrangement of the parts of flowers, alone appeal to many as the direct handiwork of divine intelligence and power; and from the preponderance of evidence of this power that exists everywhere in nature, we are forced to admit that their intuitions or conclusions are correct.

Objects of the vegetable kingdom may be analyzed according to the following:

MODEL FOR ANALYSIS OF DIVINE PRODUCTIONS

I

1. Name of object—Pear blossom or flower.
2. Number of organs—Approximately thirty-five.
3. Name of organs—Petals, sepals, stamens, pollen, ovary, styles, ovules.
4. Name of organ chosen for further analysis—Pollen.
5. Use of pollen—To fertilize ovules.
6. Substance of pollen—Vegetable dust.
7. Shape of pollen as adapted to use (of fertilizing ovules)—Dust that will float and spread so as to fertilize ovules.
8. Shape of pollen as adapted to shape of adjacent organ—Mass of dust which conforms in shape to the shape of the top of stamen, so as to rest upon it.

Like some of the parts of an intricate machine, some of the parts or organs of highly

organized bodies are not easily accessible for analysis. In such cases, it will be sufficient for our present purpose to name the organs or classes of organs of the body that are familiarly known, and to number the organs of the body only approximately.

The bones of the vertebrate skeleton alone number more than two hundred; while the number of muscles of the vertebrate animal is still greater. When we add to these the number of nerves, glands, arteries, veins, etc., of the body, we find that the number of parts or organs of the vertebrate body exceeds one thousand.

Evidence of the Creator, as seen in the adaptation of the substance and shape of any organ to its use, and of its shape to the shape of an adjacent organ, is complete in itself. Hence, it is not necessary, in presenting evidence of the Creator in his creatures, to analyze or describe every animal and vegetable organ and body that exists or ever existed; altho it is of course desirable to extend our knowledge in this direction as far as practicable. Animal bodies may be analyzed according to the same Model as that given for the analysis of vegetable bodies, as follows:

MODEL FOR ANALYSIS OF DIVINE PRODUCTIONS

I

1. Name of object—Cat.
2. Number of organs—Approximately one thousand.

3. Name of organs—Bones, muscles, nerves, blood vessels, heart, lungs, liver, stomach, glands, eyes, teeth, tongue, esophagus, legs, fur, feet, claws, nose, ears, tail, etc.
4. Name of organ chosen for further analysis—Claw, or toenail.
5. Use of claw—Climbing, scratching, holding prey, etc.
6. Substance of claw—Solidified (or steel-like) epidermis.
7. Shape of claw as adapted to use—Hook-shaped.
8. Shape of claw as adapted to shape of adjacent organ—It is knitted to and fits the skin on the end of the cat's toe.

II

1. Name of object—Horse.
2. Number of organs—Approximately one thousand.
3. Name of organs—Bones, muscles, nerves, blood vessels, heart, lungs, liver, stomach, glands, eyes, teeth, tongue, esophagus, legs, hoofs, nose, ears, tail, etc.
4. Name of organ chosen for further analysis—Femur or thigh bone.
5. Use of femur—To swing forward from the hip joint in walking and running, and to support the weight of the horse.
6. Substance of femur—Hard and strong.
7. Shape of femur as adapted to use—Comparatively long and slender, so as to reach in walking and running and to assist in supporting the body of the horse high enough for it to clear the ground.
8. Shape of femur as adapted to shape of adjacent organs—At its upper end it contains a ball, which fits perfectly into the acetabulum or socket of the hip bone, and in which it works. At its lower end it contains ridges and grooves, which fit perfectly into ridges and grooves of the bone to which it is joined, by which the articulating bones are prevented from slipping sidewise at the knee joint.

III

1. Name of object—Man.
2. Number of organs—Approximately one thousand.
3. Name of organs—Bones, muscles, nerves, blood vessels, heart, lungs, liver, stomach, glands, eyes, teeth, tongue, esophagus, legs, feet, arms, hands, nose, ears, etc.
4. Name of organ chosen for further analysis—Aorta.
5. Use of aorta—To receive the blood from the heart and conduct it to the arterial system.
6. Substance of aorta—Strong and elastic.
7. Shape of aorta as adapted to use—(of conducting blood)—It is a tube or closed vessel.
8. Shape of aorta as adapted to shape of adjacent parts or organs—It is attached to the various arteries of the body into which it subdivides, and to the heart.

XII

HOW MAN IS FORMED, SUSTAINED AND GUIDED BY DIVINE INTELLIGENCE

THE present chapter is to some extent a restatement or recapitulation of points and principles already explained; but the language and the manner of presenting those points and principles are varied somewhat from the method of formerly presenting them, in order that they may be presented and illustrated in different ways and from different angles.

In the building trades, manual training schools and factories of the world, people are engaged in making useful objects. They are engaged in building houses, constructing ships, making household furniture, shoes, knives and other things for **use** in everyday life.

All these things must be made out of something. A thing cannot be made unless there is something to make it out of. If, for example, factories cannot obtain the raw material out of which they make the particular thing which they produce, they are compelled to close temporarily or permanently.

A house is made of wood or stone; a door knob is made of baked or hardened clay; a

knife blade, of iron or steel. Each of the different materials out of which things are made is called a **substance.**

As just implied, all these things are made for use.

A house is used for protection from storm and from extremes of heat and cold.

A door knob is used for turning the door latch and opening and shutting the door.

A knife blade is used for cutting and severing objects.

Everything that is made for a useful purpose must be made out of a substance that is fitted for that purpose, or that is suited or adapted to the use which the thing serves.

The substance of baked clay, out of which the door knob is made, is hard and firm, and is thus adapted to being grasped by the hand, and to withstanding the force applied to it in twisting or turning the latch and opening and shutting the door. If the clay of which the door knob is made, instead of being baked and hardened, were left in its originally soft condition, in the construction of the knob, the latter would yield under the pressure of the hand, would not retain its connection with other parts of the door, and would not serve the use of turning the latch and opening and shutting the door.

The substance of steel, out of which a knife blade is made, is hard and strong, and is thus

adapted to holding an edge and being forced thru objects, in cutting and severing them into parts. If the substance of the knife blade were soft and flexible, it would not hold an edge, could not be forced thru objects, and would not serve the use of cutting and severing them into parts.

Not only must everything that man makes for a useful purpose be made out of a particular substance, but it must also be given a particular **shape,** in order to serve the use for which it is designed.

The door knob must have a particular shape in order to be conveniently grasped by the hand, in turning the latch and swinging the door on its hinges. It must be round or oval in order to be contained in the palm of the hand when grasped.

The knife blade must have a particular shape to serve its use. It must be thin and sharp, in order to serve the use of cutting or passing between the parts of an object.

If the door knob were shaped like a knife blade, it could not be grasped by the hand without danger of lacerating the latter.

If the knife blade were shaped like a door knob, it would not cut or pass between the parts of an object.

Now, in the invention and manufacture of a useful object, **intelligence** is necessary in judging **what substance** will be suited to perform-

ing the work the object is intended to accomplish, and **what shape** the object must have for the same purpose.

The inventor and manufacturer of the door knob, foreseeing by his intelligence, the use the door knob was to serve, selected and procured for its construction a substance that was capable of being made hard by baking, instead of some permanently soft and plastic substance, and then gave that substance a round or oval shape.

The inventor and manufacturer of the knife blade, foreseeing, by his intelligence or mind's eye, the use the blade was to serve, selected and procured the hard substance of steel, out of which to make the blade, instead of some very soft substance, and gave that substance a thin, sharp shape.

Since the existence and action of intelligence is necessary in producing the adaptation of **substance to use** and **shape to use** in any object made by man, such adaptation is evidence to our minds of the intelligence of the one who made the object, even tho we do not actually see its maker.

In looking over an assemblage of tools or instruments at an exhibition or display of such things, we perceive evidence of the intelligence or lack of intelligence of the inventor and manufacturer of any one of them, as soon as we learn its use, and observe whether the sub-

stance out of which it is made is capable of performing that use, and whether its shape is also capable of performing the same use.

If, for example, we are told that the use of one of the objects is to cultivate the soil, and we find that the object is composed of a strong, hard substance, and possesses a sharp, thin shape, so that it will enter and stir the soil, we perceive the intelligence of its inventor and manufacturer.

If, however, in looking at the object, the use of which was affirmed to be cultivating the soil, we find that neither the substance nor the shape is capable of entering and stirring the ground, we see no evidence of intelligence in the making of the object. If the object should be composed of the substance of chalk, for instance, or if its shape should be globular or cylindrical; or if both its substance and its shape were as incapable of being thrust into the ground and stirring the soil as the substance and shape just mentioned, we should perceive no evidence whatever that intelligence had been exercised in the construction of the object.

Now, by scanning the animal and vegetable kingdoms, we shall find precisely the same adaptation as we have found in the realm of invention and manufacture.

If this adaptation is evidence of intelligence in man's productions, we are also bound to re-

gard it as evidence of intelligence in animal and vegetable organs and bodies, in which it is so conspicuously displayed.

As an easily observed class of animal organs, let us examine the teeth.

All species of animals that have teeth use them for cutting and grinding their food. They do this, as we say, naturally. They do not do it because they see other animals doing it. The kitten, the pup, the calf and other young animals having teeth, use their teeth for chewing their food, whether they see other animals, either of their own or other species, using their teeth for chewing or not.

But while we say it is the nature of animals to use their teeth in chewing their food, yet, in the last analysis, and in the deepest sense, animals are directed or impelled to use their teeth for chewing their food by the same power that formed the teeth for cutting and grinding food, and which now directs and guides the animals in their use.

The pressure to which the teeth are subjected by some species in crushing and grinding their food is tremendous. The force or pressure exerted on the teeth by a horse in crushing and grinding corn on the cob, or by a dog in crushing a bone, would destroy any but the hardest kind of a substance in the teeth. A very hard and dense substance is necessary in the teeth, to withstand the pressure to which

they are constantly subjected in cutting, crushing and grinding food.

Do you observe the extreme hardness and density of the substance of the teeth? Often, when teeth have been extracted from their sockets in the jaw, they can hardly be cracked with a hammer, so hard and dense is their substance.

Thus, we find that the hard, dense, pearl-like substance of which the teeth are composed is strikingly adapted to the use of cutting, crushing and grinding food, no matter how hard and resistant the latter itself may sometimes be.

Suppose the substance of the teeth were as soft as many other substances or tissues of the body. Suppose the substance of the teeth were as soft, for example, as the jelly-like substance of the brain and nerve centers. How would it be possible, with such a substance for teeth, for a horse to crush and grind corn and hay into minute particles, or for a cat or dog to crush and smash bones for the marrow they contain?

But the shape of the teeth is as striking, in qualifying them for cutting, crushing and grinding food, as their substance.

In the human mouth, those teeth that occupy such a position as to be most useful for cutting off the food, as in eating bread and butter, have a cutting or incisive shape, while those teeth that lie farther back in the mouth, and

which are used for crushing and grinding food, are broader and better fitted by their shape for the latter purpose.

For cutting food, as in the case of the upper and lower incisor teeth, one sharp edge of an incisor fits against that of another incisor, somewhat like the blades of a pair of scissors. Each incisor is matched, scissor fashion, with another incisor. The number of incisors in the lower jaw exactly equals the number of incisors in the upper jaw, so that each incisor is properly matched. Thus the cutting off or incision of the food, in consuming it, is made possible and easy.

For crushing and grinding food, as in the case of the upper and lower molar teeth, cusps or elevations on the surface of one molar, fitting into depressions in another molar, are desirable or necessary; and these corresponding elevations and depressions we find on the surface of the molar teeth. Each molar tooth is properly matched by another molar, there being the same number of molars in each jaw, as in the case of the incisors.

Suppose the teeth were differently shaped.

If, for instance, the teeth were all spherical, they would be practically useless for either cutting or grinding food.

If they were sharper than they are, they would cut and lacerate the tongue when it comes in contact with them.

The teeth could not possibly be better shaped than they are for the uses which they serve.

It is only natural for us to ask the question, Why, if our teeth are given us by divine power for chewing our food and sustaining our lives, do people so often lose them by decay in old age, or even in earlier life?

The same question may be asked, and the same answer given, in the case of all other bodily organs, altho any answer we can frame may not answer the question to our full satisfaction.

Obedience to the laws of hygiene, or other means for the prevention and cure of disease, would, no doubt, in many cases, preserve the health of the teeth. But, it seems that divine intelligence has not given us our teeth, or any other bodily organ, to keep permanently. For purposes higher, perhaps, than we can conceive, dissolution finally awaits all the organs of the animal and vegetable body. If organic bodies were not removed from earth by the operation of this law, there would soon be no room for succeeding generations, nor would the opportunity ever come to man to know a better world than this.

Thus, we find the most exquisite adaptation of **substance to use** and **shape to use** in the teeth. This adaptation is evidence of the **intelligent creative force** which selected and deposited the dentine and enamel of the teeth,

and which produced their shape, in their formation, by controlling the action of the **cells** which **assumed the shape** and **absorbed and deposited the substance** of the teeth.

Science teaches that the animal body is made of cells, somewhat as a brick building is made of bricks. Each cell is a little, disc-shaped body of living matter, which may be seen with the aid of a microscope. Science further teaches that the animal body is derived from a single cell, known as the germ cell, or ovum.

In the formation of the body in the embryonic state, the germ cell first turns into many cells, by what is called segmentation. These cells then change position, and move from place to place, in the formation of the body.

In this movement of the cells, they assume the shapes of the different organs of the body. Then they absorb from the embryonic fluid the different substances or tissues out of which the different organs of the body are constructed. The cells of each organ assume exactly the proper shape, and absorb exactly the proper substance, for the performance of the future use or function of the organ.

Now, **the assumption of the correct shape,** and **the absorption of the correct substance,** on the part of the cells of each organ, for the future use of that organ, **are intelligent processes or results;** for, as we have seen, the adap-

tation of substance to use, and shape to use, in any body or organ, is evidence of the intelligence which selected and procured its substance and produced its shape.

Hence the cells, in assuming the correct shape and absorbing the correct substance, for the performance of the various functions of the organs, are controlled in their actions by an intelligent creative force.

In the human species, the teeth are not completely formed and do not appear in the mouth until the body of the infant has passed the period when it should subsist exclusively upon milk, and has arrived at the period when it begins to demand solid foods that must be chewed. Nevertheless, the substance of the teeth is selected from the blood and deposited in them, and their shape molded, by the intelligent creative force, altho they are not formed and do not appear in the mouth until several months after birth.

As implied by the term intelligent creative force, God is not only intelligent, but God also exercises force, in addition to possessing other attributes, the description of which is not within the province of this treatise. The attributes of intelligence and force are displayed in the formation of animal and vegetable organs and bodies; for, intelligence is necessary to determining the proper shape and substance of organs, and force is necessary to

shaping organs, and to depositing substance in them. Matter cannot assume the shape of an organ, nor be deposited in the latter, unless acted upon by some force.

Intelligent creative force acts upon the cells, in controlling their movements in the formation of organs, somewhat as gravitation acts upon the particles of a body in causing the body to move in the direction of a larger body.

We cannot see gravitation passing thru space from one body to another, nor explain just how gravitation lays hold of the particles of the smaller body in causing it to move toward the larger body. We can only prove that gravitation does in some manner come in contact with and act upon the particles of the smaller body.

Neither can we see intelligent creative force, nor explain just how this force comes in contact with the cells in controlling their movements. But we can prove that such a force comes in contact with and acts upon the cells in the formation of organs and bodies, by the intelligent results which it produces.

If an intelligent creative force does not control the action of the cells in their assumption of the shape and their absorption of the substance or tissue of organs in the embryonic state, what, in a single word, is the force which produces these completely intelligent results?

What is the force which curves and sharpens the claw of the cat, and which selects and deposits the steel-like tissue of the claw, in its formation in the embryonic state, or in its evolutionary development from a less perfect organ, thus endowing the cat with a perfect hook for prehension and climbing?

What is the force which causes one group of cells to assume the hollow, tubular shape of the blood vessel, and absorb its closely-knit tho elastic substance, and which, at the same time, causes another group of cells to assume the round, solid shape of the crystalline lens, and absorb its transparent substance, if an intelligent creative force does not cause it?

Whenever **physical and chemical forces** act in the formation and sustenance of the body, they are **utilized and directed** by the dominant intelligent force, similarly as steam, gravitation or chemical forces are utilized and directed by the intelligence of man, in the manufacture and operation of machines.

Organs which we have the opportunity to observe almost daily are the hoofs of animals.

The use of hoofs is to come in contact with the ground in walking and running, while supporting the weight of the animal above them. Some animals that have hoofs, such as sheep, goats and cattle, use their hoofs for climbing rocky, flinty hillsides in grazing; while other

animals that have hoofs, such as horses and mules, are used for traveling on paved, pebbly or gravelly highways.

Notice the substance of the hoof. Could a better substance be selected or imagined for contact with the rocky, pebbly earth, than that which we find in the hoof? So hard and tough is this substance that it can hardly be indented or cut with the sharpest instrument.

Observe, also, the shape of the hoof. It is spread out or flattened where it comes in contact with the ground, thus preventing the animal from sinking into the ground in walking and running.

Suppose the hoof were sharp, like the horn of an ox or cow. It would penetrate the ground to such depth in walking or running as greatly to impede the locomotion of the animal.

Suppose the hoof were globular in shape, or convex on its under surface. Such a shape in the hoof would tend to give the animal a rocking motion, both laterally and longitudinally, and would make either standing still or moving forward exceedingly difficult.

Both the substance and the shape of the hoof are admirably adapted to its use; which adaptation is evidence of the divine intelligent force that selected and deposited the substance and produced the shape of the hoof. If, as some say, the use of the hoof in walking upon it has

flattened it, why has not the use of the horn in butting also flattened or blunted it?

The crystalline lens and other parts of the eye constitute one of the most wonderful instruments or organs of the organic world.

The use of the eye is to admit light thru its substance, and, by refracting or changing the direction of light rays, to form pictures or images of objects on the retina at the rear part of the eye.

Light (the X-ray excepted) will pass thru only clear or transparent substances. The substance of glass, on account of its transparency, is universally used by man for admitting light into both public and private buildings.

The substance of the crystalline lens and other parts of the eye is as transparent as glass. Were it not for this transparency of the crystalline lens and other parts of the eye, light could not pass thru the eye so as to form images on the retina, and, as a consequence, we could not see. Thus the substance of the eye, on account of its transparency, is perfectly adapted to the use or function of admitting light.

Neither could we see if the surface of the part of the eye thru which the rays of light pass did not have a rounded shape, like that of a lens. The rays of light coming from any object at which we look, must be refracted, or changed in direction, in a regular and uniform

manner, in order to produce an image of the object upon the retina so that we can see it. A regular and uniform change in the direction of rays of light is produced by their passing thru any transparent substance shaped like a lens.

The crystalline lens is as clear and transparent as crystal, and it is also shaped like a lens; hence its name, crystalline lens. It is so shaped as to produce the necessary change in the direction of the rays of light for producing an image, and a perfect and beautiful image of any object at which we look is thus thrown against the retina of the eye. The adaptation of the shape of the crystalline lens to its use is also apparent.

In the lenses of man's telescopes and microscopes, by which he brings within the sphere of his vision worlds almost infinitely distant and other worlds infinitesimally small, he has merely imitated the crystalline lens. In his choice of substance and shape in constructing lenses for transmitting and refracting light in his instruments of vision, man has only manifested like intelligence to that which is manifested in the substance and shape of the crystalline lens.

During life, the heart of animals is filled with blood. By the beating of the heart, that organ pumps or forces the blood it contains thruout the body. Attached to the heart are tubes,

which lead to all parts of the body. These tubes are the arteries.

The use of the arteries is to receive and conduct the blood from the heart to all parts and tissues of the body, refreshing and enlivening them, as a system of water works conducts water thru all parts of a city to the famishing residents. The tissues constantly receive fresh material from the blood, by which their substance is renewed, and their health and strength maintained. Blood is forced thru the arteries by the pulsations of the heart, similarly as water is forced thru rubber hose and iron pipes from a pumping station.

The substance of the arteries must be very strong and closely knit, in order that they may not burst by the pulsations of the heart, as in violent exercise, and in order that the fluid they contain may not ooze thru their walls. We find that the substance of which the arteries are composed possesses in a remarkable degree all the qualities necessary for containing and conducting the blood from the heart to all parts of the body. Thus their substance is in every respect adapted to their use.

Observe, especially, the shape of an artery. It is a tube, or closed vessel; and notice that blood could not in any manner be forced thru it, were it not closed on all sides. If it were open, like a trough, the current of blood could

not be controlled within its walls, and circulation would be impossible. The arteries possess precisely the same shape as rubber hose and iron pipes, which the intelligence of man has designed and produced for containing and conducting fluids.

If intelligence is necessary to selecting the substance and producing the shape of hose and pipes, is not intelligence also necessary to selecting the substance and producing the shape of arteries and veins?

Absolutely so! An intelligent creative force caused the cells to assemble into the shape, and to absorb the substance, of the blood vessels, in their formation, as surely as human intelligence and force selected the substance and molded the shape of hose and pipes.

The organs of the animal body are too numerous for us to examine the substance and shape of each and all of them. Upon this point, it is sufficient to say that the substance and shape of every bone, muscle, nerve and other bodily organ are exquisitely and completely adapted to its use. This adaptation is conclusive evidence of the divine intelligent force which operates in the formation of each and every bodily organ.

When an object made by man consists of two or more pieces or distinct parts, the substance and shape of each part are adapted to the use of that part. This is shown by the knife blade

and door knob, each of which is a part of a larger object.

Moreover, each part of an object is so shaped, in the manufacture of the object, as to fit each adjacent part of the object. The knife blade is made to fit the handle. The door knob is made to fit the square iron rod which passes thru the lock of the door. A part of a door hinge is made to fit the part of the hinge to which it is joined. In other words, in objects made by man consisting of two or more parts, **the shape of a part is adapted to the shape of an adjacent part.**

In making either of such objects, **intelligence** is necessary to judging **what shape** a part of the object must have to fit an adjacent part. In forming a part of the door hinge, the shape of an adjacent part must be recognized by intelligence and held in mind, as much as the shape of the part that is being formed. The intelligence of the inventor and manufacturer, foreseeing the shape which a part of the hinge must have to fit an adjacent part, endows a part of the hinge with the correct shape to fit the adjacent part.

Since intelligence is necessary in producing the adaptation of the shape of a part of an object made by man, to the shape of an adjacent part of the object, such adaptation is evidence of the intelligence which forms a part of an object to fit an adjacent part.

Not only are the substance and shape of each organ of the body adapted to the use of that organ, as we have seen in the tooth, the hoof, the crystalline lens, etc., but **the shape of an organ is adapted to the shape of an adjacent organ.**

In the animal skeleton there are many hinges, called joints, in which the parts fit one another as precisely and as artistically as the parts of a door hinge. In his great English classic, entitled "Natural Theology," Paley mentions, among other proofs which he cites as evidence of creative intelligence in the formation of the body, the ball-and-socket joint. The adaptation of shape to shape of adjacent parts is particularly striking in this form of joint.

The hip joint of man and of quadrupeds is a good example of the ball-and-socket joint. In the hip joint, a hinge is formed by a ball on the end of one bone, working in a socket on or near the end of another bone. The ball is imbedded deeply in the socket, and precisely fits it. It is held in the socket by a short, powerful cord, which is attached to the extreme inner part or bottom of the socket, and to that part of the ball which comes in contact with that part of the socket. Other ligaments, which surround and inclose the joint, assist in holding the ball in the socket. The shape of the ball is perfectly adapted to the shape of the socket.

The elbow joint is, likewise, a conspicuous and beautiful example of the adaptation of the shape of a part or organ to the shape of an adjacent part or organ.

The bones of the foreleg of a beef correspond to the bones of the human arm; and these bones, as well as the bones of the hind leg of the beef, including the hip joint, may be procured for observation at any meat market.

The first joint above the knee of the beef corresponds to the elbow in man. The bones that form this joint fit one another in such a manner as to form a perfect hinge. For every depression in the end of one of the joining or articulating bones, there is a corresponding elevation in the end of the other. For every groove in one, there is a corresponding ridge in the other. Elevation fits into depression, and ridge into groove.

There is also a hook extending from the end of one of the bones of this joint, which works in a groove around the end of the other bone. When the foreleg or arm is extended, the point or end of this hook sinks into a deep depression in or near the end of the other bone. This hook so nearly encircles the end of the other bone, as to assist the ligaments in holding the ends of the bones together, thus preventing their dislocation.

The adaptation of the shape of an organ to the shape of an adjacent organ, as illustrated

by the elbow and hip joints, is evidence of the intelligent creative force which controls the movement of the cells when they assume the shapes of the organs of the body.

The parts of an implement or machine are **intelligently arranged** among each other.

The reel of a self-binder reaping machine, for example, is arranged just above and in front of the sickle, for the purpose of striking the standing grain and forcing it against the sickle to be cut.

The straw-carrier of the machine is arranged just behind the sickle, so that it may catch and preserve the grain when the sickle cuts it. Thus, the reel, sickle and straw-carrier are intelligently arranged among each other.

If the reel were placed behind the sickle, or if the straw-carrier were placed in some such position that it could not catch and carry the grain from behind the sickle as fast as the latter cuts it, no intelligence would be displayed by such an arrangement of parts.

Besides the adaptation of the substance of a part of a machine to the use of the part; of the shape of the part of the use of the part; and of the shape of the part to the shape of an adjacent part, the **intelligent arrangement** of the parts of the machine among each other is evidence of the intelligence of the person who invented and manufactured the machine.

The organs of the body are **intelligently arranged** among each other.

For example, the teeth are placed above the stomach, so that they may crush and grind the food, and thus prepare it for digestion by the stomach. The stomach is fitted for dealing with the food only in the masticated condition which the teeth produce in it. The stomach cannot deal with the food in a whole or undivided state. It is fitted for dealing with the food only after the latter has passed between and been masticated by the teeth.

The tongue is arranged in connection with the teeth, for the purpose of keeping the food between them and making mastication possible.

A tube—the esophagus—is arranged between the mouth and the stomach, for the very evident purpose of conveying the contents of the mouth to the stomach as fast as they are crushed and ground by the teeth. Thus, these parts or organs of the body are intelligently arranged among each other.

If the tongue were not arranged in connection with the teeth, the food could not be kept between the teeth for mastication, except by tossing the head from side to side, or by some other inconvenient means.

If the esophagus did not connect the stomach with the mouth, the food could not be conveyed from the mouth to the interior of the body, and the latter would perish for lack of

nourishment. No intelligence would be displayed by arranging any of these organs in any different position from that which they now occupy.

The arrangement of the muscles in connection with the joints, which the muscles operate in producing bodily action, further illustrates the **intelligent arrangement** of parts or organs among each other.

Let us notice, for example, the arrangement of the biceps muscle in connection with the elbow joint. The biceps muscle bears the same relation to the elbow joint as a coil spring bears to the hinges of a screen door.

A coil spring operates the hinges of a screen door by its elasticity, or by its power to return to its original form or position when stretched. We recognize the intelligence displayed in attaching one end of the elastic spring to a movable object, such as the screen door, for the purpose of moving the object. No intelligence would be displayed in attaching both ends of the coil spring to immovable objects, for by such an arrangement of the spring no opportunity would be given for its elasticity to move anything, and nothing would be accomplished by so attaching the spring.

The substance or tissue of the biceps muscle is, also, elastic or contractile. The lower part of the arm is movable at the elbow, and the lower end of the biceps muscle is attached to

this part of the arm. We recognize the intelligence displayed in attaching the contractile muscle to the movable forearm, for the purpose of producing motion in the forearm and hand. But, if both ends of the contractile muscle were attached to immovable objects, no motion could be produced by the contractility of the muscle, and no intelligence would be displayed by such an arrangement or attachment of the muscle.

All our voluntary motions, by which we perform the duties of everyday life, depend upon the intelligent arrangement of muscles in connection with joints thruout the body.

Besides the adaptation of the substances of organs to their uses; of their shapes to their uses; and of their shapes to the shapes of adjacent organs, the intelligent arrangement of organs among each other is added evidence of the intelligent creative force which formed and arranged them.

The inventor and manufacturer of a machine displays intelligence in the machine, not only in the various ways already mentioned, but he also displays his intelligence by providing for the application of the motive force of the machine to each of its parts in such a manner as to cause the part to **act intelligently when in use.**

When the reel of the reaping machine reaches for the standing grain and pushes it

against the sickle so as to be cut, the reel acts intelligently.

When the sickle thrusts its sharp edge against the standing grain that is forced against it, so as to cut the grain, the sickle acts intelligently.

When the straw-carrier carries the prostrate grain from behind the sickle, it performs an intelligent action; for, if the grain were not removed from behind the sickle as rapidly as it is cut, it would not be properly preserved. Each of these parts of the machine acts as intelligently as if it were directly handled and guided by an intelligent human being.

So, also, creative intelligence is displayed in the body, not only in the ways already mentioned, but also by providing for the application of the nervous or motive force of the body to each organ in such a manner as to cause the organ to **act or function intelligently in life.**

When food enters the mouth, the salivary glands become active, and pour saliva upon the food, for the purpose of softening and partially digesting it. In this the glands act intelligently, for softening and digesting the food is a prerequisite of its conversion into tissue.

When the esophagus contracts above and behind the food, and carries it to the stomach, instead of contracting in such a manner as to obstruct or prevent the food from entering the stomach, it performs an intelligent action.

The beating of the heart, which forces the blood thru the arteries to all parts of the body, is as intelligent an action as the stroke of a pump handle which is operated by the hand, and which forces water thru the spout into a bucket. Since the actions of the organs of the body are intelligent, we conclude that an intelligent creative and sustaining force provides for the application of the nervous force to each organ in such a manner as to cause the organ to function intelligently.

The same intelligent creative force that forms and arranges the organs of the body when we are created, and that causes the organs to act intelligently in life, further **sustains our lives,** in what is technically called **anabolism,** by causing the cells of which the organs are composed to renew the substance and maintain the shape of the organs during life, thus continuously providing the correct substance and shape in each organ for the regular and constant performance of its function.

By maintaining, thru cell control, the proper shape, and depositing the proper substance, of the nerves and nerve centers during life, for generating and conducting nervous force, **sustaining intelligence** supplies the bodily organs with this force, and thus produces organic action.

Sustaining intelligence bears the same rela-

tion to organic action as, for example, an engineer bears to the action of the parts of a steam engine. The engineer moves the parts of the engine (sometimes assisted by a fireman), by producing and applying the force of steam to them. Similarly, sustaining intelligence causes the organs to act, by producing and applying nervous force to them.

We are accustomed to say that steam moves the parts of the engine, without thinking of the necessary factor which must in every case precede the production and application of steam; viz., intelligence. Steam would not move the parts of the engine, nor would nervous force cause the organs to function, did not intelligence produce and control the motive force in each case.

The part played by food in sustaining our lives is to furnish the substance for the renewal of the tissues. As the tissues must constantly be renewed, food is an indispensable factor in maintaining life and health.

The cells do not maintain the shape and renew the substance of organs during life, by means of the nervous force; but they perform those functions and accomplish those results by the direct action of the intelligent sustaining force.

The assumption of the shape and the absorption of the substance of organs, on the part of the cells, are begun in the embryonic state, by

intelligent creative force, before the nerves and nerve centers are formed; and these actions of the cells are continued thru life by the same power by which they are begun in the embryonic state.

It is the opinion of most thinkers and students of animal and vegetable life, that species have been developed from other pre-existing species.

When a new variety or a new species develops from another species, it will be observed that a change takes place, either in the shape or in the substance of one or more organs of the original species, or, perhaps, in both the shape and the substance of one or more of its organs.

The same intelligent creative force that causes the cells of organs to assume the correct shape and absorb the correct substance, in the embryonic state, for performing the necessary functions of the organs under future external conditions, can and does cause the cells of an organ when it develops under changed external conditions, to assume the correct tho different shape, and to absorb the correct tho different substance, for dealing with the changed external conditions, or for manipulating different external objects.

Thus, **the principal element or factor in the development of species,** as in the formation and sustenance of individuals, **is the intelli-**

gent creative and sustaining force which we know as God.

Divine intelligence operates, not only in our physical formation and sustenance, but also in our mental and spiritual natures. From tracing divine intelligence in the body, it is but a step to tracing it in the mind and soul. The divine mind is connected with the human mind in man.

We have seen that the physiological functions of the vital organs are intelligent actions. Altho those actions are intelligent, they are not performed by human intelligence; for they are not under the control of the will, and they take place even without the knowledge or consciousness of the human mind. If those actions are not performed by human intelligence, then, being intelligent, they must be performed by sustaining intelligence.

Altho the actions of the vital organs are performed by sustaining mind, yet those actions are accelerated by human thought. The thought of food, for example, so accelerates, by reflex action, the action of the salivary glands as to cause saliva to flow freely into the mouth; and this thought also quickens the pulsations of the heart, deepens the respiration, and accelerates the action of all the organs of the nutritive system.

If sustaining mind performs the functions of the vital organs; and yet, if thoughts of

the human mind accelerate those functions, then we must conclude that the human mind so affects sustaining mind in reflex action as to cause sustaining mind to produce the more vigorous action of the organs. Reflex action is then, in reality, action of sustaining mind. **In reflex action the human mind is in touch with divine mind.**

Of course, we do not and cannot understand all the thoughts and purposes of divine power with regard to ourselves, on this plane of existence; but we may, at least, catch glimpses of ways in which we are guided and controlled by that power, as revealed in science.

One way in which we are influenced and guided by divine power is thru our sensibilities—thru our emotions, affections and desires.

In maternal affection, for example, divine intelligence and power is manifest. The same power which forms the young in the embryonic state, and which prepares the sustaining fluid in the mammary glands for its sustenance at birth, produces maternal affection and love in the maternal parent for the protection and care of the young. This power operates in the parent for the care of the young until the latter arrives at the age when it can care for itself. Not only the human mother, but the maternal parent of lower species is impelled and directed by this power to protect and defend her young

to the limit of her strength in maternal affection.

In fraternal sympathy and love, also, divine intelligence and power impels and guides man to care for his fellow man. By producing in man the sentiment of philanthropy, divine power provides for the welfare and protection of all mankind.

Emotions, affections and desires are feelings, which occur more within the mind than do the so-called physical feelings or sensations. They are avenues of communication between God and man.

Another way in which man is guided by divine power, is suggested by the manner in which creatures are guided by the higher intelligence in instinct.

The young quadruped, for example, so far as its own intelligence goes, knows absolutely nothing of its surroundings at birth, because it has had no previous opportunity to know anything of them. It does not know of the existence and whereabouts of its food, which is concealed within the parental body. It does not perceive the sustaining fluid that is concealed in the parental organ, by sight or any other sense. Yet, immediately after birth, the young creature passes directly to its food in the parental organ.

The same creative and sustaining intelligence which formed the young creature in the

embryonic state, and which controlled the physiological function of preparing the sustaining fluid in the parental organ, now controls the action of the creature in promptly finding that fluid.

In a similar way as the new-born creature is **beneficently guided** to its food in the parental body by the higher intelligence for its sustenance and care, **man is,** without doubt, **controlled and guided** by divine power to beneficent ends thruout his existence. If the Creator guides the animal in its instinctive actions, does he not also guide and care for man, who must be much more important in his sight than the humbler creatures?

In the religious beliefs and experiences of mankind, divine intelligence and power communicates with man in divers ways for his guidance, comfort and inspiration. But, as the animal is guided in instinct without knowing that it is divinely guided, so man is guided by divine power without necessarily being conscious of such guidance.

We have seen that human intelligence and divine intelligence act similarly upon matter, in producing objects therefrom. Hence, human intelligence resembles divine intelligence; and, on account of the connection of human intelligence with divine intelligence in the body, the former is, indeed, a part of the latter. As divine intelligence is eternal and immortal, the im-

mortality of the soul is indicated by the connection of the human mind with the divine mind.

"Our birth is but a sleep and a forgetting.
The soul that rises with us—our life's star—
Hath had elsewhere its setting,
And cometh from afar.
Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory do we come
From God, who is our home."

THE END

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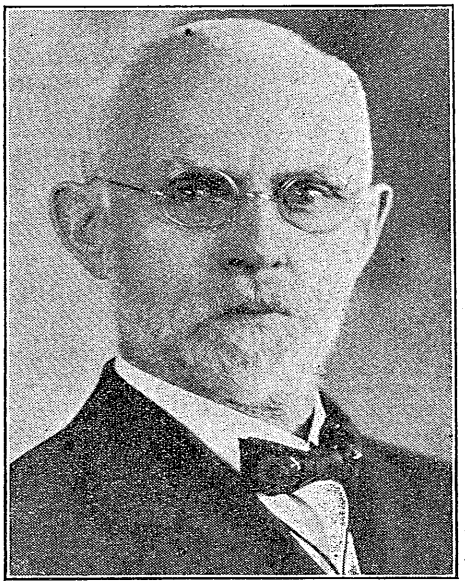

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