

to insist that *sensation* and *consciousness* are identical. Our personal experience makes it obvious that this cannot be true: to the contrary, sensation is physiological, whereas consciousness is psychological; sensation is event A, but consciousness is event B. And in some inscrutable manner, sensation, consciousness, and *meaning*, are all interwoven in *perception*. No amount of wishful thinking will—or can—reduce consciousness or meaning to sheer sensation.

4. The Mystery of Life

“And he showed me,” writes John the Revelator, “a river of water of life, bright as crystal, proceeding out of the throne of God and of the Lamb” (Rev. 22:1). From what primary Source indeed can the River of Water of Life emanate, but from the one self-existent Living Being, — God?

According to Aristotle,¹ the Totality of Things constitutes a hierarchy of being; our world is a terraced world, so to speak, and not a continuum. At the lowest level is the inanimate creation, the physiochemical foundation of things. At the next level is the plant world, which has this physiochemical basis, *plus* vegetation, *i.e.*, the cellular processes or processes of growth. At the third level is the animal creation, which has the same physiochemical basis and cellular processes, *plus* sensitivity and locomotion. At the highest level is the rational creature, man, characterized by the same physiochemical basis (which he shares with all physical existents), the same cellular processes (which he shares with plants and animals), sensitivity and locomotion (which he shares with the animal orders only), *plus* rationality or reason, which specifies him as man. In Aristotle’s own terms, the plant is characterized by “vegetative *psyche*” (“soul”), the animal by “sensitive *psyche*,” and man by “rational *psyche*.” And above the whole is God who, says Aristotle, must be defined probably as pure Self-thinking Thought.² General observation and experience would seem to confirm, in its bold outlines at least, this Aristotelian picture of the Cosmos.

The first step upward in the scale of created being is the step from the level of “non-living” (inanimate, inorganic) substance to the level of “living” (animate, organic) substance.

1. *De Anima*.
2. *Metaphysics*, XII, vii, 1072b 15 ff.

Here we encounter the greatest mystery of all—the Mystery of Life itself, and in some inscrutable manner this mystery is embodied,—or perhaps it would be more correct to say, *enacted*,—in the living cell.

The cell is the ultimate or basic unit of every “living” entity. “True,” writes Nordenskiöld,

ultra-microscopical technics have given us some insight into the composition of the living substance over and above what the microscope has been able to provide, but no one has succeeded in isolating any vital unit in this way, and up till now the cell, with all its complications, remains the smallest form under which the living substance has been found to exist by itself and independently of other living entities.¹

“The fundamental substance of the cell,” adds this author, “has remained in its innermost essence undiscovered.”

“To *metabolize*, to *move*, to *grow*, to *reproduce*, to *adapt* to the environment, and to have *organization*,” writes a contemporary biologist, “is to be alive.” The same author tells us that the secret of life itself—and indeed all scientists would agree—is contained within the protoplasm of cells. He writes as follows:

The bodies of human beings, as well as those of other animals and of plants, are composed of a substance called *protoplasm*. This basic, living material is not homogeneous, but varies among organisms and among the different organs of a single animal or plant. From time to time, even a single organ may change in composition. All the many kinds of protoplasm share certain physical and chemical characteristics, however, and whatever the secret of life may be, it is well hidden in this exceedingly complex substance.²

Again,

The protoplasm of the human body, and of all plants and animals, is nowhere present in a single large mass, but exists in tiny discrete portions called *cells*. These are the units of structure of the body, just as bricks may be the units of structure of a house. But they are more than mere building blocks; each is an independent, functional unit, and the processes of the body are the sum of the coordinated functions of its cells. The units vary considerably in size, shape, and function. Some plants and animals have bodies made of just a single cell; others, such as man or an oak tree, are made of countless billions fitted together.³

1. Erik Nordenskiöld, *The History of Biology*, 539. Trans. from the Swedish by Leonard Bucknall Eyre.

2. Claude A. Villee, *Biology: The Human Approach*, 28.

3. *Ibid.*, 21.

4. *Ibid.*, 34. *Protoplasm*, from the Greek *protos*, “first,” and *plasma*, “anything formed or moulded”—the latter derived in turn from *plassein*, “to form” or “to mould”—is obviously just a name for this ultimate living substance, which is itself largely unknown. Certainly the secret of life itself has never been fathomed.

All cells, we are told, both plant and animal, although varying in many aspects, have several features in common, as follows: (1) All are completely enclosed by a *plasma membrane* which is made of protoplasm and which functions importantly in regulating the content of the cell; (2) Each contains a small, usually spherical, body, which is known as the *nucleus*, which functions to direct cellular activity and which contains the hereditary factors in both plants and animals; (3) In each cell, the *nucleoplasm* or protoplasm of the nucleus is separated from the surrounding protoplasm by a *nuclear membrane*; (4) Running through the nucleus of each cell are strands of a deeply staining protoplasmic material, which is known as *chromatin*, and when cell division takes place, these strands form *chromosomes*, rod-shaped bodies which in turn bear the hereditary units, known as *genes*; (5) In each cell, the protoplasm outside the nucleus is known as cytoplasm, which contains other specialized structures to perform specific functions, that is, in relation to the biochemistry of the cell as a whole.

Plant cells differ from animal cells chiefly in three respects, as follows: (1) Plant cells, excepting those of higher plants lack the *centriole*, a dark-staining structure which is found in the cytoplasm of all animal cells; (2) Plant cells, but not those of animals, have plastids in the cytoplasm. These plastids are small protein bodies. One type of plastid, called a *chloroplast*, contains the pigment *chlorophyll*, which is responsible for the green color of plants, and which is best known for its mysterious action in *photosynthesis*. This is the complicated and subtle process in which green plants convert the energy of the sun's rays into stored food energy. Science has never been able to break the process down and to discern exactly how it works, but it has long been known that without chlorophyll, neither plants nor animals (including human beings) could live. Thus it becomes obvious that solar energy is a prerequisite of plant life, just as plant life is a prerequisite of the various forms of animal life. Were it not for the constant transformation of light energy into potential chemical energy, and the constant replenishing of the supply of oxygen in the atmosphere, by this process of photosynthesis in plants, no living thing could exist. These, as we shall see later, are important facts to be considered in relation to the order of Creation that is given in the first chapter of *Genesis*. (3) In the third place, a plant cell has a stiff cell wall of cellulose which prevents its changing shape or position, whereas animal cells usually have only the thin plasma mem-

brane on the outside and thus are able to move and to alter in shape.¹

There are fundamental differences too in the atomic bases of plant and animal life. On this rather important aspect of the subject, De Nouy writes as follows:

It is very likely that evolution had an extremely elementary point of departure common to all living beings animals and vegetables. But from the very beginning we observe at the same time a relationship and a profound difference between the two. The active base, the nutritive liquid of the animals, is the blood, and that of the superior animals contains a fundamental substance, the red pigment called hemoglobin, which transports oxygen to the cells so as to oxydize, or burn, the refuse. The molecule of hemoglobin is very large and highly complicated; its structure varies from one species to another (mean molecular weight: 69,000).

Chemically, this hemoglobin is fairly close to the circulatory pigment of plants and algae, chlorophyll (molecular weight: 904). There is, therefore, a relationship, but whereas hemoglobin is characterized by the presence of one atom of iron in its molecule, chlorophyll, which is much simpler, is built around an atom of magnesium. To complicate the problem further, the blood of certain arthropods and mollusks, inferior animals which preceded superior animals, contains a pigment with a molecular weight varying, according to the species, between 400,000 and 6,700,000, and containing an atom of copper instead of iron or magnesium. [Certain snails, for instance.]

How was the chemical transition from one to the other accomplished? Honestly speaking, it is impossible to conceive it, and yet the hypothesis of a sudden appearance is not satisfactory. Some kind of transition must have taken place. We may never know how.²

Indeed, many of the secrets of the life process seem to be utterly impenetrable. (May I state, at this point, that I myself do not accept evolutionism either as being proved or even as provable scientifically. My position is clearly stated in the Addendum on the subject to be found at the end of this volume. C.C.C.)

Now the ultimate unit of the human organism, as of every other living thing, is the cell. Every individual, writes Dr. Jesse F. Williams,

is a mass of cells, microscopic units too small to be seen by the unaided eye. It is estimated that the body is composed of a total of 26,500,000,000,000 cells. This enormous number, too large to be comprehended easily, grew from one cell, the ovum which was produced by the ovary of the mother and fertilized by the spermatozoon of the father. The statement that a new individual derives from a single cell is almost as unbelievable as the number of cells of which he is composed. The facts, however, are well established, and students of anatomy and physiology accept them. They remain, none the less, sources of wonder and even awe.³

1. *Vide* Villee, *op cit.*, 34-38, 54-58.

2. Lecomte De Nouy, *Human Destiny*, 58-59.

3. *A Textbook of Anatomy and Physiology*, Seventh Edition, 1.

H. G. Wells, Julian Huxley, and G. P. Wells in a collaborated work, write as follows:

We may compare the body to a community, and the cells to the individuals of which this vast organized population is composed. . . . Single cells can be isolated from the rest of the body, and kept alive. . . . The size of this object is such that about 2,500 laid side by side would measure an inch. And it is itself separately and independently alive. Such is the stuff that man and all his life is made of. [I feel obliged to object to this statement: as far as we know, it is man's corporeal life only, and not his higher thought processes, that is the direct result of cellular activity. This, however, may be what these authors mean.] In our bodies there are millions of such individual cells, inherent and necessary parts of us. They are not dead like the bricks in a wall; they can be persuaded by the arts of Dr. Strangeways to desert! Then they will move by themselves, take nourishment, absorb oxygen, exude waste matters. They can be starved or suffocated. Not only will they move about as free individuals, but they will reproduce themselves. . . . The number of cells in the reader's body is staggering. In the blood of an average man there are over fifteen million million cells in the blood alone; his brain system contains nearly two thousand million; and the total number in the human body is over 1,000,000,000,000,000—a thousand billions (and English billions, not American ones). They serve the body community in various ways and have various appropriately specialized forms. Some are of service because they can actively change their shape—such as muscle-cells; others, the nerve-cells, are drawn out into enormously long, thin threads, and are like living telephone wires; others, more cubical, serve by exuding special chemical substances—such as the cells of the salivary or thyroid glands. We need not catalogue all the possible varieties, but can content ourselves with stating that there are well over fifty distinct kinds of cells to be found in every man's body.¹

Again, from the same authors:

From the green scum on a dank garden path to Solomon in all his glory, from the tree to the tiger, from the swarming millions of germs in a poisoned finger to the tame elephant in the Zoological Gardens, from intestinal worm to rosebud, and from lichen to whale, life plays in endless variations that drama of movement, metabolism, and reproduction which marks it off from the mineral kingdom and from all the interplay of inanimate Nature. And, perhaps, in endless variations it plays also upon the themes of conscious and sub-conscious life, it dreams and slumbers in the plant or in the motionless fish, or drinks deep of contentment or flashes into frenzies of desire and delight and terror in hunter and hunted, in basking snake or playing cub or singing bird. And the writing and reading of this book and the thought-process behind these things are life also.²

The basic cellular processes of the human organism, starting with the fertilized ovum, are those of *segmentation* (or multiplication, and hence growth, for where there is life, there is growth), *differentiation* (of structure), and *specialization* (or alteration of function, which accompanies differentiation). (In-

1. *The Science of Life*, I, 40, 43, 46.

2. Wells, Huxley, and Wells, *op cit.*, I, 16.

identally, when a group of cells multiply only, and thus "run wild," so to speak, but fail to differentiate and to specialize, a cancer is formed in the given area.) Williams writes:

This development of different functions by different groups of cells is not the sudden acquisition of a new power nor an unusual capacity only possible in certain cellular elements, but rather an emphasis of one of several functional abilities common to all embryonic cells. This change, called specialization, means that certain cells take over and lift to a higher level of performance a particular function which all cells at one time possessed. Specialization of cells in the human organism has the same meaning that it has in human society. The more exquisitely a cell is adapted to one function, the less capable it is of performing all functions which it exercised formerly. . . . These changes, segmentation, differentiation, and specialization go on to some extent at the same time. In a precise manner of speaking there is probably no differentiation without specialization, and vice versa. Whether structure makes function or function makes structure is not determined by the above facts. In the embryo, function is at a minimum, and yet structure increases rapidly; on the other hand, after birth, function frequently determines structure. It should be remembered that structure and function are two aspects of the same thing—organization of protoplasm. Those who see in structure or in function a greater importance fail to recognize the essential unity of the whole organism.¹

Thus the human organism is composed of differentiated and highly specialized aggregations of cells—each of which is "living" *per se*—built up hierarchically into tissues, organs, and systems, in the order named, and finally into the unity or whole, the organism itself. Science tells us, moreover, that these billions of living cells of various kinds and functions which constitute the organism as a whole, are in a state of constant flux; that, in fact, the human body undergoes a complete cellular transformation every four years or so. That is to say, the cells which go to make up my body at this moment, will have sloughed off and been replaced by an entirely new aggregation of cells some four years from this date. Through all this flux of cellular change, however, the *life* of the organism goes on undisturbed. *Memory* also, and *self-consciousness*, and *personal identity*, persist through all this flux: I am the same I, basically, at ten, twenty-five, fifty or seventy years of age. The memories I cherish are *my* memories—they can belong to no other; the images I retain in my "mind" are *my* images—I can not transfer them to anyone else; the essential self that I know is the self of *me*. I am the same person throughout the span of my earthly life, and I *know* that I am the same person. No getting around this fact!—that is, if I am a normal human being. Does not this persistence of

1. Dr. Jesse F. Williams, *op cit.*, 14-16.

personal identity through some fifteen or twenty complete cellular transformations in the course of a lifetime, point forward unmistakably to my personal survival of the last great change—the change which occurs in connection with the “death” of the body?

In the light of all these facts, one can only cry out with the Psalmist, in wonder and awe:

I will give thanks unto thee; for I am fearfully
and wonderfully made:
Wonderful are thy works;
And that my soul knoweth right well.
(Psa. 139:14)

The evidence seems to be quite conclusive that the Mystery of Life resides in the protoplasm of the living cell. Protoplasm is described as a semifluid, jellylike substance possessing not only physical and chemical characteristics, but also such definitely physiological functions as growth and repair, liberation of energy from food, sensibility or irritability, and reproduction. These are all characteristics of what we call organic or “living” substance. But what is this force—or process—this phenomenon itself that we call “life”? Obviously, it is something essentially qualitative rather than quantitative—but what is it? Whence came it? What is that elusive something within the living cell that causes it to be “alive,” and distinguishes it from the non-living atom? Is the secret of life inherent in the physiochemistry, perhaps in the juxtaposition of the atoms, within the cell? Biologists as a rule think so. Villee, for example, writes:

The unique property of protoplasm, its aliveness, does not depend upon the presence of some rare or unique element. Four elements, carbon, oxygen, hydrogen and nitrogen, make up about 96 per cent of the material of the human body. Another four, calcium, phosphorus, potassium and sulfur, constitute 3 per cent of the body weight. Minute amounts of iodine, iron, sodium, chlorine, magnesium, copper and perhaps other elements complete the list. All these elements, and especially the first four, are abundant in the atmosphere, the earth’s crust, and the sea. Life depends upon the complexity of the interrelationships of these common, abundant elements.¹

This last statement, however, is purely gratuitous; certainly it has never been proved experimentally, that life has its explanation in the complexity of the interrelationships of the elements, nor even of the atoms within the elements, here enumerated. Consequently there have been thinkers in all ages who

1. *Op. cit.*, 21-22.

have held that Life is a force superposed upon, or added to, the physiochemical bases of living organisms. Again I quote from Villee:

Most present-day biologists agree that vital phenomena, though more complex, are reducible to the same basis as nonliving phenomena, that both are explainable in terms of chemistry and physics. This is called the *mechanistic* theory. A corollary of this view is that if we knew everything about the chemistry and physics of vital phenomena, we would be able to synthesize life. An opposing school of thought, *vitalism*, states that some unique force, not reducible to the terms of chemistry and physics, controls the activities of life and differentiates living from nonliving things. Vitalists believe that no matter how great our knowledge of the physics and chemistry of protoplasm may be, we shall never understand life or be able to create it artificially.¹

One thing is sure, however, with reference to the issue stated here, and that is, that science does not *as yet* have the answer. Up to the present moment no one has penetrated the Mystery of Life itself. As one of the most distinguished of modern biologists puts it:

We do not know what life is. No one has yet observed a transition from inanimate to animate nature, nor has any theory been proposed which successfully explains the origin of life on the earth. We must remain satisfied with the fact of life's existence, without being able to explain it or even describe it clearly.²

The Mystery of Life *per se* remains as inscrutable as the mysteries of matter, consciousness, and personality. It is but one of the many mysteries which seem to remain impenetrable to human science—in spite of its boasted self-sufficiency—in a world that is full of mysteries, and of mysteries that become more mysterious and more numerous as the horizon of human knowledge is extended.

Is there any evidence anywhere in Nature, as we know it, that inanimate matter has the inherent power to produce life? Modern science answers this question firmly in the negative: "spontaneous generation," it says, does not occur. But, strange as it may seem, the theory of spontaneous generation was held quite generally, by non-churchmen and churchmen alike, throughout ancient and early medieval times. Several of the early Church Fathers, notably Ephrem, Basil, Gregory of Nyssa, and John Chrysostom, in the East, and Ambrose and Augustine in the West, clearly interpreted the *Genesis* account of Creation as teaching that originally-created inorganic matter was really

1. *Op cit.*, 28-29.

2. Fritz Kahn, M.D., *Man in Structures and Function*, I, 5. Trans. from the German and edited by George Rosen, M.D.

endowed by the Creator, from the moment of its creation, with the power of producing living beings. This view was fully developed by St. Augustine, Bishop of Hippo, in his celebrated theory of "seminal reasons," namely, that the inorganic elements, God's primary creation, contained in themselves, from the beginning, the "seminal reasons" of all living things, *i.e.*, the powers necessary to the generation of living things. He states expressly that, at the proper moment in the Creative Process, the earth (not *seeds* in the earth, mind you!) was given the impetus to produce life.¹ According to Augustine's interpretation, all species of plants and animals were created potentially from the very beginning, in that their causes or principles were implanted in matter when it was created; therefore, the account of the Creation which appears in the first chapter of *Genesis* is but the record of the progressive actualizing, *by the Word of God*, of those powers which hitherto had existed potentially in the inorganic elements. In a word, according to this theory, the creation of inorganic matter by the Deity was a *primary* creation (that is, no secondary causes, or what we call "laws of nature," were involved), whereas that which followed in the successive epochs ("days") of Creation was the result of the cooperation of the Creator with secondary causes—causes proceeding from the waters, the earth, etc.

Cf. Gen. 1:11—And God said, Let the earth put forth grass, herbs yielding seed, and fruit trees bearing fruit after their kind, wherein is the seed thereof, upon the earth: and it was so. Also v. 20—And God said, Let the waters swarm with swarms of living creatures, and let birds fly above the earth in the open firmament of heaven, etc. Also v. 24—And God said, Let the earth bring forth living creatures after their kind, cattle, and creeping things, and beasts of the earth, after their kind; and it was so. [Incidentally, does not modern science hold that animal life existed *first* in the water, *then* in the air, and finally on the land?]

I might add here that a plausible argument certainly can be made at any time in support of this Augustinian interpretation.²

But present-day science, on the whole, rejects the theory of spontaneous generation. The modern view seems to be that Pasteur, by proving conclusively that "microbes have parents," demonstrates once and for all that the generation of life by inanimate matter does not take place in nature. C. C. Furnas declares that "Pasteur effectively silenced all spontaneous gen-

1. *De Genesi ad litteram*, Lib. V, 4. *Vide* Migne's Edition.

2. For an excellent presentation of the teaching of the Church Fathers on this subject, *vide* Ernest C. Messenger, *Evolution and Theology*.

eration advocates with an air-tight set of data."¹ Wells, Huxley, and Wells testify as follows:

Life seems always to be produced by pre-existing life. It presents itself as a multitude of individuals which have been produced by division or the detachment of parts from other individuals, and most of which will in their time give rise to another generation. . . . It is accepted now by all biologists of repute that life arises from life and in no other way—*omne vivum ex vivo*. Life as we know it flows in a strictly defined stream from its remote and unknown origins, it dissolves and assimilates food, but it receives no living tributaries.²

All living things take their origin in pieces of living substance detached from the bodies of other living things. . . . Every living cell arises from a pre-existing cell.³

One fact remains, that all the life we know is one continuing sort of life, that all the life which exists at this moment derives, so far as human knowledge goes, in unbroken succession from life in past time, and that the unindividualized non-living world is separated from it by a definite gap.⁴

It seems that life must once have begun, but no properly informed man can say with absolute conviction that it will ever end.⁵

So, generally speaking, conclude the scientists of our day. The mysteries of life, of the origin of life, of the living cell, remain impenetrable to science.

There is an occasional exception, however, in so far as the origin of life by spontaneous generation is concerned. For example, Dr. George W. Beadle of Stanford University, in an address before the George Westinghouse Centennial Forum, held in Pittsburgh, Pennsylvania, in May, 1946, explicitly defended the possibility of spontaneous generation. Among other things, he said:

It is a fascinating diversion to speculate on the manner of the origin of the first living thing on earth and to wonder what its nature could have been. Although the complete answers can never be known, it is nevertheless of interest to see how plausible a hypothesis can be built up in terms of our present knowledge. One of the questions that one soon faces in any attempt of this kind is the simple one: what constitutes a living system compared with a non-living one? Not everyone will give the same answer; indeed, in giving any at all one runs the risk of stimulating violent argument. Let us assume for purposes of our particular kind of speculation that the decisive step was taken when the first chemical combination capable of self-duplication came into being. By self-duplication I mean that process of replica formation that occurs regularly *only* in the presence of a model. To state it differently, once the first living unit appeared by chance, then and

1. *The Next Hundred Years*, 22.
2. *Op. cit.*, 4-5.
3. *Ibid.*, 459.
4. *Ibid.*, 6.
5. *Ibid.*, 13.

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only then could more units of the same kind appear with regularity. In the present state of this world, organic molecules are—as the term itself implies—almost invariably synthesized by living beings. It is often supposed, therefore, that they were not present before life arose. If this were true, life must have come about by some lucky chance combination of inorganic molecules that possessed the property of catalyzing further combinations of the same sort. While the probability of such a combination would be exceedingly small, that is not a valid objection to assuming its occurrence since it need have happened only once. But this theory can be disposed of on logical grounds by a simple argument. The fact that life arose at all is itself sufficient grounds for concluding that it did not happen in one step from inorganic molecules. This follows from the consideration that if anything as complex as a self-duplicating organic molecule could arise in a single step, then it is infinitely more probable that simpler organic molecules without the power of self-duplication would have arisen. If these arose spontaneously, then they, rather than inorganic molecules, certainly would have served as the precursors of the more complex combination that was the first living unit. The thesis that organic molecules were present in great variety in the pre-life world is defended in a book entitled *The Origin of Life* by the Russian biochemist Oparin. His assumption that organic molecules could be formed spontaneously in a lifeless world is one against which the average person tends to rebel violently at first. On second thought, however, one is inclined to concede that with the infinite variety of combinations of molecules and reaction conditions that must have existed on earth before life was present, organic molecules would have had a slight but real probability of being formed by chance. . . . Assuming, then, the existence of endless kinds of organic molecules of varying complexities, it becomes possible to imagine the spontaneous origin of a combination, like a present-day protein molecule, which possessed the power of directing the formation of more molecules like itself from precursors like those from which it first arose. In the absence of competition for its components, such a simple being could have enjoyed a quite peaceful existence, forming descendants like itself whenever and wherever it found the right combination of raw materials. It would have mattered little if the happy opportunity of making a replica occurred only once in a thousand or million years. Actually we know of the present-day existence of molecules with the essential properties that we have ascribed to the protogene. As first shown by Stanley, many viruses are crystallizable nucleoproteins that have the property of automultiplication in an environment in which all the component parts are present under the proper conditions. The principal difference between the present-day virus and the postulated protogene is that the protogene was free-living while the virus is parasitic on a living cell. Considering that the environment in which the protogene is assumed to have arisen was like the interior of a living cell in containing a vast array of organic molecules, this certainly is not a profound difference.¹

Dr. Beadle then goes on to suggest the possibility that “reaction chains” of protogenes were “built up through mutation and natural selection in a way in which every single step would

1. George W. Beadle, “High-Frequency Radiation and the Gene,” *Science and Life in the World*, Vol. II, The George Westinghouse Centennial Forum Series, in three volumes, 1946. McGraw-Hill.

have conferred a selective advantage over the previous condition," the ultimate result being, of course, life in its various forms and degrees of complexity.

Now the eminent doctor of biology, self-admittedly, is "speculating," "assuming," "imagining"—in a word, guessing—throughout this entire presentation. The argument itself, however, proves that the ghost of spontaneous generation stalks the halls of science once more, and is remindful of the age-old creed of materialism:

Once nothing arrived on this earth out of space;
 It rode in on nothing; it came from no place;
 It landed on nothing—the earth was not here—
 It worked hard on nothing for year after year.
 It sweat over nothing with mighty resolve;
 But just about then things began to evolve.
 The heavens appeared, and the sea and the sod;
 This Almighty Nothing worked much like a god.
 It started unwinding without any plan,
 It made every creature, and ended with man.
 No God here was needed—there was no Creation;
 Man grew like a mushroom and needs no salvation.
 Some savants say this should be called evolution,
 And ignorance only rejects that solution.¹

And no doubt there are some scientists who would shout with ill-concealed glee, "Exeunt the spirits!" (Dr. L. T. Hogben, for example, writes of carbon compounds as "the last resting place of spirits.") All this, however, is only wishful thinking, no matter if it should turn out to be "scientific." All that the revival of the spontaneous generation theory accomplishes is to push "spirit" back a step or two in the developmental scale of total being. All self-styled naturalistic scientists should familiarize themselves with the writings of the Church Fathers cited in a foregoing paragraph. For, in the final analysis of the case, whether the *life principle* was incorporated in matter from the beginning (or, to speak more precisely, in certain *relations* existing within matter itself), or whether it was superimposed upon matter from without, is not a matter of too great significance after all. The author of a recently-published textbook on geology has summarized the point at issue very sensibly, as follows:

Two views that are at least partially opposed to one another may be advanced concerning the origin of life. (1) Life is the result of special creation; the existence of plants and animals on the earth

1. I have never succeeded in identifying the author of these lines.
- C.
2. L. T. Hogben, *Science for the Citizen*.

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depends on the creative act of a Deity. (2) Life is the result of certain physiochemical conditions; the introduction of these conditions and the properties of matter that are involved depend on "laws" of nature, which in turn are an expression of inherent characters of the universe. All of these are conceivably the result of an initial divinely established order; otherwise there is no understandable beginning or end.¹

And one of the most ardent of contemporary evolutionists, Earnest A. Hooton, writes in a similarly restrained vein:

One cannot conclude a volume of facts, reflections, and speculations concerning the course of human evolution without asking himself if there is any place for a guiding intelligence in this marvelous progression of organic events. However you look at him, man is a miracle, whether he be a miracle of chance, of nature, or of God. Further the whole sequence of evolutionary development is such an astounding and incomprehensible concept that it baffles explanation. That evolution has occurred I have not the slightest doubt. That it is an accidental or chance occurrence I do not believe, although chance probably has often intervened and is an important contributing factor. But if evolution is not mainly a chance process it must be an intelligent or purposeful process. ["Chance," of course, is best defined as essentially a *non-purposeful* something or event.] It seems to me quite immaterial whether we believe that the postulated source of the intelligence or purposeful causation is a divine being or a set of natural "laws." ["Laws," however, presuppose a Lawgiver, a Sovereign Will, for all law is essentially the expression of will. Science, therefore, by its use of the term, "laws" of nature, either wittingly or unwittingly recognizes the Will of God as the Constitution of the universe.] What difference does it make whether God is Nature or Nature is God? [The Scriptures clearly teach that God is the Author and Creator of Nature.] The pursuit of natural causes either leads to the deification of Nature, or to the recognition of the supernatural, or to a simple admission of ignorance, bewilderment, and awe. It should arouse the feeling of reverence in any one who attempts to grasp the central phenomenon which emerges from the vast assemblage of organic facts. I venture to assert that the concept of organic evolution is one of the grandest and most sublime which can engage the attention of man. Whether man arose from the apes or was made from mud, he is in a sense a divine product. Organic evolution is an achievement not unworthy of any God and not incompatible with the loftiest conception of religion. But if it were conclusively demonstrated tomorrow that man has not evolved from anthropoid ancestors, if it were finally proven that the species had not been derived one from the other, but had been separately created, the anthropologist would still face the dawn with equanimity and with eager anticipation of new scientific visits. Theories of origin and causation are often transient and evanescent; life itself can never fail to command the interest and evoke the inquiry of human minds.²

Again I quote from Lincoln Barnett's book, in this connection:

Cosmologists for the most part maintain silence on the question of ultimate origins, leaving that issue to the philosophers and theology. Yet only the purest empiricists among modern scientists turn their

1. Dr. Raymond C. Moore, *Historical Geology*, 102.
2. E. A. Hooton, *Up from the Ape*. 604-605.

THE ETERNAL SPIRIT — HIS PERSON AND POWERS

backs on the mystery that underlies physical reality. Einstein, whose philosophy of science has sometimes been criticized as materialistic, once said:

"The most beautiful and most profound emotion we can experience is the sensation of the mystical. It is the sower of all true science. He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty which our dull faculties can comprehend only in their most primitive forms—this knowledge, this feeling is at the center of true religiousness."

And on another occasion he declared, "The cosmic religious experience is the strongest and noblest mainspring of scientific research." Most scientists, when referring to the mysteries of the universe, its vast forces, its origins, and its rationality and harmony, tend to avoid using the word God. Yet Einstein, who has been called an atheist, has no such inhibitions. "My religion," he says, "consists of a humble admiration of the illimitable superior spirit who reveals himself in the slight details we are able to perceive with our frail and feeble minds. That deeply emotional conviction of the presence of a superior reasoning power, which is revealed in the incomprehensible universe, forms my idea of God."

And so, again, we are back to the only possible logical startingpoint: Either intelligent Spirit or unintelligent atoms (or energy) must be the unoriginated First Principle of all things. He who holds the former view is a *theist*; he who holds the latter view, a *materialist*. There is, of course, an alternative position, namely, that of the *dualist*, who holds that both Spirit and Matter are eternal or unoriginated. But, would it not be unphilosophical to postulate *two* self-existent First Principles when *one* alone is sufficient? And this is precisely the claim that is made for the Eternal Spirit throughout this treatise.

Getting back to the theory of spontaneous generation, Dr. A. H. Strong has written—to my mind—conclusively on this subject, as follows:

If such instances [for spontaneous generation] could be authenticated, they would prove nothing as against a proper doctrine of creation—for there would still exist an impossibility of accounting for vivific properties of matter, except upon the Scriptural view of an intelligent Contriver and Originator of matter and its laws. In short, evolution implies previous involution—if anything comes out of matter, it must first have been put in. . . . This theory, if true, only supplements the doctrine of original, absolute, immediate creation, with another doctrine of mediate and derivative creation, or the development of the materials and forces originated at the beginning. This development, however, cannot proceed to any valuable end without guidance of the same intelligence which initiated it. The Scriptures, although they do not sanction the doctrine of spontaneous generation, do recog-

1. *Op. cit.*, 105-106.

nize processes of development as supplementing the divine fiat which first called the elements into being.¹

It must be remembered that whether God operates primarily and directly, or through secondary causes ("natural laws"), it is He who, as the First Cause or Principle, is back of, and responsible for, the whole life process. The same measure of creative power is required equally for a creation by emanation, or a creation by evolution, or a direct and instantaneous creation. The problem involved here is not that of *method*, but that of *power*—it is the problem of the *Elan Vital*—to use Bergson's well-known designation. As a matter of fact, it was Bergson himself who first called attention to the inadequacy of the traditional theories of evolution; they postulated methods only, said he, but failed to take into consideration the Life Force itself, the Vital Impetus which has ever surged onward and upward in the myriads of living species, the Force which *actualizes* all methods which may be involved in the ongoing of the life process; methods are, in fact, but evidences of the operation of this basic Life Force. The universe and its creatures, said Bergson, are the embodiment of this immanent principle of living change and creativity; it is one continuous flow, evolution being only the movement of the flow. Underneath the conflict of the *Elan* with the living forms in which it is compelled to concrete itself in order to find proper expression,—for the very impetus of Life consists in the need for creation—there is a fundamental spiritual unity which is the rhythm of the mobility of Life itself. This mobility, moreover, is essentially the stuff of duration, which is *real time* (*i.e.*, time, as experienced by a spirit or spiritual being), as distinguished from *mathematical time*, which is a form of measurement arbitrarily imposed upon reality by the human intellect.²

It is to the *Elan*, therefore, according to Bergson, that we must look for the answer to the problem of the origin of species. It is useless to look to mere physiochemical forces for this solution; we shall not find it there. Something more is needed to explain the Mystery of Life and of living forms than the operation of either physical or chemical forces or even of both together. The ultimate source of the evolution of life must be Something of the nature of consciousness, of duration,—in a word, of Spirit. As a matter of fact, Bergson's *Elan Vital* is a *conscious Life*

1. *Systematic Theology*, One-Volume Edition, 390.

2. *Vide* Henri Bergson, *Creative Evolution*, authorized translation by Arthur Mitchell.

Force. It is a universal principle or power which transcends the present moment, and must needs transcend any factual embodiment of itself at any time. It is infinite in the sense of being *inexhaustibly creative*. And, paradoxical as it may seem, the self-manifestations of the Infinite must needs be first, simply because it is infinite in the sense of being *inexhaustibly creative*. It is because of the inexhaustible richness of life itself, that it is alway developing in the direction of such great variety and multiplicity. Thus it must be obvious to any thinking person that Bergson's *Élan* has practically all the properties traditionally ascribed to the Spirit of God. In fact, the property most characteristic of Spirit is *inexhaustibleness*. This is always true, whether the Spirit be regarded as operating in the realm of power, or in that life, or in that of thought.

The Mystery of Life is still a mystery—as great a mystery as it ever was. Dr. Alexis Carrel, formerly of the Rockefeller Institute, kept a piece of the heart-muscle of a chicken alive and pulsing and growing for more than twenty years. Cutting off a bit of the heart of a live, unhatched chicken, he placed the fragment in a glass tube in which it was supplied a constant bath of liquid food which included blood. The bit of "flesh" grew, and from time to time it had to be trimmed down to fit the receptacle in which it was contained. Remarkable as this experiment was, it served only to accentuate three great "unknowns": (1) What was the something in that particle of living tissues that caused it to continue to be "alive"? (2) What is it that keeps the heart, or any other organ, of a live chicken from growing beyond proper bounds, as this piece did? (3) What is the mystery in blood that endows it with power to sustain life, power that obviously cannot be created from pure chemicals? *No chemist has ever synthesized a living cell in the laboratory. No man has ever created a seed.*

Cf. Lev. 17:11—For the life of the flesh is in the blood; and I have given it to you upon the altar to make atonement for your souls: for it is the blood that maketh atonement by reason of the life. Cf. also Luke 24:39—[the words of Jesus, after His resurrection]: See my hands and my feet, that it is I myself: handle me, and see; for a spirit hath not flesh and bones, as ye behold me having. [Evidently the blood—the principle of *animal* life—was gone from His resurrection body.]

Then, again, what is the secret of the mystery of the propagation of life? Scientific experiment has proved the fact beyond any possibility of doubt that the mystery of the *life process* is

bound up, in some inscrutable manner, with the chromosomes and genes of the reproductive cells. Not only are physical characteristics, but temperamental and intellectual endowments as well, transmitted through such media from one generation to another. But precisely what this relation is, continues to be a secret apparently as impenetrable as the comparable mystery of the relationship existing between brain and "mind." These mysteries, of course, are to be expected, if life is essentially a metaphysical or spiritual force—a conclusion which, in the view of thinkers who are not predisposed to an absolutely materialistic interpretation of the universe, can hardly be avoided.

That life is more than a mere physiochemical phenomenon seems to me too obvious to be questioned. I can see no alternative, either from the viewpoint of reason or from that of ordinary common sense, but to accept the fact of a basic, essentially non-material Pure Activity or Creative Spirit, which contains within itself (or, speaking precisely, who contains within Himself) all the actualities of energy, life, consciousness, personality, and holiness, *i.e.*, *wholeness*. Such are the actualities of the Spirit of God as He is presented in Scriptures. He is revealed as the Source of Power, Life, Light, Truth, Law, Love, and Wholeness; apart from Him there is only impotence, death, darkness, error, license, hate and disunity.

Just as at the lowest level of the Totality of Being, the inorganic level, the Spirit operates to produce energy and is therefore the Spirit of Power, so at the next level of being, the organic level, He operates to generate life and is the Spirit of Life. Life in all its forms is a Divine Gift—the gift of the Spirit of God.

In the first place, the Spirit is the Giver of the natural or physical life which we enjoy here and now.

Acts 17:24-25: The God that made the world and all things therein, he, being Lord of heaven and earth, dwelleth not in the temples made with hands; neither is he served by men's hands, as though he needed anything, seeing he himself giveth to all life, and breath, and all things. Job 33:4—The Spirit of God hath made me, and the breath of the Almighty giveth me life. Job 27:3—For my life is yet whole in me, and the spirit of God is in my nostrils. John 6:63—It is the spirit that giveth life; the flesh profiteth nothing. Gen. 2:7—Jehovah God formed man of the dust of the ground; and breathed into his nostrils the breath of life; and man became a living soul.

In the second place, the Spirit is the Giver of the spiritual life which we may enjoy here and now, in the Kingdom of Grace, through Christ the Word.

THE ETERNAL SPIRIT — HIS PERSON AND POWERS

John 1:1-4—In the beginning was the Word, and the Word was with God, and the Word was God. . . . In Him was life; and the life was the light of men. John 6:35—Jesus said unto them, I am the bread of life; he that cometh to me shall not hunger, and he that believeth on me shall never thirst. John 14:6—Jesus saith unto him, I am the way, and the truth, and the life. 1 John 5:12—He that hath the Son hath the life; he that hath not the Son of God hath not the life. Eph. 2:8—For by grace have ye been saved through faith; and that [i.e., that salvation] not of yourselves, it is the gift of God. Eph. 2:4, 5—God, being rich in mercy . . . made us alive together with Christ (by grace have ye been saved). John 3:5, 6—Jesus answered, Verily, verily, I say unto thee, Except one be born of water and the Spirit, he cannot enter into the kingdom of God. That which is born of the flesh is flesh; and that which is born of the Spirit is spirit.

In the third place, the Spirit is the Giver of eternal life, that life which the saints shall enjoy in the Kingdom of Glory, which is mediated through Christ the Word, and which shall consist in ultimate union with God in knowledge and love. One of the concomitants of that life, moreover, shall be a redeemed or spiritual body.

John 3:16—For God so loved the world, that he gave his only begotten Son, that whosoever believeth on him should not perish, but have eternal life. John 11:25, 26—Jesus saith unto her, I am the resurrection and the life. . . . whosoever liveth and believeth on me shall never die. 2 Cor. 3:6—the letter killeth, but the spirit giveth life. Rom. 6:23—For the wages of sin is death; but the free gift of God is eternal life in Christ Jesus our Lord. Rom. 8:11—But if the Spirit of him that raised up Jesus from the dead dwelleth in you; he that raised up Christ Jesus from the dead shall give life also to your mortal bodies through his Spirit that dwelleth in you.

Every year, in the springtime, noiselessly and without effort, the earth blossoms into beauty and melts into fragrance. As the poet has written,

Whether we look or whether we listen,
We hear life murmur, or see it glisten;
Every clod feels a stir of might,—
An instinct within that reaches and towers —
And, groping blindly above it for light,
Climbs to a soul in grass and flowers.

What is this never-failing awakening of life, year after year, but a gracious providential operation of the Spirit of God? In the words of the Psalmist, referring to all living creatures: "Thou sendest forth thy Spirit, they are created; and thou renewest the face of the ground" (Psa. 104:30).

Life is not a creation—it is a Divine Gift. We ourselves were born, not made; our parents were born of their parents; and so on, back to the beginningless Fountain of Life. That Fountain, the Scriptures tell us, was the very Being of God

Himself; first life was enjoyed by man as the result of a Divine Inbreathing. Gen. 2:7 again: "Jehovah God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul." How fitting that the very Name of our God is I AM, HE WHO IS, the Ever-Living One! Exo. 3:14—"And God said unto Moses, I AM THAT I AM; and he said, Thus shalt thou say unto the children of Israel, I AM hath sent me unto you." John 4:24, the words of Jesus: "God is a Spirit: and they that worship him must worship in spirit and truth."

The Breath of God is the outgoing of the Spirit of God, and it is the Spirit that giveth life. Our God IS a Spirit, and they who worship Him must worship Him in spirit and according to the Truth.

The Stream of Life flows ever onward and upward in this present world, from the lowliest plant form to the highest, thence upward through all creatures of water, air, and land, finally to attain its highest manifestation in human personality. The red River of Life has flown out from Someone, Somewhere, for ever! And it will continue to flow—even beyond the grave—where in the redeemed and immortalized saints, its red shall have been transformed into crystal purity and brightness. "And he [the angel] showed me," writes the Seer of the Apocalypse, enraptured, "a river of water of life, bright as crystal, proceeding out of the throne of God and of the Lamb" (Rev. 22:1). "Out of the throne of God and of the Lamb"—note it well!

Ah, sweet Mystery of Life, precious gift of the Spirit of my God. As Tennyson has expressed it, so exquisitely:

Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but *if* I could understand
What you are, root and all, and all in all,
I should know what God and man is.

5. The Mystery of Thought

Is there anything in the universe—any entity or activity—that is not matter or not material? Can everything that exists be reduced ultimately to matter in motion? Is thought, for example, but a manifestation of electronic, atomic, or some other—possibly as yet unknown—form of "physical" energy? There have been those in all ages who have stubbornly insisted