EPIPHANY STUDIES
IN THE
SCRIPTURES

**"The Path of the just is as the Shining Light,
That Shineth More and More
Unto the Perfect Day."**

SERIES II

CREATION

12,000 Edition

"The Invisible Things of Him since the Creation of the World are Clearly Seen, being Perceived through the Things that are Made, even His Everlasting Power and Deity" (Rom. 1: 20).

PAUL S. L JOHNSON
PHILADELPHIA, PA., U. S. A.
1938

To the King of Kings and Lord of Lords

IN THE INTEREST OF

HIS CONSECRATED SAINTS,

WAITING FOR THE ADOPTION,

—AND OF—

"ALL THAT IN EVERY PLACE CALL UPON THE LORD,"

"THE HOUSEHOLD OF FAITH;"

—AND OF—

THE GROANING CREATION, TRAVAILING AND WAITING FOR

THE MANIFESTATION OF THE SONS OF GOD,

THIS WORK IS DEDICATED.

"To make all see what is the fellowship of the mystery which from the beginning of the world hath been hid in God," "Wherein He hath abounded toward us in all wisdom and prudence, having made known unto us the mystery of His will, according to His good pleasure which He hath purposed in Himself; that in the dispensation of the fullness of the times He might gather together in one all things, under Christ."
Eph. 3: 4, 5, 9; 1: 8-10.

THE AUTHOR'S FOREWORD

THE SUBJECT of this book—Creation—is one of compelling interest. No subject in nature, and very few in revelation possess more interest to universal man than it does. In its appeal it is far-reaching, inasmuch as it enlists the attention of the learned and the unlearned, the young and the old, the civilized and the uncivilized alike. And it is proper that it does command such interest and make such appeal; for next to the Creator comes Creation in the estimation of the average person, since it is continually attracting his five senses, knocking at the door of his perceptive faculties, challenging his reasoning powers and seeking an entrance into his affections. Moreover, as a part of Creation, universal man feels his relation to it, just because he is a part of it, which fact continually arouses his interest therein. But it is to the religiously disposed man that Creation, both as a process and as a product, makes the strongest appeal; for to him the subject is especially arresting, because it brings him into a deeper knowledge and appreciation of the Creator, and thus brings him into closer touch with His wise, powerful, just and loving Maker. Thereby he reaches a condition of spirit that ennobles, enriches and elevates him. Thus God becomes more and more a living reality to him, and more and more the Goal of his endeavors. Our subject is a broad one; for, among other things, it embraces the field of the natural sciences: Here astronomy is brought to view. Here Physics asserts itself. Chemistry underlies it. Mineralogy is anciently a feature of it. Meteorology is a part of it. Botany marks it. Geology figures largely in it. Zoology in all its departments belongs to it. In its earthly feature it culminates in Anthropology and Sociology. Even Mathematics has in various of its branches a share in Creation. Yea, it rises above the domain of the material, and brings us into the sphere of the spiritual world with its varied orders of spirits. And, finally, it brings one to the science of Theology, in its narrow sense, as referring to the

knowledge of God, especially as to His attributes of wisdom, power, justice and love, as these display themselves in creative work.

Having so broad a subject, we, of course, could not expect to give details on its many ramifications; for it is not our object to write a scientific treatise on the minute details of science as these are displayed in Creation. Rather, we content ourself with giving generalities on its details, especially as these are brought to our attention in Gen. 1: 1-31; 2: 7, 21-24, additionally drawing into our discussion other pertinent Scriptures. Our endeavor has been to elucidate the Mosaic account of Creation and to show its harmony with the assured results of science. And as the mainspring of this endeavor our constant purpose has been to magnify and enhance our gracious Creator to the head and heart of the reader. If, as a fruit of this work, this purpose is attained, it will be the chief joy of the author.

PAUL S. L. JOHNSON.

Philadelphia, PA., U. S. A.
September 12, 1937.

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Hast thou not heard it, the universal music,
The throbbing harmony, the old e'erlasting rhyme,
In the wild billows roaring,
In the mad torrent pouring,
And keeping with the stars its beat and march sublime?
Hast thou not heard it when the night was silent,
And nothing stirred but winds amid the trees,
And the star-orbits, strings of harps celestial,
Seemed quivering to the rush of melodies?

If in thy soul there pulse not some faint responsive echo
Of that supernal, everlasting hymn,
Thou'rt of the low earth, lowly,
Or livest life unholy,
Or dullest spiritual sense by carnal grossness dim.
Hear it, O poet, hear it! O preacher, give it welcome!
O loving heart, receive it, deep in thy inmost core,
The harmony of angels—glory, forever glory,
Glory and peace and joy, and love forevermore!

CHAPTER I.

GENERAL REMARKS.

THEIR NECESSITY. BIBLE PROOF FOR GOD'S CREATORSHIP. THE NATURE OF THE CREATIVE ACT. THE WORLD OF SPIRIT AND MATTER AS THE CREATIVE SPHERES. THE CREATIVE DAYS. THE LAWS OF NATURE. THE BEGINNING.

IN THE first volume of the Epiphany Studies In The Scriptures we discussed God's Existence, God's Attributes of Being and Character and False Views of God. We desire in this, the second volume, to study God's Works of Creation. Before entering into the particulars of God's creative works we desire to set forth some general remarks on God's works of creation, as introductory of the details that we hope to give thereafter. These general remarks are called forth for the most part, because there are so many misunderstandings on God's creative works. We doubt not that the usual objections that many scientists make to what is alleged to be the Christian view of God's creative works are due to this alleged Christian view of His works of creation being neither Christian nor Biblical; but are creedal views largely the product of the Dark Ages and alien to the Old Testament, the New Testament and the assured results of scientific study. We hold that however much variance there may be between the Biblical view of God's creative works and some of the theories, hypotheses, speculations and *guesses* of some scientists, real and alleged, there is no disagreement between the Biblical statements on the subject under consideration and the assured results of scientific discovery of facts as such. Rather they dovetail into one another with marvelous harmony, which agreement cannot be asserted of the creedal views of God's creative works and the assured results of scientific discovery of facts. It is this disagreement

that has made not a few scientists reject the Bible as an authority on God's creative works, under the mistaken assumption that its and the creedal view on the subject are identical, whereas on almost every point of fact they are in disharmony with one another. This fact makes some general remarks on our subject necessary before proceeding to the particulars later to be brought out.

But does the Bible set forth the thought that God is the Creator and that His creative works are as extensive as the spiritual and material worlds? We claim no less than an affirmative answer to the question just asked for the Bible's teaching on the subject under study; and our first general remark on the subject will prove such to be the Biblical view of it. So far as the creation of the material universe, including this earth and its belongings, is concerned, this is set forth in many passages. The most detailed of these, of course, is that with which the book of Genesis begins. We will first give a list of passages proving that God made the universe—the heavens and the earth. Gen. 1: 1; 2: 1-4; Ex. 20: 11; 1 Sam. 2: 8; 2 Kings 19: 15; Neh. 9: 6; Ps. 33: 6, 7; 89: 11; 102: 25; 103: 22; 104: 2, 3, 5, 6; 121: 2; 124: 8; 136: 5-9; 146: 5, 6; Prov. 3: 19; 8: 26-29; 16: 4; 26: 10; Eccl. 11: 5; Is. 37: 16; 40: 12, 26, 28; 42: 5; 44: 24; 45: 12, 18; 48: 13; 51: 13, 16; Jer. 10: 12, 16; 31: 35; 32: 17; 51: 15; Jonah 1: 9; Zech. 12: 1; Acts 4: 24; 7: 50; 14: 15; Rom. 1: 20; 1 Cor. 8: 6; Eph. 3: 9; Heb. 2: 10; 3: 4; Rev. 4: 11; 10: 6; 14: 7. Next we will cite passages wherein there is no mention of the earth as created by God, but that prove that God created the heavens—the starry heavens above: Gen. 1: 14-19; 1 Chro. 16: 26; Job 9: 8, 9; 26: 13; Ps. 8: 3; 19: 1. We now present a third list of passages, wherein is no mention of the heavens as created by God, but that prove that God created and ordered the earth: Gen. 1: 2, 9, 10; Job 26: 7; 38: 4; Ps. 24: 1, 2; 65: 6; 78: 69; 90: 2; 95: 4,

5; 104: 24; 119: 90; Jer. 27: 5. We now submit a fourth list of passages, which prove that God created man: Gen. 1: 26, 27; 2: 7; 5: 1, 2; 9: 6; Ex. 4: 11; Num. 16: 22; 27: 16; Deut. 4: 32; 32: 6, 15, 18; Job 10: 3, 8, 9, 11, 12; 31: 15; 33: 4; 34: 19; Ps. 86: 9; 94: 9; 95: 6; 100: 3; 139: 13; 149: 2; Prov. 20: 12; 22: 2; Eccl. 11: 5; Is. 17: 7; 43: 1, 7, 15; 44: 2; 45: 12, 18; 51: 13; 64: 8; Jer. 27: 5; Mal. 2: 10; Acts 17: 26, 28; 1 Cor. 12: 18, 24, 25; 1 Pet. 4: 19. The following passages show that He made the land and sea animals: Gen. 1: 20-25; Job 12: 7-9; Ps. 8: 6-8; Jer. 27: 5; 1 Tim. 6: 13. So, too, the Scriptures prove God to be the Creator of vegetation: Gen. 1: 11-13; 2: 8, 9; 1 Cor. 15: 36-38. The following passages show that God has made and operates the laws of nature in His creative work: Gen. 1: 3-10; Job 28: 23-26; 37: 16, 18; 38: 8-10; Ps. 8: 3; 33: 6-9; 104: 30; 119: 90, 91; 148: 5, 6; Prov. 8: 26-29; 30: 4; Is. 40: 12; 45: 7, 18; Jer. 5: 22; 31: 35; 51: 15, 16; Amos 4: 13; 5: 8; 9: 6; Matt. 6: 26-30; Acts 17: 25, 26; 1 Cor. 8: 6; 2 Cor. 4: 6. These seven lines of thought on God as the Creator, if analyzed in detail, would give us a magnificent insight into Him in His relation to His creative works. A proper study of the above lists of passages will bless its doer with some exceedingly fine information. Some of these verses contain descriptions of His creative work that are sublime in the extreme; others of them are most beautiful; and all of them are marvelously simple as expressions of facts.

Having seen in general terms that God is Scripturally presented as the Creator, it would be now in order to introduce some remarks on what is meant by the word creation. This word is used in this connection in two senses: (1) as a process or action, and (2) as a product or the product of such a process or action. As a process or action the creeds have defined it as the making of all things out of nothing. We consider this definition to be false; for it is certainly contrary

to the Biblical use of the word in every use of it where materials for a definition of it are given. Our definition of creation as a process or action is the making of new things out of previously existing substances. We will now make a study of this word as used in the Bible, comparing these two above-given definitions with one another in the light of the pertinent Bible passages; and in so doing we will cite every occurrence of the pertinent Hebrew and Greek words determinative of their meaning. This pertinent Hebrew word as a verb is *bara* and the pertinent Greek word as a verb is *ktizo*. There are some passages in which these words occur in such connections as in themselves shed no light on their definition. We will cite these without quoting them. Those that do shed such light we will both cite and classify with brief comments. This will enable our readers to have all the Biblical evidence on the definition of these words for their personal and full study. But before undertaking such a discussion we will quote and examine the passage that creedists use in an attempt to prove their thought. This passage reads in the A.V. as follows: "Through faith we understand that the *worlds* were *framed by* the Word of God, so that things which *are* seen *were not made* of things which do appear" (Heb. 11: 3).

Certainly the A.V. translation of this passage has been "framed"! Those who so translated it believed that all things were created out of nothing and they *framed* the passage accordingly; *i.e.*, they put into it their idea; but did not take out of it its idea and put that into English. We have above italicized the words mistranslated and misplaced in the A.V. of this verse. The word here translated *worlds* is not *kosmoi*, the Greek word for *worlds*, but is *aiones*, the Greek word for ages. The word translated *framed* had better have been translated *adjusted;* the form translated *by* should here have been translated *to;* the two words, to *blepomenon* (singular, not plural), should have been

translated, *the thing seen or perceived*, or *what is seen or perceived*. The said mistranslations were necessary in order to insert into the passage the translators' error on everything being created out of nothing, as the A.V. rendering suggests. The A.R.V. helps matters a little by putting as a note in the margin over against the word *worlds*, the statement: "Greek, *ages*." They also changed in the text the plurals in the words, "the things that *are* seen *were*," to the singular, "what is seen." While this improves the passage, the A.R.V. still does not fully clarify the verse, and that because of their failure to correct the words, "framed by," through the words, "adjusted to." Then, in the last clause the wording should be: "so that the thing seen, [or perceived], has become from things not clear."

Rotherham's translation of the Bible, one of the best in our opinion, gives Heb. 11: 3 as follows: "By faith we understand the Ages to have been fitted together by declaration of God, to the end that not out of things appearing should that which is seen have come into existence." The following rendering of the Improved Version, with some bracketed comments, we consider still better: "By faith we understand that the Ages were adjusted to God's Word [Plan], so that the thing perceived [in our Age] has become from things not manifest [in a preceding Age]." *E.g.*, The mystery of God, that the Christ is not one, but many members (Col. 1: 26; 1 Cor. 12: 12-14; Gal. 3: 16, 29); was not clear in the Ages before, but is clear now in the Gospel Age; that Christ should first suffer and afterward enter into glory, was not clear in the Ages before ours, but is clear now in the Gospel Age; that Israel's enslavement by Pharaoh, the deliverance of the firstborn by the lamb's sprinkled blood, and the whole nation's deliverance at the Red Sea, were not in the Jewish Age clear, as typing the enslavement of the race under the curse by Satan, the deliverance of the Church of the firstborn, justified by the blood of the Lamb of God,

and the deliverance of the faithful restitutionists during the Little Season at the end of the Millennium, but are clear as such now in the Gospel Age. Innumerable other examples of the thought of Heb. 11: 3 will occur to our readers' minds. Hence Heb. 11: 3 is entirely silent on God's creating all things out of nothing; for it has no reference at all to creation. This, a mistranslated verse, is the only passage relied upon by creedists teaching all things are created of nothing.

We will now present all the occurrences of the word *bara*, the Hebrew word properly translated in the A.V. by *create*. As indicated above, some of these passages in themselves shed no light on whether *bara* means to make something out of nothing, or does not so mean. Hence they are indeterminate as to the point in question. But others of them are clearly determinate on this point; and these all show that *create* does not mean to make something out of nothing, but means to make something new out of previously existing things. We would remark that the word *bara* primarily means to *cut down* a thing preparatory to making something of it, or doing something with it, as the following passages show: Joshua 17: 15; Ezek. 21: 19; 23: 47. Then it has a second meaning—*to create*—derived from the fact of cutting down a thing preparatory to making something of or doing something with it. Its primary meaning contradicts the creedists' and confirms our view as correct. We will first present a list of the passages that are indeterminate as to the meaning of *bara*: Gen. 1: 1; 2: 3, 4; Ps. 89: 12; Is. 40: 26; 42: 5; 45: 18; Ezek. 28: 13, 15. As these in and of themselves give us no light on the meaning of *bara*, we pass them by without further discussion.

We will now cite and briefly comment on all the other occurrences of the word, which, by discussion, will certainly prove our thought, that to create means to make something new out of previously existing things. Such certainly in ordinary speech is its meaning

when we refer to man's creations, *e.g.*, Edison's, Steinmetz', etc. We are expressly told that when God created Adam and Eve (Gen. 2: 27; 5: 1, 2; Deut. 4: 32), He made Adam out of the dust of the earth and life principle (Gen. 2: 7) and Eve out of a rib and some flesh of Adam and life principle (Gen. 2: 21-23). Hence in these passages *bara* means to make something new out of previously existing substances, which disproves the creedist thought under review. We are expressly told that whales [dragons], fowl and every aquatic creature were made of water and its contents, united, of course, with life principle. Hence in Gen. 1: 20-22 *bara* means to make new things out of previously existing materials. Indirectly, *i.e.*, by propagation through fathers and mothers, God creates all people (Gen. 6: 7; Ps. 89: 47; 102: 18; 104: 30; Eccl. 12: 1; Is. 40: 28; 43: 1, 7, 15; 45: 12; 54: 16; 65: 17 [Jesus and the Church are the new heavens and Jerusalem]; Ezek. 21: 30 [Ammon]; Mal. 2: 10). But they are made out of the life principle that their fathers furnish and the elements of the earth that their mothers furnish. Hence they are made—created—out of previously existing elements, not out of nothing.

Then God is said to create (*bara*) when He makes righteousness, good and evil conditions, events, etc. (Ex. 34: 10; Num. 16: 30; Ps. 51: 10; Is. 4: 5; 41: 20; 45: 7, 8; 48: 7; 57: 19). But righteousness is created by combining good principles with thoughts, motives, words and acts. Good and evil conditions are made by a combination of good or evil acts and good or evil circumstances. Events are made up of various qualities, thoughts, words and acts participated in by actors. Thus these things spoken of in the cited texts as created are not made out of nothing, but out of previously existing things. The new thing created, *bara* (Jer. 31: 22), Christ encompassed by the Church, as God's kingdom, certainly will not be made up out of nothing, but of Christ and the Church. When God is

said to create wind (Amos 4: 13), we know that He ordinarily makes it by a combination of air and heat or cold. Hence it is not made up of nothing, but of air, ordinarily united with heat or cold. When God is said to create water (Ps. 148: 4, 5), certainly He is not to be understood to make it out of nothing, but, as experience shows, out of a combination of two gases—oxygen and hydrogen. And, by a fair inference, His making (*bara*) the heavens being spoken of in these same verses, we may conclude that in this same use of the word *bara*, the thought is not that the heavens were made out of nothing, but out of these and other gases. When one is spoken of as making himself fat (1 Sam. 2: 29), he is not to be understood to have made himself so out of nothing, but out of his former lean self and fattening food. All these passages prove that *bara* does not mean to make something out of nothing, but to make a new thing out of previously existing things. Hence we conclude that since no passage uses it to mean to make something out of nothing, that is not its Biblical meaning; and that, therefore, in those passages that are not determinate it means the same thing as in those passages where it is determinate, *i.e.*, to make a new thing out of previously existing substances. And since practically all the indeterminate passages speak of God's creating heaven and earth, and since Ps. 148: 4, 5 proves that *bara's* use there applies to both water and the heavenly bodies, and since water is made out of a proportionate union of certain gases—oxygen and hydrogen—it is a proper inference that, as to *bara* water does not mean to make it out of nothing, but out of gases, so to *bara* the heavens (for the verb *bara* controls as its object the same pronoun as refers to *water* and *heavens* in these verses) means to make them out of gases. Hence the earth, also, was originally created out of gases. This overthrows entirely the creedal view that to create means to make something out of nothing; and

proves the view herein presented, that to *bara* means to make something new out of previously existing substances.

From the above proof it follows that the Greek word *ktizo*, which means to create, signifies to make a new thing from previously existing things, as we will show from its occurrences in the New Testament. Not only in the light of what already has been shown on this subject above is this true, *i.e.*, in the use of this verb *ktizo* to designate the creating of Adam and Eve, the rest of the human family, etc., where in translating *bara* from Hebrew into Greek in the New Testament *ktizo* is used, but also from its independent uses. Thus we see that this is the word used in connection with creation of man and beast (1 Cor. 11: 9; 1 Tim. 4: 3), which we know were not made out of nothing, but out of elements of the earth, organized into bodies, and life principle. The creation of man and beast, as well as of other things, is set forth by this word *ktizo* in the following passages: Mark 13: 19; Rom. 1: 25; Eph. 3: 9; Col. 1: 16; Rev. 4: 11; 10: 6. The fact that in these passages man's and beast's creation is set forth, and the further fact that these were created of previously existing substances, implies that the very same use of the word *ktizo* in these passages, which covers the creation of man and beast, as covers the creation of all other things, proves all these other things to have been made from previously existing things. This same meaning of the word *ktizo* is manifest from its use in verses that teach the bringing of the Church as new creatures into existence (Eph. 2: 10, 15; 4: 24; Col. 3: 10). These new creatures are brought into existence by a union of God's Word and Spirit, both forming the life principle of the new heart and mind on the one hand, and the pertinent person's brain faculties on the other, this creative work to be finished when this new mind and heart will in the resurrection be given the spiritual body to take the

place of the brain faculties, as well as to supply other organs (John 3: 5, 8; Jas. 1: 18; 1 Pet. 1: 23; Rom. 8: 10). Hence the new creatures are not brought into existence out of nothing, but out of previously existing things, which fact proves that *ktizo* in these passages does not mean to make something out of nothing, but to make a new thing out of previously existing things. In this paragraph we have quoted every New Testament occurrence of the word *ktizo* for our readers' help.

We will now quote a few passages in which occur two noun derivatives from this verb *ktizo* (*viz*., *ktisis* and *ktisma*), as shedding further light as a proof of our thought on the subject at hand. In the New Testament *ktisis* and *ktisma* always are synonymous, meaning a thing created, though in classic Greek, while often synonymous, they often differ as follows: *ktisis* means the creative act, while *ktisma* means the product of the creative act. But this distinction is absent from New Testament usage, where both words mean the product of the creative act. The following are all the uses of *ktisma* in the New Testament: 1 Tim. 4: 4; Jas. 1: 18; Rev. 5: 13; 8: 9, in every one of which occurrences things made out of previously existing substances are meant. The following are all of the New Testament occurrences of *ktisis*: Mark 10: 6; 13: 19; 16: 15; Rom. 1: 20, 25; 8: 19-22, 39; 2 Cor. 5: 17; Gal. 6: 15; Col. 1: 15, 23; Heb. 4: 13; 9: 11 (*building*); 1 Pet. 2: 13 (*ordinance*); 2 Pet. 3: 4; Rev. 3: 14. In every passage just cited the thing spoken of as created is one made out of previously existing things. Hence from the New Testament it is evident that to create does not mean to make something out of nothing, but to make some new thing out of previously existing substances. Hence our investigation proves that neither the Old nor the New Testament uses the words *to create* to mean to make something out of nothing; but both parts of the Bible teach that to create means to make a new thing out of a

previously existing thing. Hence the creedal thought on this subject, as it arose in the Dark Ages, partakes of darkness [error] as a characteristic of those ages. It is unbiblical, unreasonable and unfactual; while the idea that creation means to make a new thing out of previously existing substances is Biblical, reasonable and factual, therefore is credible.

Creation has acted, so far as we know, within two spheres of being. One of these is the sphere of spirit; the other is the sphere of matter. In the sphere of spirit, creation as an act has produced a spirit world inhabited by spirit beings to whose existence as elements of origin, support, sustenance and habitation, matter is neither needed nor used. In the sphere of matter, creation as an act has produced a material world, animate and inanimate, to whose existence as elements of origin, support, sustenance and habitation, a mingling of some form of spirit and matter is both needed and used. Man is the highest product so far brought into existence in the material world. That there is a material world is assured to each one by his five senses, reason, experience and testimony. That there is a spirit world is manifest from the testimony of the Bible and Biblical men who had communion with spirit beings and testified thereto. Their mental, moral and religious characteristics were of such a kind as to make their testimony unimpeachable. Furthermore, this is proved by the experiences of all God's faithful children, in which they have had such singular answers to prayer and providential help, direction, restraint and encouragement as can be explained on no other ground than the existence and operation of benevolent spirits. On the other hand, they have had experiences with evil spirits, *e.g.*, sudden and almost overwhelming evil thoughts and suggestions poured into their minds from without, by no visible agent, on subjects foreign to their characters, modes and habits of thought and affection and to any thoughts previously

entering their minds and not suggested by their surroundings, associations, past experiences or memories. Such things imply the existence of evil spirit beings. Moreover, in spiritism and occultism direct contact, proven by the most painstaking and acid tests, with the spirit world is had by mediums and other occultists, which proves the existence of a spirit world. We cheerfully concede that fully 95% of alleged spiritistic and occult phenomena are the results of sleight of hand and trickery on the part of mediums, etc., yet there are about 5% of such phenomena which have been subjected to the acid test of such investigators and scientists as Sir Oliver Lodge, Profs. Lombardo, Hyslop, etc., and have come out of these tests unscathed as facts of spiritistic phenomena. The superhuman goodness of real saints, as well as many well known unhuman wickednesses of some humans, imply a spirit world with good and evil spirit inhabitants. All these facts argue the reality of a spirit world.

In view of the facts of the existence of a spirit as well as a material world, a treatise on God's creative works should discuss the creation of both of these. Accordingly, in this article, with Divine aid, we purpose to discuss the creation of both of these spheres of existence. This fact will make it profitable to look a little closer into our subject from the standpoint of the substances out of which the spirit and the material world have been made. First, we will discuss briefly spirit substances, out of some of which, at least, created spirit beings have been made. How many spirit substances there are we do not know, even as we must confess ignorance of much that goes to make up the spirit world and its conditions. But we do know some of the spirit substances, of which the following are examples: fire, heat, electricity in its positive, but not negative pole (as is manifest from its unit of existence, the electron), magnetic rays, ether, radio, light and life principle. *E.g.*, the lowest order of spirit

beings (called *angels* in the narrow sense of that word), as distinct from cherubim, seraphim, principalities, powers, thrones and dominions (Eph. 1: 21), are Biblically spoken of as having bodies made of fire (Heb. 1: 7). Perhaps the other six orders of spirits above mentioned have bodies made of other spirit substances than fire. Quite likely the Logos (our prehuman Lord) had a body made of spirit substance or substances of a higher order than the bodies of any of the above-mentioned seven orders of created spirits.

The Creator Himself, being a Spirit, must have a body that consists of a spirit substance. That He is not simply a great mind without a body, but has both, the Scriptures clearly prove when they assert that He has a shape (John 5: 37), that the resurrected Spirit, Jesus, is His image (1 Cor. 15: 45; 2 Cor. 3: 17; 1 Pet. 3: 18; Col. 1: 15; Heb. 1: 3-5), that the saints will have spiritual bodies like His (1 Cor. 15: 40-49, 51-54; 1 John 3: 2; 2 Pet. 1: 4), and that the saints will *see* His face (Rev. 22: 4), which cannot be done to a bodiless mind, it not having a face. Moreover, a face implies a body. The memorable scene of Ex. 33: 18-23 clearly proves that God has a body. The Scriptures in ascribing immortality to God seem to imply that His body consists of life principle. This seems to be the thought of John 5: 26: "As the Father hath *life in Himself*." Doubtless this expression teaches that God has immortality. But why does He have immortality? The passage implies that it is because He has life in Himself, *i.e.*, His essence is immortality. But God's soul (Heb. 10: 38) is His essence. And His soul, like every other soul, consists of two parts: life principle and a body. Hence His body seems also to be life principle. This, then, seems to be the thought of the expression, "As the Father hath life in Himself." If God's body consists of life principle, we can readily see why He must be immortal—death—proof; for death is the separation of the life principle and the body. If,

therefore, God's body consists of life principle, it follows that there can be no separation between life principle and His body, since it is life principle. Jesus has also attained in His resurrection to immortality—life in Himself (John 5: 26). This also is the privilege of the saints in their resurrection (1 Cor. 15: 53, 54, 45-49; 2 Pet. 1: 4; 1 John 3: 2). Hence the highest order in the spirit world, God and Jesus and His Bride—those of the Divine nature—having immortality, seem to have bodies consisting of life principle. That no other spirits have such bodies, and hence are not immortal, is proven by the fact that Lucifer, now Satan, a cherub (Ezek. 28: 14, 16), and thus a member of the highest of the other spirit orders, will be destroyed (Is. 21: 1; 14: 15; Heb. 2: 14). But this must be kept in mind: God is no creature; He was not created; He always has been. And this must be so, since He is the Creator of all things made.

Leaving the creation of the spirit world for later discussion, we desire to make a few general remarks on the world of matter. We know it to be a fact of chemical demonstration that water is created by the fusion of two parts of the gas, hydrogen, and one part of the gas, oxygen, when volume is considered; and when weight is considered, of two parts of the former to sixteen of the latter. Hence water is chemically indicated by the sign H_2O. Hence when God created water (Ps. 148: 4, 5), He made it by fusing these two gases in the above indicated proportion. But the verb, *bara*, that governs the pronoun referring to the word water, in Ps. 148: 4, 5, as its object, also governs the pronoun referring to the word *heavens* in that passage; for one and the same pronoun refers to both of these things in those verses. This implies that not only was water not created out of nothing, but also that the heavens there spoken of were not created out of nothing. Moreover, the fact that the waters and the heavens are spoken of in the same connection, in fact

by the same pronoun, as being created, and the fact that the former was made out of two gases, fairly warrants our accepting the thought of scientists to the effect that the heavens and earth were formed out of gases by a condensing process—a conclusion based on chemical experiments that have analyzed the chemical elements of parts of fallen meteors into a large number of different gases, and that have reduced various of the 92 chemical elements of the earth into various gases.

Accordingly, Ps. 148: 4, 5 and other Scriptures are in line with scientific experiments, which prove that the elements of which the earth consists and the elements of such heavenly bodies as have been available for such experiments are reducible by chemical analysis to gases. Therefore we believe that scientists are warranted in teaching that the world of matter was created out of gases, very widely, perhaps universally distributed and thus in bulk, and of very many kinds. In harmony with this thought we understand that before the beginning referred to in Gen. 1: 1, *i.e.*, before God began to create the heavens and the earth, space was filled with gases of many varieties and that out of these, by creative processes whereby He manipulated the laws underlying the nature and actions of gases, He in process of time brought the heavens and the earth into existence. From this we see that the world of matter was not made out of nothing, but out of gases. One might ask, How and when were these gases created? We answer, Neither the Bible nor science gives us any light on this subject. These gases may always have been, or may have come from something else previously existing. We do not know. This is an unrevealed matter which we may as such wisely leave, unspeculated on, in the hands of the Lord, content to study as deeply as possible into the things that He has been pleased to reveal to us (Deut. 29: 29).

So far as we know there is no fusing of material and spiritual substances in the spirit world; but there

is such in the material world. Perhaps a definition of spirit and matter might here be in place. We believe the following will hold in every case. Spirit is incorruptible substance; matter is corruptible substance. It is a mistake to define the former as substance imponderable and not subject to sense, and the latter as substance ponderable and subject to sense; for heat, fire and positive polar electricity, etc., are subject to sense and can be measured. In the material world they are frequently fused. Electricity interpenetrates all, and is contained in every material. Life principle permeates our atmosphere, particularly its oxygen, and of course permeates all animal and vegetable existence. Ether permeates the air and space beyond the air. Heat and fire lodge inactive yet potential in all carbonates. Radio permeates the air and sending and receiving sets. Magnetism permeates many things, particularly the air and metals. Indeed there can be no life, either animal or vegetable, without this fusing of spirit substances with material organisms. Even in inorganic nature, as shown by certain of the above-given examples, there is this permeation of the physical by the spiritual. While this is true, we know from the Scriptural illustrations that spirits have nothing material in them (John 4: 23, 24; Luke 24: 39; 1 Cor. 15: 40, 44-49, 51-54). Thus, while the material world is permeated by spirit, the spiritual world is completely free of matter as a part of it.

In the preceding discussion of our subject we indulged in some general remarks respecting it. But we covered only part of the lines of thought that belong to such general remarks and desire to continue our general remarks to a conclusion. Among such remarks belongs a succinct discussion of the laws of nature in their relation to God's creative work; and this is a fitting place for their consideration. The average adherent to the creeds looks upon God's creative work as one that consisted of His uttering creative

commands with an audible voice, which brought matter into sudden existence out of nothing; and then with His almighty hands handling the thus created materials of the universe, He hurled them about in a presto-chango manner, making them in less than a twenty-four hours' day form into the heavens of billions of suns and of tens of billions of planets, and then in the rest of that first twenty-four hours' day and in five following twenty-four hours' days completing His creative work, leaving the universe as a completed work in exactly six days of twenty-four hours each, after beginning that work. This is the belief of all who hold to the creeds, and certainly manifests credulity on so vast and foolish a scale as to make real students of the Bible stand aghast at such manifestations of pre-kindergarten mental states of Alice-in-Fairyland tales. This view, as in part has already been shown, and as for the rest will now be shown, is certainly unscriptural, unreasonable and unfactual.

This view is largely responsible for turning some of the brightest minds of our race away from faith in the Bible. Such bright minds, unhelped otherwise, have been led by creedists to believe that their view of creation just stated is that of the Bible, with the result that such bright minds, better informed by God's other book of revelation—Nature—have, with the creedal view, rejected the Bible account of creation, as being of a piece with that of the creeds. And doubtless this is one of the results that Satan in advancing the creedal view of creation aimed to realize when the time would ripen for advancing scientific light to come upon the pertinent subjects. And who can successfully deny that Satan has reaped a large harvest of infidels from his industrious sowing of such seeds of credulity through the creeds? And in using friends of the Bible to do such a sowing work he again caused Truth to be wounded in the house of its friends. But fortunately the Bible itself contains

within itself the means of refuting this credulous creedist view of creation above briefly sketched and by creedists considered to be the acme of Biblical faith, pure and undefiled. To this refutation we now address ourselves, taking up for consideration first the childish and nonsensical theory of the six creative days as being days of twenty-four hours each.

Even a most superficial reader of the Bible will admit that the word *day* is frequently used in the Bible to refer to periods other than twenty-four hours, *e.g.*, how, before the sun and moon became the makers of the day and night respectively, which occurred in the fourth creative day (Gen. 1: 15-19), could there have been days of twenty-four hours at all? Again, does not the Bible call also the light part of a twenty-four hours' period *day*, in distinction from the dark part of such a period, called *night*, as Gen. 1: 15-19 proves? That the Bible uses the word *day* not only to designate a period shorter than twenty-four hours, but also to designate periods of time longer than periods of twenty-four hours, is manifest from many passages. In Gen. 2: 4, the whole creative period is called a *day*, which certainly proves the word to mean more than a period of twenty-four hours. In Jer. 31: 32, the whole 40 years during which God delivered Israel from Egypt, and not only commenced, but also completed the making of the full Law Covenant with them, are called a *day*. God directly calls the 40 years of Israel's tempting Him in the wilderness a *day* (Ps. 95: 7-11). Here are two passages that call a forty years' period a *day*. Again, the 80 years (1874 to 1954) of the time of wrath are called, "the day of vengeance," in Is. 61: 2. The above four passages directly prove that the word *day* is sometimes Biblically used to denote times much longer than a period of twenty-four hours. Again, just as we in modern English use such expressions as, the day of Alexander, the day of Caesar, the day of Charlemagne, the day

of Luther, the day of Cromwell, the day of Washington, the day of Napoleon, the day of Lincoln, the day of Roosevelt, etc., to mean, not twenty-four hours' periods, but the years in which these men were influential in human affairs; so the Bible speaks of years as designated by the terms, the days of Adam (Gen. 5: 4, 5), the days of Enoch (Gen. 5: 23), the days of eight others mentioned in Gen. 5, and the days of Noah (Gen. 9: 29). These are but further instances of the Bible's use of the term *day* to designate periods of time longer than a period of twenty-four hours, our ordinary day's length.

Frequently the Bible uses the term *day* to mean an age. *E.g.*, the Gospel Age, which has already lasted over 1,900 years is called the *day* of salvation for the Church, in 2 Cor. 6: 2. This same Age is called in Heb. 1: 1, 2, "the last of the days" [Imp. Ver.] of the second dispensation, the Patriarchal Age of 659 years and the Jewish Age of 1,845 years being the other two days of the second dispensation or world, reaching from the flood until during Christ's Second Advent the Kingdom of God will be established. The Gospel Age of over 1,900 years is the *today* throughout whose length Christians are to exhort one another *daily* in guarding one another from apostasy, according to Heb. 3: 13. Accordingly, Ages—the Gospel Age of over 1,900 years and also the Patriarchal Age of 659 years and the Jewish Age of 1,845 years—in these passages are each one called a *day*. Furthermore, a comparison of Is. 65: 2 and Rom. 10: 21 proves that the day there referred to is the entire Jewish Age of 1,845 years, during which God stretched forth His saving, instructive, correcting and chastising hand to Israel, who throughout that whole period—"all day long"—proved itself to be a disobedient and gainsaying people. And literally hundreds of times the term *day*, occurring in such variation of expressions as, "that day," "the day of the Lord," "the day of God," "the day of Jehovah,"

"the day of Christ," "His day," "My day" and "the day of judgment," is used to designate the Millennium, a period of 1,000 years (2 Pet. 3: 8; Rev. 20: 4-6). 2 Pet. 3: 7; Is. 11: 10; 25: 9 and Acts 17: 31 are a few illustrations of such uses of the term *day* to denote the 1,000 years' period of Christ's reign over the earth. Certainly these and numerous other uses of the word *day* to designate periods of a year, 40 years, 80 years, 659 years, 1,845 years, over 1,900 years and 1,000 years, ought to restrain the madness of our modern Balaamite creedist protagonists from insisting on the creative days being periods of twenty-four hours each, because of the word day being used for the six creative times. Certainly the first fact that the Bible, among other senses, uses the term *day* to designate ages, and the second fact that twenty-four hours' days are nonsensical in their results, if applied to the six creative days of Gen. 1, the third fact that there were no twenty-four hours' days in the three periods before the sun, moon and stars became lights for the earth, and the fourth fact that ages would be required to perform the work of the six creative days, should not only restrain us from regarding the creative days as periods of twenty-four hours each, but should also move us to regard them as ages of great duration.

Finally, we will now offer the Biblical proof that the seventh day (Gen. 2: 3, 4; Ex. 20: 9-11) mentioned in immediate connection with the six creative days is a period of 7,000 years, which proves that the other six days are days of the same length—their mention as with it forming seven days proving this fact, they therefore each being likewise periods of 7,000 years. If such is the case, there was time sufficient for the carrying out of all the work allotted Biblically to the six creative days, following the creation of the heavens and earth "in the beginning" (Gen. 1: 1), which "beginning" was prior to the six days of ordering matters creatively on and about the

already created sphere called earth. The following is our proof that the seventh day—the day of Jehovah's rest—is a period of 7,000 years. This rest began just after the creation of Eve (Gen. 1: 26—2: 3). But St. Paul tells us (Heb. 3: 7-19; 4: 3-5) that God had been resting ever since the creation, that He had invited the Israelites during their 40 years' wilderness wandering to enter into His rest and that they refused. Furthermore, in Heb. 4: 10, 11, St. Paul shows that during the Gospel Age God has still been continuing His rest since the creation and invites us to enter into it with Him. This will be evident when we keep in mind that throughout this Age, even until the last one of the faithful leaves this earth, the invitation of v. 11 has been given to the Gospel-Age people of God to enter with God into His rest. Hence God has been resting ever since creation, which is now over 6,060 years in the past. Furthermore, this rest that yet remaineth for the people of God will last throughout the Millennium, in whose first beginning, as a dawning day, we have been ever since 1874, when the first 6,000 years of God's rest day ended. Hence His rest day will end at the first beginning of the Millennial day's twilight, in 2874 A. D., which proves that God's rest day is one, not of 24 hours, but of 7,000 years. Hence the other six days of the great week of God must have been days or ages of 7,000 years each.

This fact, then, completely demolishes the creedal theory of the six creative days being six days of 24 hours each; and it proves them to be ages adequate in length to accomplish, through God's direct creative control of the laws of nature, which He Himself made, without any presto-chango sleight-of-hand trickery, the harmonious and reasonable work of bringing order out of the original chaos in which the earth was left by the creative work of the beginning mentioned in Gen. 1: 1. And this fact takes away from skeptical scientists the objections that they offer to the Bible

account of the periods of creation supposedly the same as creedist's theory of the creative days, which objections, through their mistakenly identifying the creedist theory with the Bible teaching on creation, they offer against a straw man of the creedists' manufacture. We are confident that the majority of skeptical scientists would cease their pertinent skepticism, if they understood the Bible's real teaching on creation. Again we see how the creedists, and that by their mistakenly interpreting the length of the creative days, have sowed the seed of error and raised a crop of infidels, who would not as such have been produced, had the seed of Truth on this and other phases of God's creation been properly sowed. Again Truth has been wounded in the house of its friends. What an impressive lesson this fact teaches on the necessity of not teaching error on any part of God's Word and of the necessity of teaching the Truth and the Truth only on God's Word. It also teaches us that the Bible, rightly interpreted, is reasonable and factual.

We offer another objection to the creedist view of creation as being completed within six days of 24 hours each. It allows no room for the reign of natural law in creation, and therefore is false. Nowhere does the Bible teach that God violates the laws that He Himself has made to operate throughout nature through His organizing matter as He has. On the contrary, God is a God of order and an enemy of confusion (1 Cor. 14: 33, 40). He will no more disregard, violate or sanction the disregard or violation of the laws that He has made to govern nature than He will disregard, violate or sanction the disregard or violation of the mental, moral and religious laws that He has made to govern our mental, moral and religious powers and operations. Order, being a part of justice, is one of the foundation pillars of God's throne and hence is heaven's first law. Those Christian apologists who, in their zeal to defend against infidel attacks *their* conceptions

of miracles, have defined miracles as violations of the laws of nature, not only erred in offering such a definition, but gave a weapon to their enemies which the latter have used with some power to parry off the thrusts of such Christian apologists' controversial swords. Miracles are not violations of the laws of nature. They are manifestations of some higher law or laws of nature, not perceived by the beholder, in effecting results that lower laws of nature do not effect or effecting the same results in different ways and in longer times. We often are witnesses of certain laws of nature neutralizing other laws of nature and effecting other results that the displaced or neutralized laws of nature would not effect, or would effect in other ways and longer times. *E.g.*, ordinarily cold freezes water into ice and heat melts ice into water. Yet artificial ice, which is the main ice of our ordinary use, by the application of other laws of nature is made by heat. We may recall how Prof. Tindall, the great physicist, astonished an audience at one of his lectures by making ice on red-hot iron, controlled by certain laws of nature which he knew how to apply. Again, ordinarily cold condenses matter, and heat ordinarily expands matter. Yet the laws of nature underlying the constitution of water make it expand under the presence of cold, which fact beneficently prevents the extinction of fish in our streams by preventing the streams freezing solid from top to bottom. So metals ordinarily expand under application of heat; but not so antimony, which contracts by heat. This fact makes it necessary to compound it with heat-expansive lead to make type that under heat will not expand, resulting in our getting non-expanding type which produces even and fine print. The miracles of modern science which, by coordination, super-ordination and subordination of various laws of nature, intelligently and purposefully applied, scientists have wrought, have taken the wind out of the sails of

both such apologists and their antagonists on the subject of miracles. It is no longer necessary for Christian apologists to assume an apologetic attitude against nature's laws. He has learned to use them against the enemies of miracles with unanswerable effect. And by the same token he is learning to reject the creedist's theory of creation in six days of twenty-four hours each, in favor of the creative days as being ages, though creed-bound apologists still foolishly talk of miracles being violations of nature's laws and of the creative days lasting twenty-four hours each!

Since the Bible nowhere teaches or implies that God creatively did not use the laws of nature that He Himself put into matter at its various stages of creation, we are not at liberty to assert that He did not so use them. That He is the Creator of nature's laws and so constituted nature that its matter varyingly expresses natural laws and acts according to them, the Bible clearly teaches, as the passages quoted in the previous portion of this chapter treating of this point show. Hence we are right in assuming that the very constitution of the various elements of matter in their varied relations act out and act according to certain laws conditioned by the varied properties of various elements of matter in their varied relations; and that these laws vary and have always varied according to the various and varying properties of various and varying matter. Hence there were certain forms of natural law at work while matter was wholly gaseous in form. These laws changed as the gases moved and condensed. All sorts of changes in these laws and their operations occurred as creatively their gases continued to condense. And these changes in these laws and their operation continued until the condensing of gases into our more than 92 chemical elements of the earth and the giving to the earth of its present form were completed, when these laws of nature became measurably fixed. It is quite reasonable to conclude

that the same variation in the laws of nature and their operation occurred in the creation of the suns and other planets of the universe, a small part of which our earth is. We are now at a place where we are prepared to offer a definition of the expression, the laws of nature, a term which can be defined by but few.

If we were asked to define what is meant by the laws of nature, we would venture the following definition: The laws of nature are the rules of existence, actions and relations, wherewith God has endowed animate and inanimate matter by giving it various properties, as essential to its varying constitution and as regulating its existence, actions and relations. This definition tells just what the laws of nature are, *i.e.*, rules of the existence, actions and relations of matter, animate and inanimate. It shows their source—God. It shows that all earthly beings, including humans, are a part of nature, as well as are unorganized materials. It shows how matter has come to have these rules—by being Divinely endowed with varying properties, as essential to its varying constitution and as regulating its existence, actions and relations. This definition implies that in all the changes that matter has undergone from its gaseous state onward to its present varying condition, God, by variously endowing the changing elements of matter, operated creatively the laws of previously existing forms into new forms of it, with the instituting of new laws answering to the new properties given to the changed forms of matter, until they assumed their present condition, which we believe will continue to change measurably until the end of the Millennium, when in this earth they will remain fixed, by which time man will learn perfectly to manipulate these laws to his blessing. Accordingly, it is erroneous in this imperfect earth and universe to speak of fixed and eternally unchangeable laws of nature. God being thus the Creator both of nature and its laws, which are His laws, never violates, but uses and

manipulates them for His creative purposes along the lines of the properties that He has varyingly put into matter in its varying and various stages and kinds. It is because God has constituted nature by giving animate and inanimate matter the laws of its existence, actions and relations, that there is a reign of law throughout the animate and inanimate universe. And this law is, as various beings and things are constituted, physical, mental, moral and religious. Accordingly, we see that God does not have to violate or disregard the laws of nature; for by His intelligence and will He constituted matter with such properties as would always express His will along physical lines, since His will for matter conditioned nature's law. Therefore, God used the laws of nature from start to finish to produce the universe up to its present condition and will forever continue to do so, as eternally He continues His work as Creator in bringing new planets and suns into existence and unto perfection. This is illustrated by inventors like Edison, Steinmetz, etc., in the creation of their various inventions.

Such a view of creation enhances God and His work for us; for God is here shown to be a real Creator, making new things out of previously existing substances. Creation is hereby shown to be a work of real wisdom and power, as well as of justice and love, enlisting the operation of His intellect, affections and will. He is thus shown not only to be the Creator of things, but the Creator of the laws of nature underlying things, yea, the Giver of His animate and inanimate creatures, by the very constitution with which He endowed them, the laws that govern their existence, actions and relations. This makes Him the Author and Ruler of nature, both animate and inanimate, in all stages of its changing development, which He supervised and caused by His use of pertinent natural laws as His creative tools, and which, so far

as we know from the Bible and other sources of information: instruction, observation, experience and intuition, He caused by the use of such tools exclusively. Hence "the heavens [the worlds and planets about us throughout the universe] declare the glory of the Lord [the blending in perfection of His wisdom, justice, power and love] and the firmament [the atmosphere] showeth His handiwork."

One more general remark, and that respecting the Hebrew word *resheth*, translated *beginning* in connection with the creation of the heavens and the earth (Gen. 1: 1), and of the angels before the creation of heavens and earth (Prov. 8: 22), and the Greek word *arche*, translated *beginning* in connection with the creation of the universe (Heb. 1: 10), of the Logos (John 1: 1, 2), and of the Church as God's new creation (2 Thes. 2: 13). Neither of these words ever mean eternity, as some try to read that thought into Prov. 8: 22; John 1: 1, 2; Col. 1: 18; 2 Thes. 2: 13. That *resheth* means any beginning, but never means eternity—duration before the first beginning—is evident from the following verses: Deut. 11: 12; 21: 17; Job 8: 7; 42: 12; Ps. 111: 10; Prov. 1: 7; 17: 14; Eccl. 7: 8; Is. 46: 10; Jer. 26: 1; 28: 1; Micah 1: 13. That *arche* means any beginning, but never means eternity—duration before the first beginning—is evident from the following passages: Matt. 19: 4, 8; 24: 8, 21; Mark 1: 1; Luke 1: 2; John 2: 11; 6: 64; 8: 25, 44; 16: 4; Acts 11: 15; Phil. 4: 15; Heb. 1: 10; 3: 14; 7: 3; 2 Pet. 3: 4; 1 John 1: 1; 2: 7, 13, 14, 24; 3: 8, 11; 2 John 5, 6; Rev. 1: 8; 3: 14. Accordingly, we understand that in Gen. 1: 1; Prov. 8: 22; John 1: 1, 2; Col. 1: 18, and 2 Thes. 2: 13, five different beginnings of God's creative work are referred to. The first of these (John 1: 1, 2) in point of time is that beginning in which the pre-human Word—the Logos—was created as the first of all of God's creatures (Col. 1: 15; Rev. 1: 8; 3: 14; 21: 6; 22: 13). The second

of these (Prov. 8: 22) in point of time is that beginning in which the various orders of spirit beings other than the pre-human Word were created (Job 38: 7, compare with 4-11; Ezek. 28: 11-19; Is. 14: 12; Col. 1: 16). The third of these (Gen. 1: 1) in point of time is that beginning in which the heavens and earth were created—before the six creative days devoted to ordering the earth to fit it as a habitation of beasts and man. The fourth (Col. 1: 18) of these in point of time is the 3 1/2 years during which Jesus was undergoing creation as a Divine being—the first start of the Gospel Age, from Jordan to the open tomb in the garden (Acts 13: 33-37; Heb. 1: 3-5; Rev. 1: 5). And the fifth of these (2 Thes. 2: 13) in point of time is the period from Pentecost, 33 A. D., to the end of the Jewish Harvest, 69 A. D., during which God began the generation of the new creation as the Church, Christ's Body (2 Cor. 5: 17; Gal. 6: 15; Eph. 2: 10, 15; 4: 24; Col. 3: 10; Jas. 1: 18). Accordingly, the words *resheth* and *arche*, used in respect to creation, refer to the starting parts of new and various creative periods, and, of course, do not mean eternity. Accordingly, these words are used, not for *eternity*, but to bring to our attention the first starts of distinctive creative periods for various creatures of God. With this we close our general remarks on God's creative works and are now ready to begin with their particulars. These we will discuss first as they pertain to the spirit world and afterwards as they pertain to the world of matter.

Author and Guardian of my life,
Sweet Source of light Divine,
And (all harmonious names in one)
My Father, Thou art mine.
What thanks I owe Thee, and what love,
A boundless, endless store,
Shall echo through the realms above,
When sin shall be no more.

CHAPTER II.

THE WORLD OF SPIRIT.

THE WORD—LOGOS—GOD'S SON. HIS PRE-HUMAN EXISTENCE. HIS CREATION. HIS RELATION TO GOD. HIS WORK. THE GOOD ANGELS. THEIR NATURE AND WORKS. SATAN. AUTHOR OF SIN. HIS EMPIRE. RELENTLESS PERSECUTION OF OPPONENTS. HIS CUNNING. OVERTHROW OF HIS EMPIRE. HIS FINAL REBELLION AND DESTRUCTION. THE FALLEN ANGELS.

IN THE preceding chapter, in which we set forth some general thoughts on creation, we showed that there are two created worlds—that of spirit and that of matter. Both of these we purpose to treat in discussing our theme. As the world of spirit was first created, and as its subjects were used by God to bring into existence and order the world of matter, it is logical to treat first the world of spirit, which we will, accordingly, treat before we treat of the world of matter. Since God is increate because of His having always been, we of course would not treat of Him, though a Dweller in the world of spirit (John 4: 23), while discussing the world of spirit as the product of creative action. In that action He is the Creator and in no sense a creation or creature. His Son, therefore, as the pre-human Word—Logos (John 1: 1, 2)—would logically be the First One to be discussed in an article treating of God's creative works, and that especially for two reasons: (1) His being, as God's Firstborn, apart from the Father, before all other spirit beings, and (2) His being the Agent of God in bringing the rest of the world of spirit and the whole world of matter into existence. Therefore we begin our discussion of God's specific creative works with a dissertation on the pre-human Word, or Logos—our pre-human Lord.

And at this point we are met with the view of some who deny that our Lord existed before He became a

human being born of the virgin Mary. These claim that His father was Joseph and His mother was Mary; that only in the sense that other good people may be called God's children can Jesus be called a son of God, *i.e.*, in a figurative or accommodated sense, but not in the actual sense of deriving His life principle directly from God. Those who set up such a claim do not hesitate to consider Jesus a sinner, though they usually admit that He was more successful than the average sinner in overcoming His alleged sinful propensities. This theory conflicts with the facts of Jesus' human begettal and birth, as set forth in the Bible, notably in the first chapter of Matthew and Luke. It also contradicts the explicit Scriptures that teach Jesus' sinlessness Ps. 45: 7; Heb. 1: 9; Ps. 89: 19; Is. 42: 21; 53: 9; Jer. 23: 5; Luke 1: 35; John 5: 30; 7: 18; 8: 46; 14: 30; Acts 3: 14; 4: 27, 30; 13: 35; 2 Cor. 4: 4; 5: 21; Heb. 4: 15; 7: 26-28; 9: 14; 1 Pet. 1: 19; 2: 22; 1 John 3: 5; Rev. 3: 7). But most of all it is in violent conflict with the whole plan of God, which is pivoted on the Ransom; for if Jesus were a sinner He would have needed a savior and thus, not able to save Himself, He would, of course, not be able to save others; for His sinlessness was a necessary antecedent to His bringing a Divinely acceptable propitiatory sacrifice for mankind's sin. But since He did this, He could have had no human father; since sin and its penalty are transmitted by human fathers (Rom. 5: 12, 15-19; Eph. 2: 3). Accordingly, Joseph was not Jesus' actual father, which God is, as His plan sets forth.

While the preceding paragraph proves that neither Joseph nor any other human being was Jesus' father, and also proves that God was the Father of Jesus' humanity, this latter fact of itself would not necessarily prove Jesus' pre-human existence; for God could have generated Him by Mary without His having pre-existed. Hence Jesus' pre-existence must be established by other lines of proof than His human

generation by God, though the latter fact would not be unfavorable to His pre-existence. His pre-existence is proven by direct Scripture passages which affirm it, by His identity with the archangel, Michael, and by His office work as God's special Agent in creation, providence and Old Testament revelation. We, therefore, will now proceed to the proof of our Lord's pre-human existence, and that first from the direct statements of the Bible, both in the New and in the Old Testaments.

We begin with John 1: 1-3, which we will quote according to the Improved Version, a more literal translation of the Greek and thus better than the A. V.: "In a beginning was the Word [*Logos,* in the Greek], and the Word was with the [supreme] God, and the Word was a god [a mighty one]. This one was in a beginning with the God. All things came into existence through Him; and apart from Him not even one thing came into existence which has come into existence." The fact that v. 3 asserts that the Word [the pre-human Christ] was the Agent through whom all creation came into existence, proves that He existed before His birth from Mary. This fact further proves that the expression, "in a beginning," in vs. 1, 2, refers to a time previous to that beginning in which the heavens and earth were created (Gen. 1: 1). The beginning of John 1: 1, 2, therefore, predates even that beginning in which were made the angels, who were made before the heavens and earth, since they praised God when they witnessed creation coming into existence (Job 38: 7), and who doubtless assisted the Word (*Logos,* in the Greek) in bringing creation into existence. The expression, "the Word [Logos] was a god" (so the Greek), likewise implies our Lord's preexistence; for it defines Him as existing as a spirit before He became human. This is manifest from the fact that all the orders of spirit beings below God are over 200 times in the Bible called gods. Again, His

being spoken of as being with God in that first of all beginnings (v. 2) proves His pre-existence. There are other matters in these verses on which we will comment when treating of our Lord's relation to the Father. But the points in these verses above noted prove His pre-existence.

Of all Biblical writers St. John stresses our Lord's pre-existence the most, and that to refute certain Jewish and other false views on that subject, some prevalent in his day, and some shortly to arise. For this reason we will make a larger use of St. John's pertinent testimonies than those of other Biblical writers. John 1: 14 is to the point: "The Logos became flesh," *i.e.,* the Logos became human. Here our Lord's carnation is set forth. From a spirit being next in rank and nature to the Father He became a human being. The change of nature from that of a spirit to a human being is here taught. Please notice that the text does not say that He remained what He was before and added another nature to that which He had before and as a consequence existed henceforth in two natures the pre-human and the human; but it says that He was translated from the one into the other, so that He ceased being a spirit being when He became a human being. This is illustrated by His changing, at the wedding feast at Cana, the water into wine. In this miracle the water did not remain water with wine added, so that there were two substances as a result of the miracle; but the water was transubstantiated into wine and thus was wine and ceased to be water. Thus at His carnation the pre-human Logos ceased being a spirit and became a human being—"the Logos *became* flesh." This change of nature—His carnation—implies that He existed previously to His becoming a human being.

In John 17 there is a testimony to our Lord's preexistence. In v. 5 Jesus prays thus: "Glorify Me with the glory that *I had* with thee *before the world was."* Here Jesus says that He had been previously with the

Father, just as St. John (1: 1, 2) says of Him. Jesus further shows when this was—"before the world was"—before the creation of the universe, *i.e.,* before that beginning when the heavens and earth were made (Gen. 1: 1). The glory that He then enjoyed was one of mode of existence (that of a spirit) and of position or office; for He was then a spirit being and God's Vicegerent, empowered to act as God's special Agent in creation. He left that mode of existence and office to become a man; and after finishing His earthly mission He here prays to be restored to His former mode of existence as a spirit and to His former office as God's Vicegerent. Modestly He does not mention that there would be an exaltation, both in the mode of existence and position, *i.e.,* that while receiving again the mode of existence of a spirit, it would be in a higher nature—the Divine nature—and that while receiving again vicegerency for God, it would be with greatly added powers, which proves Jesus' pre-existence.

John 3: 13 teaches this thought: "No man hath ascended into heaven, except *He that came down from heaven,* even the Son of man." The direct statement in the second clause of this verse proves that our Lord lived in heaven before He came to live on earth; and this verse also proves that up to that time He was the only human being who had ever been in the heaven of God's abode. The run of thought in the connection of v. 13 proves the same thing; for Jesus had been speaking of heavenly things, which Nicodemus could not understand. Jesus, therefore, assures him that he would have to accept Jesus' teachings as of a qualified witness who spoke of what he had seen (v. 11), *i.e.*, in His pre-human condition, when He lived in heaven. And as an evidence that He had seen them Jesus in v. 13 shows that He had previously lived in heaven and that up to that time no other human being had so done. Accordingly, this verse proves His pre-existence. V. 17 contains another reference to Jesus' having previously

lived in heaven, whence He had been sent by God to the earth, when He became human: "God *sent not His Son into the world* to judge the world, but that the world might be saved through Him." So, too, v. 31 proves the same thought: "He [Jesus] that cometh from above [heaven] is above all … He that cometh from heaven is above all." This passage shows that the Word formerly dwelt in heaven, where He saw heavenly things, of which the next verse teaches that He gave a true testimony.

John 10: 36 also gives a testimony on this point: "Say ye of Him, whom the Father hath sanctified [set apart from the other spirit beings in heaven] and sent into the world, Thou blasphemest?" The expression, to sanctify and send into the world, implies several things: First, He must have existed before He was sent into the world, else He could not have been sent into it at all. Moreover, He was separated, set apart ("sanctified") from the other spirit beings, who were not honored with being sent into the world, with the mission with which He was honored, in order to fulfill which He came into this world, for which He was set apart and sent. These considerations show that He existed before He came into the world. John 6: 38, 51, 58, 61, 62 discuss in some detail this subject: "I have come down from heaven, not to do My own will, but the will of Him who sent me." Here, again, our Savior speaks of His having lived in heaven with God before He came to earth. He shows that His coming was not on His own initiative or to do things for self-gratification, but to do the things that God had given Him to perform. Again (v. 51), "I am the living bread which came down from heaven." Here Jesus shows that He formerly lived in heaven, whence He came as food to save the dying race from death, by giving Himself in His perfect humanity, His right to life and His life-rights, as the real food, keeping people in life forever. Had He not come from heaven (had

He not a pre-human life, which became the seed, fructifying the ovum in the virgin, instead of the seed of a human male) He could not have become the living bread; for with a human father He himself would have had need of the living bread and thus could not have supplied it to others. V. 58 reads much like it and gives the same thought on His pre-existence: "This [One, Himself] is the bread which *came down from heaven."* These sayings of our Lord offended the Jews and some of His disciples and to answer them effectually He asks them what they would think of His ascending to that place [heaven] where He was before He came to earth. "Doth this offend [stumble] you?" How would you then bear it "if ye should see the Son of man ascend up *where He was before?*—before He descended from heaven?

In John 8: 14, 23, 42-58*,* we find our Lord witnessing to the same truth. When the Pharisees accused our Lord of bearing false witness, because He witnessed of Himself, they were guilty of sophistry; for certainly a truthful person's witness of himself is to be accepted. Jesus, therefore, refutes their argument by giving proof of His trustworthiness in the following words: "Though I bear witness of Myself, My witness is true; for I know whence I came and whither I go." Here He refers to His past personal existence and to the office that He held in the past and to His future nature and to His future office. "I know whence I came," *i.e., I* know that I existed as a spirit being next to the Father and was then His Vicegerent and came from such a nature and office into this world. "I know … whither I go," *i.e., I* know that I will be exalted to the Divine nature and will be seated at the Father's right hand as His plenipotential Vicegerent. Jesus' argument, therefore, was this: He being a person and official next to God, certainly His witness, whether of Himself or of any other person or of any thing or of any principle, was credible. Were He not

credible; God would not have used Him as He had, nor would He use Him as He was going to use Him. Thus in this passage Jesus appeals to His pre-human existence and office, as well as to His future existence and office, as a proof of His veracity, which, of course, proves His pre-existence. He adds further confirmation on His pre-existence in v. 23. The Pharisees still disputing with Him, He says: "Ye are from beneath; I am from above. Ye are of this world; I am not of this world." Here Jesus contrasts the origin of the Pharisees as being of this earth with His own as being of heaven, which implies His pre-existence. He further in this passage contrasts the character of their origin with the character of His origin: Their origin was of such a kind as to make them subject to, and harmonious with the present evil order of affairs, in which Satan is ruler. His origin was of such a kind as to make Him not subject to, nor harmonious with the present evil order of affairs, in which Satan is ruler. Thus we infer Jesus' pre-existence and heavenly abode.

Jesus continues in argument with the Pharisees, affirming His pre-existence in v. 42. When the Pharisees in v. 41 affirmed that they were God's children Jesus denied it on the ground that they did not love Him, while God's children would love Him, because He did not only have God as His Father, but came forth from the Father and entered the world as the Father's special Messenger: "If God were your Father, ye would love Me; for I proceeded forth and came from God; neither came I of myself, but He sent me." This shows that before He came into the world He had been with the Father, which, of course, proves His pre-human existence. Still continuing His discussion with the Pharisees (vs. 56-58) Jesus said: "Abraham rejoiced that he might see My day; and he saw it and was glad." This statement of Jesus has several meanings, all of which are true. Abraham saw Jesus' day in the first place in the sense of witnessing

Him in His activities as God's Logos giving Old Testament revelations in the Patriarchal day. First of all, this doubtless refers (1) to the Logos' appearing as God's special Messenger with two other angels to Abraham at Mamre, announcing first Isaac's birth, and then, after the two angels went away to Sodom, announcing Sodom's destruction (Gen. 18: 1-33); and (2) to the Logos' announcing as God's mouthpiece the Oath-bound Covenant to Abraham and to his seed (Gen. 22: 11-18). In the second place, this statement doubtless also refers to Abraham's looking forward (Heb. 11: 9, 10, 13-16) to the day of Christ, when He would bless all nations by His Millennial reign. Here, again, in the first set of thoughts we have our Lord's pre-human existence taught, as in the second line of thought His post-human existence is taught. The Pharisees caught only a glimmering of the first of the above lines of thought and cried out, "Thou art not yet 50 years old, and hast Thou seen Abraham?" Then Jesus gave a reply which affirmed that He had existed before Abraham and had ever since continued to exist "Before Abraham was, I am." Please notice the expression, "I *am*"—present tense. Why this? The expression is a Hebrew idiom and is used to express a non-terminated existence, *i.e.*, the existence that Jesus as the Logos had before Abraham lived had never up to the time of His speaking in this text come to an end, which proves that when the Logos became flesh He did not die while undergoing the transfer from a spirit to the human plane of existence. Without dying the one person exchanged one nature for the other and lived continuously amid the change. This passage proves Jesus' pre-human existence.

John 16: 28 by 'its contrasts likewise proves our Lord's pre-existence: "I came forth from the Father and have come into the world; again, I leave the world and go to the Father." Noteworthy are the double contrasts of this verse. I came "into the world" and

"I leave the world." "I came forth from the Father" and "I go to the Father." His being in the world is the condition midway between two other conditions:
(1) the one, that in which He was before He came into the world, the other, that in which He would be after He would leave the world. And both of these conditions, separated from each other by the condition in which He was while in the world, would be in association with the Father. Most cogently, does this prove His pre-human and his post-human condition. By several of its statements 1 John 4: 9 also proves our Lord's pre-human existence: "By this was manifested the love of God toward us, because God sent His only begotten Son into the world, that we might live through Him." Do the Scriptures contradict themselves when they say that Jesus is the only begotten of God and yet say that God's Gospel-Age sons are all begotten by God? We answer, No. These passages are harmonized as follows: Jesus was God's only directly begotten Son. All other sons of God—those on the angelic plane (Job. 38: 7), those on the human plane (Luke 3: 38) and those on the Divine plane (1 John 3: 1), except Jesus, have been indirectly begotten by God, *i.e.*, by the agency of our Lord (Col. 1: 16). Hence the expression, only begotten, refers primarily to our Lord's coming into existence before all the rest of creation, which expression, therefore, proves His pre-human existence. This verse says that the Father *sent* Him into the world, which implies His existence before such sending, as in the case of several other verses already considered. Jesus' statement (Luke 10: 18) that He had seen Satan as lightning fall from heaven refers to an experience of His that occurred a little while after Satan brought Adam and Eve under the dominion of sin. This proves our Lord's preexistence.

Certainly, 2 Cor. 8: 9 proves our Lord's pre-existence when it says that "He who was rich [in nature,

office, honor] became poor" by becoming a human being. If His becoming a human being made Him poor who before was rich, He must have existed before He became poor, if before that He was rich. Col. 1: 15, 17, in calling Him "the firstborn of every creature" and in saying that He was before all [other] things [the Father excepted, of course], likewise proves His pre-existence. Phil. 2: 6, 7, in showing that, while He existed in God's form [mode of existence, *i.e.*, as a spirit], He did not grasp at equality with God [A.R V., as Satan did—Is. 14: 13, 14], but rather emptied Himself [of His pre-human nature, office and honor], by taking the form of a servant [without His former office and honor of rulership] and by becoming in the likeness of men [becoming of a lower nature, even human nature], conclusively proves His pre-human existence. This same thought is forcibly taught in Heb. 2: 14, 16, where the Apostle assures us that He did not stoop simply to angelic nature, but went down to a plane of being lower than the angelic plane, even to the human plane, when He left His pre-human nature and laid hold of a lower nature. Such a course implies His pre-human existence. Certainly, St. Paul's expression, *yesterday,* in Heb. 13: 8 ("Jesus Christ, the same [person] *yesterday* [the Jewish Age], today [this Age] and forever") proves His pre-existence.

There is, among others, a celebrated passage in the Old Testament which teaches our Lord's pre-human existence. We refer to Prov. 8: 22-30, where, under the figure of Wisdom, our Lord is presented as having been with the Father long before other persons or things were brought into existence: "The Lord possessed Me in [literally, as] the beginning of His [creative] way, before His works of old. I was set up from everlasting [literally, before an age], from the beginning, or ever the earth was. When there were no depths, I was brought forth, when there were no fountains abounding with water. Before the mountains

were settled, before the hills was I brought forth while as yet He had not made the earth, nor the fields, nor the highest part of the dust of the world. When He prepared the heavens, I was there: when He set a compass upon the face of the depth: when He established the clouds above: when he strengthened the fountains of the deep: when He gave to the sea his decree, that the waters should not pass His commandment: when He appointed the foundations of the earth: then I was by Him, as one brought up; and I was daily His delight, rejoicing always before Him."

The passage becomes plain as applicable to our Lord when we remember that He, in 1 Cor. 1: 24*, is* called the wisdom of God, and in Col. 2: 3 all the treasures of wisdom are spoken of as hidden, centered, in Him, *i.e.,* the expression and personification of God's wisdom, whence his pre-human name of Logos. The passage teaches His pre-existence.

In calling our Lord the firstborn of every creature (Col. 1: 15), the beginning of the creation of God (Rev. 3: 14), God's firstborn (Ps. 89: 27), God's only begotten son (John 3: 16; 1 John 4: 9), the Alpha and Omega, the First and the Last [of God's direct creation] (Rev. 1: 11, 17; 2: 8), the Bible most clearly proves His pre-existence. In ascribing the work of creation to Him as God's Agent therein, as is done in Gem 1: 26 ("Let us [God and the Logos] make man in our image and after our likeness, etc."), in Heb. 1: 10-12 ("Thou, Lord, in a [so the Greek] beginning hast laid the foundation of the earth; and the heavens are the work of Thine hands. They shall perish; but Thou remainest … Thou art the same [person] and Thy years shall not fail"), in Col. 1: 16 ("By Him were all things created, that are in heaven, and that are in earth, visible and invisible, … all things were created by Him and for Him") and in John 1: 3 ("All things were made by Him and without Him was not any thing made that was made"), the Bible definitely

implies His pre-human existence. Also by identifying Him with Michael, the Archangel (Dan. 10: 13, 21; Jude 9, compare with 1 Thes. 4: 16; Dan. 12: 1; Rev. 12: 7), the Scriptures teach our Lord's pre-existence. And, finally, His giving Old Testament revelations to the patriarchs (Gen. 22: 11-18), to Moses (Ex. 3: 2 - 4: 17) and to the prophets (1 Pet. 1: 11) proves His pre-existence, as also do His providential acts on behalf of God's people in Old Testament times (Gen. 48: 16; Ps. 34: 7; *"the"* not *an* angel of the Lord]; Dan. 10: 13 ["the first of the chief princes," see the margin].) Certainly, the above quoted and cited numerous Scriptures and Scriptural considerations give us an abundance of evidence in support of our faith in the fact that our Lord did not first come into existence when He was begotten in and born from Mary, but that He had previously existed and then emptied Himself of His pre-human nature, honor, office and riches that by becoming a perfect and sinless human being He might become God's Agent in the redemption of the human family, the Conqueror of sin, death, hell and the devil and the Introducer of righteousness, truth, life and eternal joy.

Having above proven the fact of our Lord's pre-human existence, we now proceed to treat of His coming into existence; for the Scriptures are quite explicit on the fact that He came into existence through a creative act of God. This is most explicitly stated in Col. 1: 15: He is "the firstborn of every creature [or, of all creation]," either translation being grammatically and etymologically correct. Two things in this verse show that Jesus had a beginning and that He was created. First, in that it implies that He is a creature it affirms the proposition that He came into existence by a creative act; for the rule of Greek Grammar on the partitive genitive proves this, because the construction, firstborn o*f every creature,* or all creation, is in Greek Grammar called the partitive genitive, *i.e.*,

that genitive which contains as a part of its contents the thing or things mentioned in the noun that governs the genitive. The expression, "the firstborn of every creature," being in the Greek a partitive genitive, it includes as a part of itself the thing implied in the noun that governs it, viz., firstborn. It, therefore, implies that this firstborn one is a part of creation and, therefore, was created and thus had a beginning. Secondly, His being called the firstborn of every creature, or of all creation, proves that He came into existence by a creative act, just as surely as those who are the after born of creation came into existence by a creative act.

Equally strong on this point is Rev. 3: 14, which calls Him "the beginning of the creation of God." Please note that this passage does not call our Lord the beginner of the creation of God; for such a twist would not only be a mistranslation, but would contradict the second part of the expression, "of the creation of God"; for if, as this expression proves, the creative act is God's, God must at least have begun it alone; hence the Son of God did not begin it. The proper translation, "the beginning of the creation of God," as found in the Authorized Version, proves that God started the creative work by bringing the Logos, God's firstborn, into existence. This, then, proves that the Logos, as a created being, is a part of creation and, therefore, was both created and hence had a beginning.

Ps. 89: 27 contains another proof to the point: "Also I will make Him, My firstborn, higher than the kings of the earth." The expression, firstborn, implies a bringing into existence and, therefore, a beginning, just as much as does the expression after born. Undoubtedly in this passage God is the speaker and Christ is the one spoken of, who, of course, is the firstborn of God, the later born ones of God including angels (Job 38: 7), Adam and Eve (Luke 3: 38) and God's Gospel-Age children (John 1: 12; 3: 3, 5). A similar proof is given by Heb. 1: 6, where our Lord is

passages also prove that God created Christ, brought Him to birth.

The expression, *only begotten* Son, as we find it in John 3: 16, also proves this thought: "God so loved the world that He gave His only begotten Son, that whosoever believeth in Him should not perish, but have everlasting life." The fact that He was begotten proves that our Lord was a creation of God; and the further fact that He is called the only begotten *Son* proves the same thing; for the word *son* implies either a direct or an indirect act of creation As applied to Christ it evidently applies to a direct creative act of God—one exercised by God alone, without the assistance of any other agency. Inasmuch as God created everything else indirectly, *i.e.,* through the Logos' agency (John 1: 3), it is with propriety that our Lord, as the Logos, is called the only begotten. This thought is further confirmed by both readings of John 1: 18: "No man hath seen God at any time, the only begotten Son [an *only begotten God,* is the reading of some of the best MSS. See John 1: 1, 2, and our remarks on it in the preceding portion of this chapter], which is in the bosom of the Father, He hath declared [made explanations on] Him" (John 1: 18). Whether we accept the unbracketed or the bracketed reading of this verse it makes little difference in the sense, because the only begotten Son is an only begotten God, a mighty one, mightier than any of the other gods, the Father excepted, and because an only begotten God would be the only begotten Son of God. In either case the passage shows our Lord's pre-human creation by God and proves that He had a beginning. The same proof is given by the expression, only *begotten,* in John 1: 14; 1 John 4: 9; for to be begotten implies a beginning and a coming into existence.

There are several passages in the book of Revelation that belong here. One of these is in Rev. 1: 11:

These two sets of expressions are synonymous, because *alpha* is the first, and *omega* is the last letter of the Greek alphabet [*alpha-beta*]. These expressions are used of Jehovah (Is. 41: 4; 44: 6; 48: 12*;* Rev. 1: 8); and they are also used of our Lord (Rev. 1: 11, 17; 2: 8; 22: 13). In the set of four passages referring to Jehovah as the First and the Last, the three from Isaiah use the expression, "I am the First and the Last," while the one from Revelation uses the expressions, "I am Alpha and Omega, the Beginning and the End." Of the four passages cited as referring to our Lord, the first is quoted in the second sentence of this paragraph, the second and third omit the expression, Alpha and Omega, but use the expression, "the First and the Last," while the last one uses all three of the pertinent expressions: "I am the Alpha and the Omega, the Beginning and the End, the First and the Last." Accordingly, we see that the four passages referring to God combinedly use all three expressions and the four passages referring to Christ combinedly use all three expressions. In other words, the Bible uses all three of these expressions of both God and Christ.

There are some who hold that these three expressions mean the eternity of the Father and of the Son. But this is evidently not the case of them with reference to the Son, since we have seen that He was created or begotten and had a beginning; hence He could not have existed from eternity. Nor can they refer especially to the Father's being from eternity, which, as a matter of fact, He is, since that would be incompatible with their being used of the Son, who is not from eternity. Rather, these expressions should in consistency be given such a sense as would make them apply to both. The following, we believe, gives us a definition that up to a certain stage uses the expressions similarly: Each is the first and last of His peculiar kind: God is the first and last of His peculiar

increate, *i.e.,* never to have been created; and the Son is the first and last of His peculiar kind, in that He is the first and last to have been directly created by God, all other creatures having been indirectly created by God, *i.e.,* through the agency of the Logos. Thus the Father and the Son are both unique—which is the meaning of these three expressions—but each of them is unique in a different sense: The Father is unique in that He is the only—the first and last—Being never created; and the Son is unique in that He is the only—the first and last—Being ever directly created by God without the intervention of an agent, which creative intervention by the Logos occurred in the case of every other creature. Thus Jehovah is the First and the Last, the Alpha and the Omega, the Beginning and the End of increation—the only Being who never was created; and thus the Logos is the First and the Last, the Alpha and the Omega, the Beginning and the End of God's direct creation. In other words, these terms used with reference to the Son are equivalent to His being called, "the Only Begotten of the Father" (John 1: 14, 18; 3: 16, 18; 1 John 4: 9); while their use with reference to the Father implies that He is from eternity, though not directly teaching it, the direct teaching being His uniqueness in that He never was created or begotten, as was the Son.

The fact above proven, that the Logos was created or begotten and had a beginning, brings up the subject of His relation to the Father. On this subject the marvelous Biblical harmony has been much beclouded by Satan (2 Cor. 4: 4) early in the night—fall of the Dark Ages, especially by his teaching three gross errors on the subject; that the Son is co-eternal, consubstantial and co-equal with the Father. There is no Scripture that teaches any one of these three thoughts, but there are many Scriptures and facts that contradict every one of them. The fact that He is the Son of

God proves that His existence could not be without a beginning; for sonship implies one's coming into existence through begettal from a father. Again, a father has to exist before a son, in order to beget him; for no son is as old as his father, *i.e.*, begins to exist as soon as his father. God's being the Logos' Father implies that He antedates the Logos; and, therefore, the Logos is not co-eternal with the Father. Every one of the above quoted passages that prove that the Logos was created, was begotten, had a beginning, was Jehovah's firstborn, was Jehovah's only begotten Son, disproves the thought that He is co-eternal with the Father. Certainly it was a piece of hocus-pocus beclouding men's reasoning powers, when Satan enchanted people into believing that a son is as old as his father, existed as soon as his father, was begotten and created and yet had no beginning, was a father's firstborn and yet never came into existence, but always existed. Note the expression in Prov. 8: 22, 23, as given in the Improved Version: "The Lord possessed [acquired] Me, as the beginning of His [creative] way, before His subsequent works. I was set up [created] before an Age [the first Age of God's plan followed the fall into sin], before a beginning [Gen. 1: 1], before the earth." These verses prove that He was created before anything else was created; but their teaching that He was created implies, that He had a beginning and hence was not from eternity. Please note v. 30, as it is given in the Imp. Ver. "I was with Him while being brought up." Here the Logos' development under Jehovah's training is set forth. Such a training at Jehovah's hands would have been impossible had He been coeternal, consubstantial and co-equal with Jehovah.

Those who teach that the Son is co-eternal with the Father are in great difficulty to find Scriptural passages and facts on this subject. They quote especially three passages on this point: (1) Ps. 2: 7: "Thou art My Son; this day have I begotten Thee." They stress

he words this day as meaning eternity, as an alleged proof that our Lord is eternal. To this we reply: The expression *begotten,* used of Him here, proves the reverse, *i.e.*, that He has a beginning, hence is not eternal. Moreover, St. Paul three times quotes this passage (Acts 13: 33; Heb. 1: 5; 5: 5), to prove of Christ, as the firstborn from the dead (Col. 1: 18; Rev. 1: 5), His resurrection. Hence the expression *this day* refers to the Gospel Age, not to the eternity that was before the world was. Small comfort do they get from this passage who hold that it proves that our Lord was without a beginning! A second passage that they use is Heb. 13: 8: "Jesus Christ, the same [person] yesterday, today and forever." Here, again, they are unfortunate; for the word *yesterday,* which they claim teaches our Lord's past eternity, contradicts the idea of duration without a beginning; for a yesterday is a day before a present day. But a day has a beginning; so has a yesterday; hence a yesterday cannot mean duration without a beginning. The days of this passage are evidently ages, as is proved by the Greek expression for *forever* which in this passage is rendered literally *for the ages.* Hence we understand the expression *today* in this verse to mean the Gospel Age, in which we are now living and which is called a day (Acts 13: 33; Heb. 3: 13, 17); and the word *yesterday* we understand to mean the Jewish Age, which is called a day (Is. 65: 2*;* Rom. 10: 21), as the Day or Age before the Gospel Day or Age. Accordingly, this passage proves that the Logos existed during the Jewish Age, but proves nothing as to His existing before that time. Hence it does not prove that He was without a beginning, *i.e.,* was from eternity.

The third passage that is by some quoted to prove that our Lord is without a beginning is John 10: 30: "I and My father are one." In reply we say that the word eternity is neither used here nor implied. The expression does not mean that the Father and Son are

one person, as some hold; for the Greek word for person—*hypostasis*—is feminine, and if one person were here meant the feminine form (*mia*) for the Greek word for one would have been here used and not hen, the neuter form, which is here used. The same reason proves that the expression does not mean one being, as some others hold; because the Greek word for being is *ousia*, which is also feminine and would, therefore, require the Greek word for one to take the feminine form (*mia*) here. The neuter form *hen* here used requires us, according to Greek Grammar, to supply a neuter noun as agreeing with the neuter hen; some neuter word like *spirit—pneuma*—evidently must be here supplied; for it is in spirit, disposition, purpose, work, that the Father and the Son are one. But such a word supplied would not teach that the Logos is as old as the Father, any more than the fact that twelve apostles are one (*hen*), and the fact that the rest of the Lord's people are *one* (*hen*; John 17: 11, 21, 23) prove that the Lord's people are from eternity and that each one of them is as old as the other. Certainly a theory that is forced to limit its quotations to Ps. 2: 7; Heb. 13: 8 and John 10: 30, to prove that our Lord is from eternity, is hard pressed for Biblical proof and is hard hit by its own alleged proof texts! Nor can they cite one Scriptural fact that proves their thought. Especially do they cite two facts as alleged proofs that He is without beginning, is from eternity, *i.e.*, that He was begotten and that He existed before His carnation. In reply we say that the fact of His begettal before the worlds were made, while proving His pre-existence, disproves that He was without beginning—from eternity—for to be begotten implies a beginning of existence. Hence this fact disproves the thing that it is adduced to prove. Nor does the fact that our Lord pre-existed prove Him to have been without a beginning, any more than the fact that the angels existed before Christ's carnation

proves them to be without a beginning. The fact that the Bible teaches that His pre-existence started by His being created—begotten—proves that it had a beginning and was, therefore, not from eternity. We repeat the thought that there is no Bible passage or Bible fact that proves our Lord to be without a beginning, to have existed always. All of the pertinent Biblical passages and facts prove the reverse, that He had a beginning. Therefore He is not co-eternal with the Father. To be without a beginning is a unique excellence of the Father; therefore it is shared by Him with no one else, not even with His exalted and highly honored Son, in whom He delights.

The second of the three errors as to Christ's relation to the Father is that He from eternity is consubstantial with the Father. The propounders of this theory mean by it two things: (1) that from eternity He was begotten from the Father's substance and therefore (2) from eternity has had the Father's nature—the Divine nature. Both of these propositions are completely destitute of Scriptural proof and are contrary to the Bible in many ways. Their propounders rely on the fact that He was begotten by the Father, as the proof of His being begotten of the Father's substance, alleging the analogy of animal begettals, which ordinarily occur by a substance derived from the father. Such an idea implies two sexes, between whom the sexual act occurs. But such a thought is utterly foreign to a Divine begettal. Again, God's substance is indivisible, hence incommunicable to another. Therefore the Logos was not begotten from the Father's substance. Moreover, *none of* God's other sons were begotten of God's substance, yet all are begotten by Him through Christ. This is true of God's angelic sons, His human sons (Adam, Eve, Jesus as a human being and the world in the Millennium) and of His new-creaturely sons of the Gospel Age. All of these—angelic, human, Divine—come into existence as

such by creative acts. Hence, whenever the expression *to beget* is predicated of God, it is used, not to indicate an act similar to the sexual act, with the implication of a male and a female as active, but to denote a creative act. And the reason the word *beget is* used of God in this connection is to indicate the act that implants the life principle, which in animal procreation occurs ordinarily in the sexual act, and which God, as the source of life, not in the sense of deriving it from His own body, but in the sense of creating it and filling the universe with it, imparts to all His living creatures. Hence, for God to beget means for God to create. These considerations disprove the proposition that God begat the Logos of His own substance, as the creeds teach.

Some other considerations prove the falsity of the proposition that the pre-human Christ was consubstantial with the Father. Those who hold this thought claim that the pre-human Logos was of the Divine nature, of the very essence of God. Such a thought is not only without any Scriptural foundation, and is at best a very poor speculation, as shown above, but is also contradictory of the whole plan of God. In the first place, it would make impossible our Lord's carnation—His becoming human (John 1: 14; 2 Cor. 8: 9; Phil. 2: 6, 7; Heb. 2: 14, 16-18); for the Divine nature is both immortal and unchangeable in substance and character (1 Tim. 1: 17; Jas. 1: 17). Had He, therefore, been Divine in substance—nature—His nature, because unchangeable, could not have been changed into human nature. Hence, had He been Divine in nature He could not have undergone carnation. He had to have a mortal, changeable nature to become human. Therefore His pre-human nature was lower than the Divine nature, since He changed it into human nature. Had he been Divine in nature, which is unchangeable, how could He have emptied Himself (Phil. 2: 6) of His former nature, office and riches

and become poor? (2 Cor. 8: 9.) Again, had He been Divine in nature while with the Father before His carnation, He would have remained Divine while on earth and, therefore, would not have been a man, which the Bible repeatedly says He was (Matt. 8: 20; Mark 2: 28; Luke 7: 34; John 7: 47; 15: 24; 4: 29; 8: 40; Acts 2: 22; 1 Cor. 15: 22; 1 Tim. 2: 5; Heb. 3: 3; 7: 24; 8: 3; 10: 12; Rev. 1: 13).

Nor could He have hungered (Matt. 21: 18, 19), become weary (John 4: 6), wept (Luke 19: 41-44; John 11: 35), prayed (Matt. 26: 39-44; Heb. 5: 7), been tempted (Heb. 2: 18; 4: 15), sorrowed (Matt. 26: 38), suffered (1 Pet. 2: 21; 3: 18), died (1 Cor. 15: 3), as the Bible in the cited passages and elsewhere tells us that He did. He would only have pretended to be a man, to be hungry, weary, weeping, praying, tempted, saddened, suffering and dead. The cry, "My God, My God, why hast Thou forsaken Me?" would have been a hypocritical cry, forsooth to gain sympathy or to make a pitying impression on His hearers. Those who hold the view under consideration have had to resort to all sorts of metaphysical evasions, mystifications, hocus-pocus wizardries, to express their unintelligible gibberish, all the while being compelled to admit that it was unintelligible. Samples of these Satanic vagaries, follies and confusions are hidden under expressions like the following: God became man; Mary, the mother of God; God Himself lies dead; a god-man; two natures in one person; the human nature of Christ is without personality; His Divine nature alone had personality (yet they admit that His human nature had a perfect human intellect, perfect human sensibilities and a perfect human will, which are the essence of personality). According to their view His humanity was only a veil, a cloak, a garment, worn by the Divine. All of such twaddle was born in Satan's head and by him was suggested to the befuddled brains that were Satanically

confused enough to accept it. It is in the most direct conflict with the passages cited in this and preceding paragraphs and it contradicts the offices of Christ before He came 'into the world, while He was in the world and after He left the world and went to heaven.

It likewise contradicts His being dead; for a Divine being is immortal and cannot die, and thus cannot be dead. It contradicts His resurrection; for, if He had been Divine, He could never have been dead, which one must be, if he is to be resurrected. It contradicts His exaltation to the Divine nature in His resurrection (John 5: 26; Phil. 2: 9; Heb. 1: 3, 4); for, according to the theory, He always had the Divine nature, and therefore always had been supremely exalted. It contradicts His glorification after His resurrection and ascension; for if He had always had the Divine glory He could not have been further glorified (Phil. 2: 10*,* 11). It contradicts His exaltation over the heavenly host; for had He been always Divine He would have always been over the heavenly host and, therefore, would not after His resurrection and ascension been in exaltation put over them (Eph. 1: 20-22*;* Heb. 1: 4, 5). How could all authority in heaven and on earth (Matt. 28: 18) after His resurrection have been given to Him, if He had always had it? Thus we see that if the theory that the Logos was of the Father's substance, Divine in nature, were true, He could not have been what He was, nor done what He did while on earth, and that in almost all of it He would have been a hypocrite, which He could not have been. Nor could He have experienced the post-human things affirmed of Him by the Bible, if He had always been Divine.

On the contrary, the Bible teaches that He first became of the Divine nature, one of whose essential qualities is immortality, in the resurrection, and that as a reward for His faithfulness unto death. In. John 5: 26 Jesus tells us that God had given Him [a promise]

to *have* immortality—life in Himself—which proves that He did not at the time He uttered this language have it. But He did have it after His resurrection (1 Tim. 5: 16). It was in His resurrection that He became the very impress of the Father's substance—Divine in nature (Heb. 1: 3-5; Acts 13: 33). It was because He was obedient unto death, yea, the death of the cross, that He was given a name [nature, office and honor] above every other name [nature, office and honor] (Phil. 2: 8-11). It was due to His receiving the Divine nature in the resurrection that He was fitted not only to be placed over the heavenly host, all of whom are of natures lower than the Divine, but also over the Church, which is also to be made Divine in nature (Eph. 1: 20-23; 2 Pet. 1: 4; 1 Cor. 15: 41-54; 1 John 3: 2). All of these considerations refute the idea that the pre-human Logos was of the Divine nature. To sum up: Before the Logos became man He was the highest of all beings, the Father excepted, and in a nature next below the Divine, but higher than that of the rest of the heavenly host (Heb. 2: 16). While He was on earth He was until Jordan a perfect sinless human being, nothing more and nothing less. From Jordan to Calvary He was, while yet a human being, undergoing a recreation of heart and mind for the Divine nature. In His resurrection, and as a reward for His faithfulness unto death, even the death of the cross, He attained to the Divine nature, of the same substance as the Father, though, of course, a different being from the Father. He is thus now, and will to all eternity be, Divine in nature, next to the Father and the Father's plenipotential Vicegerent throughout the universe (Matt. 28: 18; Eph. 1: 20-23; Phil. 2: 9-11; Heb. 1: 3-5). Praised be our God for our worthy Savior's and Lord's high and eternal exaltation to God's right hand—position of chief favor!

We recall that it was stated that those who teach that the pre-human Logos was co-eternal and consubstantial

with the Father likewise teach that He was then also co-equal with the Father. This proposition is as false as the other two; for according to the Bible He never was, nor will He ever be the Father's equal. We now proceed to the refutation of the third leading proposition of those who teach the false doctrine under discussion as to Christ's relation to the Father. We will now show that neither before He came to earth, nor while in earth was He, nor since His return to heaven is He, the Father's equal. The Scriptures are very explicit on these three points. It will be noted that those who teach Christ's equality with the Father do not have any Scripture that teaches such a thought. They infer it as a necessary consequence from the propositions that He is co-eternal and consubstantial with the Father, the falsity of which propositions having been demonstrated, their conclusion drawn from them is necessarily false. They do try to infer it from the passage, "I and My Father are one" (John 10

30). But if the oneness between the Father and the Son were that of equality, then since the Lord's faithful Apostles and other faithful people are all one in the sense in which the Father and the Son are one (John 17: 11, 21, 23), they are not only all equal with one another, but also with the Father and the Son—a self-evident absurdity in both features of oneness f Note how plain is the Lord's pertinent language; for the Apostles He prays, "that they all may be one [*hen,* neuter, as in John 10: 30] as we are"; and for the rest of the Faithful He prays: "that they all may be one [*hen,* neuter], as Thou, Father, art in Me; and I in Thee [God was in Christ by His Spirit and Christ was in the Father by His consecration—subjection. Hence the oneness here prayed for was a oneness of spirit, purpose, aim, plan, work, not one of being or equality], that they also may be one in us [one in the spirit of consecration—subjection] … I in them [My spirit and will ruling in them], and Thou in Me [Thy,

spirit and will ruling in Me], that they may be made perfect in [*into,* so the Greek] one [*hen,* neuter]." Hence the oneness for which Jesus prayed on behalf of His own is the same oneness as exists between the Father and the Son. But such is not a oneness of equality; for neither in this life are all the Lord's people equal (1 Cor. 12: 28-30*;* Eph. 4: 11), nor in the next life (Matt. 19: 28*;* Rev. 21: 14*;* Mark 10: 40*;* Luke 19: 17, 19; 1 Cor. 15: 41*,* 42). Hence the oneness between the Father and the Son being the same kind as that between the Faithful, it cannot be a oneness of equality, but must be a oneness of spirit, purpose, aim, and work. Thus is exposed the corrupt foundations on which the error under study rests.

Plain Scriptures treating of our Lord's pre-human relation to the Father prove His subordination, inequality, to the Father: Phil. 2: 6*,* 7, is to the point. We quote it as given in the American Revised Version: "Who [the Logos], existing in the form of God [*i.e.*, in the mode of existence of a spirit being], counted not the being on an equality with God a thing to be grasped [as Lucifer ambitiously did; Is. 14: 10-14], but [instead of conspiring to usurp equality with God, as Lucifer did, He did the reverse, for He] emptied Himself [of His pre-human nature, honor and office], etc." Here we are plainly shown that, while existing as the pre-human Logos, as a mighty spirit being, He considered Himself to be God's subordinate and eschewed aspiring to equality with God after Satan's example. Hence this passage proves His inequality with God. His having been trained in His pre-human existence by God proves that He was God's inferior (Prov. 8: 30), as also His being then owned or acquired [by creation] by God and His having then been given His existence and exaltation by God (Prov. 8: 22, 23) prove His pre-human inferiority to the Father; for the Creator, Owner (Lord) and Promoter is always superior to the one created, owned and promoted.

The proof above given of His coming into existence, while God always existed, and of His being as the pre-human Logos of a lower nature than God's, likewise prove His inferiority to the Father. Accordingly, before He came into the world He was the Father's inferior. Furthermore, the fact that He emptied Himself of His pre-human nature, office and honor (John 1: 14; 2 Cor. 8: 9; Phil. 2: 7; Heb. 2: 9, 10, 14, 16-18), proves that He was the Father's inferior as the Logos; for if He had been the Father's equal He could not have emptied Himself, because since the Father cannot do such a thing an equal of His could not do it. Hence the pre-human Logos was the Father's inferior.

Hence, of necessity, while He was on earth He was the Father's inferior; for as a man and as a spirit begotten man He was lower than He was before He became a man (Heb. 2: 9). The four passages cited toward the end of the preceding paragraph to prove His carnation also prove this thought. Again, all those passages that prove that while on earth He was a messenger, servant and agent of God, decisively prove Him to be God's inferior as another's messenger, servant and agent is his subordinate and inferior. The following are a list of some of such passages: Is. 42: 1; 49: 5; 61: 1; Matt. 20: 23; John 3: 34, 35; 4: 34; 5: 19, 20, 22, 30; 7: 16, 28; 8: 28; 9: 4; 10: 38; 12: 49; 16: 5; 17: 4; Acts 10: 38; Rom. 8: 32; Heb. 3: 2; 1 Pet. 2: 4, 23. Passages previously quoted showing He hungered, was weary, sorrowful, tempted, suffered, died, prove the same thing. The fact that He prayed to God proves His inferiority to God while in the flesh. His having feared that He might not return from the dead, because. He thought that He had perhaps in some way failed to please God perfectly (Heb. 5: 7) proves His inferiority. His not knowing everything proves His inferiority to the Father in knowledge (Mark 13: 32). His saying, "My Father is

greater than I" (John 14: 28), applying to His pre-human, human and post-human condition, proves that while on earth He was the Father's inferior.

So, too, since His resurrection and exaltation He is the Father's inferior. This is proved by those passages that prove that God raised Him from the dead and exalted Him (Ps. 110: 1; Is. 49: 6; John 5: 26, 27; 14: 20; 17: 5; Acts 2: 33, 36; 13: 37, 38; Rom. 1: 4; Eph. 1: 20-22; Phil. 2: 9-11; Heb. 1: 2-5; 5: 5, 6; 1 Pet. 1: 21; 2 Pet. 1: 17). It is proven by those passages that speak of the Father as giving Him His office powers (Matt. 28: 18; John 5: 27; 1 Cor. 1: 30; Micah 5: 4; Col. 1: 15); as being His God (John 20: 17; Eph. 1: 17; Rev. 3: 12); as being His Owner and Head, in the sense that Christ is the Church's Owner and Head (1 Cor. 3: 23; 11: 3); as Christ's being God's Image (2 Cor. 4: 4; Col. 1: 15; Heb. 1: 3). The Lord Jesus is expressly said to be subject to God, as the Supreme One, forever (1 Cor. 15: 28). In His office as Priest, interceding before God (Heb. 7: 25), as Prophet, getting the Truth from God (Acts 3: 23; Deut. 18: 18, 19), as King, ruling as God's Vicegerent (Ps. 2: 6), as Advocate, pleading before God as judge for His clients (1 John 1: 1, 2) and as Mediator, representing God before the people (1 Tim. 2: 6), He acts, or will act, officially as God's inferior since leaving the world. All these considerations prove that He as the pre-human, human and post-human Son of God is, the Father's inferior. Therefore as related to God's eternity, He is not from eternity; His nature was until His resurrection lower than the Divine and He always was and always will be the Father's inferior in attributes of being and character, in word and in work. Thus negatively have we shown what is not His relation to the Father. He is not co-eternal, consubstantial and co-equal with the Father.

In previous parts of this chapter we showed that our Lord in His pre-human condition was the first of all

God's creation. From this and from pertinent Scriptures we further proved that He had a beginning and, therefore, did not exist from eternity. We further showed that He was not of the Divine being, nor of the Divine nature before He came into the world, though He attained in His resurrection the Divine nature, having now a body of the same kind of substance as the Father's, though not of the Father's substance. And, finally, we showed that He was in His pre-human, human and post-human conditions the Father's subordinate. This proves that the Father is in Himself unique, being greater in attributes of being and character than the Son and thus solely the Supreme Being. From this standpoint we are in a better position to see just what His relation to the Father is. First of all, we recognize Him to be *the* Son of God—not God Himself; for a son is not the same being as his father; for to affirm that He is both the Son of God and God Himself implies that He is both His own Father and His own Son, which, of course, are absurdities of the first order. God is His Father and He is God's Son, yea, God's only begotten Son; and God is His Father directly, by a direct begettal, in which sense no one else is God's son. The following passages prove that God is His Father and that He is God's Son: John 1: 14, 18; 3: 16-18, 34-36; 1 John 4: 9; Ps. 2: 7; 89: 27; Matt. 3: 17; 11: 27; 15: 13; 16: 15-17; 17: 5; 21: 37; Mark 1: 1; Luke 1: 32, 35; John 15: 1, 8, 10, 23, 24; 20: 17, 21, 31; Acts 3: 13; Rom. 1: 3, 4; 1 John 1: 7; 3: 8, 23; 4: 10. It will be noted that in these passages it is God who is called the Father of our Lord and that our Lord is called the Son of God. In none of them are they identified as one, but always as separate persons or beings.

From His relation of sonship as to God is immediately inferred His coming into existence (which implies His previous non-existence, *i.e.*, that He has not always existed), as well as His being subordinate,

unequal to the Father. Nor must we from His sonship infer that He always was of the same nature as the Father, since such an inference, if necessary, would make the angelic sons of God and the human sons of God of the same nature as God, which would be erroneous and absurd. So, then, His sonship implies His creatureship at the Father's hand. Hence the above considerations prove Him to be God's created Son, who is the Father's inferior in being, in duration, in nature until His resurrection, in honor, in position and in work. These features of their relationship to one another must be kept in mind, if we are to see daylight on the subject of their relationship. The ignoring of these things as indicating their relationship has resulted in confusion worse confounded on the subject, as can readily be seen in the self-contradictory, reason-defying and Scripture-denying absurdities of the creeds of men on the subject. But the right view of their relationship clarifies the pertinent Scripture teachings and enables us to honor God supremely and next to Him His highly exalted and worthy Son, to whom be glory and honor as now occupying at the Father's right hand the place of chief favor and power.

This relation to the Father implies His pre-human superiority to the other spirit subjects of God. This is directly stated in the correct rendering of the Hebrew of Dan. 10: 13, as it is given in the margin Michael, the first of the chief [spirit] princes. His being called, Michael the *archangel* (Jude 9), and the *archangel* (1 Thes. 4: 16), proves the same thing; for the word *archangel* means, first or chief messenger. And He is the chief messenger of God (John 17: 3). His pre-human superiority over the heavenly host of God is likewise evident from His being called their creator as God's creative agent (John 1: 3; Col. 1: 16; 1 Cor. 8: 6; Eph. 3: 9). This is also to be inferred from the fact that He was God's chief providential agent in His pre-human condition (Gen. 48: 16; Ps.

34: 7; Dan. 10: 13). It likewise follows from His being the chief agent of God in giving the Old Testament revelations (Gen. 18: 1-33; 22: 11-18; Ex. 3: 2 - 4: 17; 1 Pet. 1: 11). And, finally, this follows from the fact that God offered Him, and not any other of the heavenly host, the privilege of carnation in order to become the Grand Agent for carrying out God's plan with its involved opportunity of still higher exaltation in nature, honor, riches, office and work, than He had in His pre-human condition. Thus we see that, while in His pre-human existence He was God's inferior in every way, He was at the same time superior to any of God's other creatures whatsoever.

From these facts we see that He held the position of being God's special representative toward the heavenly host and in the work of creation, providence and revelation in His pre-human condition. This put Him into line of being the one who would be chiefly considered as a candidate for any specially important work that God desired done. What does this mean other than that He was a quasi-vicegerent of Jehovah during His pre-existence? We say quasi-vicegerent designedly, because His powers then were much more limited in vicegerental respects than those that He received in and since His resurrection. He had then far less discretion as to how He should do than He now has as to *how* He should do. Therefore He then had to consult God more than now as to ways and means of doing. Before His carnation He could not truly say, "All authority in heaven and earth is given unto Me" (Matt. 28: 18), as He can now say since His resurrection. With Him God carried out the law that is everywhere prominent in His dealings with His servants: As they are faithful in smaller things He entrusts them with larger things. Since He had always proved loyal to the Father, and that in a higher degree than any other servant of God, of course God advanced Him more than He did His other servants.

And this we recognize as right and good. Thus we see in the above our pre-human Lord's personal and official relations to the Heavenly Father. And in all of them we find Him to be the Father's inferior and the superior of all others of God's creation.

We now come to a discussion of His pre-human work, which, as we have already seen, exercised itself especially in three separate spheres—creation, providence and revelation. His work of creation properly belongs to our subject, Creation, because He was the Agent whom God used in creating all things. Though His pre-human works of providence and revelation do not properly belong to our subject, we will nevertheless in this chapter treat of them in order to have a fairly complete view of our pre-human Lord's work. Accordingly, we begin with His creative work. In this He did not act independently of God, nor did He act as God's equal. Rather His creative acts were those of an agent carrying out the plans and arrangements of His superior. He did not originate the creative plans. These God originated and designed. Nor did He supply the materials of creation. These God provided. His work was that of taking the materials that God provided and working them into creative products according to God's plans and specifications. In other words, God is the source of the plans and materials of creation, somewhat after the manner of an architect who from materials that he himself owns and provides and from the plans and specifications that he himself draws up has a house built for himself by a contractor whose work in all details he supervises. Our Lord acted like the contractor in this illustration, performing the work with the materials furnished Him according to the plans and specifications. And He performed it well.

We are thus to view the relationship of the Father and the Son in creation, if we would see it in its

Scriptural light. 1 Cor. 8: 6 is a passage that not only proves this thought, but also shows that in all other matters of God's works and ways the Father is their Source and Originator, while the Son is His Agent in their outworking: "To us there is but one God, the Father, o*f whom* [as their Source and Originator] are all things … and one Lord, Jesus Christ, *through* whom [as their Agent] are all things." Thus as to creation, both of the spiritual world and of the material world, the Father originated the thought of them, made the plans in the minutest details for them and provided the substances out of which everything in them was made, which proves that He is the Creator in the sense of being creation's Source and Originator. Thus all things [also of creation] are of [source and origin] the Father. But all things [also of creation] are *through* [by the agency of] the Son. In the Greek agency *through* which a thing is done is expressed by the preposition *dia* [*through*] with the genitive, while the source of a thing is indicated by the preposition *ek* [*of,* in the sense of *out of*]*;* and to denote that a thing is made or done by an independent originator the preposition *hypo* [*by*] is used after the passive verb by which the action is expressed. Thus if we were to state prepositionally in Greek that creation was (1) originated in God and (2) was brought into being by His supervision, and that (3) through His Son's agency, we would use *ek* [*of*, *out of*] to express the first thought, *hypo* [*by*] to express the second thought and *dia* [*through*] to express the third thought. Thus creation is of and by God, but through the Logos. And well have they made it.

Thus to show that God as its Dominator was the Source, Originator and Supervisor of creation, Gen. 1: 1-25 speaks only of Him as the Creator; and then first in v. 26 is the Logos spoken of as associated with Him in that work: "Let Us make man in *Our* image, after Our likeness; let Us give him dominion," etc. There

upon in vs. 27, 28 and 31, the discourse turns again to God only as Creator. On the other hand, the agency of our Lord for God in creation is shown in John 1: 3 by the word *dia* [*through*]: "All things were made *through* Him [the Logos] and without Him was not one thing made that was made." His agency in making the ages (see Revised Version) under God's supervision is also so stated in Heb. 1: 2: "Through [dial whom [the Son] He [God] also made the ages." Whenever in contrasts the Scriptures present the work of the Father and the Son, the Father is shown to be the primary actor, usually shown by the active voice of the verb with God as its subject; while if the form of the statement were to be put into the passive voice the things made would be made the subject of the passive verb, while God's activity therein would be expressed by the preposition *hypo* with the Genitive of Actor. Such a case is manifest from the last two clauses of Heb. 3: 3. If we see clearly the above lines of distinction we will understand well the relations of the Father and the Son in creation, in which all things are of the Father in the sense of His being their Source, Originator and Supervisor, and all things are through the Son in the sense of His being God's Agent in putting God's creative plans into execution.

Hence God put into the Logos' hands the creative plans and specifications which He had thought out. Furthermore He put into His hands the substances and forces to be used in creation and charged Him to work out these plans by applying to the substances the pertinent forces in such ways as to produce the effects aimed at in the plans and specifications. We do not know whether these plans were merely described verbally, or were given in drawings, or were made in form of models, such, *e.g.,* as God showed Moses on the mount as respects the tabernacle and its belongings (Heb. 8: 5). Such details belong to the hidden things not revealed to us (Deut. 29: 29), which we may,

therefore, well leave to the Lord, content with such details as He was pleased to reveal to us. Doubtless in due time the exact details will be made known to us. But whatever method God used in making clear to the Logos' understanding the various details as to the beings and things that He desired Him as His Agent to bring into existence, the Logos' intellect was sufficiently able to grasp the pertinent details and His executive abilities were sufficiently skilful and powerful to give these beings and things not only existence, but in the exact modes and qualities called for in God's plans and specifications. Therefore, the Logos' pertinent intellectual and executive abilities must have been of the highest order compatible with a nature lower than the Divine in order to have brought the world of spirit and the world of matter into existence. This will appear from a brief consideration of the general things done and the great diversities, details and attributes of the creatures brought into existence by God through the Logos. From all viewpoints these are great.

According to Col. 1: 16 and John 1: 3 the Logos brought into existence all the spirit beings in the spirit world, the Father and the Son excepted, and all creatures. animate and inanimate in the material world. While this is stated in general terms in John 1: 3, already quoted, it is stated specifically in Col. 1: 16, which we will here quote: "For by [not *hypo—by,* but *dia—through*] Him were all things created that are in heaven [the spirit world] and that are in earth, visible [to man's eye, hence, generally, earthly things] and invisible [to man's eye, hence, generally, heavenly beings], whether they be thrones, or dominions, or principalities, or powers. All things were created by [through] Him and for Him." By the expressions, "thrones," "dominions," "principalities" and "powers,

four orders and perhaps four different natures among created spirit beings are meant. In Eph. 1: 21 the same four are again meant, the word "might" here

standing for the class called "thrones" in Col. 1: 16. The angels of Rom. 8: 38 seem to be a fifth order and perhaps nature among created spirit beings. Additionally the Bible speaks of cherubim and seraphim (Gen. 3: 24; Ezek. 28: 14; Is. 6: 2, 6), who seemingly are still two other orders of beings than the foregoing five orders of created spirits. The Logos, also a created spirit, was of a still higher order than the above-mentioned created spirits. Accordingly, there seem to have been eight orders and natures of created spirits, the Logos, the highest of these, bringing the other seven into being. This means that God gave the Logos *different* spirit substances, life principle being among these, and gave Him pertinent plans and specifications with the charge to bring into existence the other seven orders and natures of spirits above-mentioned, by using the specified spirit substances to form the involved bodies and give existence to spirit beings by uniting with these bodies the life principle.

We are ignorant of the details as to the substance or substances from which each order or nature of spirit beings was created, not to mention the proportionate amount of each substance used for each nature, how they were diversified, and how they were compounded. Nor do we know what the members of these spirit bodies are. All that we know of them as to their bodies is that they consist of some incorruptible spirit substance or substances, that they can permeate and pass through material substances without impediment, that they are gifted with exceedingly rapid powers of locomotion and that they are very powerful physically, mentally, morally and religiously. That they can die is evident from the fact that Lucifer, who by sin became Satan, will be annihilated (Heb. 2: 14; Is. 14: 15; 27: 1; Ezek. 28: 14, 15, 19), as the impenitent fallen angels will with him share the same fate (Matt. 25: 41). It took great skill and executive ability in the Logos to make their wonderful bodies; but much

more so to make their mental, moral and religious faculties, endowing them much more highly in these respects than the perfect human mental, moral and religious faculties of Adam, Eve and Jesus were, and than those of the perfected human race will be. When we think of some humans exceptionally well endowed in mental, moral and religious faculties, whom we have met or read of, and then remember that the heavenly host is by far superior to any of these, we can form a fairly approximate idea of the Logos' great creative skill and executiveness. This would also appear from a consideration of the skill and inventiveness of an Edison or a Steinmetz. If we should take one of Edison's most marvelous inventions—like moving pictures—and contrast it with the wonderful inhabitants of the created spirit world, we could form a fair idea of the Logos" creative greatness. Edison has made moving pictures, but not persons. Edison made moving images, but without life; but the Logos made higher than human beings—spirit beings of wonderful abilities of body, mind and heart, capable of almost infinite development and attainment. Surely to have been the Creator of such was an achievement of almost rarest skill and executiveness.

Not the least remarkable feature of the Logos' creation of the spirit world is the fact that He began His creative activities by first bringing into existence the most complex and difficult of all creatures—spirits. Ordinarily an inventor starts with simpler inventions and gradually proceeds to the more complex. Not so in our Lord's case. Next to the new creation, which He began with Pentecost, He brought the most complex of creations into being at the first. Doubtless the Father supervised this work and enabled the Son to bring each feature of it on the spirit plane to a successful conclusion—to perfection. It was undoubtedly due to this supervision that our Lord was able successfully to complete this, the first and the next most difficult

feature of the creative program, apart from Himself. While this was undoubtedly a most difficult feature of the creative work, it was not so vast as was that of the creation of the universe, which He proceeded to bring into existence after the heavenly host.

Indeed, according to the Scriptures the heavenly host rejoiced to see the creation of the universe (Job 38: 7), and from the fact that they were created to be servants of Jehovah (Heb. 1: 7) the conclusion is quite sound that they assisted the Logos in bringing the universe into existence. While details are not given us on this point, we are warranted in concluding that under His direction their assistance was in the way of manipulating various of nature's laws to operate various features of the creative process. According to our Lord's declaration (Matt. 26: 53) that for His deliverance, if He desired it, He could ask the Father for more than 12 legions of angels, and seeing that a legion at that time consisted of 6,000 soldiers, and that Jesus could thus have had more than 72,000 angels for His deliverance, we conclude that the number of angels is quite large, there being probably over 100,000 of them who remained sinless, not to mention those who later sinned and are now fallen angels. These in the creative work on the universe were doubtless divided into groups under sub-supervisors, scattered about among the various embryo solar systems with their various embryo suns and planets, manipulating the pertinent laws of nature for the development of such embryo solar systems as wholes and in their various parts toward finished products. And as they saw this wondrous work proceed their holy hearts rejoiced and their holy voices sang and shouted for joy, praising the Lord, in whose creative work they were privileged to share (Job 38: 7). And when we consider this immense force of helpers under the Logos' direction, we have another glimpse of His skill and ability as a director of subordinate; for all this work

went on with greater precision than the proverbial clockworks. Merely to have supervised so large a company of helpers would have been a very exacting piece of work. Thus, with angelic co-operation, did He bring into rough and unfinished existence the heavens and earth, as described in Gen. 1: 1, making the earth consist of at least 92 chemical substances, all of the universe being produced from gases originally.

But the work so done was finished only in the rough. Neither the earth, nor the other planets of our solar system, nor the suns and planets of other solar systems were perfect. This work of perfecting His creations has been going on, e.g., in the earth during the six creative days and will not result in perfection until the end of the seventh epoch of earth's history, when Christ will deliver over the kingdom to God (1 Cor. 15: 24-27). Indeed, so far as we know only one heavenly body is now perfect—God's abode, heaven, which is quite probably Alcyone, one of the Pleiades (Job 38: 31), the center of the universe, whence seemingly the Creator governs His universe. During the six creative days following the creation of the heavens and earth the Logos directed the various creative processes that continually advanced the earth toward perfection, giving it light during the first epoch, an atmosphere during the second, dividing it into land and water and starting vegetation during the third, causing the sun and moon and stars to shine through earth's rings during the fourth, creating living beings in sea, air and land during the fifth and bringing beasts and cattle and finally man into existence during the sixth. But the perfecting of the earth awaits Christ's Millennial reign, though under the conditions of the curse man has done more or less to subdue some parts of the earth, bringing it toward perfection. In bringing various forms of life into existence, as well as the universe itself, we see again illustrated the wonderful skill and creative ability of the Logos—a skill and an ability not

one whit diminished by the fact that He enjoyed the co-operation of the angels. When we contemplate the fact that of insect, reptile, fowl, beast, cattle, there are according to the estimates of moderate scientists 3,000,000 species, not to mention the many others that have served their purpose and have passed away, some of them leaving traces of themselves in petrified forms and in fossils, we are again brought face to face with the stupendousness of the creative work, as well as the skill and executive capacities of the Logos, while the fact that God planned and provided for all of them enhances Him before our appreciative and adoring hearts and minds. Praised be the Lord!

In every one of the members of these 3,000,000 species are hidden marvels of creative and executive invention. Think of it: from earth's elements bodies of exquisite and elaborate texture were formed and united with life principle and were given conscious existence and powers of locomotion and self-preservation. The millions of varieties of plant, vegetable and tree life are other spheres of wondrous creative effects. And when we consider man, the monarch of earth, with his wonderful body of hundreds of coalescent bones, thousands of nerves, sinews and capillaries, numerous veins and arteries, many vital organs and functions, all so remarkably adjusted for his well being, with the vitalizing blood adapted to receive the life force from the air and through its circulation to impart power to function to every part of the body, we stand aghast at the Logos' creative skill and executiveness. Consider but a moment the great marvels of the eye with its wonderful adaptabilities and reactions to varying light! Note the great diversity of these in beings living under different light conditions, e.g., in water, in clear light, in dark caverns, etc. More wonderfully is this the case when we attentively view man's mental, moral and religious constitution and realize that this was also given him by the Logos'

uniting an organism that He created out of about 25 elements of the earth with the life principle, so as to empower men to use this mental, moral and religious equipment either for better or for worse—the better so wonderfully appreciative, the worse so abominably abhorrent. Thus in a mere summary we have set forth the Logos' creative work in the spirit world and in the world of matter, animate and inanimate. Details on the creation of the universe and particularly on the earth we give further on. Here we are merely emphasizing the Logos' activities in God's works of creation.

For completeness of treatment of the pre-human Logos we desire to discuss briefly His works of providence; for through Him God also exercises His providence; over the universe, the earth, mankind in general and over God's people in particular. Therefore the Logos was active providentially toward these. When God says that all things were made for the Logos (Col. 1: 16), the thought is that they were made for His care to be exercised over them. Again, when He says (Col. 1: 17) that through the Logos all things consist, continue to subsist, He again teaches the Logos to be God's providential agent. He exercised this providence by preserving the universe that He brought into existence and by governing it for its accomplishing of its ends. This implies that He constantly manipulated the laws of nature for the continuance, preservation and direction of the universe. Hence the perfect precision in the harmonious movements and relations of the planets and their suns, each system in its own relations and all of them in their relations to one another. Through the great science of astronomy we have learned to spell out a few of these marvels, which declare God's glory and that of the Logos (Ps. 8: 1, 3; 19: 1-6). By the controllership of these laws of nature He also preserves, continues and rules the earth in its succession of day and night, seasons and years, for its own refreshment and for the preservation and comfort

of its inhabitants (Job 37: 6-24; 38: 25-27, 41; Ps. 65: 9-13; 104: 10-29; 135: 7; 147: 8, 9; Acts 14: 17). His providence has likewise extended toward the inhabitants of the earth—both man and beast—continuing, preserving and overruling for their ultimate good, even amid the conditions of the curse and an experience with evil, so that in the end man will benefit from his various untoward experiences in this sin-cursed earth (2 Sam. 7: 8, 9; Job 12: 23; Ps. 78: 52-55; 145: 15, 16; Acts 17: 25-31). But His providential acts as the Logos were especially exercised toward the Old Testament faithful people of God. This we can see in the experiences of every one of them described in Holy Writ. Yea, He was the Angel of the Lord that encamped about those that feared the Lord and delivered them from all their troubles and enemies (Ps. 34: 7). The teachings and histories of the Old Testament are replete with such providential acts of the Logos, of which we will cite a few: Gen. 7: 1; 19; 20: 3-6; 28: 20, 21; 48: 15, 16; Deut. 2: 7; Ps. 103: 3-5; 105: 17-22; Ex. 14: 21; 34: 24; 1 Kings 19: 1-8; Esther 3: 1-10: 3. Thus we see His pre-human providential work toward the universe, the earth, animals and man and God's Old Testament people.

There was still a third activity of the pre-human Logos: He acted as the main channel of revealing God's ways and purposes during the time the Old Testament was given. Thus He was the special confirmer of the covenant that promised a seed to Abraham (Gen. 17: 1-22; 18: 1-15). He also gave the Oath-bound Covenant to Abraham and his seed (Gen. 22: 11-18; Gal. 3: 16, 29). He appeared to Jacob on various occasions with revelations (Gen. 28: 11-22; 32: 24-30; 48: 16). He appeared to Moses, commissioning him to go to Egypt and deliver Israel (Ex. 3: 2-4: 17). He is the one through whom God spoke to Moses from between the cherubim (Ex. 14: 19; 23: 20, 23; Num. 7: 89). And judges 13: 3-21; 2 Kings

1: 3, 15; Is. 63: 9 and 1 Pet. 1: 11 are other passages that show that He was the chief messenger making Old Testament revelations. But He was assisted in these activities by other angels, as we see in the example of the giving of all the features of the Law Covenant (Acts 7: 53; Gal. 3: 19). Another notable instance of an angel helping Him in this activity is that of Gabriel who gave a number of revelations to Daniel (Dan. 9: 20-27; 10: 4; 12: 13). The most important of such revelations; as the above citations show, came through the pre-human Logos. Hence the bulk of the Old Testament revelations were given by God through Him. Apparently other angels assisted Him only when more pressing matters required His attention elsewhere, as can be noted from the case of his manipulating the king of Persia (Dan. 10: 13, 21) to give Gabriel the opportunity to communicate with Daniel. It will be noted that Gabriel was also from obvious reasons used to communicate with Zechariah, Mary and Joseph in connection with the Logos' carnation (Luke 1: 19, 26; 2: 10; Matt. 1: 20; 2: 13, 19, 22). With this remark we close our discussion of the pre-human Logos.

Having discussed the Logos—our pre-human Lord Jesus Christ—as the first creation of God, and as the Agent through whom God made all the rest of creation, we now come in the discussion of our subject to that part of creation that consists of the other created inhabitants of the spirit world, whom we usually call angels. The Hebrew word for angel—maloch and the Greek word for angel—aggelos (pronounced angelos), from which our English word angel is derived—each means messenger, regardless of whether a spirit or human or inanimate messenger is meant. As none dispute that these words stand for spirit beings, who are God's messengers, we will quote no passages to prove it; but we will quote several to show that human messengers are sometimes meant by

these Hebrew and Greek words. Jacob's messengers to Esau are called *malochim,* in Gen. 32: 3, 6. Various of Moses' and Balak's messengers are called *malochim,* in Num. 20: 14; 21: 21; 22: 5; 24: 12. So the messengers that Joshua sent to Jericho, etc., are called *malochim,* in Josh. 6: 17, 25; 7: 22. Gideon's messengers are called *malochim,* in judges 6: 35; 7: 24, as also are those of Jephthah and Israel, in judges 11: 12-14, 17, 19. These citations will be sufficient to show that the Hebrew word for *angels* means *messengers* and applies to human as well as to spirit beings. A few instances of the Greek word *aggelos* as applicable to human messengers will be given. John the Baptist is called an *aggelos,* in Matt. 11: 10; Mark 1: 2; Luke 7: 27. So, too, are the two disciples whom he sent on an errand to Jesus (Luke 7: 24), and the spies sent to Rahab (Jas. 2: 25), while St. Paul's thorn in the flesh—an inanimate thing—is called a messenger of Satan, an *aggelos* of Satan, and a king's anger—an inanimate thing—is called messengers—*malochim*—of death, in Prov. 16: 14.

The Hebrew word *maloch*—angel—is frequently applied to the pre-human Logos, *because* He was a messenger, yea, the Chief Messenger (Dan. 10: 13; Jude 9; 1 Thes. 4: 16) of God. Thus He is called *The Angel of God* (*Ex.* 14: 19; Judges 13: 6-11). So, too, He is sometimes called *The Angel* (Gen. 48: 16) and *The Angel of His Presence* (Is. 63: 9). Most frequently as *the* Angel He is called *The Angel of the Lord* (Gen. 16: 7-11; 22: 11, 15, Num. 22: 23-35; Judges 6: 11-22; 13: 3-21; 2 Sam. 24: 16; 1 Kings 17: 7; 2 Kings 1: 3, 15; Ps. 34: 7; Zech. 1: 11, 12; 3: 5). This name is applied to Him not as a designation of equality with the other created spirits, for He was and ever is their superior, but simply to designate Him as the chief, *the* Messenger of God. Accordingly, we are to remember that this name is given to the created spirits, not to designate their nature or

mode of being, but their office as messengers of God. Their nature or mode of existence is rather designated by the word *spirits* (Heb. 1: 7*,* 14). That these beings, as well as the Logos, are called a*ngels* is evident from the following Scriptures: Matt. 1: 20, 24; 2: 13, 19; 28: 2; Luke 1: 11, 18, 19, 26, 28, 30, 34, 35, 38; 2: 9, 15; Acts 5: 19; 7: 30, 35; 8: 26; 12: 7, 23. They are also called *morning stars,* in Job 38: 7*; hosts,* in Gen. 32: 2; Joshua 5: 14; Ps. 33: 6; 103: 21; Luke 2: 13. They are called *principalities, thrones, do*minions, *powers and mights,* in Eph. 1: 21; 3: 10; Col. 1: 16; and some of them are called *cherubim* (Gen. 3: 24*;* Ezek. 28: 14, 16) and *seraphim* (Is. 6: 2, 6). Singularly enough, only three of them are known to us by name Michael (Dan. 10: 13, 21; 12: 1; Jude 9), Gabriel (Dan. 8: 16; 9: 21; Luke 1: 19, 26) and Lucifer (Is. 14: 12), who afterwards through sin became Satan, and by Palestinians was variously called, Baal, Beelzebub, Molech, Chemosh, etc.

At the outstart we must confess that we do not know very much about the nature of these beings. That they have bodies is evident from the Biblical teachings that spirits have bodies; for when the Bible speaks of God's having a shape (John 5: 37) and of the pre-human Logos as existing in God's form (Phil. 2: 6), it shows that both God has and the Archangel Michael had a body. The same is implied in the description of our Lord's and the saints' spiritual bodies (1 Cor. 15: 41-54). But we know nothing of their shapes or members. All we know about them as to the constituency of their bodies is that they are made of spiritual, immaterial, substances, like light, fire, etc. (Heb. 1: 7; Matt. 28: 3; Judges 13: 6). Their bodies are very glorious and bright, so much so as almost to paralyze a human who would look upon one (Matt. 28: 4; Dan. 8: 17, 27; 10: 7-11, 18). St. Paul got only a glimpse of the glory that emanated from our Lord's resurrection body (Acts 9: 3-8); *and* it blinded

him before his eyes could penetrate it and see the body itself out of which it shone (1 Tim. 6: 16). But, of course, our Lord's resurrection body, being of the Divine nature, is more glorious than that of the other spirits lower in nature than He. Even in His pre-human existence He had a higher nature tan any of the other created spirits, as St. Paul implies that when He took a lower nature He did not stoop to that of angels, but even lower, *i.e.*, to human nature (Heb. 2: 16). Hence we cannot infer that as none can see our Lord's resurrection body because of its dwelling in a light unapproachable, so none can see the bodies of the other created spirits, for Daniel, as cited above, did see Gabriel's body, and the soldiers at our Lord's tomb saw the face of the angel who rolled away the rock before that tomb, at our Lord's resurrection. These remarks, of course, are not to be understood as referring to those materialized bodies which angels assumed to make revelations to humans.

Such materialized bodies were usually made to look like those of ordinary people and in some cases they were mistaken for humans at first (Heb. 13: 2); they were not the real—spiritual—bodies of those communicating angels. An examination of such appearances will prove these to have been materializations, not actual spirit bodies. This can be seen from the appearances of angels to Abraham (Gen. 18: 2; 22: 11-18), to Hagar (Gen. 16: 7), Lot (Gen. 19: 1-17), Jacob (Gen. 32: 24-30), Moses (Ex. 3: 2-6), Israel (Ex. 14: 19). Balaam (Num. 22: 31-35), Joshua (Josh. 5: 15), Gideon (Judg. 6: 11-22), Manoah and his wife (Judg. 13: 3-6, 9-20), David (2 Sam. 24: 16, 17), Elijah (1 Kings 19: 5-11), Daniel in the lions' den (Dan. 6: 22) and in the places noted above, the three Hebrew youths and Nebuchadnezzar (Dan. 3: 25-28), Mary, Zacharias and the shepherds (Luke 1: 11-20, 26-38; 2: 9-15), Jesus after His temptation and in Gethsemane (Matt. 4: 11; Luke 22: 43), the

women at the sepulcher (Matt. 28: 5; Luke 24: 4-10*;* John 20: 11-13), the Eleven at the ascension (Acts 1: 10, 11), Peter and John (Acts 5: 19), Philip (Acts 8: 26), Peter (Acts 12: 7-11), Paul (Acts 27: 23) and John (Rev. 1: 1). In every one of these cases the manifestation was made by the angel or angels assuming Human bodies or some other form than that of their spiritual bodies, and thus they made the appearance. Hence from these cases we cannot infer anything as to their real bodies, except that they are spiritual; and, therefore, not being suitable for the purpose at hand, a materialization was necessary.

While not being able to convey a precise idea of the exact form, parts and all the constituents of their bodies, we know more about their qualities. We know that they are not immortal, since immortality is a quality exclusively of the Divine nature (1 Tim. 6: 16). Their mortality is proven by the fact that Lucifer, one of these, will die (Heb. 2: 15; Is. 27: 1) Nevertheless, since they are spiritual they have incorruptible bodies, bodies that do not decay, which is also a quality of the Divine nature (1 Cor. 15: 53*,* 54). They are gifted with exceedingly rapid powers of locomotion (Dan. 9: 21*,* 23)*,* since Gabriel at the time that Daniel began to pray left Alcyone, God's abode, untold billions of miles from this earth and reached Daniel about the time he finished his prayer. Their bodies can pass through materials of great thickness, like walls, doors, etc. (Acts 12: 7-11), as easily as electricity passes through wires, after the manner that our Lord entered the upper room after His resurrection, and fallen angels enter houses for séances. Their bodies evidently have great 'strength (Ps. 103: 20)*,* not only as evidenced in the things said in the two preceding sentences, but in rolling away the stone at the sepulcher, overcoming the obstacles to Peter's deliverance, destroying the Assyrian host (Is. 37: 36) and the firstborn in Egypt (Ex. 12: 29) and in destroying

Sodom, etc. (Gen. 19: 13, 24, 25). Their bodies are sexless and therefore they neither marry nor are given in marriage and cannot reproduce themselves (Luke 20: 35) after the manner of the animal creation. Since their bodies are incorruptible they do not eat to supply waste cells, since they have no cells that waste. It follows from this that their bodies are well; sickness, being a process of decay, does not prey on their bodies. Thus physically they are in a very fine condition. This accounts for the fact that even though some of them have sinned and are banished from heaven, the fallen angels, despite their mental, moral and religious corruption, have remained physically perfect. Thus we see that the angels came from the creative hand of God perfect in their bodies and have remained so, though it is doubtless millions of years, since their creation, for they were created before God began the creation of the universe—Gen. 1: 1; Job 38: 7.

As to their faculties of heart and mind: These as such were also created perfect, and that on a scale higher than the faculties of perfect humans. A fair idea of their ability to reason may be gotten from the accurate mathematical knowledge that they must have had in assisting the Logos so to manipulate the laws of nature as to balance the various solar systems which they assisted the Logos to bring into existence. The amount of mathematics, astronomy and physics needed to co-operate intelligently to bring these into orderly being transcends almost infinitely that of humanity's greatest mathematicians, astronomers and physicists. Then, too, their moral and religious faculties must be of stupendous strength. Their tenacity of will to righteousness and their steadfastness in equal love for one another and supreme love to God, persisting through millions of years, despite temptations to the contrary, prove of the good angels that they have had wonderfully strong moral and religious faculties,

whose compass of action and innate power greatly exceed those of perfect human moral and religious faculties. This, among other things, is implied in Ps. 103: 20, 21. They will not allow themselves to be worshiped; and they obey God—Ps. 103: 21; Matt. 6: 10; 1 Pet. 3: 22; 2 Pet. 2: 11; Judg. 6: 7.

To sum up, the main attributes of being that the angels have are spirituality, mortality, incorruptibility, longevity (the righteous of them having everlasting life), dependence, rapid locomobility, sexlessness, non-reproductiveness, corporeality, super-strength, knowledge and freedom from need of food, water, air or any other material thing for their sustenance. The main attributes of character among the good angels are faith, hope, love, obedience, fortitude, wisdom, self-control, patience, piety, brotherly-love, humility, simplicity, peace, joy, industry, aggressiveness, defensiveness, longsuffering, forbearance, forgiveness, temperance, tactfulness, sincerity, magnanimity, kindness, economy, generosity, sympathy, appreciation, gratitude, gentleness, zeal, meekness, guilelessness, tenderness, faithfulness, friendliness, politeness, patriotism, filiality toward God, readiness to serve, diligence to duty, watchfulness to their charges and responsibilities and entire devotion to God as servants. Certainly they are from every standpoint a noble, gifted set of beings, an honor to God and a blessing to one another and to other beings.

These angels were created in various orders and natures. We are certain of their being of different natures so far as the Logos and other created spirit beings are concerned, because Heb. 2: 16 distinctly implies that the Logos was of a higher nature than the others, for when emptying Himself of His pre-human nature He stooped not only as low in nature as they, but even lower than they. This implies that He was of a higher nature than they. So there was at least that difference in nature between the Logos

and these created spirits. But we are of the opinion that the various names: cherubim, seraphim, principalities, thrones, dominions, powers [mights] and angels, of Gen. 3: 24; Is. 6: 2, 6; Rom. 8: 38*;* Eph. 1; 21; 3: 10; Col. 1: 16, indicate seven differences in nature among these heavenly beings, and as such are an expression of the manifold creative wisdom of God. But if these names do not imply differences in nature, assuredly they do indicate differences in rank, or order, among these beings. This is implied in the very use and meaning of these terms. The expression, Arch (chief) angel, implies a difference in the Logos' rank from the ranks of the other created spirits; and it seems entirely reasonable to conclude that the other names given above imply their differences as to nature as well as to rank. But since the Lord has not deigned to give us certainty on the subject as to whether the spirits lower than the Logos differ in nature, we are not to be dogmatic on this.

We now come to a discussion of their activities, limiting our discussion to those of the good angels. Those of the fallen angels we will discuss later. There are three distinct works, a share in which the Bible ascribes to the good angels: they have shared in the works of creation, of revelation and of providence, the latter both with respect to the righteous and the wicked. Their share in the work of creation was that of helpers of the Logos. As shown above God is the Creator in the sense of being creation's Source, Provider and Supervisor; the Logos is the Creator in the sense of being creation's Agent; and the angels are the assistants of the Logos in working out under His direction various details. The illustration of a building's architect, material provider and supervisor well illustrates the Father's part in creation; of a building's contractor well illustrates the Logos' part in creation; while that of a builder's mechanics well illustrates the angels' part in creation. This we infer from the latters'

being spoken of as mighty servants of God doing His *pleasure,* for which He made all things (Ps. 103: 20, 21; Rev. 4: 11). Again, we infer it from the fact that they were present at creation, as highly interested parties (Job 38: 4-7). This is also inferable from their being called chariots of God, on whom He figuratively rides—uses them for furthering His purpose—in the execution of His plans (Ps. 68: 17). Also this is inferable from the fact that they praise Him (Ps. 103: 20, 21; 148: 2; Job 38: 7), which they do by works rather than bywords, creation being a means of praising God by works (Ps. 19: 1-6). Their part in creation therefore seems to have been to lay hold on the materials—seemingly gases—out of which the universe was created, and to use the laws and forces of nature as their tools to construct the various solar systems of the universe. Similarly, they thus wrought on the earth to order it for the abode of plant and animal life, as well as to assist in bringing such life into being by manipulating certain materials, laws and forces to that end, doing everything under the superintendence of God and the direction of the Logos.

More clearly does the Bible reveal their activities in ministering revelations from God to man. While as a rule the Logos was the main Actor therein, He had the angels as assistants in this work. They were, *e.g.,* before the flood, the teachers of the race, whom they sought to reform. This activity of theirs became the occasion of Satan's seducing many of them into sin, by prevailing upon them to assume human bodies and therein to marry women and raise families, ostensibly thereby to overcome the depravity transmitted by heredity (Gen. 6: 2-4). We will touch upon this more in detail when treating of the fallen angels. During the Patriarchal Age angels were active in giving revelations. Thus the Logos with two of them appeared to Abraham and Sarah, promising the advent of the typical seed (Gen. 18: 1-15). The Logos revealed -

to Abraham the destruction of Sodom and Gomorrah (Gen. 18: 16-32). The other two angels went to Sodom and revealed to Lot and his family the destruction of the cities of the plain (Gen. 19: 12-22). The Bible explicitly teaches that the angels assisted the Logos in giving the Law arrangements (Acts 7: 53; Gal. 3: 19; Heb. 2: 2). These constituted a large part of Exodus, Leviticus, Numbers and Deuteronomy. Not only so, but they assisted the Logos in making revelations to the prophets. A most notable case to the point we find in Daniel, where some of its most remarkable prophecies were revealed to Daniel through Gabriel. In Dan. 8: 15-27 we have an account of the Logos' commanding Gabriel to clarify the vision given in the preceding verses, and of Gabriel then going and explaining the vision to Daniel. In Dan. 9: 21-27 Gabriel is again set forth as making a revelation to Daniel; and that revelation was one of the most important prophecies connected with our Lord's First Advent work and His activities in the Jewish Harvest. Again, Gabriel in Dan. 10; 11; 12; made the revelation of one of the most notable of all Bible prophecies to Daniel. The angel who spoke to Zechariah (1: 8- 6; 8) was the Logos; but in giving the visions of these five full chapters he was assisted by another angel (Zech. 2: 3-13).

Angels were likewise active in making New Testament revelations. The first of these centered around the birth of John the Baptist and of our Lord. Thus Gabriel revealed to Zacharias, John's father, the birth and mission of John (Luke 1: 11-20). The same angel (Luke 1: 26-38) revealed to Mary the birth and mission of Jesus. An angel—likely Gabriel—revealed the secret of Mary's condition to Joseph, warned him to flee with the child and mother into Egypt, and to return to Palestine again (Matt. 1: 20-23; 2: 13, 19, 20). It was also an angel who revealed to the shepherds

the birth of the Messiah and other angels sang the great nativity anthem (Luke 2: 9-15). *It* was likely an animate angel revealed to our Lord in Gethsemane that all was well with His case before God (Luke 22: 43). Angels revealed Jesus' resurrection to the women (Matt. 28: 2-5; Mark 16: 5-7; Luke 24: 23; John 20: 12). Two of them at our Lord's ascension revealed the manner of His return (Acts 1: 10, 11). One of them revealed an opportunity of service for the Ethiopian eunuch (Acts 8: 26). An angel revealed to Cornelius where he could find Peter, who would become a preacher of the Truth to him (Acts 10: 3, 30-32). And it was an angel who acted as Jesus' agent in making to John the revelations contained in the book of Revelation, (Rev. 1: 1) *i.e.,* that angel revealed an entire book-the last one of the New Testament. Thus we see that angels exercised a ministry on behalf of making known parts of the Old and New Testament revelations.

The third activity of the good angels is that of ministering providentially on behalf of God's people. This is manifest both by their Old and New Testament acts. In this work they act as God's servants, cooperating for the carrying out of His plans and purposes along providential lines. We are to understand that in this work they are subject to God's supervision exercised through His only begotten Son. Indeed, in most of these acts God's only begotten Son was the direct Agent in the providential acts. Undoubtedly the Logos is referred to by the angel who helped Hagar and sent her back to Sarah (Gen. 16: 7), as it was also He who assisted her and Ishmael and thus kept them from famishing from thirst (Gen. 21: 14-19). Likewise, it was He who prospered Eliezer's journey for a bride for Isaac (Gen. 24: 7, 40), as undoubtedly is was He who in various ways helped Jacob (Gen. 48: 16). Yet whatever assistance He may have needed we may be sure was rendered by the other

created spirits. We may be very sure that, as they assisted Him in establishing the Law Covenant in various of its features, they likewise assisted Him in ordering the events connected with giving the Law Covenant, beginning with Israel's deliverance by the Passover, which was the first institution of the Law Covenant, in working for them at the Red Sea, in sending them the supply of manna and quail and in ordering their other wilderness experiences and needs (Ex. 23: 20, 23; Num. 20: 16; Is. 63: 9).

The angel who awoke Elijah under the juniper tree and twice supplied him food and drink to strengthen him for his 40 days' journey to the mount of God was very likely another angel than the Logos, indicated by the indefinite way of introducing him into the narrative, "an angel," whereas the Logos is usually introduced in a definite way where He appears and acts, "*the* angel of the Lord" (1 Kings 19: 5-8). The angels attending God, and being at attention for service on behalf of Israel (2 Chron. 18: 18), show that they also assisted the Logos in His work toward God's people. All of us recall how they surrounded Elisha and protected him against the wiles and machinations of the Syrians, trust in which gave him serenity amid his danger, whereas his servant, Gehazi, was in great fear until his eyes were opened to see them (2 Kings 6: 1 7). The same thought is conveyed in Ps. 68: 17, where the angels are called God's chariots. Often have all of us from childhood on thought of their delivering Daniel in the lions' den (Dan. 6: 22). How lovingly did the angel minister to Zechariah (Zech. 1: 12-14). Many of the signal deliverances of Israel were undoubtedly wrought by angelic assistances, even though the record does not expressly so state, as, for instance, the overthrow of the Midianites by 12,000 Israelitish men, without the loss of a single Israelite (Num. 31), and by Gideon, without the loss of a single Israelite (Judg. 7: 8) and the great losses inflicted on

the Philistines by individuals, like Shamgar (Judg. 3: 31; 5: 6), Samson (Judg. 14; 15; 16), Jashobeam, Eleazar, Shammah and Abishai (2 Sam. 23: 8-19). Thus we see that in the Old Testament angels helped God's people.

They likewise have acted providentially in the interests of God's New Testament people. They are their guardian angels, who always have access to God on behalf of their wards (Matt. 18: 10). They are in the New Testament expressly spoken of as spirits ministering on behalf of the heirs of salvation (Heb. 1: 14). This service of theirs is also, though not exclusively indicated, as theirs, in Ps. 91: 11, 12, where we read of their being given a providential charge to preserve the Church in her ways and by their providential ministries (hands) to support her from stumbling over the Ransom and the sin-offerings. We have also seen how they ministered to shield Mary and Jesus through Joseph. In this spirit one of them delivered Peter and John from prison and told them to preach publicly undismayed in the temple (Acts 5: 19, 20). The angel who came to Cornelius helped him providentially to get a preacher of the gospel, though he was not permitted to preach it to him (Acts 10: 3-6; 11: 13, 14). Signal indeed was the deliverance that one of them wrought on Peter's behalf (Acts 12: 7-10). St. Paul, likewise, had the ministry of one, not only to prophesy that he and all with him would be delivered, though shipwrecked, but also providentially to fulfill that prophecy (Acts 27: 23, 43, 44). In innumerable ways have they ministered to God's people in their need throughout the Gospel Age, sometimes relieving their needs in almost miraculous ways, *e.g.,* preserving the reformer Brenz, whose hiding place under the hay in a haymow, after a most thorough search, papal soldiers watched for nine days, then gave it up with the thought that, if there, he must be dead of starvation, but he was succored by

a hen that daily came to him and laid an egg in the straw under which he was hidden, and whence he could reach the egg without detection! A similar deliverance they wrought on behalf of Simon Menno, the Baptist reformer. Pastor Duncan, another reformer, driven out of Scotland by James VI, was with his wife and children starving, which led him to prayer, and though an utter stranger at Berwick, whither he fled, an unknown man came to him giving him a sackful of provisions, among which was stowed away a £20 note. No wonder Pastor Duncan said to his fearful wife: "See what a good Master I serve." Many of us can testify to very singular deliverances wrought upon us or upon others that we have known. Countless of such cases have occurred throughout the Gospel Age, even if we may not know of a millionth of them. They prove that the angels, as the guardians of God's people, care for them. It is these experiences, as well as Scriptures, that have convinced many of God's people that the Scriptures are right in teaching the existence and ministry of good angels.

These angels have performed another ministry executing judgment on the wicked, either simply as retribution or as a retribution to the wicked and a deliverance of God's people. Thus they delivered righteous Lot, but punished Sodom and Gomorrah and the other cities of the plain (Gen. 19: 1-15). So, too, they delivered Israel at the Red Sea and smote the Egyptians with destruction (Ex. 14; 15: 1-20). So, too, an angel executed punishment upon Israel for its participation with David in his pride at numbering Israel (2 Sam. 24: 16*,* 17). When the Assyrians, like a plague of locusts, overran Judah, Hezekiah and Isaiah offering acceptable prayer in the presence of imminent destruction, God by His angels overthrew 185,000 of the host of the Assyrians and the few spared beheld the dead multitudes (2 Kings 19: 35*;* 2 Chro. 32: 21; Is. 37: 36). Thus the wicked have

been as chaff before the wind, whom the Lord's Angel pursued and chased (Ps. 35: 5, 6). When the proud Herod, after persecuting the Jerusalem Church, allowed himself to be lauded as a god, the Angel of the Lord smote him, because he gave not God the glory, and he died miserably, as food for worms. Exemplary punishments were heaped upon the public and private persecutors of God's people during the Gospel Age, beginning with the Jewish persecutors, proceeding with the pagan persecutors and culminating with the papal persecutors, of whom we may mention a few: Nero, Julian, Conrad of Marburg, the inquisitor; Bishop Gardiner and the other chief Marian persecutors, Charles IX, the French king, infamous for the massacre of St. Bartholomew's night, etc. The nations that have persecuted have terribly suffered for it. And in the very near future God will doubtless, by more or less angelic cooperation, exact justice for the righteous blood shed, especially by Great Babylon (Rev. 18: 24, 5-23). Thus have the angels had a ministry of executing judgment upon the wicked before and since Christ. Thus we see that the angels are servants of God. They delight to understand God's Word and works (1 Pet. 1: 12). They take pleasure in serving His designs, and are to be recognized and appreciated by us as such. We are, however, not to worship them, nor do their holy hearts desire it (Judg. 13: 15, 16). They are pleased to help us without anything in return for it, other than the consciousness that thereby they please God and help us. We believe we might well make, as a return for their kindnesses, good efforts not to increase their work on our behalf by mistakes and misdeeds of ours, whereby their work is increased and made more difficult, and their holy hearts are made sad, as doubtless our good progress in grace, knowledge and service is a delight to our guardian angels. We will, if honored with spirit existence, have opportunity to thank them for their ministries on our

behalf, when we will learn from them of many a deliverance or service of which we now know little or nothing.

Having treated of the good angels as a part of God's creation, we will now discuss the evil angels. But since the general title of this book is Creation, how come we to treat of evil angels in such a book? Is it because we think that God created some angels good and other angels bad? Certainly not; for He made all angels good; because all God's completed works, such as are the angels, were by their creation made perfect (Deut. 32: 4). Hence the evil angels, who for millions of years after their creation remained good, later made themselves, in the exercise of their free wills, sinful and thus evil. To make oneself sinful and to sin are not creative works; nor is sin a creature. Sin is the quality of an act transgressing God's law; and to sin is to exercise a quality in transgressing God's law. Accordingly, when we say that angels made themselves sinful, we do not mean that they performed a work of creation, but that they exercised a quality or qualities in such a way as to make a change in their characters from good to evil. So when people ask us, since God made all creation, whether He created the devil, our answer should be that God created very good a certain angel, who much later made himself sinful and who, because of the evil change he made in his moral qualities, changed, not his nature, but his character, into evil and thus became the devil. So with all fallen angels. Hence the propriety of discussing them in a work on Creation.

Hence originally that being was good whom we call Satan (1 Chro. 21: 1; Job 1: 6; John 13: 27; Acts 5: 3; 26: 18; Rom. 16: 20), which name in Hebrew, like its Greek equivalent—diabolos, whence comes our English word devil—means adversary, opponent. But Satan was not his original name. Until he sinned and led the race into sin his name was Lucifer—light—

bearer (Is. 14: 12). In nature and rank he was a cherub, one of the highest of all angels (Ezek. 28: 14, 16). Ezek. 28: 12-19, addressing him as the king of Tyre, because Tyre symbolizes the present evil world, whose ruler is Satan, gives us a fairly detailed description of Lucifer before he sinned and after he sinned and of his final end—annihilation. In both literal and symbolic language his physical, mental, moral and religious perfection is set forth in vs. 12-15. The expression, thou sealest the sum, refers to the fullness of his perfection, intellectually (.full of wisdom) and physically, morally and religiously, since the word *beauty* refers to his physical, moral and religious qualities. He was such even for a while after he was made guardian angel to Adam and Eve in Eden (vs. 13, 14). More particularly are his pre-fallen moral and religious qualities brought to our attention by the figure of his being covered with precious stones (v. 13); for these and other precious stones are used to symbolize the moral and religious perfections of the glorified Church, the Bride, the Lamb's Wife, as New Jerusalem (Rev. 21: 11-21), as they are also among the stones mentioned in the high priest's breastplate (Ex. 39: 10-13). V. 14 first describes his work in Eden as guardian of Adam and Eve and later describes his position and work among the heavenly hosts. V. 15 shows that he had been perfectly righteous and good from the time of his creation for probably millions of years later, even until he in Eden fell into sin. His subsequently corrupting himself is graphically described in vs. 16-18, while his final influence and annihilation in the Little Season following the Millennium are described in v. 19. Thus this Scripture gives us a comprehensive description of this cherub's history.

Thus so far we see him called Lucifer, Satan and covering (protecting) cherub; but he is also called by other names than these in the Bible. It would be profitable for us to consider these, which refer to him

from the standpoint of his qualities and activities subsequent to his fall. Thus he is called: Beelzebub (*lord of the fly*), the god of Ekron, (*destruction;* 2 Kings 1: 3-6; symbolic of his plaguesomeness through errors [flies] on militarism, leading to war and destruction; Matt. 12: 24; Mark 3: 22; Luke 11: 15); Belial, or Beliar (*wickedness,* descriptive of his character; 2 Cor. 6: 15); devil (*adversary,* descriptive of his opposing God, the Truth, righteousness, mankind in general and the good in particular; Matt. 4: 1*;* Luke 4: 2*,* 6; Rev. 20: 2); enemy (descriptive of his despiteful course and hating attitude; Matt. 13: 39); liar*,* and father of lies (descriptive of his deceitfulness and originating error; John 8: 44); murderer (because by sin he murdered the whole human family; John 8: 44*;* Rom, 5: 12); serpent, and old serpent (because of his cunning and poisonousness: Gen. 3: 4*,* 14; Rev. 20: 2; 2 Cor. 11: 3); prince of this world (because he is by usurpation the ruler of the present evil order of affairs among mankind; John 12: 31*;* 14: 30*;* 16: 11); prince of devils (because he is the ruler over the fallen angels; Matt. 12: 24); prince of the power of the air (descriptive of his headship over the fallen angels as the invisible spirits organized as a kingdom over humanity; Eph. 2: 2); spirit that worketh in the children of disobedience (because he uses the wicked and disobedient as his servants and tools; Eph. 2: 2); tempter (because he entices to sin, error, selfishness and worldliness; Matt. 4: 3; 1 Thes. 3: 5); the god of this world (descriptive of him as the ruler of the present evil order of affairs; 2 Cor. 4: 4); and wicked one (whose character has been rightly described by the words Milton puts into his mouth: "Evil, be thou my good; Good, be thou my evil"; Matt. 13: 19*,* 38). Thus we see that his Biblically given names accurately describe his character, works and office. And surely a being correctly characterized by such names must be the supreme of all sinners and evil-doers.

There is such a being as Satan. There are some who, repulsed by some nonsensical teachings of the creeds on Satan, have concluded not only to reject those creedal teachings, but with them the Biblical teachings on Satan, as being in their opinion identical with those of the creeds, and who as a result deny altogether that such a being as Satan exists. However, to do this is to fly into the teeth of reason as well as of experience and Scripture; for reason suggests, as the Bible teaches, that sinful acts, like righteous acts and the universe, must have been originated by some first cause. And this first cause of sinful acts, in originating them, must have become sinful; and since sinful acts imply purpose as well as cause, their originator must have been a being endowed with mind and will, hence a person. Thus reason demonstrates the personality of the first cause, or source, of sin, who, the Bible assures us, is Satan. Experience likewise suggests to us that there are at least a number of invisible evil beings evil spirits; for we can on no other ground explain a frequent happening: the sudden injection of irrelevant, unfamiliar, foreign and repulsive evil thoughts into the minds of human beings—thoughts which are not suggested by the cogitations, feelings, activities, circumstances and experiences of those into whose minds they are injected. This implies their existence.

However, coming to the Bible, we find the personality of Satan expressed and implied in many passages and incidents. Certainly the dealings between God and Satan and the latter's connected acts respecting job, imply Satan's personality (Job 1: 6-12; 2: 1-7). The angel contending against Satan and calling upon God to rebuke him, as Satan resisted the high priest, Joshua, is in line with the thought that Satan is a personal being (Zech. 3: 1, 2). Jesus' statement respecting Satan's adopting policies foreign to his usual proceedings to bolster up his waning cause strongly implies Satan's personality (Matt. 12: 24-26). No less strongly

is this taught by Jesus in His statement that Satan was once in the Truth, that he later originated falsehoods and murdered the human family, when he introduced sin into the world (John 8: 44; Gen. 3: 1-7). If Satan were the evil principle, as some claim, how could he ever have been in the Truth? If Satan were the evil principle, and not an evil person who works through evil principles, how contrary to St. Paul's stated purpose would it have been to deliver the erring Corinthian brother to Satan for corrective stripes (l Cor. 5: 5)! How could the Bible speak of his *devices,* unless he could think and plan, as making devices implies thought and purpose and thus personality (2 Cor. 2: 11)? Certainly in transforming himself into an angel of light from an angel of darkness, he must have thought and reasoned, which of course implies personality (2 Cor. 11: 14). The fact that devils believe and tremble—therefore think and feel—proves that Satan, their leader, thinks and feels, and therefore is a personal being (Jas. 2: 19). His walking about as a roaring lion seeking, especially Christians, as his prey, proves his personality (1 Pet. 5: 8, 9). Michael's contending with him over Moses' body, which Satan seemed to want for use as an object of worship in Israel, is in line with his being a real, personal-being, and not the abstract evil principle (Jude 9). Accordingly, Reason, Facts and Scriptures prove Satan's personality. It is therefore to be accepted by us.

Evidently Lucifer, his name before his fall, was at first good; for he at first was in the Truth, though he failed to continue therein (John 8: 44). Thus, too, he was before his fall—before he sinned—one of the foremost angels in heaven (Is. 14: 12). This implies his rectitude at the time. Hence he was pure and perfect in all his ways, until he sinned (Ezek. 28: 13-15). Accordingly, as he came from the creative hand of God he was good; nor did God make him so that he had to sin. God, on the contrary, gave him a disposition

favorable to righteousness and averse to sin. This naturally raises the question: How, then, could he have sinned, if there were no sin in the world, and no sinful propensities in his make-up, as he came from the creative hand of God? The possibility of his sinning lay in the fact that he was endowed with liberty of choice. Apparently Lucifer was one of the highest of the angels (Is. 14: 12), and as such had as his subordinates some of the other angels, from whom by Divine arrangement he received the honor and obedience due to his station in relation to them. It was proper for him both to desire and to receive such honor and obedience in harmony with God's order. But it seems that Lucifer permitted his mind to dwell overweeningly on the desirability of receiving such honor and obedience, and thus he failed to keep such desires in proper subjection to higher sentiments, like the desire to please God above all things and the desire not to receive honor and obedience from others unless it should be according to God's arrangement. Failing to keep the desire of receiving obedience and honor subject to the two desires just mentioned, the more he kept the desirability of receiving honor and obedience from others in his heart the stronger by exercise this desire became, and the more it reached out for exercise toward some who were not, to the extent that he craved them to be, put by God in his charge.

Thus a craving for more honor and power than God arranged for him to have *grew* gradually in him (1) by a failure properly to subordinate the desire for honor and obedience to certain higher qualities, and (2) by extending such a desire toward persons and things beyond the limits of their Divinely arranged relations to him. As he contemplated the race of mankind and its possibilities such growing *ambition* began to see in the human family a possible dominion from which he could gain further honor and obedience than God offered him. He seems, as "the covering [protecting]

cherub," to have been given a limited guardianship over the human family in Eden (Ezek. 28: 13-15). The *limits* of this guardianship were too confined for that degree of exercise of his desire for honor and obedience to which his ambition by this time had grown. Therefore to gain more power over the race than God had commissioned him to exercise, his ambition—by now the controlling quality of his heart—prompted him to lead unfallen mankind into sin, as the only way by which his ambition could be gratified. Thus externally he rebelled against God through his inordinate ambition grasping for the exercise of Divinely-unsanctioned power and rulership, as the growth of the seed of a not properly controlled desire for honor and obedience from others. This is the way the Prophet describes his gradual fall into sin: "Thou has said *in thine heart* [*desires*], I will ascend," etc. (Is. 14: 12-14). Unholy ambition brought it about.

We may reasonably assume that at the outstart Lucifer did not intend to go so far as he has gone; for his course gradually turned him into an implacable enemy—Satan, *i.e.*, *enemy*, *opponent*—of God and man. There is a proverb to the effect that whoever says A must in time, say B, *i.e.*, whoever concedes an inch to wrong for advantage will have to go further in wrong to secure his ends. Satan has gone further than B. He has now proceeded as far as Y, and at the end of the Millennium he will go to the end—Z, the full limit of evil, whereupon his destruction will ensue (Heb. 2: 14). The course that he has taken has wrought fearful havoc with his own once holy character and fellowship with God and all in harmony with Him, as well as has involved many angels in sin with its evil results, and has brought sin and ruin upon the human family. His course has made him most cunning instead of wise, most unjust instead of just, most selfish instead of loving and most obstinate in evil instead of powerful in good. As a result he is the most conspicuous example

of depraved character in the Universe—almost the synonym of Sin itself. It is true that he has attained his ambition for rulership over the human family under the present evil world (Gal. 1: 4; John 12: 31; 14: 30; 16: 11; 2 Cor. 4: 4; Eph. 2: 1, 2), and for princeship over the fallen angels (Matt. 12: 24; Eph. 2: 2; 6: 11, 12), yet at what a terrible cost to himself and to all his underlings! Surely his is the chief example of "vaunting ambition overleaping itself"! Let us avoid imitating him; for it would spell ruin.

How graphically the Prophet describes the various features of his ambition: "Thou has said in thine heart, [1] I will ascend into heaven [I will make myself an exalted ruler]; [2] I will exalt my throne above the stars [angels] (Job 38: 7) of God [I will become the king over the angels (Matt. 12: 24)]; [3] I will sit upon the mount [Kingdom (Dan. 2: 35, 44, 45; Is. 25: 6)] of the congregation [people—I will become the ruler of the human family] in the sides of the North [as a spiritual, invisible ruler]; [4] I will ascend above the heights of the clouds [I will put myself out of reach of all trouble]; [5] I will be like the Most High! [I will found an independent Empire in which as God's rival I will be supreme, and will be His equal]"! Thus Lucifer experienced a real fall, which involved him step by step into deeper degradation, mental, moral and religious, but not physical, for Satan has retained all his physical perfection unimpaired. Nor has he impaired his mental, moral and religious faculties, which have, like his physical faculties, remained unimpaired, but which in their qualities have been deeply depraved, so that he thinks erroneous thoughts instead of true ones and loves moral and religious evil and hates moral and religious good. This degradation, mental, moral and religious, God meant when He sentenced him, the symbolic serpent (Gen. 3: 14), symbolically to crawl and to eat dust, *i.e.,* unlike the good angels, who stand upright in good, he would grovel in, and appropriate to

himself the degraded things of sin, error, selfishness and worldliness, and would delight in degrading others to the same level. What a terrible condition!

Remembering that he sinned first in his heart (Is. 14: 13), let us note how in order to gain an unauthorized rulership he inveigled the race into such unwarranted controllership under him: He sought to turn the affections of the race away from God to himself. Since this could not be done by the race retaining its proper relation toward God, which was possible exclusively by obedience to righteousness, he had to seek it through leading them into sin, if he were to become their supreme ruler. Hence his inordinate ambition, in order to its gratification, would go the length of seducing mankind into sin! As he viewed Adam and Eve, he saw that she was the more deceivable of the two, and that Adam very ardently loved her. So he determined to inveigle her by deception into a position that Adam's love for her would make him deliberately sin. He knew that Adam believed God's statement as to the result of eating of the tree of the knowledge of good and evil in disobedience, *i.e.,* death would be the result. He further thought that if he could deceive Eve into eating of that tree, Adam, under the conviction that Eve was to die, would in despair likely yield to the temptation that he would then strongly present to him, deliberately to eat of it in order to be spared the evil of living without Eve, *i.e.,* in order to die with her. In other words, Satan speculated on the question as to whether Adam so greatly loved Eve as rather to die with her than to live without her, and therefore he determined to create a situation in which Adam's great love for Eve could be made the point of temptation to draw him into deliberately eating of the forbidden tree, in an attempt to suicide, that thus he, by dying with Eve, might be spared the sorrow of losing her. This, then, was the fell purpose of Satan, who probably believed that if God would enforce the

penalty, He likely would allow a long time, since a day of His time is 1,000 years of man's, to lapse before it would go into fulfillment, during which time Adam and Eve could have opportunity to propagate a race, which, with its parents, would thus become his subjects.

With this plot in mind, using a serpent as a medium, just as the demons in spiritism use mediums through whom to speak to others, Satan, waiting to find Adam absent, and seeing Eve alone, suggested to her (Gen. 3: 1-5) that by prohibiting their eating of the forbidden tree God was seeking for His own interests to abridge their privileges and to keep them in a degrading bondage to Himself, whereby their possibilities for development were being greatly curtailed, whereas, he said, if they would eat of the fruit: (1) they would only seemingly, but not really, die ("ye shall not surely [really] die"); (2) would change their mode of existence from human to spirit beings while seeming dead (ye shall be as gods [angels, who as spirits, are called gods 197 times in the Old Testament]"); and (3) would as spirits, after a seeming death, experience bliss and torment ("knowing [this word, like the word *see,* in the Bible at times means *experience*] good [bliss] and evil [torment]"). Thus Satan told the first falsehood—really three in one, an *unholy* trinity. The first one was a bold direct contradiction of God, who said, "In the day [of God's time, with whom 1,000 of our years make one day; Ps. 90: 4; 2 Pet. 3: 8] that thou eatest thereof thou shalt surely die" (Gen. 2: 17). Thus Satan's first falsehood was that the dead are not really dead, but alive. But Satan, illustrating the saying that whoever tells one falsehood must tell others to support it, was then forced to tell a second to make the first plausible. It was this: "Ye shall be as gods," *i.e.*, they would change their mode of existence at death by becoming spirits. Knowing that if he could deceive her by these two, a third by deception would make them his slaves, he stated than an experience of

bliss and torment would as alternative possibilities be opened before them, *i.e.*; he told this third falsehood to prepare them for later deceptions through which he hoped to make them believe they would have bliss, if they would do what he would want them to do, and torment if they would not so do. It will be noted that these three falsehoods are the basis of all heathen religions and that during the Dark Ages they were introduced into and accepted by all Christendom. Thus Satan's original three lies have since been used by him to deceive and to enslave to him almost the whole race. Eve believed the falsehoods, and knowing that to be a spirit was greater than to be a human, and doubtless being made to believe that the eating of that tree made the literal serpent wise, since she did not know that Satan, and not the serpent, really did the talking, she became very desirous to be made wiser and greater and, therefore, in deception ate of the tree (1 Tim. 2: 14) to attain these ends. But she believed the deceiver.

When she met Adam she told him the whole history as recorded in Gen. 3: 1-6; but this was as though she had plunged a knife into his heart, he believing that she was for her act sure to die; and his love for her caused this thought to grieve him inexpressibly. Satan, according to his fell plan, by an inaudible suggestion worked on him in his great grief, alleging that life without his loved Eve would be intolerable, and that it would be a thousandfold better to die with her than to bear the grief of living without her, and that all he need do to escape the woe of living without her would be to eat the fruit that she offered him and thus save himself from the great grief that otherwise would make him forever miserable. The suggestion was accepted. Adam ate of the fruit deliberately (1 Tim. 2: 14), and thus sinned willfully in order to die with Eve, and not in deception, as was the case with her. For love of his wife he deliberately committed suicide. His real sin was not so much in the external eating of

the forbidden fruit; but it was in this: He had learned to love his wife more than God—idolatry! Thus Satan's plot succeeded: he had won the race as the subjects of the empire that he had plotted to found in rebellion against, and in rivalry with God (Is. 14: 14). And by this act Satan not only originated lies and thus became "the father of lies," but also became the arch-murderer of all history, murdering the whole human race (John 8: 44).

Above we have described the fall, not so much from man's as from Satan's standpoint, since the latter is the subject in this connection—he is the villain of our story! The results of this fall surely affected disastrously all three participants therein: Eve (Gen. 3: 16), Adam (vs. 17-19) and Satan (vs. 14, 15). The sentence on Adam and Eve was according to the law of life and death, under which they were tried, even as God had forewarned (Gen. 2: 17)—death, not life in torment. And the sentence on Satan was not a different one, though in its wording and outworking it would be different. His mental, moral and religious degradation would be deeper than that of those symbolized by the cattle and beasts mentioned here—deeper than that of the visible religious and civil governments that he would establish among men (*cattle*) and than the invisible governments that he would later establish in the fallen angels (*beasts*), which implies that the officers of each phase of his kingdom would be less evil than he. Furthermore, the Lord sentenced him and his underlings to a losing fight with God's servants, resulting not fatally for the latter, but so with him and his persistent servants (v. 15). Apparently after this sentence Satan went to that heaven where God and the good angels dwell and was, in the presence of the pre-human Jesus, cast out therefrom (Luke 10: 18) and fell to the earth, within whose atmosphere (Eph. 2: 2), as his prison, he is confined (Is. 14: 12; 2 Pet. 2: 4). The words in the latter passage, "cast down to

hell," are the translation of but one Greek word, a verb, and should be rendered, *imprisoned, i.e.,* within earth's atmosphere. Thus Satan has been subjected to the severest penalty of the then participants in the fall, and this we all recognize as right. Cast out of heaven and confined to earth's atmosphere, Satan for a while had no associates among spirits; for the Bible teaches that it was only toward the time of the flood that he succeeded in inveigling other angels into sin (Gen. 6: 2-4; 1 Pet. 3: 19, 20; 2 Pet. 2: 4; Jude 6, 7). The meantime he filled in with plotting the furtherance of his influence and control over mankind; and this he succeeded in doing more with Cain and his descendants than with the rest of Adam's race. But as yet, though obtaining great influence over mankind, he had failed to establish an empire over the race, which remained to be done in the dispensation following the flood; but in Abel, Enoch and Noah he found servants of God whom he could not dominate. We leave for later consideration the deception of certain angels into sin, which Satan with great cunning and plausibility accomplished, merely remarking that he did succeed in winning them to his side, and found them efficient subordinates of his in carrying out his later plots against God, His servants and mankind as a whole, and that on a large scale.

With many confederate fallen angels after the flood, Satan did establish an empire over the human family and that empire has persisted, though from time to time its form in its various departments, as these have been visible to mankind, has undergone great changes, almost always from bad to worse. A brief description of this empire would here be in place. It has two phases, which we may call an invisible and spiritual phase and a visible and human phase. Of these two, the spiritual phase is the controlling one and consists of Satan, as head, and the other fallen angels, as body. Satan's headship over them is shown by his being

called the prince of this world (John 12: 31; 14: 30; 16: 11), the prince of the power of the air (Eph. 2: 2) and the god of this world (2 Cor. 4: 4). Their being his co-operators under him is shown by his being called the prince of devils (Matt. 12: 24), prince of the air power (Eph. 2: 2) and by their being called principalities, powers, world rulers of this darkness and wicked spirits (Eph. 6: 11). These, then, Satan and his subordinate demons, as the spiritual invisible phase of his kingdom, are the real rulers in Satan's empire. This combination, under Satan, thus rules the earth (Job 9: 24). God never granted him this rulership, but has allowed him to usurp it (Matt. 4: 8, 9; Luke 4: 5-8). While he has hitherto had the kingdom of this world, it is now in process of being transferred to our God and His Christ, according to God's word (Rev. 11: 15).

But as an invisible kingdom without earthly representatives to further their designs Satan and the other fallen angels would have achieved very little in the way of ruling over the human family. Therefore they have sought to enlist as their representatives gifted humans who, under the deception of error and the rule of selfishness, could be manipulated by the spiritual phase to accomplish its designs. As Satan wanted three ruling departments in the earthly phase of his kingdom in order to control the race governmentally, religiously and proprietarily, he had to deceive certain ones to become leaders in government, religion and capital, or aristocracy. But deception was not enough as a means of controlling them to carry out his will. He had to make it desirable to them to have and to hold such leadership. Accordingly, he had to make having and holding such leadership appeal to their selfishness as a thing profitable. Therefore he has in these three domains made such leadership bring great gain to its holders—gain in the way of power, influence, honor, ease, wealth and luxury. He makes the opportunity of gaining such things the means of influencing

them to do what he wants done, and to block their doing what he does not want done he makes it injurious and unprofitable to them so to do. Thus he enslaves them to his will. That he makes such offers as the means of gaining their doing what he wants we can see from his threefold temptation of Jesus, where-in he offered Jesus governmental (all this power will I give thee), religious (cast thyself down) and proprietary (turn stones into *bread*) advantages in return for Jesus' service of him (Matt. 4: 1-11; Luke 4: 1-13). But whereas Jesus repelled the temptations to these things, the governmental, religious and proprietary leaders have succumbed thereto (2 Tim. 2: 26; Acts 13: 10; Matt. 13: 22; 2 Thes. 2: 9). Thus through deceiving them and by their selfishness he works them into doing and accomplishing what he wants done and accomplished, as by making it injurious and more or less ruinous to them he restrains them from doing and accomplishing what he does not wish to be done or accomplished.

Accordingly, Satan got control of the governments. Since he can control through an absolute monarchy more easily than through a limited one or through a republic, he first formed such governments and strove to keep them intact as long as possible, only then yielding to the allowing of limited monarchies when the people no longer would tolerate absolute ones, and later only then allowing republics when the people no longer would submit to a limited monarchy. Hence the rise and fall of various kingdoms in Satan's order. Furthermore, he got control of popular religion. He made it as superstitious and erroneous as possible, compatibly with the degree of these that the people would tolerate. Only then would he let the grosser forms of superstitions be put aside when the people would no longer tolerate them. Accordingly, he has had to modify his superstitions and errors from time to time as the growing intelligence and self-respect of

the people forced it. Hence the rise and fall of many false religious systems in history. But in all his religions in a grosser or more attenuated form, as conditions demanded, he made fundamental his original three errors: (1) The dead are not dead, but are alive; (2) the dead are spirits and as such are conscious; and (3) the dead are either in bliss or torment. Thus by religious error, championed by various religions, he has deceived practically the whole world (John 8: 44; 2 Cor. 4: 4; 11: 3, 14, 15; 2 Thes. 2: 9; 2 Tim. 2: 26; Rev. 17: 2; 18: 3; 19: 2, 20). The same things in principle Satan has done with aristocracies, making them as predatory on the common people as conditions would allow, modifying their oppression only when forced thereto by a determined people. But he has always so shaped them as to make them, under the influence of error and selfishness, represent his purposes along proprietary and social lines. This accounts for their varied forms and powers in the history of the earth.

In all three departments of his empire's earthly phase, as the principle that in practice would best serve his purposes, Satan has set forth that of the "Divine Right" as the foundation principle of his empire, and has given it in three forms: the Divine Right of rulers, the Divine Right of aristocrats, and the Divine Right of the clergy—one form of the principle of the Divine Right for each department of his empire. These three forms of the doctrine of the Divine Right are calculated to make the masses blindly subject to the classes as a matter of Divine sanction and obligation. How well the three forms of the Divine Right are calculated to keep the masses, indoctrinated with the error of the Divine Right, in subjection to Satan's representatives, and thus to him, becomes manifest on even a casual consideration of what the three forms of this principle mean. By the doctrine of the Divine Right of kings Satan caused the

following thoughts to be taught by his mouthpieces, especially by the clergy: (1) the kings are God's direct appointees, vicegerents and representatives; (2) they do exactly what God wants them to do; (3) therefore God sanctions all their acts (which means, e.g., God sanctioned all the acts of the Czar and the Kaiser!); (4) therefore the people are in duty bound to obey without question everything their rulers require! The principle of the Divine Right of rulers is calculated to keep the people subject to those rulers, on whose selfishness Satan could depend to advance those governmental policies that he wished advanced, and thus he would control the people governmentally by the Divine Right doctrine.

By the doctrine of the Divine Right of the aristocrats he caused the following things to be taught, especially through the clergy: (1) It is the Divine good will and pleasure that practically the whole earth and its riches be owned and administered by the aristocrats; (2) that these act as "the stewards and almoners of the Almighty" in dispensing on their own terms to the bulk of mankind, as their slaves, serfs and employees, of the surplus of earth's bounties; (3) that God sanctions the aristocrats' administration of things; and (4) that the masses should, therefore, be content with their lot and with what is dispensed to them by these "stewards and almoners of the Almighty." The principle of the Divine Right of the Aristocrats is calculated to keep the people subject as slaves, serfs or employees to the aristocrats, on whose selfishness Satan could depend to advance those aristocratic policies that he wanted advanced, and thus he would control people economically and socially by the Divine Right doctrine. By the doctrine of the Divine Right of the clergy, Satan caused, especially by the clergy, the following thoughts to be taught: (1) God speaks to the people through the clergy; (2) therefore they are His mouthpieces giving forth the Truth; (3) He

sanctions their teachings; and (4) therefore the people should with blank, unquestioning minds believe and practice the clergy's teachings. The principle of the Divine Right of the clergy is calculated to make the people subject to the clergy, on whose selfishness Satan could depend to advance those religious teachings and practices that he wanted advanced, and thus he would control the people religiously by the Divine Right doctrine. Of course, the doctrine of the Divine Right as Satan has caused it to be taught is false as a whole and in its three forms, but it has been calculated to keep the race subject to Satan since the flood until very recent times, when the war debates largely set it aside throughout Christendom.

For the good of his empire Satan has always seen to it that, compatibly with the successful operation of his empire's three earthly departments, some law and order existed; for he was too shrewd to allow anarchy to reign in his kingdom, well knowing it would result in wreck and ruin for his cause. Hence, there has from the outstart been in his empire civil law, guarding especially the rights of the leaders in state, religion and aristocracy, or, as it is now usually called, capital. This has prevented anarchy from setting in among such rulers. And only then has he tolerated the setting aside of civil law when it interfered with such overturning of governments, religions and aristocracies as he decided should be overturned for his empire's good. Then, also, he has introduced some laws for the regulation of the "rights of the common people." These, however, have always been made first of all to serve the interests of the statesmen, clergy and aristocrats; and subordinately to such interests they have been made to serve those interests of the common people that were calculated to keep them subject first of all to his own interests and thereafter to prosper in a measure their interests, and that, again, subject to his dominion as the executioner of the race (Heb. 2: 14).

These limitations have always made his governments, religions and aristocracies oppressive and exploitative of the common people, and have allowed more or less crime and other invasions of the common people's rights, which Satan on general principles encouraged in individual cases, partly because it was in his interests to corrupt the race and partly to arrange for the execution of penalties on exceptional cases, in order to strike fear into the hearts of the people, as a tribute of respect to his laws. Thus he has been an angel of both light and darkness, accordingly as it best served his ends (2 Cor. 11: 14, 15).

An empire based on such principles and using such means for its perpetuation naturally must be one of much evil, even as the Scriptures call it the power of darkness—sin and error (Col. 1: 13). While he greatly deceived the people by the doctrine of the Divine Right of rulers, clergy and aristocrats, he knew that these of themselves were not sufficient to continue his rulership over the race. He, therefore, found it necessary to advance three other doctrines to support the superstructure which he built upon the foundation of the three forms of the Divine Right. Hence, we call the latter three doctrines the fundamental, and the former three the supporting doctrines of Satan's empire. The following are these three supporting doctrines: (1) The dead are alive; (2) they have become spirits; and (3) they are in bliss or in torment. Early in the history of the race, yea, as shown above, in Eden itself Satan set forth these three falsehoods, for which Jesus called him a liar and the father of lies, and for whose acceptance by Eve, resulting in sin and death coming upon the race, Jesus called him a murderer (John 8: 44). Let us again for sake of emphasis note the language in which Satan first clothed these three supporting errors of his empire: (1) "Ye shall not surely [really] die [you will only seem to die; actually, you will live right on, even though seemingly dead, *i.e.,* 'the dead

are alive']; … (2) Ye shall be as [like the] gods [angels (Ps. 97: 7; compare Heb. 1: 6; 197 times angels are called gods in the Hebrew of the Old Testament), who are spirits (Heb. 1: 7), *i.e.,* 'the dead have become spirits'—they exist as angels], (3) knowing [experiencing] good [bliss] and evil [torment]." Satan's design in using these three errors as the supporting doctrines of his empire is very apparent. He knew that if he could deceive the race on these three subjects he could deceive them into believing that certain (other) errors were true and certain truths were false, and that certain wrongs were right and certain rights were wrong. This done, he would promise rewards for the next life to those who would, under the deception that his errors were true and his wrongs were right, accept his errors and practice his wrongs, and threaten with eternal torment those who refused so to do. So, too, would he threaten torments for the next life to those who would accept God's truths—misrepresented as erroneous by Satan—as true, and practice certain of His commands, misrepresented as wrong by Satan, as right; as he would also promise eternal bliss to those who would not so do. Thus, through deception, he would by hope of reward for compliance and by fear of torment for non-compliance, to be realized in the hereafter, enlist the people to believe and practice his errors; and he would, by misrepresentations of the source and character of God's teachings and by hope of reward and by fear of torment, in the hereafter, deter the people from believing and practicing God's truths. Thus he would enslave the race to his will and prevent their doing God's will! In this dark plot he succeeded, with the bulk of the human family; and thus by the three errors under consideration he mightily supported his empire and its foundation errors on the Divine Right.

The above considerations show us that Satan's empire is founded on and supported by errors. And by

these he has worked mightily in the hearts of the children of disobedience throughout the duration and territory of his empire. (Eph. 2: 2.) But an empire so founded and so supported must be an evil one, even as all history attests; for the course of Satan's empire is marked by every evil word and work. Corrupt indeed have been the majority of the rulers, aristocrats and clergy of his empire. The history of "the present evil world" presents a succession of events replete with war, revolution, rapine, murder, destruction, lust, cruelty, conquest, oppression, degradation, unhappiness, misfortune, death and persecution, especially of God's people! How little space is given in history to good, noble and elevating philanthropies! How much of its space is given to their opposites! So, too, Satan's empire has been one in which are found the greatest inconsistencies. How contradictory have been its religions, its philosophies, its civilizations, its governments, its social arrangements, its laws and its workings! From this we infer that Satan adapts the form of government, religion, society, etc., to the varying ideals of the peoples *as far as he must.* He would, if he could, keep all people in the densest ignorance, deepest oppression, darkest superstition and basest character and environment; but when the people will no longer stand for this, he makes such concessions as he must, compatibly, however, with his retaining control. This will account for the many overthrows, revolutions and reorganizations that have occurred in the governmental, aristocratic and religious departments of his empire. Whenever governments, aristocracies and religions which he has used cease to serve his purpose of controlling the people, as nearly according to his views as possible, he wrecks those governments, aristocracies and religions, often with extreme ruthlessness, and replaces them by others more in harmony with his aims, and the concessions he must make to his subjects. He certainly makes it uncomfortable

for those rulers or religionists who oppose the principles and purposes of his empire. This is manifest in the oppositions and persecutions that he has aroused against every Christian leader and movement that have attacked his errors and preached God's Truth; for he has made them targets.

Satan has not contented himself with merely founding and operating an empire in rivalry with, and opposition to, God; but he has also used that empire in the officers of its earthly phase and in its subjects to further his purposes. Above we pointed out how he used such officers to carry out his purposes, but did not point out how he has been doing this with other citizens of his empire. He has "worked" these according to their talents, positions and susceptibilities to contribute to his designs. Of course he has been thoroughly deceiving them as to the character of his works and intentions through appealing to their varying degrees of degradation, selfishness and ignorance. The more talented the agents that he could find for his works and purposes, the more willingly did he use them. Without any doubt, he manipulated his knowledge of hereditary laws to produce characters and talents susceptible to his designs; and this will account f or certain marriages that he promoted and prenatal experiences that he gave, to have, as it were, handmade suitable agents for his purposes. In the cases of many of the leaders in the world of education and learning, of society and home, of art and philosophy, of camp and rostrum, of vice and crime, the manipulation of the laws of heredity by Satan can be discerned.

Then, he saw to it that their training, experiences, surroundings and contacts were conducive to adapting them to his designs, for Satan has had varied designs for the various strata from, and with which he has constructed his forms of society. Thus he has wanted some to be leaders in education and learning, others in society and home, others in art and science, others in

camp and rostrum, and still others in vice and crime, and he has seen to it that they were fitted for these roles by heredity, training, experience, environment and contacts. What variety of character was thus produced! Some quite elevated and noble, others much degraded and base. How could it have been otherwise, if Satan was to make an empire having subjects of such physical, mental, moral and religious contrasts? He pursued this principle in every variation of his empire—among savages, heathen, Moslems, Jews and Nominal Christians. No wonder that alongside of every evil word and work and every species of depravity and degradation we find excellent mental, moral and religious heights for fallen man reached among some of the citizens of Satan's empire. These stand out as beacon lights in the dark night of sin and error that characterize Satan's empire and rule. It is indeed a kingdom of darkness, despite the few stars that pierce through the clouds and gloom of its night.

And all this has been done to keep people in subjection to Satan's will and rule. Such agents, as reinforcers of the rulers, clergy and aristocrats, who have been his empire's earthly officers, have been necessary, to assist in keeping subject to him the masses of the people. These educators and scholars were needed to make plausible the political and non-political, the religious and non-religious and the aristocratic and non-aristocratic theories of Satan's kingdom, in order to keep the masses in subjection to those theories. The leaders in Satanic art and philosophy were needed to give such forms to the masses' tastes for beauty and utility, and to give such theories on the nature of things to the masses reasoning on fact and thought, as would make them Satan's slaves from these standpoints. Satan's military leaders performed such exploits as captivated the imagination and spoils-hunger of the multitude. His orators were needed to blind his subjects by their blending of sophistry and entertaining

powers. His leaders in vice have been well adapted to corrupt hordes of careless women to prostitution and vast multitudes of weak men to the patronage of that horrible institution. The same remark in principle applies to the vices centering in foods, intoxicants and drugs, as it is also seen exemplified in the leaders and the led of criminal life. Satan made leaders for every sin and every iniquity, varied according to its nature and his pertinent design therewith. And he carried through these designs to the ever increased degradation and degeneration of his subjects, until as their executioner he brought them down to the death state; his has been the power of darkness and death (Eph. 6: 12; Heb. 2: 14).

One of his main purposes, though a negative one, was to turn away and keep turned away the better people from God, as well as to make Him appear so repulsive that the better minds among the people would not desire fellowship with Him. Of course this could not be done by giving them correct views of God; for such make Him appear as the most attractive and lovable Being, which in reality he certainly is. Therefore to turn away and to keep turned away from God the better minds and hearts among mankind, Satan has continually misrepresented God to them. Hence, he has most terribly caricatured the Divine character, which is supremely appreciable in its perfect blending and domination of wisdom, justice, love and power; and has made it appear as the height of folly, injustice, lovelessness and weakness (2 Cor. 4: 4). He grossly caricatured His person, making it appear in the most unbiblical and unreasonable form of creedal trinitarianism. He so greatly misrepresented His plan by a combination of truth and error, wisdom and folly, practicability and impracticability, design and accident, effort and failure, power and weakness, love and hatred, justice and injustice, as to baffle the ignorant, grieve the righteous and repel the thoughtful. He has

made His works appear as expressions of tyranny, cruelty, weakness, wickedness, ruthlessness and implacability. Thus has he maligned, blasphemed, misrepresented and caricatured the Lord in His person, character, plan and works. All this to turn mankind away from the Truth of God and to debase them unto himself, his purposes and his spirit.

But his special targets have been God's faithful people. Truly, indeed, has the prophetic word been fulfilled, that enmity would exist between the woman—the Sarah Covenant: the Little-Flock-developing Truth and its servants—and her seed—the faithful Christ—on the one hand, and Satan and his seed—the godless and unfaithful—on the other hand. Thus for the Truth servants' loyalty to the Truth in the Old Testament, he greatly persecuted them, as the history of the Ancient Worthies, briefly summed up in Heb. 11, shows. But his spleen has been specially poured out against "the saints and martyrs of Jesus" during the Gospel Age, all of whom he first of all sought to seduce from their loyalty, and, failing therein, instigated against them unrelenting and cruel persecution.

This spleen, therefore, showed itself against these during the Jewish Harvest, in which he persecuted all of them and oppressed their leaders in almost every case even unto a violent death. Thus he dealt with Jesus and all of the Twelve, except John, though he persecuted the latter only short of death. Similarly he treated lesser lights in the Apostolic Church, as well as persecuted the rank and file of the saints at that time. It was then also that he started the pagan persecutions against them, using Nero, the Roman Emperor, to wage the first of the ten Pagan Roman persecutions. Roman emperors and their subordinates intermittently for nearly 250 years in these ten persecutions cruelly tormented and did to death in manifold ways "the saints and martyrs of Jesus." But Satan's heyday of persecution, as it was also the heyday of

his power, was the period of papal power, from 539 to 1799. During this period, especially through the inquisition, crusades and wars, the papacy, as the chief part of Satan's empire on earth, wrought the most cruel and torturous deaths on members of the Woman's Seed ever recorded in history. While public opinion no longer allows Satan to go to the extremes of persecution that marked the Dark Ages, he uses as much venom against the faithful as is possible for him to employ; and thus is fulfilled the saying, "All who live godly in Christ Jesus shall suffer persecution" (2 Tim. 3: 12). Their taking God's side and thus menacing Satan's order of affairs is, of course, the reason for the adversary's wrath against them.

Satan's opposition to God's people dates from the days of Abel, whose piety as against Cain's envy and hatred (1 John 3: 12), aroused Satan to instigate Cain to murder him. Subtle indeed were his attacks upon God's Old Testament people. Noah had to endure the ridicule of the antediluvians aroused against him by Satan. Abraham had all sorts of assaults made upon his faith by Satan, in an attempt to overthrow him. The more peaceable Isaac had his difficulties because of Satan's oppositions. The more aggressive Jacob had a life full of troubles due to Satanic working. We all know of his greatly harassing job and Joseph by sore calamities and contradiction of sinners against themselves (Job 1: 6-12; 2: 3-7). The life of Moses is full of instances of Satan's nagging and picking at him through wicked individuals and murmuring and ungrateful multitudes. To a smaller degree we see the same things operating in the lives of Aaron and Joshua. All the judges, especially Samson and Samuel, were objects of Satan's spleen. David is perhaps the most conspicuous example of Satan's persecuting spirit against God's Old Testament servants. By Saul's relentless and groundless seeking of his life, by his sons' (through Satanic manipulation) making his domestic

life miserable and by Satan's dogging his personal and rulership qualities into mistakes and sins and arousing domestic and foreign wars and individual hatreds and treasons against him, David was certainly terribly set on by the adversary (1 Chro. 21: 1). The same principle was acted out by Satan toward all other pious rulers of Israel, their inspired prophets and their less prominent godly people. When we consider Hezekiah and Josiah, Elijah and Jeremiah, Daniel and the three Hebrew youths, the pious of the days of the Maccabees and last, but not least, John the Baptist, we see in their experiences the same persistent dogging and persecution of God's people on the part of Satan. Like Joshua, the high priest, they always had Satan at their right hand to resist them (Zech. 3: 1, 2).

When our Lord came, to be the Head of the Woman's Seed, Satan recognized His uniqueness and resolved to make the supreme effort of his history to overthrow Him. He began this through instigating Herod to do away with him. As Jesus grew into a youth Satan sought to inveigle Him into sin and to sectarianize Him as a disciple of one of the Jewish sects, in which also he failed, resulting in Jesus' attaining His majority perfect, physically, mentally, morally and religiously. But the time for Satan's special attacks upon our Lord was after His Spirit-begettal. These were first launched against Him during the forty days that He spent in the wilderness, immediately after His baptism (Matt. 4: 1-11; Mark 1: 13; Luke 4: 1-13). Three of these temptations are especially described in the passages just cited. By these Satan sought to tempt Him to gain wrongfully governmental power ("all these kingdoms will I give Thee, if Thou fall down and worship [submit Yourself to] me"), religious power ("cast Thyself down from the pinnacle [gain by faker and sensational methods religious influence over the multitude]") and capitalistic power ("command these stones to become bread [use

Your miraculous powers to enrich Yourself now with food, later with other earthly good things]"). We pointed out above that by these three temptations Satan sought to inveigle our Lord sinfully into the positions into which he had inveigled the leaders of the three departments of his empire. But in these things Satan failed. Leaving our Lord for awhile, he later returned again to his work of seeking to draw Him into sin. Sometimes he operated directly on our Lord's heart and mind by appealing suggestions (Luke 22: 28; Heb. 4: 15); and sometimes he did it by appealing to Him through His fleshly relatives (John 7: 3-5; 2: 4; Matt. 12: 46-50), through His disciples (Matt. 16: 21-23), through the multitude (John 6: 15), through His opponents (Luke 11: 16; Matt. 19: 3; John 8: 6), through the rulers (John 18: 33-37; 19: 8 12; Luke 23: 8-11) and through His sufferings (Heb. 2: 18). But none of Satan's efforts could shake Him. The most that Satan could thereby effect was to afflict Him ("bruise His heel"). Here Satan met from every standpoint a complete defeat; for he could in nowise influence our Lord into sin, error, selfishness or worldliness. Our Lord conquered Satan!

In principle Satan has met the same kind of a defeat with the rest of the Woman's Seed. It is true that some who have been given the opportunity to become of this Seed have been completely overthrown by Satan's opposition to them, either through their flesh or through the world, and have become wholly his—the Second Death class. It is also true that some others favored with the same opportunity have been so largely, though not totally, overthrown by Satan that they have made shipwreck of membership in the Seed, *viz*., the Great Company class. But it is also true that there have been others who, while not perfect in every respect as their Lord was, did, despite all Satanic opposition and temptation, maintain their loyalty—were faithful unto death (Rev. 2: 10)—and thus maintained

their membership in the Seed. Satan, as with our Lord, has tempted them at every point, and though he often made them hobble—bruised their heel—he could not undermine their faithfulness. To accomplish it he has sought every form of alluring temptation and every forbidding form of opposition from every available instrument of affliction; but he has failed with these. More powerful than they, he would have conquered them, except that Jesus, having Himself suffered, being tempted, knew how to succor them amid their temptations and bring them victorious out of their trials (Heb. 2: 18; 1 Cor. 10: 13). Thus with these he has failed, though by every power of the world, the flesh and the fallen angels, he has sought to gain the victory, along lines of alluring them into sin, error, selfishness and worldliness (Eph. 6: 11, 12; Rom. 8: 35-39). While all of these have not yet completely overcome, it will not be very long now until they will overcome in their last member; and though made by Satan to hobble along by his bruising their heel, the Seed, that will under its feet bruise Satan's head, inflict a mortal wound, will soon have been fully won and prepared. All of the facts given in the last few paragraphs certainly prove Satan to be an *enemy,* his name's meaning, to God's people.

Satan has exercised considerable cunning in seducing the race and the fallen angels into sin. He has exercised even more cunning in keeping the race subject to his will. But his greatest cunning is expended in his efforts to seduce God's servants into disloyalty to the Lord and the principles of His government, which they have espoused in becoming God's servants. Satan is a very expert psychologist. Next to the Lord nobody understands human nature more thoroughly than he. Especially expert has he become in understanding how to play on human lacks, weaknesses, faults and perversions, so as to manipulate men into captivity at his will (2 Tim. 2: 26). He counts much

on human ignorance, as giving him an opportunity to supply false knowledge, so that by error he may deceive people into following his will. He also takes advantage of man's impaired reasoning powers, to palm off on him plausible sophistries as truths, especially in turning him aside from the Truth. He uses man's depraved tastes and desires as motives to stir him up to wrong. Especially has he appealed to the combative and destructive propensities in man, to stir him up against his fellow man. The party spirit is another motive that he uses markedly to work his will among men. This enables him to prompt people to fight over the extremes of error, in order that the Truth that lies between them may be forgotten.

To everyone he offers a different dish, according as it is likely to appeal to his appetite. He, therefore, works on the superstition of one and on the unbelief of another. Here he appeals to the too optimistic, there to the discouraged and the despairing. Here to the irresoluteness of the one, there to the too great tenacity of the other. To the unpersevering he offers obstacles to stop them; to the too persevering he gives tasks requiring great continuity in wrong. To the impious he gives plenty of opportunity to show their enmity to God; and to the thoroughly pious he offers diversions to undermine their piety. To those who lack equal love to the neighbor he gives all sorts of experiences that harden them in their unneighborliness; and to the neighborly he gives experiences of loss, ingratitude and injustice from their neighbors, to ruin their neighbor-love. To the uncharitable he gives suggestions and experiences that tend to make selfish; and with the loving he, by contrary experiences, seeks to crush charity out of their hearts. To the proud he appeals to lead him into more arrogance; the lowly he seeks to crush utterly; while he seeks to pervert the remainder in humility to one or the other of the extremes just mentioned. He makes vanity and ostentation appeal to

one, and sensitiveness to crush another. One he spoils by love of luxury and ease, another by driving him to extremes of asceticism and restlessness. He seeks to make the lover of life to be self-sparing, and the disparagers of life suicides. So, too, does he, according to his design, play on man's anger and longsuffering, covetousness and liberality, hypocrisy and candor, hatred and forbearance, intemperance and temperance, ignorance and knowledge, error and truth, patriotism and unpatriotism, love of home and dislike of home, friendships and enmities, family loves and family indifferences, and love for the opposite sex and indifference toward the opposite sex. Thus with cunning, variously adapted to the differences of the individuals and groups to whom he appeals, he seeks to make them all fall into the differing snares that he lays for their capture. And, alas, the vast bulk are entrapped by him! Only the faithful escape his traps and pitfalls. His cunning in these ways is shown in such Scriptures as the following: Luke 22: 31; Acts 13: 10; 1 Cor. 7: 5; 2 Cor. 2: 11; 11: 3, 14, 15; Eph. 2: 2; 6: 11, 12, 16; 1 Thes. 3: 5; 1 Tim. 3: 6, 7; 1 Pet. 5: 8, 9; 1 John 5: 18.

The Bible assures us that as in the time of the end Satan's powers will be waning, he will resort to all the greater deceptions (Mark 3: 26; Matt. 12: 26; 2 Thes. 2: 9). Since 1799, when the Time of the End began, the Lord has been pouring an ever increasing amount of light upon the kingdom of darkness, which as a result has compelled Satan to stir up such a multitude of deceptions as never before in history has had even a remote likeness. These deceptions in the religious sphere started in 1835, through the writings of such skeptics as Baur, Strauss and Vatke. And from that time on there has been a veritable deluge of error and erroneous movements unprecedented in human history. Here belong the thousand and one isms, schisms, schools, tendencies, parties, movements, cults, factions, etc.,

with which our times teem, in state, church, capital, labor, society, industry, business, finance, education, learning, literature, art, science, etc. Surely we have among these movements "the working of Satan with all power, signs and lying wonders" (2 Thes. 2: 9). And the Lord has been working amid these things and through them unto the disintegration of the solidarity of Satan's empire, first as a unit, and since 1914 for its destruction as a thing. And these many wild waves of confusion are a sure evidence that Satan's kingdom is waning (Matt. 12: 26); for amid these multitudinous movements of error our Lord has been shedding such a brightness of exposing truths, and He has contemporaneously with them been giving such an abundance of constructive truth, as are breaking up Satan's hold on mankind. As a result Satan and his subordinate fallen angels are driven to utmost extremities of perplexity and confusion, since the situation of world control has gotten beyond their power and direction. In a word, Satan's empire over mankind is on the verge of utter collapse, and that because our present Lord is taking over the kingdom of this world as His own.

Above a general view of Satan and his empire was sketched as preliminary to a description of the latter's destruction. We now proceed to set forth such a description. According to the Bible our Lord Jesus and His glorified Church, acting as *The Christ,* will be Jehovah's primary agency in accomplishing its overthrow, though many human agencies will co-operate to this end (Dan. 12: 1; Rev. 17: 14; 19: 11-21). We are not to think that Jehovah has been an unconcerned observer of the ruthless reign of Satan over the human family. His love for our fallen race prevented such unconcern (John 3: 16). Even before that reign began He prepared a Plan for its overthrow. One feature of this Plan is to keep Satan's activities within certain metes and bounds, while God prepares The Christ and

His supporters to become His agency for the overthrow of Satan's empire. To those ignorant of that Plan it could not but appear that Satan has hitherto been winning. His victory, however, has been only a seeming one. Actually, every feature of God's Plan, so far due, has been fulfilling with unfailing precision and success, despite every effort of Satan to thwart it. Even in his opposition to Jesus and His Faithful has Satan's seeming success been a defeat for him; for his opposition furnished Jesus and His Church such experiences as have better enabled them to oppose and overcome him in their hearts, and thus to develop characters fitting them for the work, in due time, of overthrowing his empire, of establishing God's Kingdom, and of ruling over the human race for its uplift to perfection. Thus God's Plan purposes that the wrath of Satan as well as the wrath of man shall surely praise Him, and that He will restrain the remainder of wrath (Ps. 76: 10).

Even since the Fall of 1874, the human family has entered into a new epoch, characterized by the most unusual enlightenment, movements, events and changes of all history. We believe that this enlightenment and these movements, events and changes are more or less connected with the overthrow of Satan's empire. We can better visualize matters if we keep in mind the Scriptural figure of The Christ—Head and Body—coming forth as an army, whose Commander is the Lord Jesus, to attack Satan's empire (Rev. 17: 14; 19: 11-21). The weapon that He uses is a "sword that proceedeth out of His mouth" (Rev. 19: 15, 21). Certainly no sane person would contend for the proposition that this is a literal sword. It evidently means the Truth on secular and religious subjects (Is. 49: 2; Hos. 6: 5; Eph. 6: 17; Heb. 4: 12; Rev. 1: 16; 2: 12, 16). And how appropriate to the Prince of Peace it is to use such a sword, as how inappropriate it would be for Him to use a literal sword; yea, by reason of the

contrast how appropriate to Him is the Sword of Truth as a weapon of warfare in a conflict with an empire whose weapon is untruth, and whose ruler is "the father of lies"! (John 8: 44; 2 Cor. 4: 4.) It is even so; for the "Truth is mighty and shall prevail" in the war of The Christ upon Satan's empire. In this war Christ is making an attack with secular and religious Truth upon the ignorance that Satan has fostered, and upon the errors that Satan has spread. However, the most particular objects of His attack with the Sword of Truth are the three foundation doctrines of Satan's empire—(1) The Divine Right of kings, (2) the Divine Right of aristocrats, and (3) the Divine Right of clerics—and the three supporting doctrines of Satan's empire—(1) the consciousness of the dead, (2) the transformation of the dead into spirits, and (3) the bliss or torture of these spirits. Additionally the Lord Jesus is spreading the Truth on other secular and religious subjects, arousing more opposition to Satan's empire of error and wrong.

Of course, we are not to understand that our Lord has visibly appeared attacking ignorance, error and wrong with the Truth; rather, we are to understand that He is in an educational and natural way opening the eyes of people to see the Truth along all lines of human thought. Thus He is not only giving us Truth on the Bible and on other religious subjects, not previously seen, but also on secular subjects He is bringing forth the light. This has resulted in our generation becoming much more enlightened than previous generations. Great increase of knowledge is spreading among the people on art, science, philosophy, history, law, government, rulers, political economy, sociology, capital, commerce, aristocracy, labor, production, distribution, wealth, poverty, non-employment exploitation, wages, profits, loses, special privileges, political elections and parties, human rights, health, inequality, etc. (Dan. 12: 4). With all this enlightenment the

question of right and wrong, as it applies especially to the common people, and to classes and nations in their various relations, is continually being thrust upon the attention of people everywhere. The Lord Jesus is using a thousand instrumentalities to bring the Truth on these subjects to the attention of the people. Newspapers, magazines, pamphlets, booklets, books, lecture platforms, political parties, reform movements, labor organizations, clubs, societies, conversations, discussions, scientific laboratories, investigation commissions, courts, detective agencies, etc., are only a few of the many channels through which the Lord is causing the rising flood of Truth to flow to the people. Like the Statue of Liberty, Truth is holding up the torch of knowledge to the mariners sailing over life's dark and stormy main, as they are approaching the land of light and righteousness after passing over the stormy sea of human sin and error.

Many of our Lord's attacks upon Satan's empire consist of His exposing by the light of Truth the deeds of darkness committed by the three departments of Satan's empire—oppressive governments, predatory aristocracies, and false religious systems. Additionally these exposures have undermined the foundation and supporting errors of Satan's empire, and thereby have shaken that empire itself. Above we showed what is meant by the three doctrines of the Divine Right.

Every one of these three doctrines is erroneous, and the practice of them has produced the terrible violations of the Golden Rule and the cruel wrongs against the Lord's saints with which the history of Christendom is replete. When we view the acts that have flowed as a logical consequence from the doctrines of the Divine Right of state, church and aristocracy, we will readily recognize the erroneousness of these doctrines and the sins of those holding and practicing them. The following is a partial list of the wrongs resulting from the doctrine of the Divine Right of

kings: claims of unjust "prerogatives," gross oppression of their subjects, ruthless and cruel suppression of rivals, real and imaginary, the rule of might as against right, unjust and cruel wars, robbery of one another's territory and subjects, national hatred, revenge, envy, suspicion, etc., violation of the rights of other nations, violation and repudiation of solemn and binding treaties, support of false religions, union of governments and special religions, persecution of religious dissenters, debauchery and exploitation of weaker nations, traffic in human slavery, favoritism of the classes as against the masses, gross hypocrisy, dishonest and selfish diplomacy, etc., etc. The following is a partial list of the wrongs resulting from the doctrine of the Divine Right of the aristocracy: exploitation, slavery, serfdom, legal technicalities, evasions, delays and violations, frauds, dishonesty, special privilege, monopolies, the manufacturing of financial and military panics and wars, indifference to the masses, gambling, wanton luxury and waste, unfair and destructive competition, corruption of politics, morals and government, support of oppressive and persecuting governments, etc., etc.

The following is a partial list of the wrongs resulting from the doctrine of the Divine Right of the clergy: priestcraft, pride, intolerance, hypocrisy, superstition, error, persecution of dissenters, blasphemy of the Divine Person, Character, Plan and Works, sanction of the wrongs of rulers and aristocrats, union of religions and states, secularization of religion, fomenting wars and national hatreds, rivalries, distrust and revenge, destruction of real religion, etc. Every one of the above-mentioned acts is a violation of the Golden Rule, professedly accepted by the Rulers, Aristocrats and Clergy, rests under Divine disapproval and is a demonstration of the falsity of the doctrine of the Divine Right of these. From 1874 onward has our Lord been progressively exposing to the public through

His amenable agents these flagrant sins against the Golden Rule by the Rulers, Aristocrats and Clerics; and by these exposures He has proven beyond peradventure that the doctrine of the Divine Right of Kings, Aristocrats and Clergy is untrue; consequently the people on all hands are repudiating these doctrines, and are casting off the shackles of obedience required by the classes who seek to enforce that doctrine.

Along with the overthrowal of the people's confidence in these foundation doctrines of Satan's empire—the Divine Right of rulers, aristocrats and clerics—the Lord Jesus has been undermining their faith in the three supporting doctrines of Satan's empire—the consciousness of the dead, the transformation of people at death into spirits and the bliss or torment of these spirits. This He has done especially from a Biblical standpoint through able and devout students of the Scriptures, though science and reason have also co-operated in undermining belief in these three supporting errors of Satan's empire.

The Lord's undermining the confidence of millions of people in the foundation and the supporting doctrines of Satan's empire has been accompanied by another of His works—His revealing to mankind everywhere a series of truths underlying men's relations to one another governmentally, morally, socially, religiously, commercially, economically, and industrially—truths that in not a few particulars fundamentally contradict the notions on these subjects that Satan's empire has spread and reduced to laws or established usages. This double work of our Lord, in harmony with His object in making His kind of an attack on the kingdom of darkness, has produced an intense dissatisfaction with the theories, practices and departmental organizations of Satan's empire among many millions, especially throughout Christendom. Naturally enough this dissatisfaction has in the main seized upon those who have suffered most, and who

have been advantaged least by the arrangements of Satan's empire—the masses. On the hand, these exposures of the wrong-doing of the privileged classes, as well as their desire to advantage themselves increasingly by the many scientific discoveries that the Lord in this "the Day of His preparation" has brought to light, have made these privileged classes more determined to perpetuate present conditions. Thus we find from shortly after 1874, as a result of our Lord's exposing and truth-revealing work, human society began to divide itself into two well-defined and mutually opposed classes. One of these two classes consisted of the Conservatives—the rulers, aristocrats and clerics, with their supporters—who desired, because it was to their advantage, to maintain what—unknown to them—is actually Satan's empire. The other of these two classes consisted of the Radicals—Trade-Unionists, Socialists, Communists and Anarchists, with their supporters—who desired, because it was to their advantage, to set aside what—unknown to them—is actually Satan's empire. The differences between these two groups were growing ones, as from 1874 onward year after year witnessed new exposures of wrong-doing on the part of the privileged classes and as new flashes of truth on human conditions and rights aroused the masses.

The conflict between Labor and Capital became the overshadowing one between the masses and the classes. At first the friction between Capital and Labor was a wordy one, each side setting forth its real or fancied rights and grievances, and the other's real or fancied wrong-doings. But the conflict did not remain simply a wordy one. On the part of Labor, it at times proceeded to strikes, intimidation, riots, incendiarism and boycotts; on the part of Capital it at times proceeded to lock-outs, injunctions, evictions, employment of strike-breakers and armed guards, and calls on government officials for state and national military support;

and on both sides it sometimes proceeded to actual battles, with many casualties on each side. Birds of a feather flocking together, the three conservative parties usually supported one another against the Radicals, and vice versa. This led to each side becoming more and more set against one another in their efforts to win out. The advantage usually being with Capital, supported, as it usually was, by State and Church, the Radicals became more and more embittered against the present order. They increasingly agitated for a complete change in the body politic, but differed sharply as to what kind of a change was desired. While they could not agree as to a definite program of procedure, more and more a revolutionary bent was taken on by the more radical of the Radicals. Revolution against the present order thus became their program of immediate action, though they could not unite on a program of reconstruction after the revolution. With revolutionary agitations there came an increase of Class consciousness and antagonism. The nerves of people generally were severely tensed, and almost anything destructive was feared by the Conservatives as coming from the Radicals.

Satan was no indifferent spectator of this conflict, which he promptly recognized threatened the continuance of his chosen order of affairs. Its overthrow, if preventable, of course he would not permit; nor would he permit changes contrary to his general order; but he would offer compromises to conciliate the masses. He therefore sought to effect a reconciliation, by offering some concessions from the Classes to the Masses in the latter's interest, especially in some European states, along socialistic lines. To this end he aroused a number of Reformers to activity. These denounced the more patent abuses of the Conservatives, urged upon Capital and State the necessity of making concessions to Labor and of restricting the power of the State and Aristocracy, and preached to

Labor obedience to and contentment with law and order. The sum-total of the Reformers' achievements, however, was small indeed. The breach between the Radicals and Conservatives became ever wider. A Revolution subversive to Satan's chosen order of affairs was imminent. Satan was determined to prevent it; and not only so, but also at the same time to bring the Conservatives and Radicals in each country into one camp, fighting for the maintenance of his order as it existed in each European country, by making its inhabitants believe that other nations were, by aggression in warfare, seeking its national destruction. If he could fill the inhabitants of each country with the fear that their nation and institutions were in danger of destruction, he felt satisfied that he could arouse in each country practically all its people to fight the invader. This plan was pivoted on the thought that the Conservatives and Radicals in each country would forget their mutual antagonisms in the presence of their supposed common danger, and thus would stand shoulder to shoulder in defense of their country and its institutions against the supposed threatened destruction from the invader. This plan also had as one of its features a world-wide war, whose dangers would drive the divided Conservatives and Radicals of each country into one camp, fighting, for their national existence against the invader or supposed invader seeking their national ruin.

But what could Satan make the excuse and the point of departure for the world-wide arming of the nations required as one of the features of his plot? The existence of the Triple Alliance, embracing Germany, Austria and Italy, furnished him this excuse and point of departure by giving him the materials for arousing the fears of other nations whom he stirred up through these fears to form a rival alliance—the Triple Entente, embracing Britain, Russia and France. The past experiences of these two sets of

powers with one another furnished them enough suspicions, rivalries, envies and grudges to make them quite hostile and obstructive to one another. Additionally, Satan saw to it that increased opportunities for arousing friction between them were not wanting. Finally the feeling between these two rival alliances became tensed to the snapping point. They lived, as it were, over a huge powder magazine, which only waited the lighting of a match to explode with devastating force. The perfidious murder of the Archduke of Austria and the rash decision of the German Kaiser furnished these conditions, and the greatest explosion of human history occurred—the World War of 1914-1918—to which Radicals and Conservatives in each country rallied in defense of native land and institutions against the threatened destruction, which the inhabitants of each country were led to believe their enemies sought. Doubtless the sins and follies of statesmen figured in the events leading up to the explosion; but back of them worked Satan, the Enemy of God and man, who used these as so many pawns in his game of ruling the nations. What cared Satan for the waste of mountains of human labor and treasure, and the shedding of rivers of human blood and tears, if by their expenditure he could conserve his empire! They were as nothing to him, if he could still continue his reign. Thus to sustain his own empire Satan took advantage of human sin and folly even to the extent of involving the world in the World War—the greatest calamity of all history—in order to divert the Radicals from their threatened overthrow of his order of affairs. If he had done no other wrong, this alone would stamp him as the worst criminal of all history.

But one may ask, How do we know that Satan plotted and brought about the World War, and that for the purpose of preserving his own ascendancy and his chosen order of affairs? We answer, a number

of reasons prove it: (1) He is the ruler of the present world, and of course such a gigantic event, involving as it did all of earth's nations, would not be without his ordering; (2) the condition and needs of his empire called for the diversion of the Radicals from their program of World Revolution, and this was accomplished by the war-accompanying propaganda in each country that the other side sought its national destruction; (3) the uniting of the Radicals and the Conservatives as one in each country for the purpose of preserving its national existence and order—so much needed by Satan's empire—directly resulting from the widely heralded dangers threatened by the war, is explainable on no other ground than such a purpose; (4) the fact that there was so much of devilish wrong and ingenuity that led up to and accompanied the war proves the same thought; and (5) the fact that humanity free of Satanic influence is not capable of committing many of the deeds enacted in the World War also proves the same.

Doubtless the Adversary knew that a modern war would weaken his empire; but he preferred a weakened empire to none. He invented through perverted human brains the horrible weapons and munitions of the World War, whose destructiveness doubtless convinced him that the war would be short. He especially used the Central Powers as his war agents, and therefore gave them the greater preparedness. And for a time it seemed that his plan in this respect would prosper in the speedy defeat of the Allies. However, in this case the devil proposed and God disposed. God's longsuffering with Satan was exhausted by the latter's ruthlessness in plunging the race into the horrors of the World War. To Satan's ruthlessness God opposed a "so far, and no farther." He caught the crafty Satan in his own craftiness, determining that He would make his atrocious deed the turning point of his evil empire. Satan's crime against

God and man by working up the World War God decided to punish by making it the first stage in his overthrow. Satan counted on a somewhat weakened, but comparatively powerful empire, emerging from the war; but God determined that his empire should emerge from the war so weakened that it would be a comparatively easy matter to overthrow it.

Therefore God did not permit Satan to end the war with a speedy and easy victory for the Central Powers, which Satan expected would for years result in keeping Conservatives and Radicals united for revenge in each Allied country, and which would keep in each country of the Central Powers the Conservatives and the Radicals united for protection against such revenge, and thus indefinitely postpone the danger of a revolution against his order of affairs. On the contrary, the Lord permitted the war to drag its "slow length along" until all of the involved countries became very greatly weakened in every feature of national strength—especially in man-power, resources, wealth and prestige—and hopelessly burdened with crushing debts. Thus the war had two results directly opposite to those that Satan had planned: (1) the side that he favored was ultimately defeated; and (2) his empire was weakened and debt-burdened almost to collapse. Moreover, the Lord overruled to the complete frustration of Satan's purpose of making each nation emerge from the war with the masses and the classes thoroughly united with each other, instead of their being divided against each other as they had been before the war. This purpose of Satan was frustrated by the Lord's making known, not only the human, but also the Satanic causes of the war, particularly as these were connected with the doctrines of the Divine Right of Kings, Aristocrats and Clerics, which doctrine and its resultant practices were the basic human causes of the war. The making of these things known has had various results: (1) the almost complete abolition of

autocracy—a child of the Divine Right doctrine; (2) in some countries a large abolition, and in other countries a large limitation of aristocracy; (3) greatly de creased belief in the Divine Right of the Clergy and a correspondingly immense decrease of their influence; (4) greatly increased embitterment and opposition of the Radicals to what is Satan's order of affairs; (5) greatly increased demands for more liberty from State, Aristocracy and Clergy; and (6) most threatening imminence of world-wide revolution. Thus in a deeper sense than most people recognize Satan emerged from his adventure in the World War as the worst defeated sovereign of all history.

The World War was no usual war. From the above description it will be seen that it was a greater conflict, with larger issues involved, than mankind in general recognizes. As a matter of fact the World War was the great war of prophecy—the war that, according to the Scriptures, would precede Armageddon, the war that would be the first part of the great Day of the Lord, the Day of Vengeance. In many places the Bible refers to it. The following are among the more important of these references: Joel 3: 9-14; Dan. 12: 1; Matt. 24: 21, 22; 1 Thes. 5: 1-3. This war, and the very year—1914—in which it was to begin, were forecast from the Bible by Pastor Russell years before it began. According to the Bible it is, after an ever increasingly stormy interval, to be followed by sudden world-wide Revolution, which will overthrow the present form of Satan's empire in state, aristocracy and religion. And according to the Scriptures even greater famines and pestilences than those which accompanied the World War will accompany the World Revolution. According to the Scriptural delineations, the Radicals, in the coming Revolution, will attack the present order with crushing and relentless blows, under which it will collapse with but scant resistance, due to its greatly weakened condition

resulting from the wounds received in the World War and its aftermath. This will show in another way what a great blunder Satan made in bringing about that war; for by greatly weakening his empire it will have prepared that empire to become an easy prey to the attacks of the Radicals in the coming World Revolution. Events on all hands indicate that we are rapidly sweeping toward this great social upheaval.

Of this coming upheaval, the following are some of the Biblical descriptions, clothed in figurative language: "The Battle of the Great Day of God Almighty" (Rev. 16: 14*;* Zeph. 3: 8; Is. 13: 4*,* 5), "Armageddon" (Rev. 16: 16), "a great earthquake" (Rev. 16: 18*;* Heb. 12: 26), "the fire of Jehovah's jealousy" (Zeph. 3: 8*;* 2 Pet. 3: 10*,* 12*;* Mal. 4: 1), "a whirlwind" and "a storm" (Nah. 1: 3*,* 6*,* 7), "a tempest of hail," "a destroying storm," and "a flood of mighty waters" (Is. 28: 2; Nah. 1: 4*,* 5*,* 8), "the besom of destruction" (Is. 14: 23), "a furnace of fire" (Matt. 13: 42), "a lake of fire" (Rev. 19: 20); "the supper of the great God" (Rev. 19: 17), and "the winepress of the fierceness and wrath of Almighty God" (Rev. 19: 15). As one reads these many terms descriptive of one and the same event, the conclusion is irresistible that they set forth in symbolic language an appalling calamity just ahead of the race.

The present European powers are symbolized in their entirety in the seven-headed Beast of Rev. 17: 7-12*,* by its ten-horns, which Beast is, of course, symbolic. As such they will be destroyed in the coming Revolution. We look for the coming of another (symbolic) Beast, which seems to represent the form of European government to be set up after the Revolution, and which, we opine, will probably be socialistic in form. This being a part of the "present evil world," Satan, of course, will be its invisible ruler. Forced, much against his preference, to accept such an order of affairs, he will seek to use it to further

his controllership over the human family. However, the inherent impracticability of Socialism as a method of government among fallen, selfish men will be quickly demonstrated, even as the inherent impracticability of Communism as a method of government among fallen, selfish men has been quickly demonstrated in Russia by its adventure with Bolshevism; for the Scriptures teach that after this government shall but briefly pilot the ship of State amid the storms of the social sea, Anarchy will set in, and like a devouring fire will completely destroy every vestige of Satan's empire. More severe famines and pestilences than those accompanying the Revolution will accompany Anarchy. Fire is the most frequent Biblical term describing the Anarchistic phase of the Great Tribulation. The prophet Elijah was given a vision of the three great phases of this Trouble—war, revolution, and anarchy—by the wind, earthquake and fire of 1 Kings 19: 11, 12. Using Jerusalem as a figure of Christendom, the prophet Ezekiel by the term "sword" describes the War and Revolution, and by the figure of the noisome beast (a beast is opposed to law and order) fittingly describes the Anarchy of the Time of Trouble (Ezek. 14: 21) Additionally, in the same passage, he shows that famines and pestilences will play their part in these troubles, as we by observation know they played their part in the war.

Surely the immediate outlook here presented is far from pleasant; and if there were no blessing following these sad experiences, we would rather pass them over in silence. We tell them here in order to forewarn and thus forearm those who will heed the "sure Word of Prophecy" and "the signs of the times," and by them apply their hearts unto wisdom. One may ask, How could a God of love permit these things? We answer that for nearly 2000 years with marvelous longsuffering God has been calling upon the world to repent; but apart from a saintly few they have refused

to respond, and thus have demonstrated that they will not be reformed by moral suasion. Hence God determined to permit devils and wicked leaders to bring them into great tribulation, which He designs to use as a rod of correction, that men may learn righteousness (Is. 26: 9). As a surgeon, though inevitably hurting the patient whose broken limb he must set, performs the operation as the only means to secure the ultimate good of the patient, so God permits the Great Tribulation as the only remaining method of bringing the world to its senses, and thus of preparing it for its uplift through Christ's Millennial Reign. Then there is, connected with God's permitting the Great Tribulation, another thing that shows His love even amid wrath—this tribulation will by Divine inter-position break Satan's yoke from off the neck of the race, and thus free humanity from the oppression of the worst of all tyrants (Is. 9: 4; Ps. 72: 4). When we contemplate the fearful and remorseless havoc that Satan has wrought against and among mankind, and then learn that the Great Tribulation will result in his losing his empire and throne and in his under-going thereafter a thousand years' imprisonment (Rev. 20: 1-3), and that consequently freedom for the race from his ruthless sway will set in, we at once see that to be freed from him it would be worth while to pass through twenty-five Times of Trouble. And best of all is the third reason why God permits the Great Tribulation—it will be the means of sweeping away Satan's empire, and thus of making way for the establishment of God's Kingdom the world over for the blessing of mankind—living and dead—with the privileges of restoration to human perfection and Edenic bliss. To gain these blessings it would be worth while to pass through fifty Great Tribulations.

How glad we are that Satan, the proud, selfish and ruthless oppressor of our race is now being laid hold on by the Almighty hands of our Lord Jesus, and by

them is being hurled from his throne, never again to be permitted to mount it! With this faith in heart and mind let God's Faithful joyfully sing the song, "The kingdom of this world is become the Kingdom of our Lord and of His Christ, and He shall reign for ever and ever" (Rev. 11: 15)! And let all others mightily join in the refrain, "Alleluia! for the Lord God Omnipotent reigneth" (Rev. 19: 6)! Yea, let every one in Heaven and in earth sing the jubilee song of Liberty from Satan's yoke to the earth and to the inhabitants thereof; and let every human heart cry out, "Make room! make room!" for the great Liberator, our adorable Lord and Savior, Jesus Christ, who with His Bride, as the Seed of Abraham, shall bless all the nations of the earth, and as King of kings and Lord of lords shall reign forever and forever!

Satan will, after the Anarchy, attempt but one final effort against God's people, and that not against His spiritual, but against His fleshly Israel. One of the signs of our times as a fulfillment of prophecy has been Israel's returning to Palestine. This has had several stages, beginning with the Berlin Congress of Nations, 1878 (Zech. 8: 23), requiring Turkey to permit Israel's return to Palestine under certain guarantees of protection. Various civil disabilities in Slavic Europe have made such a return quite desirable for Israel. The World War, especially in the Slavic countries, served to loosen all the more the hold of many Israelites on Europe and caused their eyes to turn toward the Holy Land. The Balfour Declaration of 1917 greatly advanced their return. Arab opposition has given a temporary setback to their return, but in due time this obstacle will be removed. Present world-wide conditions have influenced many wealthy Israelites to divert vast millions of treasure to their Home Land, and the land is being richly built up; and much treasure is being laid up there for safekeeping against the financial losses of Christendom. All this is in fulfillment of prophecy

relating to our times (Ezek. 36: 8, 12). Satan, beholding these prosperous Israelites, and realizing that his days of mischief are about over, will, after anarchy has destroyed the future socialistic governments, in hatred against Israel stir up the anarchistic remnants of all nations to plunder the Israelites in Palestine. These plunderers, as described in Ezek. 38 and 39 and in Zech. 12: 1-9 and 14: 1-3, will be gathered by Satan from among all nations and will sorely afflict Israel in what the Bible calls Jacob's Trouble (Jer. 30: 1-9). This will be a very severe trouble, according to the prophetic description given in the above citations, and will be Israel's final chastisement. It will effectually turn them to the Lord Jesus in thorough conversion, when they, in the complete overthrow of their plunderers by the Lord Jesus, will remember that their trouble and their troublers' overthrow were forecast to them by the Truth people. And their affliction and the overthrow of their anarchistic plunderers will be the last act of Satanic oppression as the god of this evil world. With that wicked effort his days as man's supreme oppressor will be over, for which we thank God.

According to Rev. 20: 1-3, Satan will be bound and be imprisoned during the thousand years. The language of this passage, of course, is figurative. We understand that the bottomless pit symbolizes error, which, indeed, is a pit, and from the standpoint of its having no real foundation, is well represented by a *bottomless* pit. A key in Bible symbols represents the power to lock or unlock. In this passage the key is used to lock up Satan in the bottomless pit. The great chain by which Satan is bound represents the Truth in its various parts, as mighty in its Biblical, factual and reasonable proofs. The binding of Satan, therefore, represents his restraint by the Truth, Biblically, factually and reasonably set forth. This binding work has been a gradual one, and when completed, will have consisted of four stages. Its first stage was from 1874 to 1914,

when his binding was his increasing restraint by secular and religious truth, so that he could no more control the nations by his empire's three foundation doctrines—the Divine right of kings, aristocrats and clergy—and their three supporting doctrines—the change of humans into spirits at death, the consciousness of the dead and the bliss or torment of the dead. The completion of the first stage of his binding was marked by the World War, to which he resorted to maintain his empire, after realizing that he could no longer control it by its three foundation and three supporting doctrines, as of yore.

Since then he is trying to maintain it by various other errors, especially combinationistic ones, as these are manifest in various treaties, the League of Nations, the World Court, alliances among the nations, etc., combines among the financiers and unions and federations among the religious forces. By Biblical, factual and reasonable exhibitions of secular and religious truth, Jesus is showing, and will continue to show the erroneousness of these to such a degree that Satan, to maintain an empire at all, will resort to a revolution of the masses against the classes combined as above, and thereby will overthrow his present order. His resorting to the revolution—the fast approaching Armageddon—will be a proof of the completion of his second binding stage. He will establish on false teachings a socialistic form of government which, as the third stage of Satan's binding, Jesus will expose as erroneous, by secular and religious truth; and in a mad dash to preserve some sort of power over mankind, Satan will lead the people on to anarchy, which will prove the completion of the third stage of his binding. The fourth stage of it will be our Lord's exposures, by secular and religious truth, of his effort of despair and hatred against the Jews by the anarchistic remnants of all nations. Thus, at the end of the tribulation Satan's binding will be complete. He will have

run the full course of his pre-Millennial deceptions. In every way the Truth—the great chain—will restrain him, so that he will be unable to move hand, foot or mouth, in the way of deceiving the nations during the Millennium. His being cast into the bottomless pit represents his being left to his own unaided resources and speculations and being kept from learning any further truth; and his being kept in the darkness of errors of his own making is meant by his remaining in the bottomless pit, which certainly will be painful.

To accomplish this several things will be necessary on the Lord's part: (1) to remove Satan so far away from the earth that he will know nothing of what is going on here during the Millennium, and (2) to keep him there away from mankind during that period. This will prevent his learning the secular and religious truths given mankind during the Millennium; and separating him from contact with mankind will not give him opportunity to deceive any of them. It will also leave him to his own resources in imagining what is going on here. But with an intellect so perverted in power of reasoning, all his imaginations as to Millennial conditions and teachings will be erroneous. The errors that he taught mankind before the Millennium will during that period be so completely refuted that none of mankind will any longer believe them. Thus he will deceive the nations no more by error and sin during those thousand years. On the contrary, our Lord will operate restitution processes on the race so powerfully during those thousand years as to bring all the obedient to perfection—those obeying only externally, and not from the heart, to perfection of physical, mental, moral and religious faculty, but not to perfection of character; and those who obey externally and also from the heart, to perfection of both faculty and character. Thus the entire race will be perfect when the Millennium is over, and it will be in a better position to be tested for fitness or unfitness for everlasting

life than inexperienced Adam and Eve were when they were put on trial for life in Eden.

This post-Millennial trial of mankind will be during the Little Season at the end of the Millennium (Rev. 20: 7-9). In the passage just cited Satan is spoken of as being loosed out of his prison. As his imprisonment means his being in error and away from any contact with the race on earth, his loosing would imply his being brought back into touch with the race and finding out the exact truth on Millennial teachings and conditions. As his binding was a gradual one, extending over many years, so will his loosing—a permitting of more or less of knowledge to influence by deception—be a gradual one extending over many years, though his coming back to the earth will not be a long-timed journey. He will make a careful study of the situation, so as to get a thorough grasp of it, as the basis of a plan to seize control of the human race again. Doubtless Satan will not believe that he will be annihilated at the end of the Little Season, but like Pharaoh, his type, will persuade himself that God is too kind to take extreme measures against him; and he will therefore hope for another empire and reign over the earth for thousands of years, like his first one god will allow him to attempt to gain control of the race again, only as a means of testing the hearts' attitude of the perfected race for the manifestation of those who will be loyal to right principle under heart-searching tests and those who under such tests will not be loyal to right principle; for God is determined to let no person after having had a favorable opportunity for life exist after the Little Season, if he will not maintain loyalty to righteousness. So Satan's unbelief and ambition will inveigle him into the role of a tempter; and this will bring upon all a final crucial temptation, whose outcome will be life everlasting to the faithful and endless death to the unfaithful. Thus, as with Adam and Eve in the beginning, a trial to

determine worthiness or unworthiness for everlasting life must be undergone by all, and the stage for that trial will be set in the Little Season.

Of what will the deception consist, through which Satan will seek to make the race again his subjects? While we may not be too positive on this subject, we incline to the thought that Satan will seek to work out a deception as follows: After 2874 he will remind the people that the Millennium began in 1874 and, therefore, was over in 2874, that at the end of the Millennium, according to God's promise, the race would be given the dominion over the earth, and that the Ancient and Youthful Worthies, instead of yielding up to the race the promised dominion at 2874, have allowed year after year to pass since that time without making a move to give up that dominion to mankind as a whole. Thus he will slyly insinuate the thought that the Worthies are usurping a rulership over them, unauthorized by God and contrary to God's promise. These sophistries will affect responsively those who during the Millennium will not have in heart reformed, but only reformed externally in order to escape chastisement. Thus, instead of developing supreme love to God and equal love to man, such will have been developing a selfish disposition during the Millennium. And Satan's suggestions will appeal more and more to their selfishness. Shortly thereafter, under Satanic suggestion, they will begin to voice their thoughts, and more by hints to express their disapproval at the alleged usurpations of the Worthies. Presently, under Satanic manipulation, these hints will become direct charges, and later agitations will break out and more and more will multitudes—Gog and Magog—join these agitations. And as during the trial the Lord will not summarily punish wrong-doing, as He for their reformation will have done during the thousand years (Is. 26: 9), these selfish persons, encouraged by Satan, will think their course approved by the Lord. Under

Satan's lead they will organize to make their claims all the more effective. They will probably, at Satanic incitation, delegate committees to ask the Worthies to turn over the dominion to them, which, under Divine instruction, will be refused by them.

Satan urging them on, they will become increasingly urgent until, finally, they will commit such undeniable sin—perhaps the murder of the Ancient and Youthful Worthies, represented by the beloved city and the camp of the saints—that they will be proven to be sinful and thus unworthy of life. Thereupon will follow their and Satan's and the impenitent angels' annihilation, symbolized by their being cast into the lake of fire (Rev. 20: 9, 10, 15; 21: 8). Literal passages, like the following, prove this of the wicked: Job 6: 15, 18; 7: 9; Ps. 37: 10, 35, 36; 49: 12; 104: 35; Is. 65: 20; while the following passages show this of Satan: Is. 27: 1; Ezek. 28: 16, 19; Heb. 2: 14. Sometimes Rev. 20: 10, which in the A. V. speaks of the devil being *tormented* eternally, is quoted to prove that he will continue to exist forever. To this several things may be answered: The beast and the false prophet, which are spoken of in this passage, and which have the same thing done to them as is done to Satan, are not persons, but Satanic institutions, systems, organizations, which therefore will not exist forever (1 John 3: 8). What, then, is the solution of this matter? We reply that the word *basanizo,* translated *tormented* in the A. V. of Rev. 20: 10, is an unhappy translation here. This word has three meanings: (1) to examine; (2) to examine with torture, and (3) to torture. The A. V. has taken the third, whereas the first meaning of this word fits here. The thought is this: that eternally perfect men will examine Satan's, the beast's and the false prophet's history, theories, effects, etc., and as a result of that examination will always conclude that these are worthily in eternal annihilation. The thought is more literally expressed in Is. 14: 15-20.

Satan will subject to temptation those who will have reformed not only externally but also internally, *i.e.,* those who will have faithfully developed supreme love to God and equal love to the neighbor, but he will fail to deceive them. As the sun melts wax, but hardens cement, so, by the heat of temptation, Satan will ruin the unfaithful, and will but strengthen the faithful. Their unselfish gratitude and appreciation of the Ancient and Youthful Worthies for ministering to their Millennial blessing and uplift will shield them from responding to the delusion that the former are usurping rulership over them during the Little Season. They will meet the temptation somewhat after this manner: "Though we do not understand why the rulership is not being handed over to us, we do not believe that they are usurping authority over us. And even if they should rule over us a few years longer than we have expected, we will not begrudge it of them, because their ministry assisted us up out of physical, mental, moral and religious degradation to physical, mental, moral and religious perfection. If they reign over us longer than we expected, they are welcome to it for the good they have done us; moreover, we are sure that it will result in greater blessing to us than if they did not so rule. Therefore, we will not murmur nor complain with our lips against them, nor resent and dislike their acts with our heart, much less do them insult and violence with our hands. And, finally, we love God so much that we will do nothing in the way of attempting to take matters out of His hands into our own. We will in such love wait on Him to manage this matter as it will please Him." Thus they will overcome the temptation, which after being faithfully met will be eased by their being given an understanding of the temptation denied the unfaithful, who will be permitted to remain in their delusion until escape will be impossible and their destruction inevitable, while the faithful will in perfection inherit the

paradisaic earth as their perfect and everlasting kingdom in righteousness and blessedness.

Among other Biblical types the experiences of Moses and Israel and of Pharaoh and the Egyptians at and in the Red Sea are given as a type of the Little Season's experiences of the Christ and the faithful restitutionists on the one hand, and of Satan, his fallen angels and wicked men on the other hand, the former coming to safety in everlasting bliss and the latter to eternal destruction, as a result of their varied wicked attitudes, while the song of praise to Jehovah sung by the Israelites on the other shore types the Hallelujah anthems joined in by all in heaven and earth as a choir—an anthem that will be lived as well as sung (Rev. 5: 13). This outcome of God's plan reveals Satan's true character and work. At best, so far as the Elect are concerned, he has served as a catspaw to pull God's chestnuts out of the fire, as a grindstone to make them acute, as a mason's tools and materials to shape, smooth and polish them, as shears to prune them, as a rod to discipline them and as a proving machine to test them. At best, to the world he is now a fire that burns them to teach the burnt ones to dread the fire, and in the Little Season the roaring lion, who will make the faithful seek a refuge in God away from the lion's power to harm, and who will devour the unfaithful, remaining within reach of the lion's paw. And these good results are not of his planning or design, but are of the Lord's overruling untoward things for the glory of his Name in the blessing of the faithful and in the destruction of the unfaithful. At his bad and worst, in his thoughts, character and works he is guilty of all the evil and more, too, than we have written of him here. Surely, as we contemplate his past, present and future activities, we are constrained to say also of his end—annihilation: "Great and marvelous are Thy works, Lord God Almighty; just and true are Thy ways, Thou King of the nations … for Thy righteous acts are made manifest" (Rev. 15: 3, 4)!

So far in our study of the evil angels we have given our attention almost exclusively to their leader, Satan, saying almost nothing of his associate evil angels. We now proceed to a brief study of them. Some, giving a literal and historical, instead of a symbolic and prophetic explanation to Rev. 12: 7-9, have imagined that Satan and a number of literal angels before man's creation made a rebellion in the literal heaven, were defeated and cast out of it into a burning marl—an imaginary hell—which they fancy to be far away from the earth. Certainly Rev. 12: 7-9, being, like the rest of that book, a symbolic prophecy of things to come (Rev. 1: 1, 2), cannot have such a meaning. As we saw, Satan fell into open sin after Eve's creation; and, according to the Bible, the rest of the fallen angels sinned shortly before the flood. To make this matter clear we will have to give a description of the first world, the world before the flood, and of its heavens and earth.

The first world—"the world that then was," "the old world"—was from the creation and fall of man until the flood, lasting 1656 years. It was the order of affairs that prevailed among men especially from the fall into sin and the curse until it was blotted out by the flood in the days of Noah. It was an evil order of affairs, because in it sin, error and death prevailed; but not being so evil as that one which followed, it is not, like the present order of affairs, expressly called, "that evil world." "The world that then was," or "the old world," consisted of two parts: (1) its heavens, and (2) its earth. But when we speak of its heavens and its earth, we are not to be understood as meaning the literal heavens and earth of those days; but are to be understood as meaning figurative or symbolic heavens and earth. But one might ask, "What is the difference between the literal and the figurative heavens and earth?" The literal heavens are, of course, the planetary systems and their suns that we

see above us on cloudless nights; while the literal earth is the planet on which we live, build our houses and plant our gardens. These literal heavens and this literal earth are used in the Bible in a natural figure to represent symbolic heavens and earth. The following thought-likeness underlying these things suggests the use of the heavens in a symbolic sense: As the natural stars give light, so that we may find our way in the natural night, so teachers of religion are to shed the light of Truth on the pathway of sinners, that they may find their way in the night of sin. As, therefore, all of the literal stars constitute the literal heavens, so all of the religious systems and their teachers in any of the Bible's three worlds constitute the heavens of that world. That the Bible speaks of a teaching class or system in the sense of symbolic stars is apparent from many verses, of which we will quote a few: "They that be wise [literally, *teachers*; see margin] shall shine as the brightness of the firmament [the sun]; and they that turn [convert] many to righteousness, as the *stars* for ever and ever (Dan. 12: 3). The Christ from the standpoint of giving the world the light of Truth during the Millennium, are called the Sun of Righteousness and the Sun (Mal. 4: 2; Matt. 13: 43). False teachers are called wandering stars (Jude 13). The special teachers of the Church in her seven epochs are called stars (Rev. 1: 20). The twelve Apostles as the teachers of the entire Church are symbolized by the twelve stars crowning the woman who symbolizes the Church (Rev. 12: 1). And Jesus, from the standpoint of giving the Truth in the dawn of the Millennium, is called the Day Star and the Morning Star (2 Pet. 1: 19; Rev. 22: 16). These passages, proving that religious teachers are symbolic stars, enable us to see how that all of the symbolic stars of a world would be the symbolic heavens of that world—order of affairs.

In the Bible, angels—the spirits that God made as His servants (Heb. 1: 14)—are called *stars*, or teachers. In job 38: 7, they are spoken of as the *stars* that sang together early in human history, rejoicing in God's creation. Lucifer, *light-bearer,* who later became Satan, was like the morning star—"son of the morning"—and later in unholy ambition sought to mount above (to become supreme over) the other stars—angels (Is. 14: 12, 13). According to these verses, the angels have been teachers—symbolic stars. When? Evidently they will not be the heavens—the teachers—in the world to come; for St. Paul expressly says, "Unto the angels hath He [God] not put in subjection the world [Age] to come" (Heb. 2: 5). Nor are they the religious teachers of "this present evil world," for the Lord has made certain men teachers of religion in "this present world," as can readily be seen from Cornelius' experience, to whom an angel was sent to show where a preacher might be found; but the angel was not himself privileged to teach Cornelius the Truth unto Salvation; for instead of attempting to teach Cornelius, the angel said to him, "Send … for … Peter, who shall *tell* thee *words* whereby thou and thy house shall be saved" (Acts 11: 13, 14). Therefore, not being the symbolic heavens of the second and third worlds, if the angels ever were symbolic stars—teachers of the human family—it must have been before the flood—in the "world that then was," in "the old world," *i.e.,* in the first dispensation.

The angels are expressly spoken of as having been the authorized teachers of the human family, and as having been clothed with power to reward the obedient and punish the disobedient, in the following verse: "For if the word spoken by angels was steadfast, and every transgression and disobedience received a just recompense of reward" (Heb. 2: 2). This passage, in the light of the foregoing considerations, implies that before the flood the symbolic heavens—the symbolic

stars—light or truth bearers—were the angels who were the authorized teachers of the people, rewarding them for obedience and punishing them for disobedience. It is true that the Bible does not give details as to their administration of affairs; but piecing together the thoughts Scripturally indicated and implied, we infer that they were permitted by the Lord, who foreknew their failure, to seek the uplift of mankind after sin had entered the world, and thus were made the religious teachers—the stars, the symbolic heavens—in "the world that then was." But instead of success crowning their efforts, matters became worse and worse until man's wickedness required the punishment of the flood, which was effected by God's causing the canopy of water that enveloped the earth—"the waters above the heavens" or earth's atmosphere—to drop upon the earth in a worldwide deluge.

But not only did mankind steadfastly continue its downward course; but many of the angels were misled into sin in an unauthorized attempt to stem the tide of human wickedness and to restore mankind to perfection. While the Bible does not give us the details, yet from the facts that it does give us we may properly infer that the following things occurred: Satan, who originated sin among men and angels, seems to have suggested the following thoughts to the angels while they were somewhat discouraged by their failure to uplift fallen man: "Your failure is due to your use of an inadequate remedy for man's sin. He is becoming worse because of *hereditary* depravity. A pure fountain is indispensable to pure water. If you make the fountain pure, you will have pure water. The race is impure because it comes from an impure fountain through heredity. You have the power to materialize human bodies (Gen. 18: 1, 2; 19: 1; Judges 6: 11-22; 13: 20; Luke 1: 11-22, 28-38; etc.). Use this power, marry women and raise families; and you will impart your sinlessness to your posterity, and

by the by, through a pure heredity, sin will be blotted out of the race." We say that Satan suggested such thoughts, because (1) apart from Satan angels did not sin until just before the flood (1 Pet. 3: 19, 20; 2 Pet. 2: 4, 5*;* Jude 6, 7); (2) he led many angels into sin; and (3) the angels sinned by marrying women and raising families (Gen. 6: 2, 4; Jude 6, 7; A.R.V. margin), thus leaving their own habitation—their mode of living as spirit beings—and becoming guilty of fornication and going after strange flesh—a different nature from their own; and St. Jude tells us that they in these matters did as the people of Sodom and Gomorrah did later. But, instead of the offspring of these angelic fathers and human mothers being sinless, they seem to have increased the wickedness of the antediluvians (Gen. 6: 4-6). The procedure of the angels in this matter was entirely unauthorized. We may assume that when Satan first made his suggestion, it appealed to all as plausible; but doubtless some of them had doubts as to its propriety, because God had never authorized such a procedure. Some of the angels refused to enter into the suggestion unless Divinely authorized so to do. But there were others that allowed their zeal to reform the race to set aside proper caution; and these, following Satan's suggestion, instead of reforming the race, plunged themselves into sin, and the race into deeper sin. Thus the heavens—the symbolic heavens—of "the old world" became unfit for Divine use as religious leaders and teachers—symbolic stars. What a solemn lesson to us always to find out the Lord's will on everything before attempting it, if we would be one with Him!

Let us briefly look at the symbolic earth before the flood. We understand the symbolic earth of any world to be the organized society of that world. Often the word, *earth*, is symbolically used in the Bible to mean *society.* For example, when Jesus said, "Ye are the salt of the earth" (Matt. 5: 13), He certainly did

not mean that we are literal salt placed in the literal earth to season, nourish and preserve it, but that in human society—the symbolic earth—Christians are a seasoning, nourishing and preserving factor. Evidently Is. 60: 2 does not refer to the literal earth being in gross literal darkness; for if such were the case, it would be dark wherever the sun does not shine on the earth, no matter how many saints were there; and it would be light wherever the sun shines, no matter how many sinners were there. Evidently the thought of the verse is that while *society* in general would be in the darkness of error, the faithful would be in the light of Truth. How apparently does the word *earth* mean society, in its first use, and the planet on which we live, in its second use in Gen. 4: 14: "Thou hast driven me out this day *from* the face of the earth [society]; and from Thy face [favor] shall I be hid; and I shall be a fugitive and a vagabond in the earth [our planet]." Again, "the whole earth [human society] was of one language" (Gen. 11: 1). Other illustrations of the symbolic sense—society—as being given to the word *earth* could be cited; but the above are sufficient to prove the point under consideration.

It being established that the symbolic earth of the Scriptures means *society,* we now remark that the symbolic earth upon which the angels as the symbolic heavens shone before the flood was human society as then constituted. From the fact that the earth was not divided up into private property until in the day of Peleg [*divider*] after the flood (Gen. 10: 25); from the fact that the first human government was organized by Nimrod (Gen. 10: 10), and from the fact that the first business transaction on record in the Bible is that of Abraham's purchase of the field and cave of Machpelah (Gen. 23: 3-20), we infer that before the flood there was no private ownership in property, no governments among the people, and no competition in business. In other words, society seemed to be

organized on a more or less communistic basis, somewhat after the manner of the social organization of the North American Indians. It was this peculiar social arrangement, combined with man's increasing selfishness and sinfulness and the greater selfishness and sinfulness of the giant offspring of the angels (Gen. 6: 4), that made the earth—society—"corrupt" (Gen. 6: 5, 6, 11-13)—an expression that cannot be applied to the literal earth. The reader will note that in every use of the word, *earth,* in the above-cited verses it means *society*. Thus the order of affairs before the flood—the angels in charge of the race and the race organized on a sort of communistic basis—proved to be a failure, so far as concerns the reformation of man from sin and his restoration to his Edenic perfection.

The foregoing discussion proves that both the symbolic heavens—the angels as the teachers of the human family, and the symbolic earth—society organized on somewhat of a communistic basis, became corrupt—unfit for the Lord's further use and tolerance *as such.* Hence He determined to destroy the world—not the physical, but the symbolic world, consisting not of the physical, but the symbolic heavens and earth (Gen. 6: 3, 5-13, 17). That the symbolic world is referred to as having been destroyed by the flood in 2 Pet. 3: 6, and not the literal world, nor the human family, is evident from the fact that we still have the same literal heavens and earth that existed before the flood and that the human family still exists; for had the world in the sense of the human family been destroyed by the flood, a new human race would have been created, while the Bible shows that a part of the human race survived the flood. Therefore it was the symbolic world that was destroyed by the flood (Gen. 6: 13; 9: 11), *i.e.,* the order of affairs in which the angels were the teachers of the human family, and in which the human family was socially organized on a somewhat communistic basis, was forever set aside by the

flood. Thus ended "the world that then was," "the old world"—not the human family, nor the universe, nor the literal earth, but the order or dispensation of affairs existing in the human family before the flood.

Thus we see that the human race in eight persons survived the flood. So, too, did the fallen angels survive the flood, but no longer organized as the symbolic heavens—teachers of the race as organized anew in the second earth. On the contrary, they were sentenced not only to the punishment of being demoted from being the teachers—symbolic stars—of the human family, but were further punished (1) by being imprisoned within the atmosphere of this earth, no longer, as formerly, being allowed the freedom of the universe, and (2) by being restrained from all manifestation of themselves to humans in the light, being limited to darkness for such manifestations. Both Peter and Jude tell us of these two forms of punishment as being meted out to the fallen angels after the flood for their sins before the flood (2 Pet. 2: 4; Jude 6, 7). We have above explained Jude 6, 7, as showing the peculiar form of the angels' sin before the flood. The second part of v. 6 points out their punishment: "The [sinning] angels … He [God] hath reserved [kept] in everlasting [ages-lasting] chains [imprisoned within the atmosphere of this earth, where they are under the prince—Satan—of the power of the *air,*—Eph. 2: 2] under darkness [limited to operating visibly to darkness, hence in séances no lights are allowed, since in the light these fallen angels cannot manifest themselves] unto the judgment of the great day [in which we have been since 1874, which accounts for the gradual loosing of their visible manifestations from the limits of darkness and their gradually increasing materializations in the light]. But 2 Pet. 2: 4 is more clearly to the point than Jude 6, when the veil of mistranslation is removed; for here the A. V. renders one word, the verb *tartaroo,* by five

words, "*cast them down to hell*,"—a verb, a personal pronoun, an adverb, a preposition and a noun. This fact properly arouses suspicion that some violence has been done in translation to the verb, *tartaroo*. This verb is from the same root as the noun *tartaros*, which the heathen Greeks used to designate a gloomy prison in which wicked spirits were kept imprisoned and where they were more or less tortured. And when the Catholic Church in the Dark Ages took over from the heathen the doctrines of the consciousness of the dead and the eternal torment of the wicked, it without Biblical warrant introduced and magnified the heathen ideas associated with *tartaros*. If we keep in mind the basal idea of *tartarus* as a prison and make a verb of it, we have the true meaning of the verb—*to imprison*. Thus Peter by the verb *tartaroo* tells us that God *imprisoned* the angels that sinned; and since Jude tells us that such imprisonment lasts until the great day, and since these fallen angels as the power of the air are active among humans, e.g., in demonizing people, appearing in séances and other occult practices, we conclude that earth's atmosphere is their prison (Matt. 12: 24-27; Eph. 2: 2; 6: 11, 12).

None of the other sinful angels are of so high a nature as Satan, he being the only cherub to have sinned. Despite the fact that Satan deceived them into sinning, he succeeded in securing their subordination to him since the flood, which is probably due to the facts that, feeling the need of some organization among themselves and knowing that Satan was their superior in nature and consequently in the compass of his powers, they accepted his supremacy among them, and under his direction they were organized into the invisible phase of his kingdom. While the Bible does not give us definite details on the organization of the invisible phase of Satan's kingdom, it shows us that it is an organized arrangement, from the fact that it proves Satan to be its chief (Matt. 12: 24) and other

fallen angels to have varying ranks in that kingdom (Eph. 2: 2; 6: 12). Since his kingdom is a worldwide one (John 12: 31; 14: 30; 16: 11), it is doubtless divided into departments corresponding to the various governments, religions and aristocracies among men, without overlapping into one another. Especially would this be so in the countries where there have been one religion and one form of aristocracy. Thus, *e.g.,* in a country like Russia one of Satan's chief deputies would be in charge of a large number of demons, of various ranks and authority, and thus they would rule over Russia governmentally, religiously and aristocratically. And as that country was a unit of Satan's kingdom, under the lead of its chief ruler (who was, of course, subordinate to Satan), the country would be divided up among various groups of the fallen angels, each group having a chief who would act under Satan's chief deputy for Russia. Thus the demoniacal rule would be universal in Russia. The same principle was doubtless carried out in all other countries of Satan's empire, similar things there taking place.

The chief deputy of Satan in each country got himself called the god of that country in heathen times and countries, and national patron saints in the Catholic countries of Christendom. Thus the so-called Saint George was the counterfeit patron saint (actually a demon) of England; St. Denis, of France; St. Michael, of Germany; St. James, of Spain; St. Patrick, of Ireland; etc., etc., while provincial and local gods or so-called saints were actually the demons in charge of provinces, cities and towns of the various countries. Thus they got themselves worshiped (Lev. 17: 7; 2 Chro. 11: 15; Ps. 106: 37; 1 Cor. 10: 20, 21). This shows us how thoroughly the invisible phase of Satan's empire was organized. For varying reasons, always at Satan's instigation, these demons incited the nations to war on one another, the false religions to war on one another or against the true religion and the members

of various aristocracies or members of the same aristocracy to war on one another. The case of Joan of Arc, incited (supposedly) by St. Michael (actually by a demon who impersonated Michael), aroused France to renew the war against England. There cannot be doubt in the mind of those truly instructed on the subject (Rev. 7: 1-3) that the World War was of demoniac origin and furtherance, as evidenced, *e.g.,* by many reports from soldiers, on both sides, of visions of angels leading them on into the fight. Thus all sorts of movements, governmental, religious and aristocratic, have been inaugurated, incited and led by the invisible phase of Satan's kingdom.

These demons have wrought on nations, groups and individuals. They have resorted to all sorts of methods and means to get influence and control over these. In all Satan's methods and means of obtaining control of mankind they have been the agents to bring these into operation among men, using false religious theories more than any other things to accomplish their ends. These fallen angels thus duped the race into believing the then foundation and supporting doctrines of Satan's empire, as well as hordes of other errors of doctrine, practice, organization, ceremonial and custom. Very fertile in deceptive contrivances have they been through the doctrine of the consciousness of the dead. In Deut. 18: 9-14 and Is. 8: 19, 20, a list of these is given, among which are mentioned: making children pass through the fire, divination, observing times, enchanting, bewitching, charming (hypnotizing), consulting familiar spirits (fortune tellers), necromancy (alleged talking with the dead, actually with demons impersonating the dead). In their approach to individuals they have set as their ultimate goal demoniacal control, and to gain it they have been using five distinct steps: (1) *suggestion* of whatever thought they considered advantageous to them for each individual case; (2) *diversion* of one's attention from that on which he desired to fix his mind

to such thoughts as would interfere with one's direction of his own thoughts; (3) *impression* of all sorts of vagaries, dreams, hallucinations, etc., to make one's mind wander and weaken his will for logical thought, feeling and action; (4) *obsession,* whereby a partial control over the will is obtained, and finally, (5) *possession,* in which the person's will is entirely controlled by the demons, who would thus make their victims act as foolishly, wickedly or insanely as they might desire. The Bible has much to say of demoniac possession and of Jesus and the disciples freeing people therefrom (1 Sam. 16: 14-23; Matt. 8: 16, 28-34; 9: 32, 33; 12: 22, 43-45; 15: 22-29; 17: 14-18; Mark 1: 23-26; 3: 22; 16: 9; 9: 38; Acts 5: 16; 8: 7; 16: 16-18; 19: 12). We all recall how the demons caused Jesus to be accused of demoniacal possession (Mark 3: 22-30; John 7: 20; 8: 48; 10: 20). To discredit Jesus and the Apostles they attempted to give testimony of them (Matt. 8: 29; Mark 1: 23, 24; 3: 11; 5: 7; Luke 8: 28; Acts 19: 15). Thus they figure in the Bible.

In our day demoniac possession and spiritism are the favorite methods of these demons. Many people have by these demons been led to give up all belief in most phases of demonism, especially witchcraft and demoniac possession. But they are undoubted facts, now being enacted. According to medical authorities, two-thirds of the inmates of insane asylums are there for no other cause than demoniac possession, evidenced by the fact that they have no functional derangement, such as normal insanity entails. And the demons obtain this possession by the five steps above described. For the last 90 years the demons have been making great efforts to inveigle people into demonism by spiritism. While fully 95% of the manifestations in séances are slight-of-hand trickery in which the mediums are taking a conscious part, perhaps 5% of the spiritistic phenomena are manifestations of genuine spirits. These spirits are not the dead, who are unconscious (Job

14: 21; Is. 63: 16; Ps. 6: 5; 115: 17; 146: 4; Eccl. 9: 5, 6, 10; Is. 38: 18, 19), but they are the fallen angels, who impersonate the dead and deceive the unwary by telling them things of which they believe no one else except the dead and themselves have had any knowledge. We raise a warning against spiritism as a gigantic fraud palmed off by the fallen angels to mislead and injure all whom they can dupe; for these are the lying spirits mentioned in the Bible (1 Tim. 4: 1). These Satan uses to bring mankind to, and to keep them in subjection to him; and certainly by their manifold aid, of which a few of its forms are given above, he has succeeded with the bulk of men.

We saw above that Satan originally deceived these angels into sin. He has since been deceiving them further, *e.g.,* into believing that our Lord intends to torment them (Matt. 8: 29); and it is for this reason that they tremble instead of trust (Jas. 2: 19). It is because, unlike Satan, who sinned originally without being deceived, they were deceived into sin, that the Bible teaches an opportunity of repentance and trial for life for them. This is taught or implied in passages like 1 Cor. 6: 1-4; 4: 9; Eph. 1: 10; 3: 10; Phil. 2: 10, 11; Col. 1: 20; Jude 6; 1 Pet. 3: 18-20; 2 Pet. 2: 4; 1 Tim. 3: 16; 2 Tim. 4: 1. According to these passages, throughout the Gospel Age God has through the Church been enlightening the fallen angels on the actual purposes of God with respect to God, Christ, the Church, the world and themselves. Thus they have been getting the needed enlightenment as an encouragement to repent. The fact that God is too wise and practical to undertake a thing in which no success whatever is obtainable, proves that some of these fallen angels have been repenting, which doubtless has resulted in their suffering great persecutions as "turncoats," "traitors," etc., from Satan and the impenitent angels, under which conditions they must purge themselves of their sins. Now, in the Epiphany time

(2 Tim. 4: 1), the penitent angels, who, among others, are "the quick" of the passage last cited, are being separated, "judged," from the impenitent ones. The latter as irreformable will be imprisoned with Satan in the bottomless pit during the Millennium, while during that time the penitent angels will get their trial for life, and those successful therein will be restored to God's eternal favor with their sins as fully forgiven and forgotten by God as mankind's Adamic sins will be (Jer. 31: 34). The impenitent angels will not be given the Millennial opportunity of undergoing trial for a full restoration to God's eternal favor; for their impenitent course has hardened them in sin irreformably, as Satan's course therein has done to him, hence it would be fruitless to give them a trial for life then. With him they will be imprisoned in, and later loosed from the bottomless pit in the Little Season; and with and under him, as typed by Pharaoh's captains (Ex. 14: 7), they will seek to bring mankind again into sin; and with Satan and apostate men they will all perish in the Second Death, typed by Pharaoh's and his officers' and men's overthrow in the Red Sea. Thus the Sublime Drama will end with the annihilation of all evil beings and things, and in the eternal permanence of all good persons and things: "Glory to God in the Highest, and on earth peace, good will to men" (Luke 2: 14; Ex. 15: 1-21)!

O Thou Almighty on Thy radiant throne,
Let endless hallelujahs be Thine own!
Let angels praise Thee that before Thee bow,
Let these creatures of celestial frame,
Our guests of old, our wakeful guardians now,
Praise Thee, and (may like zeal our hearts inflame)
Transport then, too, our praise to Thee from whence they came!

CHAPTER III.
THE WORLD OF MATTER.
Gen. 1: 1

ITS IMPLICATIONS. ITS QUALITIES—UNITY, IMMENSITY, BEAUTY, SUBLIMITY, ORDER, WONDROUSNESS, COMPLEXITY.

So far, in discussing God's works of creation, we have, in addition to giving a general introduction to the subject, set forth our understanding of the spirit world as one of the objects of God's creative acts. Next in order for our study come God's works of creation as to the world of matter, which is treated briefly in Gen. 1. We purpose by the Lord's assistance to make a detailed study of God's creative works as they are set forth in Gen. 1, and as the pertinent matters are corroborated by assured scientific findings; and we are glad to be able to say that the record of creation as contained in Gen. 1 is by assured science, as distinct from speculative theories and guesses, thoroughly corroborated. By science we understand the knowledge of facts to be meant, and not speculative theories on the meaning of such facts. Only too often are such theories in the minds of some confounded with the knowledge of facts—real science. If the Bible record of creation is true as to matters of fact, as it must be true, if it is Divinely inspired, which we believe it is, all facts will be found to be in harmony therewith. It is only when people treat their speculative and guessaged theories of facts as science that a conflict between these and the Bible can occur, *i.e.*, when such theories and guesses are untrue. Some of the ablest scientists that have ever lived assert the harmony of the Genesis account of creation with real science. This is as it should be; and the corroborations of the Genesis account by the assured findings of science are a sure evidence of its inspiration; for the

things of which it treats were not witnessed by humans, and hence must have come to man by revelation.

It will be remembered that in discussing the Hebrew word *bara*, we pointed out that it means, not to make something out of nothing, but to make a new thing out of previously existing things. Hence, we drew the conclusion that the substances out of which the world of spirit and the world of matter were created existed before the act of creating the universe. For a number of reasons we stated that so far as the world of matter is concerned its materials were made out of gases. Thereupon we met the question as to whether original matter was *originally* created or whether it existed forever. We answered that question as follows: The Bible is silent on that question, and therefore we would do well to follow its example of neither affirming the eternity of matter nor affirming that matter was brought into existence from something else or from nothing. Some have not been so wise as to follow this course, asserting that matter always was and by its own laws and forces brought the universe into existence. Thus they think they can dispense with a Creator, and accordingly are atheists. To their position the answer is simple: The universe is replete with some of the highest expressions of intelligence and some of the highest expressions of purpose and therefore could not have come from unintelligent and unpurposeful forces and laws working in and on matter. Since there is intelligence and purpose expressed in the effect, the universe, there must be intelligence and purpose in its Creator, since what is expressed in an effect must exist in its cause. This leads us to remark that the laws and forces used in creation must have been manipulated by an intelligent and purposeful Being.

But we know that the same forces and laws that underlie the more than 92 substances of which the earth consists are not the same as those that govern the gases

out of which they can be made nor the gases produced by reducing earth's elements to the gases they once were. Hence the forces and laws that were in the gases out of which the universe was made were different from those which control the present universe. This leads us to remark that if the original forms of matter, gases, were eternal, they must have been motionless from eternity until creative processes began to work on them, *i.e*., whatever forces and laws acted in and upon them must have put them into a condition of absolute equilibrium; for if manipulation of such forces and laws were not required to produce the universe, but merely that it was produced by their own automatic working, they would have produced it infinitely earlier than the universe began to exist, even according to the most unrestrained guesses of the most unbridled of speculative (alleged) scientists, made in their wildest imaginations. Therefore the theory of the eternity of matter implies that in its original forms its underlying forces and laws made it absolutely motionless. Hence it and they had to be worked upon from without by an intelligent and purposeful Agent, to produce the universe. And His working upon such matter and its forces and laws must have been in the comparatively recent millions of years. Hence the theory of the eternity of matter implies an intelligent and purposeful Creator. But we are by no means sure that matter is eternal. God may have created the original gases out of nothing, or out of other substances, for aught we know. We make the above remarks to show that the theory of the eternity of matter does not imply atheism, as some claim, but decidedly implies the existence of an intelligent, purposeful Creator. This being true, either theory (the eternity of matter or the making of matter out of nothing) implies the existence of the Supreme Being.

As we stated in Chapter 1, the word creation may mean (1) the process by which the universe was

brought into existence, and (2) the product of that process—the universe itself. In this chapter we are treating our subject from both standpoints, and for the sake of better results obtainable for clearness of understanding, we will first study the world of matter as a product of God's creative acts and afterward the process whereby He brought it into existence. It will be noticed that Gen. 1: 1 states both of these things. By the word, "created," the process of creation so far as the world of matter is concerned, is meant, and by the words, "heavens" and "earth," the product of that process is meant. This is manifest from the literal translation of that verse: "In a beginning God created the heavens and the earth." As shown above, the word *beginning* (*resheth* in Hebrew and *arche* in Greek) does not mean *eternity*. Nor is the beginning here referred to the first beginning in God's creative operations; for there were at least two other prior beginnings in God's creative work. The first one of these was that in which the pre-human Word, who afterwards became human in the person of Jesus of Nazareth, was brought into existence as God's Firstborn. The second of these was that beginning in which the other spirits in the world of spirit were brought into existence. There being various beginnings in God's creative work, it is highly appropriate that the Hebrew of Gen. 1:1 should call the beginning to which it refers *a* beginning. This beginning was very probably millions of years ago and continued until the first creative day of Gen. 1: 3-5, over 48,000 years ago, as we showed above.

By the heavens of this verse, not the sky, not the clouds and not the atmosphere are meant, but the solar systems, visible to us by eye or telescope or invisible to these, are meant. Apart from the planets of our solar system the stars that we see are other suns than ours, and each of these carries with it its own retinue of planets. Literally billions of such suns have been

discovered and charted by astronomers. And if the number of planets and moons in our solar system averages the number of planets and moons in each of the other solar systems, there are literally many billions of planets and still more billions of moons in the solar systems so far discovered. And there are unnumbered others not yet brought to view by the greatest telescopes so far invented; for the universe is boundless in extent and therefore, as required by the laws of gravitation, there are still other worlds beyond those yet revealed by the most powerful telescopes. Astronomers have discovered thirteen Milky Ways in succession beyond the one we see without telescopes. It is this collection of suns, planets and moons, not to mention asteroids, comets, etc., that are meant by the expression, *the heavens*, in Gen. 1: 1. By the expression, *the earth*, of course, the planet on which we live, plant our gardens and build our houses, is meant. As we have shown above, the word *create*, used in Gen. 1: 1, teaches us that out of previously existing substances the universe was made. Later we showed that these substances were gases, which by manipulation were condensed into the heavens and earth. Then Gen. 1:1 assures us that the blind forces and laws of nature were not the Creator, as atheists hold, though they were undoubtedly used as tools and powers in the creative work, but that God, the Supreme Being, brought the heavens and earth into existence. The sentence of Gen. 1: 1, with which the Bible opens, in very simple language states one of the sublimest facts ever expressed—that the almost infinite universe was in a creative period made by God.

Creation as a product has a number of qualities, on some of which we desire to express some thoughts. We are now, it is to be remembered, discussing creation, not as the world of spirit, but as the world of matter, and as such its first quality on which we desire to make some remarks is that of its unity. This idea is involved

in the name we give it, the *universe*, which word is derived from a Latin word compounded from the words *unus* (*one*) and *versus* (*turned*), *i.e.*, all things turned into one. It is also implied in our English word *cosmos*, derived from the Greek word *kosmos*, though in the latter word the idea of the universe's beauty and order is also contained. By the unity of the universe we mean nature as a whole, in which all parts are inseparately united by interdependent relations of adaptation that make them one grand system of things. Such a unity we find permeating the universe everywhere. Thus the materials of which the universe consists are a unit, in the sense that they are all derived from one source, gases, and in the sense that its chemical elements, so far as we know them, are of the same kinds everywhere. The unity of the world as one grand system of things is apparent, too, when we consider each solar system. Each one consists of a center, its sun, each sun having its retinue of planets and each of these in most cases having its moon or moons. Each planet has its own orbit, on which it revolves about its sun, as well as its own axis, on which it rotates so as to face on its every side the sun every so often, varying according to its distance from its sun. This unity is seen in the moons, each planet having one or more moving on its orbit or their orbits about that planet.

This unity is seen in the regular relations of these planets to their suns and to one another, maintained by these with mathematical precision, as days, weeks, years, centuries, ages and epochs pass by in endless procession. Not only so, but this unity is seen in that in every solar system the sun, the planets and their moons revolve on their axes and about their orbits in the same direction, thus avoiding friction or collision and maintaining their perfect balance in their mutual relations. Yea, still more wonderful, all of these solar systems maintain their exact distance relationship to

one another in all the mighty and intricate sweeps that they make through the realms of boundless space, so that the precessional cycle of the universes—the period that is required for every part of the universe to make such a round of its courses as to put every part of it in exactly the same position, not only relatively, but absolutely in the same part of space as it was before—comes every so often, *i.e.*, between 25,000 and 26,000 years apart. And, finally, this unity of the universe is seen in the fact that all of these solar systems move about a common center, which astronomers identify with Alcyone, one of the Pleiades. This is in harmony with a hint that God has given, that His gracious power proceeds from the Pleiades, from whence, accordingly, He governs the universe (Job 38: 31). This, of course, is just what should be expected—the Almighty Engineer of the universe controls its throttle from His seat of power. The facts set forth in this and the preceding paragraph show us that the universe as a system of solar systems is a unit, as each of these solar systems is likewise a unit. Wonderful is the power and wisdom of Him who controls and regulates such an intricate system of things!

There are other facts of the universe that reveal this unity. One of these that may be mentioned is the force of gravitation. This is an all-pervading force which has been mathematically demonstrated to act in proportion to bulk and inversely as the square of the distance. It governs the relative movements of every planet, moon and sun and every solar system in the universe and keeps and makes each one of them run in its proper orbit and makes each one of them rotate on its axis. Accordingly, it keeps the universe in perfect balance. It rules the relation of everything on earth to the earth. If it should not operate, people would jump into limitless space and never get back again. The structure of everything in the universe is dependent

upon it. We see it in the cohesion and adhesion of the electrons, atoms and molecules that make matter hold together. Thus it is manifest in inorganic matter, in the vegetable world and in the animal creation. Every rainfall shows it; every waterfall exemplifies it; yea, every drop of water evidences it. It permeates and pervades the three forms of matter: solids, liquids and gases. Its operation in the fall of an apple enabled Newton to discover the mode of its operation—in proportion to bulk and inversely to the square of its distance. In fact every part of our bodies requires its operation; and if it should cease to operate we would fall apart, until nothing but the negative and positive parts of our electrons, separate and distinct, would remain. Perhaps this force is the most controlling of all natural forces, requiring all other forces of nature to be its subordinates; and its presence and operation attest the unity of the universe, showing that each part attracts every other part in proportion to its bulk and inversely as the square of its distance. This force, then, attests the unity of the universe.

Again, the unity of the universe is attested by light. It opens before us everything that by sight we know as being about us. It comes to us from the depths and reveals other heavenly bodies than our earth. It comes to us indeed as a heavenly gift, revealing to us sights of beauty in the glorious hosts of heaven. But for light we could not see day or night, sun, moon and star, or the oceans, seas, and lakes, or the mountains, hills, plains and valleys. The verdure of the earth, its beauties in flower, shrub, bush, tree, fruit and vegetable, its marvels in insect, reptile, beast and man, would be almost a closed book to us, if it were not for the gracious ministry of light. It enables one to see blessings coming, as well as woe, and thus prepares us to receive the former and warns us against the latter. Its connecting almost all things on earth with their environment and helping them to learn some of the

wonders of heaven show its indispensableness, as well as bring its attestation to the intimate interrelations of the things of the universe, as another contribution to the thought of the unity of the world. Gravitation and light are very different in themselves and in our understanding of them. While we know how to measure gravitation, we know almost nothing of the method of its operation. But we know not only the measure of light, but also the mode of its operation. We know that it operates as substances set loose from heavenly bodies and uses the medium of ether for its race courses, over which it speeds at about 186,000 miles a second. Light is not merely a creation of the retina of our eyes. It is a thing that exists as a spiritual substance apart from us, though our eyes apprize us of its presence. By it, among other things, we are made aware of our relation to the rest of the universe of things and beings. Its indispensableness to growth, health and, in the long run, to life, proves it is an element in the unity of the universe.

Then, its presence implies the existence of a medium through which it travels. If the space between the worlds were a vacuum we would be unable to see; for then light, which is the condition of sight, since it manifests material objects to our eyes, could not travel from our sun and other suns to us and, therefore, we would be in the dark—sightless. Ether seems to be the medium through which light passes; for the substances cast off from the heavenly bodies move through the ether as a medium, somewhat after the manner that electricity passes through a wire. The medium is so attenuated that it cannot be seen or felt, even when one moves through it very rapidly. Yet while greatly attenuated it must be inseparably compact to admit of light passing through it without diminution, and that at the enormous rate of speed with which it travels. This fact proves it to be about as compact as any substance that we have felt; and it

thus proves that it is a medium that connects us with other worlds than ours. While light impresses but one of our senses, ether impresses none of them, so far as we are aware. Yet its existence is sure, since light must have some medium through which it passes. This medium cannot be the air, since above our atmosphere and beyond it to the sun there is no air, yet the light has a medium through which it passes while traveling through that space. Our knowledge of it depends therefore on pure reasoning, without the mixture of anything of sense perception. It evidently is a spiritual force or substance, like the light that it brings us and like the life principle that animates us. But the fact that it brings light to us and thus enables us to have one of our most important points of contact with the world about and above us, proves that it is one of the things that reveals the unity of the universe.

Radiant heat is another thing that manifests the unity of the universe. Like light, without it no animal or vegetable life would be possible; for without it all animal and vegetable life would freeze. Its absence is reached at 453°+ below zero Fahrenheit, and, of course, no earthly animal or vegetable life could exist in that temperature. It exists in all animate and inanimate material things, so far as we know; for everything contains some of it. But it is especially in our sun that, for our solar system, its main depository is found, though doubtless some of the planets have it in an intense condition, as can be inferred from Saturn's rings and Jupiter's vast clouds, indicating that they are yet in a more or less molten fiery condition. Ordinarily radiant heat, like light, is also an angel of blessing, giving us comfort amid cold and help for the production and cooking of our food and for our mastery over minerals, to mold and change them for our convenience, though its superabundance quickly becomes an evil to the living. Its presence in every solar system in effective ministry reveals its part in the unity of nature.

It, too, must have a medium through which it passes, apart from the air, and that for the same reason as we saw in the case of light. Its rate of travel is by no means so great as that of light; and, unlike light, going through space, it dissipates rapidly, so that while light reaches us almost undissipated at all from the sun and then rushes past us to almost infinite distances far away, even as it comes to us from some bodies almost infinitely distant from us, this is not true in anything like the same degree of radiant heat. While doubtless the heat of our sun by Divine design is to reach and minister according to the Divine intention to all of its accompanying planets and will forever so do, to minister to the beings that will yet be created on the rest of these planets, its great diversity in degree as it reaches Vulcan and Mercury from what it is when it reaches Neptune and Pluto implies that the bodies to be created will be organized on very different lines and with at least some different elements from ours: otherwise were they to have bodies organized as ours are, whereas those on Vulcan and Mercury would roast, those on Neptune and Pluto would freeze. But these considerations, especially its vehicle of travel and its ministry, prove that radiant heat is another force in the universe that manifests the latter's unity.

Then, the relations of heat and light to each other and in their ministries to the world imply the unity of the universe. That these are related is evident from the fact that they are thrown off by the same bodies. Fire throws off both of them from various bodies, and accordingly the heavenly bodies, afire as they are, throw off both of these. We know by observation and experience that the sun, the mother of our solar planets, is afire and throws off light and heat. Usually intense heat existing in gaseous form is non-illuminous, but let these gases cool off somewhat and they become afire and shed light as well as heat. Thus we

see that they are more or less a unit because of their origin. From this we are not to be understood to identify them; for we believe they are separate and distinct things. They arise from the fact that two different spiritual substances permeating certain materials are loosened from those materials through the agency of fire. Yet they are more or less related and have some substance in common, as is manifest from the fact that parts of each of them have been converted into motion, as Prof. Tindell has shown. We believe that his conclusion, that both of them are merely modes of motion, is incorrect; for there were other parts of them which escaped his converting them into motion, and these parts of them constitute the differences between them. Their different natures, motions, velocities, effects, etc., prove them not to be identical, though they are closely related in the economy of the universe, and thus their relation to each other in these economies proves the unity of the universe.

Chemical affinity is another force that proves the unity of the universe. All of us know or have heard of the experiments by which light, heat and chemical affinity can be separated from each other in the solar spectrum, and each of them can be made to show its own separate effects. The affinity that various chemicals have to one another is just what we should expect from the common origin of many elements of which our earth and atmosphere consist. And the results for blending various metals, etc., for useful inventions show the good of this force. We might also instance the various characteristics and effects of magnetism as another feature of the universe, in which magnetic forces play many useful parts in the economy of things. This is even more apparent in electricity, of which we know so little, and yet of which we can make so many uses. Its health-giving and disease-destroying effects are well known. It aids the deaf

ear to hear and frequently vitalizes the palsied limbs to activity. It carries our telegraphic and telephonic messages. Converted into light it turns our nights into day and used as power it propels our vehicles, runs our factories and welds our buildings and ships. Radio is another force that the universe brings to us as a ministering angel; and constantly we are finding new agencies that are so many forces of nature, showing its unity in the material universe. In their diversity these forces are separate and distinct, yet they work together. Mechanical motion is necessary to release all of them and in turn they will give rise to mechanical motion. So light and heat will set electricity into activity and in turn electricity will make them active. Electricity will give rise to magnetism and by the use of mechanical motion magnetism will arouse electricity into activity. So, too, with electricity and radio, these forces above all other things set chemical affinity into exercise. So chemical affinity under special conditions will set all these forces into action. And the intimate relations of all of these: gravitation, light, heat, chemical affinity, magnetism, electricity, radio (which, like all the others, finds ether as its medium)and the various rays—all attest with marvelous power and united voice that the universe is made up of a variety of mutually related and interdependent forces and things that make it a unity. The substances of the universe and the forces in, underlying and connected with these substances, are a unity of things not identical, suggested by their superordination, coordination and subordination, as the varying conditions dictate.

Again, this unity is seen in the way sound and life principle are related to the atmosphere. The way that the atmosphere carries sound is very likely the way ether carries light, heat, magnetism, radio, etc. If it were not for this atmosphere all the delights of music, oratory and speech would be lost and we would be

unable to hear one another. Here again is an adjustment that argues the unity of the universe. And what shall we say of life-principle, with which in the oxygen of the air the atmosphere is filled? Without it all life, vegetable and animal, on the earth and in the sea would be extinct. And the breathing apparatus of all things living on earth finds itself fitted to extract life-principle from the atmosphere. Here again the unity of the universe is shown. The minerals of the earth are adapted to nourish plant life, which also feeds on air and water—all placed by the universe at the disposal of plant life for its continuance and propagation. Again, the minerals answer to thousands of man's needs and his organs answer to these for his use of them, for his blessing or woe, as the use may be. They furnish him elements in the way of medicine for supply of deficient bodily elements, and also supply elements for the lower creation under certain limitations. In turn the vegetable world ministers to the animal world in the way of food, even as water and air contribute to these ends. And man, the highest of all earthly creatures, lays them all under contribution for his needs, comforts and joys.

This unity shows itself especially to man in his varied relations to the universe, particularly to the earth, its inhabitants and atmosphere. It is seen in the fact that his body consists of numerous elements of the earth and three gases: oxygen, nitrogen and hydrogen, and is instinct with life that he derives from the air. These he must continually appropriate, and his need of them is indicated by hunger, thirst, weakness and often by disease. These drive him to supply them by appropriation. Then this unity, which shows itself in a thousand relations of interdependence and adaptation, is manifest in the organs adapted to appropriation, as hands, mouth, teeth, throat, stomach, intestines, liver. The nourishment thus derived from the earth the blood is adapted to digest, distribute and

assimilate—again a wonderful exhibition of the unity of nature, of which the universe is full. Then, because some elements are unsuitable for appropriation or would act as poisons, the appetite, taste, kidneys, bowels, sweat pores, etc., reject these. Moreover, as there is need that the body have life, it must have organs adapted to absorbing life-principle from the air, and here comes forward for use and adaptation the breathing apparatus: nostrils, throat, bronchial tubes and lungs. And, that the life principle thus laid hold on might be assimilated, the blood stands ready with its white and red corpuscles to absorb it; and, to give it to every function of the body for use in exercising its ministry, the blood must carry this vitality to every part of the body.

Again, we must be brought into contact with the things in the earth and air, otherwise we could not lay hold on its stores adapted to our needs. These must in most cases be seen and our eyes are adapted to this, and this exhibits another of the unities of the universe. So, too, sound in the universe often calls in invitation to appropriate and often to warn of danger, and the unity of the universe is manifested in that we are capable of taking in sound for the positive and negative purposes just stated. Other dangers or blessings can appeal only to the scent, which accordingly works by adaptation on things of this kind, giving its pertinent warning to avoid or invitation to accept. Still other conditions can manifest themselves only by an appeal to or warning against taste, which, being present to deter or encourage, points out another feature of the unity of the universe. Then there are still other things that can appeal to feeling alone, and the unity of the universe is manifest in our having the feeling called into action by these things, whose workings are either to bless or to injure. Thus our five senses point out a vast set of five kinds of points of adaptation showing the unity of the universe.

This unity is manifest in our intellectual perceptions of things in sky, earth and atmosphere, wherein the perceptive faculties are adapted to these things and they to our perceptive faculties. How well adapted to remembering and reasoning on the universe in its diversities our intellects are, needs no details to illustrate. They connect us not only with the inanimate, but also with the animate universe. How many similarities there are between us and the lower animals! All have at least three things in common: body, life and soul powers, however much diversified. All have been built on the same general principle and all are endowed with powers adapted to their varying needs, capacities and designs, and this again shows the unity of the universe. As to bodily functions they have great similarity and this manifests itself in most cases in similar structure of organs and sometimes in form. All of these animals are adapted to avoid or associate with one another as the case may require. This unity is manifest in man's relation to the vegetable world, which is adapted to supply his need in the form of grains, vegetables, nuts and fruit, for which he has all the necessary organs to make them available for appropriation. Thus the whole animal and vegetable creation has mutual adaptations which exhibit the unity of the universe.

This unity is manifest in man's social and moral relations to his fellows and in his relations to God. The family relation is adapted to him and he to it. Here come in the existence of sex and the relations of attraction between the sexes, marriage, support, mutual helpfulness, propagation, raising of families, the headship of the man, the bodyship of the woman, the subserviency of the children. To these relations man is adapted physically, mentally, morally and religiously by his make-up. Then; he is adapted to a communal life, exhibited in community, state, industry, business, recreation and religion. Indeed, on lower planes mammals,

reptiles, fish, fowls and insects are more or less adapted to certain of these conditions, as can be seen, e.g., in ants and bees, herds and flocks. Everywhere and along countless lines we see these adaptations so suggestive of the unity of the universe. In the widest sense of the word *universe* (as including the world of spirit, as well as the world of matter) the adaptation of God, angels and men to one another carries the idea of unity of the universe to its utmost limits; and in this respect both spirit and human beings can well say, almost in the words of Augustine, "O, Lord, Thou hast made us for Thyself, therefore we can have no rest unless we rest in Thee." Hence the idea of the unity of the universe implies, leads up to, flows out of, and demonstrates the universe as the product of the one and only God, Jehovah, the God and Father of our Lord Jesus, and through Him and in Him our God and Father. Verily, unity is one of the qualities of the universe.

It will be recalled that we are now discussing creation as a product, *viz*., the universe, having reserved for later treatment creation as a process. That feature of creation as a product occupying our attention is the attributes of creation as an entirety. Of these we have so far discussed its unity. We will next discuss its attribute of immensity. And certainly when we consider the universe, its immensity is borne in upon us with deep impressiveness. Such immensity is present in the vastness of the universe's space, in the numbers of its heavenly bodies, in its great age, in the great bulk of the heavenly bodies, in the immense sweep of the solar, planetary and asteroidal orbits, in the great rapidity of their movements in their orbits and on their axes and in the great distances of the heavenly bodies from one another. As to the immensity of creation in space: we are warranted in assuming that space is infinite, for, like time, it can have no beginning or ending. In imagination we can take our

stand on the outmost planetary system brought to view by our most distant reaching telescope; and with a telescope as great as our greatest one we would see as many worlds beyond and as far away as we see in that same direction from the earth. Already fourteen Milky Ways have been brought to our view, each succeeding one being twice as far away from its preceding one as the Milky Way visible to our naked eye is from us. Indeed we cannot imagine an end to space, for there must be space endless beyond the furthermost stretch of our space imagination. We could measure off 999 vigintillions endlessly in our imaginations, but could not come to a place beyond which there is no space. Like eternity, space can have no beginning and no ending. And we know from the laws of gravitation that infinite space must contain an almost infinite number of solar systems; otherwise those in existence could not hold their places, but would "smash up in a wreck of matter." But this very thought makes our minds dizzy, since we cannot fathom it. In contemplation of it we can only bow and worship Him who is so great as to have made and to preserve so large a universe.

In considering the immensity of the universe let us study some of its details, beginning with our solar system, considering first the earth as a part of it, and then considering it in its other parts. Our earth is almost a perfect sphere, being a few miles less from pole to pole than from the equator on one side to the equator on the opposite side. Its longest diameter, *i.e.*, at the equator, is nearly 8,000 miles; and its diameter from pole to pole is only a few miles less. Its surface is about 200,000,000 square miles, a fourth of which is land. It is a solid to approximately 26 miles deep, and within this outer shell it is a huge cavern nearly full of a molten, burning mass. Its surface is a plane furrowed by beds of streams, lakes, seas and oceans, and bulged by mountains and hills, which in turn are

severed by valleys. Its greatest circumference (at the equator) is about 25,000 miles. While it is one of the smaller planets of our solar system, it is very large. This can be seen from the fact that if people traveled from east to west, if they were able to see 15 miles north and south of themselves, and if they would travel around the earth 30 miles further north and 30 miles further south each trip that they would take, they would have to encircle the globe no less than 417 times to see all its surface. To accomplish this would take a lifetime or more. Yet how imperfect would one's view be of the earth at say a few miles on either side of his 417 lines of travel! Or, take another illustration: Suppose one should remove an immense mountain like Mt. Rainier, leaving the place where it stood a level plane, it would, compared to our earth, be like removing a flea from the middle of an elephant's side; yet in Mt. Ranier there is more material than has ever been used by man in all his building operations since Adam's time. When we stand on a huge sea liner and view a vast ocean, when we stand at the foot of an Everest and behold its mass, when we stand at a sublime Niagara and watch its endless flow of unmeasured bulk of water falling over its precipice, we get but a faint impression of earth's immensity. Surely our earth is immense!

Much more so is our solar system. So far as our present knowledge goes, it consists of our sun, ten planets, at least twenty-six moons and over a thousand asteroids. And these deepen within us the thought of its immensity. This will appear from a brief description of our solar system: The sun is the center of this system, and around it all of the planets of this system revolve, carrying severally with them their moons. Each of these so revolves at a very precise time and yet the length of these revolutions varies with each planet. Our naked eye can scarcely look at the sun when it shines with its full strength upon us.

But looking at it through a darkened medium or when it is otherwise shaded, it seems to us to be no larger than an automobile wheel. It rotates about its axis every 26 days, running, because of its greater bulk, about four times as rapidly as our earth does about its axis, *i.e.*, it travels about 4042 miles every hour at its equator. It is 700 times larger than its combined ten accompanying planets with their 26 known moons and its, perhaps, thousands of asteroids. It is 1,300,000 times larger than our earth, *i.e.*, 1,300,000 of our earths could be crowded into the space that the sun fills in the universe. Its diameter is 880,000 miles, as against the earth's diameter of 8,000 miles. Its circumference is nearly 2,522,000 miles, as against the earth's of 25,000 miles. These numbers fail to tell the full story of the sun's immensity. If we would imagine the sun to be a hollow sphere except that it is solid a thousand miles deep on all sides below its surface, and if we would imagine the earth as being placed in the center of this hollow sun, with the moon 240,000 miles from the earth, as it actually is, and then have it revolve about the earth, it would make the revolutions just as far from the assumed inner solid side of the sun as from the earth, *i.e.*, 240,000 miles. The immensity of the sun's power of gravitation can be seen in that it attracts and holds in perfect balance and exact relative position its retinue of planets, moons and asteroids, making them revolve in their orbits and rotate about their axes in perfect time to the fraction of a second for endless years. It pours out light undiminishably and its heat inexhaustibly. It rules its empire, our solar system, in unchanging order, and will forever so do. It is intimately connected with life in all its forms on earth and in due time will have such a connection with life on the other planets of its system as these, one after another, will become perfect and inhabited. Surely the sun is immense from many standpoints!

As an illustration of the immensity of our sun we quote from Dick's Celestial Scenery, 214: "There is no point on the surface of the globe that unites so many awful and sublime objects as the top of Etna, and no imagination has dared to form a description of so glorious and magnificent a scene. The body of the sun is seen rising from the ocean, immense tracts of both sea and land intervening; the islands of Panara, Alicudi, Lipari, Stromboli and Volcano, with their smoking summits, appear under your feet, and you look down on the whole of Sicily as on a map, and can trace every river through all its windings from its source to its mouth. The view is absolutely [relatively] boundless on every side, so that the sight is everywhere lost in immensity. Yet the glorious and expansive prospect is comprised within a circle of about 240 miles in diameter and 754 in circumference, containing 45,240 square miles, which only 1/53,776,608 part of the surface of the sun; so that 53,777,608 landscapes such as are beheld from Mt. Etna behooved to pass before us before we could contemplate a surface as expansive as that of the sun; and if every such landscape were to occupy two hours in the contemplation, as supposed above, it would require 24,554 years before the whole surface of this immense globe could be in this manner surveyed, and twice that number of years (49,108), if the time of daylight, averaging 12 hours a day, were taken for the said survey." Surely, this gives us some idea of the sun's immensity!

We will now, as an elaboration of the thought of the magnitude of the solar system, as a feature of the magnitude of the universe, enlarge somewhat on the planets of our solar system. In so far as yet discovered, these in the order of their distance from the sun are: Vulcan, Mercury, Venus, Earth, Mars (the asteroids come next), Jupiter, Saturn, Uranus, Neptune and Pluto. Of these, Vulcan is the nearest to the sun and is at the same time the smallest of the planets. It is so

seldom seen that some astronomers ignore its existence, some even deny its existence, though others affirm its existence as a thing they have observed. Its orbital path has a mean distance of approximately 15,000,000 miles from the sun. Because of its being but seldom seen it is not yet known how long its day and year are, *i.e.*, how long it requires to rotate on its axis and to revolve about its orbit. Its mean distance from the sun (15,000,000 miles), while small compared with the distances of the other planets of our solar system from the sun, and negligible when compared with the distances of the other suns of the universe from us, is nevertheless large when viewed by itself; for to cover the same distance one would have to circumvent our earth 600 times at the equator, surely an immense distance! Mercury, the next planet in order from the sun is larger and is seen much more often than Vulcan, yet it is comparatively seldom seen, and to be seen must be searched for with an instrument. Its orbit is nearly two and a half times farther away from the sun than that of Vulcan, *i.e.*, about 36,000,000 miles, or 1,440 times the distance around the earth at the equator. Its diameter is 3,100 miles, about ⅜ the size of the earth's diameter. Its circumference is nearly 10,000 miles, and it revolves about its orbit in 88 days. Thus its year is not quite ¼ as long as the earth's year. But its axial rotation is just a few minutes less than 24 hours, the length of our earth's axial rotation.

Next after Mercury comes Venus. Next to our full, or nearly full moon, as viewed from the earth, it is the brightest body in the heavens, and is much brighter than Sirius, the to us brightest of the stars, as distinct from planets. Venus is our nearest neighbor among the planets, though much more distant than our moon. It is about 67,200,000 miles distant from the sun, *i.e.*, 2,689 times the distance around the earth at the equator. Its diameter and circumference are about 7,600 and nearly 24,000 miles respectively. It makes a complete

revolution about its orbit every 225 days. Thus its year is about ⅔ as long as our year. Its axial rotation is between 23 and 24 hours, practically as long as our day. Its atmosphere is about as deep as that of our earth, and its beauty can best be appreciated when it is the morning star, gloriously heralding the day. Our earth is the next planet in distance from the sun. Its diameter and circumference are approximately 8,000 and 25,000 miles respectively. Its orbit encircles the sun at a distance of approximately 92,900,000 miles, or 3,712 times the distance around the earth at the equator, and thus is about 25,000,000 miles farther from the sun than Venus. All of us, of course, know the length of its year and day. Vulcan, Mercury and Venus have no moons, the earth being the planet nearest the sun having one. Its moon, especially when full, is beautiful, though that beauty is a reflected one. It encircles the earth approximately every 29½ days, giving us the lunar month. Its orbit is about 240,000 miles from the earth, its diameter being somewhat over 2,000 miles and its circumference a little more than 6,000 miles. Its bulk is about 1/50 of that of the earth. Our knowledge of the earth has helped greatly in solving many problems connected with the other planets and the suns.

Mars is the planet next farther away from the sun. It is in distance about 141,500,000 miles from the sun, *i.e.*, 5,660 times the distance around the earth at the equator. While each successive planet hitherto studied is bulkier than its predecessor, Mars is not, as might be expected, larger than the two preceding ones. It is smaller than either Earth or Venus, having a diameter of 4,100 miles and a circumference just a little less than 13,000 miles. It rotates on its axis just a little more slowly than the earth and Venus, *viz*., in 24½ hours, but its year is much longer than that of either, being 687 days. It has two moons, each of which is smaller than that of the earth. Still farther

out from the sun, scattered therefrom at about a distance of from 200,000,000 to 483,300,000 miles, where we should expect mathematically to find another planet, we run into the planetoids, of which there are more than 1,000 so far noted. Ceres, the first seen of these, was discovered Jan. 1, 1801, and practically every year since new ones have been discovered and presumably this will continue indefinitely. Ceres, the largest of these, has a diameter of 485 miles. Combinedly they do not have so large a bulk as Mercury. They are supposed to be the fragments of an exploded planet, which once was situated between Mars and Jupiter, where these planetoids, except a few, now are. The orbit of one of these, Eros, discovered in 1898, at perihelion comes within 13,000,000 miles of the earth; and another of these, Hidalgo, discovered in 1922, in the most distant part of its orbit goes out as far as that of Jupiter and has a mean distance from the sun slightly greater than that of Jupiter.

Jupiter, the largest of the planets, is the next one after Mars farther out from the sun. Most of the planetoids, as shown above, remain between Mars and Jupiter. The latter's distance from the sun is 483,300,000 miles, *i.e.*, as far from the sun as one would travel to journey around the earth at the equator 19,332 times. Its diameter is 88,700 miles and its circumference about 280,000 miles. Its diameter and circumference are more than eleven times those of the earth. It would take more than 1,300 planets the size of our earth to equal Jupiter's volume. Jupiter has nine moons, one of which is larger than Mercury and can at times be seen by the naked eye, four of its moons being easily visible by even a small telescope. Its day is of but ten hours, which means that its equator moves through space at the rate of 28,000 miles an hour; and its year is nearly as long as twelve of our years, *i.e.*, it takes Jupiter nearly twelve years to encircle the sun. The next planet after Jupiter is Saturn, which is, also,

the second largest of the planets. It is 886,100,000 miles from the sun, more than 402,000,000 miles farther out than Jupiter, *i.e.*, its distance from the sun is 35,440 times the distance around the earth at the equator. Its diameter is 75,100 miles and its circumference is about 237,000 miles. Its day is about 10½ hours, which means that its equator moves through space at the rate of 22,571 miles an hour; and its year is nearly 29½ of ours, *i.e.*, it takes Saturn nearly 29½ years to encircle the sun. Its volume is 750 times that of the earth. The rings of Saturn, not seen by the naked eye, make it an indescribably beautiful planet, more so than any other planet, though to the naked eye it is not nearly so brilliant as Jupiter, not to mention Venus. There are three of these rings, the outer one having a diameter of 170,000 miles, the middle one a diameter of 145,000 miles and the inner one a diameter of 113,000 miles. We believe they entirely enclose Saturn as canopies. It also has nine moons.

Uranus is the next planet farther out from the sun. Its distance from the sun is 1,782,800,000 miles, or 71,312 times as far from the sun as the length of the circumference of the earth at the equator. It is nearly 900,000,000 miles farther out than Saturn. Its diameter is about 30,900 miles and its circumference is about 97,500 miles, nearly four times that of our earth. Its day, axial rotation, is 10.7 hours which means that at its equator its speed is 9,112 miles every hour; and its year, orbital revolution, is more than 84 years, during which it travels nearly 6,000,000,000 miles. Its volume is 59 times that of our earth. It is invisible to the naked eye, but even a moderate telescope brings it into view, and it has at least four moons. Until recently Neptune, the next planet farther away from the sun, was considered the last of our sun's planets. It is more than 1,010,000,000 miles farther out than Uranus, *i.e.*, 2,793,500,000 miles from the sun, or 111,740 times farther than the length of the circumference

of the earth at the equator. Its diameter is 33,900 miles and its circumference is nearly 107,000 miles, over four times that of our earth; and in volume it is 72 times that of our earth. Its day is 15.7 hours, which means that its speed at its equator is 6,815 miles per hour, and its year is more than 164¾ of earth's years. Pluto, discovered but several years ago, is, so far as our present knowledge goes, the farthest out of the planets from our sun, and is; perhaps, the oldest known planet of our solar system. Knowledge of it is as yet scant because of the recency of its discovery, its immense distance and comparatively small size, which is about that of the earth. Its diameter and circumference are about equal to those of our earth, the exact dimensions being not yet accurately known. Its mean distance from the sun is 3,679,000,000 miles, or 147,160 times the distance around the earth at the equator, and hence it is 885,500,000 miles beyond Neptune. However, its orbit is varyingly distant from the sun—from 2,744,000,000 to 4,613,000,000 miles! It takes 249 years for it to encircle the sun, *i.e.*, its year is 249 times as long as ours. Nothing as yet is known about the length of time required for it to rotate on its axis, because it appears like a point in the telescope and does not show a disc. Hence we cannot tell how long its day is, or the rate of speed at its equator. Just like Uranus and Neptune, its existence was demonstrated mathematically before it was actually discovered.

Surely, the above briefly stated facts on our sun and its planets show us the immensity of the solar system. Some other facts will still further show this, especially the length of the orbits of the planets and their speed through space. Thus, Vulcan's orbit is 94,246,000 miles, that of Mercury 226,195,000, that of Venus 422,231,000, that of Earth 584,000,000, that of Mars 889,072,000, that of Jupiter 3,036,670,000, that of Saturn 5,567,543,000, that of Uranus 11,101,690,000, that of Neptune 17,552,120,000 and that of Pluto 23,116,000,000

miles. Even the smallest of these figures is immense, but the largest is so great that it gives us but a faint idea of what it means. But certainly they convey to our minds the immensity in the sweep with which these planets travel around their orbits. As the following will show: There are 86,400 seconds in a day (60 x 60 x 24 = 86,400). Since there are 365.25636 days in a year, we multiply this figure by 86,400 and get 31,557,149.5+, as the number of seconds in a year. If we divide this figure into the miles of the earth's orbit we have the rate of speed per second that the earth travels on its orbit. Thus 584,000,000 ÷ 31,557,149.5+ = 18.5+, which means that our earth travels its orbit at the rate of 18½ miles a second in order to complete the circuit of its orbit yearly. Mercury traverses its orbit in 88 days, which multiplied by 86,400 gives us the seconds required to make its circuit, *i.e.*, 7,603,200 seconds. This figure divided into the miles of Mercury's orbit (226,195,000) gives us the rate that Mercury travels its orbit, which is 29.75 miles a second. Venus traverses its orbit in 225 days, or in 19,440,000 seconds, which divided into 422,231,000, the miles in Venus' orbit, gives as the rate of Venus' movement on its orbit 21.79 miles per second. Mars completes its orbit in 687 days, or in 59,356,800 seconds, and travels during that time 889,072,800 miles, which means that it travels 14.97+ miles a second.

Jupiter covers its orbit of 3,036,670,000 miles in 11.862 years, or in 374,330,907.37 seconds, which makes its rate of travel 8.38 miles a second. Saturn's orbit is 5,567,543,000 miles, which it runs in 29.458 years, or 929,610,510 seconds. This makes it move orbitally at the rate of 5.99 miles a second. Uranus' orbit of 11,101,690,000 miles takes it 84.015 years, or 2,651,273,915 seconds to travel, which makes its orbital rate 4.19 miles a second. Neptune negotiates its course of 17,552,120,000 miles in 164.788 years, or 4,800,236,552 seconds, which gives us an orbital rate of 3.6

miles a second as the pace that Neptune sets in covering its orbit. Pluto covers its orbit of 23,116,000,000 miles in approximately 249 years, or 7,857,730,225 seconds, which gives us 2.95+ miles a second as its speed along its orbit. These figures prove that the nearer a planet is to the sun the more rapidly does it move along its orbit per second, so that whereas Mercury, the nearest planet to the sun, except Vulcan, travels at the rate of 29.75 miles per second, Pluto, the farthest known planet from the sun travels, relatively speaking, lazily along at the rate of 2.95 miles a second. We have not given Vulcan's rate because it has been seen by so few and at intervals of so many years that its year is not known exactly. Its speed on its orbit is probably about 45 miles per second. Even Pluto moves more rapidly than the most rapidly moving shell ever discharged from a gun. The shells discharged from the great gun by which the Germans bombarded Paris at a distance of about 75 miles moved at the rate of 1.1 miles a second. Pluto moves nearly three times that rapidly and Mercury more than 27 times that rapidly, while the probable speed of Vulcan is nearly 40 times as rapid. Certainly these facts help us to a better appreciation of the immensity of the solar system.

The figures on distances above given are so great that we cannot really understand them as written out before our eyes. Perhaps some illustrations could help us better to see these matters. Let us for impressiveness' sake show these distances in the time duration of an imaginary airplane trip taken from the sun past all its planets, even to Pluto. Let us suppose this airplane to travel at the rate of 115 miles an hour, the average speed of commercial airplane travel. We take this figure because at this rate of speed without a stop it takes just one year to travel approximately 1,000,000 miles. This means that it would take us in our airplane trip from the sun 15 years to reach Vulcan, 36 years to reach Mercury, 67.2 years to reach Venus, 92.9

years to reach Earth; 141.5 years to reach Mars, 341.7 years to reach the center of the asteroids, 483.3 years to reach Jupiter, 886.1 years to reach Saturn, 1,782.8 years to reach Uranus, 2,793.5 years to reach Neptune and 3,679 years to reach Pluto. *E.g.*, had Amram started out on such a flight from the sun in 1747 B. C., *i.e.*, 52 years before Moses was born, he would just now be arriving at Pluto! And for aught we know there may be more planets still further out from the sun than Pluto, which might make our suppositional trip last as long as from Adam's day to now or yet longer. These facts give us a fair idea of the immensity of our solar system.

Its vastness can be further seen when we compare its planets and moons in volume with our earth. One of these, Vulcan, is much smaller than our earth in volume. Mercury is .055, Venus is .826 and Mars is .151 as large as our earth in volume. Pluto is about the same as our earth in volume. The other planets are very much larger. Saturn 763, Uranus 59 and Neptune 72 times the volume of our earth. The mass of these planets is also immense. Volume and mass differ in this: the volume of a body equals its mass when divided by its density. Thus V=M/D. Thus volume is the amount of space enclosed within the bounding surface of a solid, while mass refers to the amount of matter in a body viewed generally as to weight. From this standpoint Vulcan's mass is as yet uncertain, but is supposed to be as heavy as lead. Mercury is in mass .037, Venus .826 and Mars .108 that of the earth. Pluto's mass is about a third as heavy as that of the earth. The mass of the other planets is much greater than that of the earth. Jupiter's is 318.4 times, Saturn's is 95.2 times, Uranus' is 14.6 times and Neptune's is 16.9 times that of the earth. Surely in volume and mass there is immensity in the solar system! When we consider its moons the same thought is borne in upon us. Our solar system has 26 known moons, Earth

has one, Mars two, Jupiter nine, Saturn nine, Uranus four and Neptune one. Whether Pluto has any moons or not is as yet unknown, it being itself visible only as a tiny point, and any moon of it must be too small for detection by any of our present instruments. The known moons are in some cases quite large. That of the earth has a diameter of 2,163 miles and a circumference of 6,795+ miles. One of Jupiter's moons is larger than Mercury. Together these 26 satellites make up a vast volume and mass of matter. Each of these has its own orbit, these orbits being quite large. In the case of our moon the orbit is 1,507,968 miles around. One of our moon's mountains is over five miles high; and some of its craters are 100 miles in diameter! Other moons, e.g., Jupiter's, have still larger orbits.

With these thoughts we leave the subject of the immensity of our solar system and now desire to point out some of the things in the other solar systems suggestive of immensity. As is well known, our solar system is only one of many. We have given details on it, because it serves as an illustration of what the other solar systems are like. The nearest of these is so far distant that its planets are invisible to the world's largest telescope, whose reflector is 100 inches in diameter, and which is situated on Mt. Wilson, California, a short distance from Los Angeles. With the naked eye from the earth about 8,000 of the suns of these solar systems, commonly called stars, can be seen, though not more than 2,000 of them can thus be seen from any one position. The fact that they are absolutely fixed in the same relative position toward one another and to our sun, and the fact that they are self-luminous and vastly magnitudinous, prove them not to be planets, but to be suns like the center of our solar system. They are distributed at approximately equal distances apart at intervals of from 20,000,000,000,000, to 30,000,000,000,000 miles, which is about

the distance of the nearest one of the stars, suns, from our earth. Thinking of ourselves as in the center of a sphere made up of sheets of stars successively following one another at uniform distances unto infinity, the nearest stars above, below and on all sides of us at the above-named distance may be considered the first sheet, the next set at that distance away from the first being the second sheet, and so on unto infinity. So viewed, which is the actual condition, we can with our naked eye see the stars that constitute the twelfth star sheet beyond us. This means that we can see with our naked eye suns from 240,000,000,000,000 to 360,000,000,000,000 miles away. The light and seeming size of these suns diminish as the ratio of their distance increases, until the Milky Way appears and then thick darkness beyond. Thus our eyes fail to give us further information beyond the twelfth sheet of stars. The telescope must now come to our assistance.

These distances are so great that their statement in figures can convey but little to our comprehension. Perhaps the flight of light may make it more impressive. Light travels 186,285 miles a second and 5,880,000,000,000 miles in a year. For the convenience of having a more even number, let us assume its rate to be 6,000,000,000,000 miles. This would mean that it would take from 40 to 60 years from the time a ray of light left the farthest star that our naked eye can see until it reaches us, and from 3⅓ to 5 years for such a ray to reach us from the star nearest to us. These figures show that our sun is from 20 to 30 trillion miles distant from its next neighbor sun. This implies that each sun rules a domain contained within a sphere whose diameter is from 20 to 30 trillion miles and whose circumference is from 62,832,000,000,000 to 94,248,000,000,000 miles. These figures suggest the great likelihood of there being planets in our solar system still farther away from the sun than Pluto, whose mean orbital distance from the sun, as shown above, is

3,679,000,000, and whose extreme orbital distance from the sun is 4,613,000,000 miles. This leaves a space between Pluto's extreme distance from our sun and the limits of the sun's empire of from 19,995,387,000,000 to 29,995,387,000,000 miles, a space that seems too great to be utterly void. Reverting to our imaginary non-stop airplane trip begun in 1747 B. C. by Amram and just ended at Pluto, to reach the sun nearest our sun in the direction from our sun to Pluto it would take Amram from 20,000,000 years to 30,000,000 years, or from 1747 B. C. to 19,998,253 or 29,998,23 A. D., and to reach the twelfth sheet of stars would take him from 240,000,000 to 360,000,000 years! And to travel at 115 miles an hour is a speed of no mean rapidity.

But so far we have considered the dimensions of the universe as visible to the naked eye. And until a few centuries ago this is all that the universe was supposed to be; and that is why the ancients counted the stars in magnitude as from one to twelve. But the invention of the telescope bared very many more sheets of stars than the twelve visible to the unaided eye; for it not only magnified very greatly the first twelve sheets of stars, but penetrating much deeper into space it has multiplied these twelve by thousands. Each new sheet discovered increases the number of suns made known to us almost at the rate of geometrical progression. The great astronomer, Sir William Herschel, toward the end of the 18th century counted 500 of such sheets (each one of which has hundreds of thousands of suns) in the Milky Way alone. Late astronomical discoveries, aided by much larger telescopes than Herschel's, have brought to light thirteen other Milky Ways in every direction around the earth, each one respectively double the space that is between us and the Milky Way that we see with our unaided eyes. And in Barton's Guide to the Constellations, p. 12, the statement is made that "the total number of stars in our

system of stars has been estimated to be 30,000,000,000"! As each presumably has as many planets, planetoids and moons as our solar system, this means that, so far as present knowledge goes, there are 300,000,000,000 planets, over 300,000,000,000,000 planetoids and 810,000,000,000 moons in the known universe. But since space is without limits and the laws of gravitation require an endless succession of solar systems, the number of discovered suns will greatly increase as more powerful telescopes are invented. With light traveling at the rate of approximately six trillion miles a year, it will take 390,000 years for it to reach us from the most distant suns now known! Some are so distant as to take their light millions of years to reach us!

Dr. Charlmers in his Astronomical Discourses says, "What is seen may be [yea, is] as nothing to what is unseen; for what is seen is limited by the range of our instruments. What is unseen has no limits; and though [if] all which the eyes of man can take in or his fancy can grasp were swept away, there might [yea, would] still remain as ample a field over which the Divinity may [would] expatiate, and which He may have [has] peopled with innumerable worlds. If the whole visible creation were to disappear, it would leave a solitude behind it; but to the Infinite Mind, that can take in the whole system of nature, this solitude might [would] be [as] nothing—a small unoccupied point in the immensity which surrounds it, and which He may have [has] filled with the wonders of his omnipotence [and omniscience] … Though [if] this earth and these heavens were to disappear, there are other worlds that roll afar; the light of other suns shines upon them and the skies which mantle them are garnished with other stars … The universe at large would suffer as little in its splendor and variety by the destruction of our planet as the verdure

and sublime magnitude of a forest would suffer by the fall of a single leaf."

In the foregoing we have given very briefly some of the main facts furnished us by the science of astronomy, exhibiting immensity as one of the attributes of the universe, and certainly these stupendous facts thoroughly substantiate the proposition that the universe is immense. Since the Creator is greater than His creations and embodies the attributes that He works out in His creations, He must have the quality of immensity, not as to His body, but as to the qualities of His heart and mind. And, among other things, the immensity of the universe has convinced all astronomers, so far as we know, of God's existence and His immensity in attributes; for amid the comparatively many atheistic and agnostic scientists of our days astronomers are conspicuous by their absence. Never yet have we heard of an atheistic or agnostic astronomer; for the facts with which he occupies himself are too stupendous to permit him to entertain the thought of the fool who says, "There is no God." To us the stupendousness of the universe not only proves that there is a God, but it also proves that He is an omnipotent and omniscient God. By the contemplation of its immensity we are filled with the sense of wonder, awe, reverence, worship and adoration. "O, come, let us worship and bow down; let us kneel before the Lord, our Maker!" And through such contemplation sink heart and mind, amazed, beneath the sense of God's greatness and our littleness!

Hitherto we have discussed unity and immensity as attributes of God's creative works. The next of these to be presented is beauty, which certainly is an attribute of God's creative works. By beauty is meant that quality of an object by whose contemplation pleasurable emotions are aroused in a rational mind and heart. Usually by the term physical beauty is meant, though the word may be used of mental beauty,

e.g., the beauty of truth, and of moral and religious beauty, e.g., the beauty of holiness. The fact that there is beauty in God's creative works implies that God in His body, mind and heart possesses the mark of beauty. Indeed He possesses it in an infinite degree, for all of its examples that so abundantly manifest themselves in animate and inanimate nature are merely reflections of it as it exists in God's heart and mind. Hence it is because God is beautiful in His body, heart and mind that He has endowed His animate and inanimate creation so richly and so variedly with examples of it. Hence, no lover of beauty or example of beauty can match the Lord in His love for, and exemplification of beauty, physical, mental, moral and religious, though His creation is so replete with it.

In animate nature there are many examples of beauty. In creeping things there is frequently a beauty of color and form that is most enchanting. Note some species of beetles and flies, particularly certain tropical ones, as examples of this. While in form the serpent is far from beautiful, yet at times their skins are so richly colored as to make them beautiful, despite their natural repulsiveness to us. The winged creation often exhibits a richness of plumage that makes its species indescribably beautiful. A fairly complete collection of butterflies, particularly of those from the tropics, exhibit beauty of form, color and texture hard to equal. This is more especially true of natives of the tropics, and semi-tropics, like the peacock and a thousand other species of tropical and semi-tropical birds. Some of the birds of the temperate zones are only a little less beautiful than their brethren of the tropics and semi-tropics, like the humming bird,, the red bird, the blue jay, the robin and the canary. Some of the quadrupeds are beautiful in the lines of grace that mark their bodies, like the antelope, the deer, the zebra, the race horse, the St. Bernard dog and the Russian hound. Even wild animals, like the tiger, lion, panther,

leopard and jaguar have fine lines of beauty. And certainly the human figure, especially that of the well proportioned human female, is "beauty all." Some human faces are exquisitely beautiful, especially so the eyes of a handsome man or beautiful woman. These few examples, taken from animate nature, prove that beauty marks God's creative works as one of its attributes.

But usually when speaking of beauty in God's works one refers to inanimate nature. And certainly the earth, the sky and the heavens furnish us examples of marvelous beauty. Tastes differ, and that even in matters of beauty. But where the sense of beauty is well cultivated there is a general agreement on questions of beauty, however much there may be differences in matters of detail. In the examples that we are about to present, there is general agreement on these as being beautiful. How wonderfully beautiful is a graceful, snow clad mountain! We might use Mt. Ranier, one of the most beautiful mountains in America, as an illustration of mountain beauty. The fact that its base rises at about sea level and therefrom it towers "in single blessedness" nearly 15,000 feet above the beholder, gives it the appearance of height that very few other mountains give, since most other very high mountains are simply parts of a range whose surrounding mountains take away from them much of the impression of height and beauty. A velvety green carpet lies at Ranier's feet; magnificent forests luxuriate on its lap; verdant mosses and shrubs cover its hips and loins; wondrous glaciers nestle upon its bosom and eternal snows crown its head. And when the glow of the sunset guilds its whiteness with the golden shimmer of heaven, a sight of supreme beauty blesses the beholder, who is lost in rapturous delight at the prospect. The beauties of Mts. Hood, Shasta, Pike's Peak, McKinley, Whitney, St. Elias and Wrangell in the United States, of Logan in Canada,

of Orizaba and Popocatepetl in Mexico, of Aconcagua in Argentina, of Sorata and Illimani in Bolivia, of Chimborazo and Antisana in Ecuador, of Tolima in Colombia, of Elburz in Russia, of Blanc in France, of Matterhorn, Yungfrau and Moench in Switzerland, of Rosa in Italy, of Kilimajaro, Kenia and Ruwenzoro in Africa, of Demavend in Persia, of Ararat in Armenia, of Everest in India and of Dapsang in Tibet, one and all exhibit wondrous scenes of beauty in cañons, precipices, gorges, falls, streams, glaciers and snow. To the writer mountains are the most beautiful inanimate objects on earth. As the backbones of the continents they impart a beauty to this earth that is simply indescribable. Their aspects as to sublimity will be mentioned later.

Waterfalls are another ornament of beauty for this earth. Like mountains, some of them have aspects of sublimity in addition to beauty. Both the eastern and western hemispheres are richly blessed with waterfalls. The loftiest of these are found in mountainous districts. The beauty of a cataract is not dependent so much on the large volume of water, rather on the small volume of water combined with great height. Accordingly, mighty cataracts, like the Niagara or Victoria, are not so beautiful as much higher and narrower falls. For this reason the falls, e.g., in the Yosemite are more beautiful than Niagara and Victoria Falls, though in sublimity the former falls cannot compare with the latter two falls. Who that has stood at the foot of the Yosemite Falls, gazing at its 2600 feet of descent, its first plunge of 1600 feet and its second plunge of 400, sandwiching in between them a series of cascades and rapids of a 600 feet descent in less than 1000 feet distance, and has not recognized that he has viewed one of the most beautiful, if not the most beautiful falls in the world. Who can ever forget the sight of beauty that breaks upon his vision when, about a half mile on the eleven miles valley trail from

Glacier Point, which overlooks the Yosemite Valley, he catches the first view of Vernal Falls (300 feet), Nevada Falls (600 feet) and Illilouette Falls (300 feet), in one sweep of his eyes? And who does not go into ecstasies of delight at the laciness of Bridal Veil Falls (600 feet), the first of Yosemite's falls to greet his eyes as he enters that marvelous valley? Wondrously beautiful are the Yellowstone Falls in the National Park. Nor will one readily forget the 800 feet descent of Multonomah Falls in the Cascades, where they meet the mighty Columbia River. Many other beautiful falls are found in America, both on the West and the East coasts. Canada has some fine falls, e.g., The Grand Falls, the largest of whose cataracts is over 300 feet, and Montmorency Falls, whose cataract is over 200 feet.

South America is also blessed with many very beautiful falls. In Colombia the Bogota River, but 36 feet broad at Tequendama, there plunges over a precipice to a depth of 600 feet and with its surroundings makes a very notable display of beauty. Still more beautiful, and one of the finest falls of the world, is the Kaieteur Falls, in the Potaro River, British Guiana. It is 370 feet wide and plunges to a depth of 740 feet, and is a sight of beauty never to be forgotten. One of Europe's finest falls is that of the Ruikanfoss ("smoking fall") on the Maan River, Norway, and is 805 feet high. The cascade of Gavarnie in the Pyrenees is Europe's highest falls, being over 1300 feet. Its small stream turns into spray before its reaches the ground. Its neighbor, the Seculejo, falls 820 feet, being blessed with more copious water. Switzerland owes not a little of its beauty to its numerous falls and cascades. Staubbach, because of its small volume of water, resembles in front a beautiful lace veil suspended from the top of the precipice in its fall of 870 feet. Near Martigny is the picturesque Sellesche Falls, whose last leap is 128 feet. The

Rhine Falls at Schaffhausen are 300 feet broad and 100 feet high. Italy, Austria and Russia have various falls that lend much beauty to these countries. The Island of Jamaica, is renowned for its scenic beauty, to which its numerous and high falls contribute not a little. While Asia has some falls, they are less picturesque than most of those that we have mentioned, and less so than the great falls of the Zambezi, Victoria Falls, in Africa, whose breadth is 1860 yards and height is 370 feet. On the Wingeni River in Natal Africa are two wondrously beautiful falls: Great Wingeni (364 feet) and the Kar Kloof Falls (350 feet). Yea, verily, in its waterfalls the earth as a creation of God is graced with much beauty.

Mountains, streams and falls by relation suggest the beauties of the vegetable world. How much of beauteous ornamentation does the grass frequently lend to some landscape, with its varied hues of green and its frequent velvety appearance! The beauty-loving traveler in Switzerland is enraptured by its wondrous verdure, so varied in its strains of green. The trees of the earth are likewise one of its ornaments of beauty. Great beauty is seen in the California redwood trees, so stately and symmetrical in form and so marvelous in height and girth. Who does not admire the beauty of the weeping willow, the strong oak, especially when draped with Spanish moss, the tender poplar, the snow-covered cedar, the venerable sycamore, the stately elm, the friendly maple and the cooing pepper tree of California? Not only are there the fine trees of the temperate zone, but also the gorgeous trees of the tropics. Jamaica and Ceylon are considered the most beautiful of earth's islands, and no small share of their beauty consists of their trees. And what shall we say of the beauties of earth's plant life? The tropics are richest in the luxuriant splendor of plant life. To see some of the loveliest plants that embellish this beauteous earth, let one visit Hope Gardens, six miles

from Kingston, Jamaica, or Castleton Gardens, 25 miles away, and if he is a lover of plant beauty, he will have the feast of his life thereon. To almost everybody flowers are the living embodiment of beauty; and how richly favored is the earth with floral beauty! From the humble lily of the field and the fragrant lily of the valley of Palestine to the wondrous roses of Oregon and the glorious chrysanthemums of Japan, there is an immense variety of flowers that are "beauty all," adorning the earth with most refreshing loveliness.

Mountains also suggest snow by their relations. Snowflakes in their greatly varied forms, no two flakes exactly alike, give us crystal forms that are at once beautiful and inimitable by human skill. Mountains and hills frequently suggest caves, and some of these are beautiful beyond the power of human description. We do not refer so much to the Mammoth Cave in Kentucky, which is more weird than beautiful, though some of its chambers are beautiful. But we refer to such caves as the Great Onyx near Mammoth Cave, the Caverns of Luray, Va., the Shenandoah Caverns, Va., Wind Cave, Black Hills, S. D., the Grottos near Waynesboro, Va. They have been electrified, which brings out their beauties of crystals, stalagmites, stalactites and curtain-like walls. Some of the lights located back of thin walls or within the stalagmites and stalactites bring out marvels of color and form. These outdo in beauty the exquisite imaginations presented in the caves of the Arabian Nights. The greatest and most beautiful of all caves are the Carlsbad Caves in N. M. The U. S. government is opening up and making its many rooms accessible, one of which is 1½ miles long, 400 feet wide and 348 feet high. Many of its rooms are not yet explored. But its beauties make those of other caves just mentioned seem tame. The cave called Ear of Dionysius, in Sicily, and the Indian Chamber Caves of Jenolan, N. S., of W. Australia, are

also very beautiful. Mountains likewise remind us of their streams, which usually form sights of never-to-be-forgotten beauties. The streams of the Yosemite Valley, of Shasta, Hood, Adams and Ranier, of the Canadian Rockies, the Alps, the mountains of Norway, Italy, Austria, etc., with their rapids, rock islets and cascades, their shores decked with fresh and refreshing verdure, are as scenes of beauty, joys forever to the lover of the beautiful. Connected with mountains are some of the most beautiful chasms. Who that has looked upon the Yellowstone Gorge has not stood entranced at the sight? The chasm that some beauty-making glacier, like a marvelous landscape gardener, decked into the Yosemite Valley, defies description from the pen or mouth of the ablest word painter of beauty. The gorges that the mighty Columbia plowed out as it cut its way through the Cascade Mountains, and that the fair Yellowstone River dug out of the Rockies, likewise defy description by beauty experts of most eloquent tongue or pen. Only by degrees are the chasms that the Arkansas, the Green and the Gunnison Rivers in Colorado have plowed out less beautiful than the other gorges just mentioned.

Bodies of water, both great and small, present fine sights of their own as an expression of the Creator's love for, and manifestations of beauty. The great oceans open up before us vistas of loveliness. How beautiful in its way is the mirror that the calm ocean presents, especially when the waters of that mirror are of a deep indigo hue, and more especially when the moon and stars are reflected in this ocean mirror! Then at places its being dotted with islets lit up by the glow of a setting sun makes its beauty fairly dance before us in many entrancing forms. Again, it has cut up rock-bound or mountain-bound coasts into fantastic forms of beauty that seem more like dreams of a fine imagination than the factual essence of created being. And with what a shimmer of glory is the ocean's

bosom lit up by a glorious sunrise or sunset! Indeed, few sights in nature are more glorious than the beauty of a sun's dawn heralding the day by the glow that it sends out before it on the horizon and its adjacent ocean, or than the beauty of the sun's setting like a great ball of glory, as it were, into the chambers of the ocean's depths. Some of its bays, like those of Naples, Rio de Janeiro, Puerto Cabello, Port Royal and San Francisco, are dreams of beauty. Some of the ocean's submarine gardens, like those at Santa. Catalina, off the coast of Southern California, are entrancing. The same remarks apply to its coral strands. These features of the ocean's beauty make some beauty lovers admire the ocean's varied scenery above that of every other scenery on earth.

And what shall we say of earth's lakes, some of which are the concentrated essence of beauty? What lover of beauty would not admire the beauties of Lake Louise in the Canadian Rockies, nestling at the foot of a 10,000-foot mountain that stands as a sentinel keeping guard over this beauteous lake, while on its north and south, towering less high, mountains support its tall sentinel, the open west alone preventing the lake from being entirely mountain girt? And when a clear heaven with bright stars and a half or quarter moon canopies it, its bosom reflects the shadows of its mountains and celestial luminaries, while the light of day, bathing it, makes its blue bosom a reflection of the peace and bliss of heaven. Its neighboring Mirror and Agnes Lakes additionally lend their beauties to the enhancement of this scene. Much the same may be said of Lake Tahoe, between California and Nevada, whose clear blue mirrored bosom is a delight to the beholder. Our Adirondack lakes are comparable in beauty with Lakes Louise and Tahoe, Lakes Champlain and George being comparable to Lake Tahoe and the Saranac Lakes and Placid Lake to Lake Louise. Supreme among America's lakes in point of beauty is

Crater Lake, Oregon, whose surface lies from 800 to 2000 feet below the irregularly rimmed top of an extinct volcano, with a circumference of 39 miles, almost everywhere separated from the lake itself by almost precipitous walls. Its color varies from the deepest indigo to the lightest blue, the color changes varying both with the difference of one's position and the angle of the sun's rays. Each hour of the day, by the varied color and shadows that it imparts, changes the appearance of this wondrous sight. The lover of beauty who sees Crater Lake looks upon one of earth's supreme beauty spots. Among the most beautiful lakes in the world are those of Switzerland, liberally scattered over German, French and Italian Switzerland. Most intelligent people have heard of the beauties of Lakes Geneva, Maggiore, Como, Neuchatel, Zurich and Zug.

But supreme among the lakes of Switzerland, perhaps supreme among the world's lakes, from the standpoint of beauty is Lake Lucerne. It is difficult to decide whether it or Crater Lake in Oregon deserves the palm for supremacy in beauty among earth's lakes. Certainly the scenery that can be viewed from some of Lucerne's girding mountains, like Rigi and Pilate, easily surpasses anything visible from the rim of Crater Lake, though as one looks down on these lakes from their surrounding heights Crater Lake by far surpasses Lake Lucerne in beauty. Most of Lake Lucerne and all of Crater Lake are surrounded by eminences of various heights. As viewed from the lakes themselves, the beauties that surround Lake Lucerne by far surpass those that surround Crater Lake. Its verdure is in marked contrast with the barrenness of the crater walls that rise above Crater Lake; but the latter's varicolored rock-ribbed crater walls more than overmatch Lake Lucerne's verdure. On the other hand, there is by far a greater variety in the mountain scenery that surrounds Lake Lucerne

than in that which by its crater walls surrounds Crater Lake. We are glad that we do not have to decide as to which of these is earth's most beautiful lake. We will never forget our visit to each of these sights of beauty. Nor will we ever forget our trip to the top of Rigi and the panorama that there was unfolded to our eyes. Way down below on the side of Rigi away from Lake Lucerne, lay Zug Lake, nestling in rest at Rigi's feet. On the other side of Rigi could be seen three arms and a part of the fourth arm of Lake Lucerne, with all their great variety and beauty of surrounding mountains, while off in the distance the snow clad Alps, with most of their highest peaks clearly and beautifully visible, crowned the scene, one of the finest anywhere visible on earth. We were informed that the view from the top of Pilate is even finer than that beheld from Rigi's top; but we cannot speak from observation, never having been there. If it is, what a sight for the lover of beauty must it be!

Norway and Sweden have some wondrously beautiful lakes. But as beautiful as these are, they are surpassed in beauty by their fjords, particularly those of Norway. While less famed for beauty than Switzerland, because the Norwegians are not given to advertising their scenic wonders, Norway strikes the writer as being at least as beautiful in scenery as Switzerland, if not more so. It has many fjords that in beauty nearly equal Lake Lucerne. Sometimes those fjords present the appearance of rivers, at others that of lakes. Usually they are at the bottom of deep fissures in high plateaus. The walls of these fissures are often almost perpendicular, with great variations of structure; at other times these fissures recede markedly as their sides rise. Not infrequently beautiful waterfalls plunge from their heights in a series of cascades that are most pleasant to the sight. Frequently they shoot off arms from the main fjord, thus forming new ones. When we remember that Norway has about 175

fjords, some of them running inland from the ocean 150 miles and more, and all of them wondrously beautiful, we can form something of an idea of Norway's fjord beauty. Other countries, like Scotland, Ireland, Greenland, Alaska, British Columbia and Chile, have more or less of these, but those of Norway are easily supreme among earth's fjords. One of the most beautiful scenes with which we ever were favored was in connection with one of Norway's fjords. We were riding in a train from Bergen to Oslo (former Christiana) when, about 35 to 50 miles from Bergen, our train reached a fjord and rode a number of miles along its shore. Looking back of us we could see a straight stretch of the fjord for perhaps ten miles. The fissure at the bottom of which the fjord lay reached up probably 800 yards and was 300 yards wide at the water's surface. At its end, visible from our position, the sun was just setting into the fjord and was imparting a gorgeous golden color and several other colors of the rainbow to the water for miles toward us, the bright colors reflecting with ever decreasing brilliancy up the sides of the fissure. The setting of the scene, lit up with gorgeously fine colors, made this sunset the second finest we have ever seen. Certainly, the fjords, especially those of Norway, manifest the beauty of God's creative work!

The sunset just referred to readily suggests to the mind the beauty of God's creative works in the sky, as evidenced by sunrises and sunsets. Certainly, some sunrises and their immediately preceding horizons and some sunsets with their following aglow horizons are among the most beautiful sights in nature. We have seen some glorious sunsets, particularly in Oklahoma, where the atmosphere and the sky seem especially adapted to beautiful sunsets. But by all odds the most beautiful sunset we ever witnessed was, we believe, in 1928, between Cuba and Jamaica, on our way to the latter island. As the sun was setting seven streamers

arose from it; each one at the sun was as wide as a seventh of the upper half of the sun, each one being in one of the different colors of the rainbow. Each of these streamers reached upward, ever widening as it extended upward, and continued straight in the direction in which it left the sun until the seven formed the figure of a huge fan or ever widening banner, consisting of the seven colors of the rainbow, while their background was a gorgeous glow. This phenomenon lasted perhaps ten minutes before it began very slowly to shed its clear-cut colors and lines. Perhaps it was half an hour before it melted away into the soft twilight of the tropics. No painter could have done this scene justice. It was a never-to-be-forgotten sight. How often all of us have stood enraptured at the sight of sunrise or sunset, painting the clouds in brilliant hues of varicolored beauty! Well do we remember the gorgeous glow of a July, 1929, morning upon the snow clad mountain at whose feet Lake Louise nestles, and the glow of the setting sun transfiguring snow-white Mount Hood into a mountain of glory one December evening in 1906! Surely, the sun yields some of the most beautiful sights among God's creative works. The clouds at times alone, at times in connection with the sun, present many lovely sights, especially at some sunrises and sunsets.

Not only the sky gives scenes of delight to our beauty-admiring eyes, but the heavens above it spread out a canopy of beauty of high degree. Few sights are more beautiful to watch on a clear and cool winter night than the stars, one by one, like lovely flowers, blossoming into the galaxy of the complete starry heavens. To what a sight of beauty is the early winter riser treated when the morning stars, especially Venus or Jupiter, the brightest of the planets, quickly rises higher and higher along the Zodiac! What a sight among the stars is Sirius, shining in brightness above the other stars! And what beauties charm the knower

of the main constellations as he beholds them when they are in the best position for observation! Ever is such an one ravished by the beauties of Orion, with its marvelous Betelgeuse, Rigel and Bellatrix, of Taurus, with its bright Aldebaran and with its more famous Seven Sisters, the Pleiades, and of Ursa Major, with its seven stars that constitute the Great Dipper, whose two bowl stars farthest from its handle so faithfully point out the star Polaris to us, enabling us to locate readily the four points of the compass. Surely, the heavens declare the glory of God and the firmament showeth forth His handiwork. Day unto day uttereth speech; and night unto night showeth knowledge (Ps. 19: 1, 2); and "the earth is full of Thy riches" O Lord, in beauty (Ps. 104:24). Psalm 104, from which we have just quoted, contains a wonderful description of God's works of creation, among others from the standpoint of beauty. We will not quote it here in full, but will ask our readers to peruse it.

In our discussion of the attributes of God's creative works we now come to its attribute of sublimity. This makes the fourth attribute of creation as a product discussed in this chapter, the other three being: unity, immensity and beauty. As a definition of sublimity we might venture the following: It is the quality by which through grandeur, vastness, majesty and awfulness of things the heart and mind are filled with reverence, solemnity and wonder. Accordingly, the grand, the vast, the great and the awful, are the main elements in sublimity. A merely superficial view of God's creative works impresses one with the idea of their sublimity, as so many of them are grand, vast, great and awful. While practically all sublime objects are more or less beautiful, most beautiful objects are not sublime, e.g., about all animate beautiful things, like birds, butterflies, humans, flowers, trees, etc., and most inanimate beautiful things, like most waterfalls, lakes, snow, etc.

Hence some of the things that above we cited as examples of beauty may be cited as examples of sublimity. Thus almost all of the mountains to which we referred in our last installment as beautiful have in their great heights, in their mighty canyons, in their deep valleys and in their majestic bearings, the quality of sublimity imbedded in them. Great falls, like the Niagara Falls and the Victoria Falls, certainly lean much more to the sublime than to the beautiful, though, of course, they also have beauty as a quality. Their sublimity is seen in the great volume of water that they hurl from their tops, in the great height from which they leap, in the deafening noise that they make, in the boisterous waves and whirlpools that they create and in the mighty power that they exemplify. One viewing such mountains and falls, if at all responsive to the sights brought to his vision, is certainly filled with the sense of reverence, solemnity and wonder, not only at them, but, through them, at their Creator.

From many standpoints the oceans are sublime. Their immensity in length, depth and breadth, certainly are suggestive of sublimity even when calm. But when a hurricane lashes their surface into mountains of furious waves, as seen from the deck of a ship tossed by such waves, their quality of sublimity is greatly heightened. Some of earth's canyons are certainly sublime. Supreme among these is the Grand Canyon of Arizona, as this name applies to that part of the Colorado's canyon in northern Arizona. That portion is over two hundred miles in length and about a mile deep perpendicularly at its most scenic parts. Sublimity marks its varicolored walls and buttes. Here its rock layers are bare. Here, in wall and butte, can be seen better than anywhere else on earth the seven layers of earth's crust, mostly evenly laid one upon another and all resting upon the foundation of the rock bottom granite. Thus it gives a most clear view of the seven successive falls of materials from above

upon the ever cooling earth during its seven ages. The rock walls and buttes vary in color from white and buff to bright red and dull green. The even cut edges of these rock layers, combined with each layer being of a different color from any other, make parts of the walls look like a great flag with seven stripes, averaging about 700 feet thick and many miles long. The buttes themselves, rising from the bottom of the canyon, attain a height nearly level with the canyon's rim, and take up a large part of the chasm itself. As the eye starts at the bottom of these almost cone shaped buttes and gradually reaches higher and higher, each layer of stone, glowing with a different color from that of any other, combines to give the whole a never-to-be-forgotten scenic effect. When one remembers that where the Santa Fe Railroad reaches the rim of the canyon it is about twelve miles wide as well as a mile deep, embellished with these varicolored buttes and walls, he can readily perceive that the sublimity of the sight is overpowering. Especially is this the case when one is at the bottom and looks upward. Here are seen the mighty action of erosion on the buttes, the powerful plowings of the mighty river's waters which once flowed even with the rim, and on the sides the steady wear of waters flowing over the rim down the walls of the canyon. World travelers are a unit in the thought that this canyon is the sublimest object on earth.

The sky during a lightning storm, with mighty thunderings roaring in one's ears, especially when the lightning is of the streak kind, as distinct from the sheet kind, presents many sublime aspects, especially if the streak lightning strikes not far away from one at the end of a long zigzag course. If mountains and water are involved in the storm, the sense of the sublime is much heightened. Our readers will recall our above brief description of Lake Lucerne as an object of beauty. After we had descended from Rigi and had gone to the head of one of the lake's arms, an Alpine

storm arose. About the mountains' heads the storm clouds had gathered dark and threatening. Stroke upon stroke of lightning flashed from them, seemingly against the mountains' sides, while the artillery of the heavens roared, and reverberated with quickly resounding echoes. We had often read of the sublimity of an Alpine storm, but to see one fills one to overflowing with the sense of the sublime. If one has ever stood at a vantage point and watched the mighty waves during a storm dash themselves against a rock-ribbed coast, he has viewed another of earth's sublime sights. A volcano in a great explosive eruption, with its roaring noise, earth-quaking blows, heaven-darkening smoke and ashes and overflowing lava, when viewed from a place of safety, presents one of the sublimest sights afforded in this earth. Only a little less sublime is an Alpine avalanche, or a glacier breaking off, into the sea, huge parts of itself in the form of icebergs. A great earthquake viewed from a safe vantage point must contain many elements of the sublime. Some prairie and forest fires illustrate the same quality.

But the sublimest things are in the heavens. The heavens themselves to one's naked eye convey more the sense of the sublime than of the beautiful. The immensity of the universe is simply sublime, which we believe all of us recognized as we read the part of this chapter that treated of that part of our theme; for the infinity of space in which the universe lies embraced is sublime. The long ages since creation began add to the sense of the universe's sublimity. The immense number of suns in our universe alone, supposed by sober astronomers to be 30,000,000,000, with an average of 10 times as many planets, 27 times as many moons, over 1,000 times as many planetoids and an unnumbered quantity of comets, certainly conveys to our minds and hearts the sense of sublimity, with resultant feelings of reverence, solemnity and wonder. And what shall we say on their sublimity when to our universe

the twelve others so far revealed to our largest telescopes are added? This is heightened when we consider the vast distances of the suns from one another, and the vast territory each sun rules while reigning over its planets, moons and planetoids. The great speed with which the planets move on their orbits and axes increases our sense of the sublime as we contemplate the universe. The precision with which the planets move about their orbits and axes impresses us deeply with the sense of the sublimity of God's creative works. The development of the planets, out of their original gases into what they have become, and into what they are yet to become, as illustrated by that of our earth, certainly is sublime. If our vision were keen enough to take in the mighty processes through which the developing planets are going, the intense heat, the lurid sights, volcanic eruptions, gigantic explosions, wild storms, falling canopies and confused elements in their wild struggles with one another, we would see sights indescribably sublime and awe-inspiring.

Sublime indeed are the operations of nature's laws throughout the universe. When we think of the operation of the law of gravitation, sublimity is one of the qualities that it suggests to our mind. It operates upon every atom of matter throughout the universe. How wide flung, therefore, is its sphere of operation! What majesty is there in its grasp that is great enough to hold all matter securely in its mighty clutches! How inexorable is its rulership, subduing all things to its sway directly in proportion to their bulk and inversely as to their distance! How it keeps the worlds in perfect balance with the aid of centripetal and centrifugal forces! With the aid of centrifugal forces it keeps, e.g., our earth and all other planets of our solar system in their undeviating courses. If it would act alone, without the counteraction of centrifugal forces, all of the planets of our solar system would fall into the sun;

and reversely, if it ceased acting and only centrifugal forces would act upon them, they would leaves their orbits and fall out into space away from the sun. The same things are true of the planets of all other systems. Hence the sublimity of the operation of gravitation's and other forces' laws. The laws underlying the varied cycles, culminating in the precessional cycle about every 26,000 years, wherein the motions of almost infinite numbers of heavenly bodies harmonize with one another better than clock work, convey to us a deep sense of the sublime. Surely sublimity is written everywhere on the face of the universe viewed in its larger aspects as well as in other aspects.

Accordingly, we recognize sublimity to be an attribute of God's work, and this implies that it is an attribute of God; for it is His sense of the sublime that operated in making sublimity a quality of His works. The Bible confirms this. The first chapter of Genesis gives us a sublime, yet simple account of God's creative work. We will quote a few passages that give us the thought of God's works as having sublimity as an attribute: "The pillars [the laws of gravitation, etc.] of the earth are the Lord's and He hath set the world upon them" (1 Sam. 2: 8). "Thou hast made the heaven, the heaven of the heavens, with all their host, the earth and all things that are therein, the seas and all that are therein; and Thou preservest them all" (Neh. 9: 6). "He stretcheth out the north over the empty place, and hangeth the earth upon nothing. By His spirit [power] He hath garnished the heavens" (Job 26: 7, 13). "God looketh to the ends of the earth, and seeth under the whole heaven, to make the weight of the winds; and He weigheth the waters by measure. When He made a decree for the rain and a way for the lightning of the thunder" (Job 28: 24-26). "Dost thou know the balancings of the clouds, the wondrous works of Him who is perfect in knowledge? Hast thou with Him spread out the sky, which is strong and as

a molten looking glass" (Job 37:16, 18)? "Where wast thou when I laid the foundations of the earth? Declare, if thou hast understanding. Or who shut up the sea with doors, when it brake forth? When I made the cloud the garment thereof, and thick darkness a swaddlingband for it, and brake up for it My decreed place and set bars and doors" (Job 38: 4, 8-10)? "When I consider Thy heavens, the work of Thy fingers, and the moon and stars, which Thou hast ordained" (Ps. 8: 3). "The heavens declare the glory of God; and the firmament showeth His handiwork. In them He hath set a tabernacle for the sun" (Ps. 19: 1, 4). "The earth is the Lord's and the fulness thereof; for He hath founded it upon [above] the seas, and established it upon [above] the floods" (Ps. 24: 1, 2). "By the word of the Lord were the heavens made, and all the host of them by the breath of His mouth. He gathered the waters of the sea together as an heap; He layeth up the depth in storehouses; for He spake, and it was done; He commanded, and it stood fast" (Ps. 33: 6, 7, 9). "Who by His strength setteth fast the mountains, being girded with power" (Ps. 65: 6). "The day is Thine; the night also is Thine. Thou hast prepared the light and the sun. Thou hast set all the borders of the earth. Thou hast made summer and winter" (Ps. 74: 16, 17). "Before the mountains were brought forth, or ever Thou hadst formed the earth and the world, even from everlasting to everlasting, Thou art God" (Ps. 90: 2). "In His hand are the deep places of the earth; the strength of the hills is His also. The sea is His, and He made it; and His hands formed the dry land" (Ps. 95: 4, 5).

"Of old hast Thou laid the foundation of the earth; and the heavens are the work of Thy hands" (Ps. 102: 25). "Who stretchest out the heavens like a curtain; who layeth the beams of His chambers in the waters; who laid the foundation of the earth, that it should not be removed forever. Thou coverest it with the

deep as with a garment; the waters stood above the mountains. O Lord, how manifold are Thy works! In wisdom hast Thou made them all; the earth is full of Thy riches. Thou sendest forth Thy spirit, they are created; and Thou renewest the face of the earth" (Ps. 104: 2, 3, 5, 6, 24, 30). "To Him that by wisdom made the heavens; to Him that stretched out the earth above the waters; to Him that made great lights—the sun to rule by day, the moon and stars to rule by night" (Ps. 136: 5-9). "Let them [the heavenly bodies] praise the name of the Lord; for He commanded and they were created. He hath also established them for ever and ever. He hath made a decree which shall not pass [away]" (Ps. 148: 5, 6). "While as yet He had not made the earth, nor the field, nor the highest part of the dust of the world. When He prepared the heavens, I was there; when He set a compass upon the face of the depth; when He established the clouds above; when He strengthened the fountains of the deep; when He gave to the sea His decree, that the waters should not pass His commandment; when He appointed the foundations of the earth" (Prov. 8: 26-29). "Who hath measured the waters in the hollow of His hand, and meted out the heaven with the span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales and the hills in a balance. Lift up your eyes on high and behold who hath created these things, that bringeth out their host by number; He calleth them all by names by the greatness of His might; for that He is strong in power, not one faileth. Hast thou not known? Hast thou not heard that the everlasting God, the Lord, the Creator of the ends of the earth, fainteth not, neither is weary? There is no searching of His understanding" (Is. 40: 12, 26, 28). "I have made the earth and created man upon it; I, even My hands, have stretched out the heavens, and all their host have I commanded" (Is. 45:12). "My hand hath also laid

the foundation of the earth, and my right hand hath spanned the heavens; when I call upon them, they stand up together" (Is. 48: 13). "He hath made the earth by His power; He hath established the world by His wisdom, and hath stretched out the heavens by His discretion" (Jer. 10: 12). "Thus saith the Lord, which giveth the sun for a light by day, and the ordinances of the moon and stars for a light by night, which divideth the sea when the waves thereof roar; the Lord of Hosts is His name" (Jer. 31: 35). "When He uttereth His voice, there is a multitude of waters in the heavens; and He causeth the vapors to ascend from the ends of the earth; He maketh lightnings with rain and bringeth forth the wind out of His treasures" (Jer. 51: 16). "For, lo, He that formeth the mountains and createth the wind … that maketh the morning darkness and treadeth upon the high places of the earth, the Lord, the God of Hosts, is His name" (Amos 4: 13). "Seek Him that maketh the seven stars [Pleiades] and Orion, and turneth the shadow of death into morning, and maketh the day dark with night" (Amos 5: 8). "It is He that buildeth His stories in the heaven, and hath founded His troop in the earth; He that calleth for the waters of the sea, and poureth them out upon the face of the earth: The Lord is His name" (Amos 9: 6). So far the main Scriptures that show creation to have the quality of sublimity. And if creation itself is sublime, how much more is God, the grandest, loftiest and most awe-inspiring of all beings, animate and inanimate. Along with creation's sublimity, God's sublimity is indicated in the many Scriptures which we have quoted. We have quoted these in order to give our readers a good list of such Scriptures for their further study.

The next quality of creation, as a product, which we would discuss is *order*. By order as an attribute of creation we mean that quality whereby a related arrangement and harmony are shown to exist in the

universe amid all sorts of diversities of operations. This order works so nicely that with the most exact precision the motions or positions of the planets in relation to one another and their suns, and of the suns in relation to one another and to their planets, can be measured or located. This is due to the balanced cooperation of the various forces that under Divine manipulation control the universe, like gravitation, centrifugal and centripetal forces, the laws of attraction, repulsion, affinity, cohesion, adhesion, etc., and the relative density of the planets and suns. The universe operates in more than clockwork perfect order, because there is a perfect balance between these forces, laws and heavenly bodies. And this balance keeps its various parts in such perfect adjustment to one another as the grip of gigantic machinery could not effect. When the Scriptures refer to the foundations of the earth and the heavens, they do not refer to literal foundations; for the suns and planets hang out in space on nothing material. What, then, holds these heavenly bodies in their relative positions? Their varying density operated upon by the above-mentioned forces and laws under Divine manipulation. Of these, gravitation is the chief, the main figurative foundation rock of the suns, planets, planetoids, moons and comets. But it is the harmonious cooperation of all these factors that effects the wondrous balance seen in the order underlying the universe as a work of God. And such an order intelligently grasped fills the heart and mind with wonder, awe and reverence. It will be well for us to look at some particulars, remembering that the great Architect of the universe, as the Mathematician of mathematicians, has worked out the relative operations of the various pertinent forces and laws on the heavenly bodies according to the exactest of mathematical formulas, since the formulas of higher mathematicians are mainly the theoretical expressions of the modes of such operations as these are observed in the universe.

We will first note some expressions of order as manifest in our solar system. How remarkable it is that the nearer a planet is to the sun, the greater is its density! Taking water as a measure and counting it as 1, Saturn is 13/32, or less than one-half as dense as water; Jupiter is 1 1/24 times as dense as water; Mars is 3/37 times as dense as water; Earth is 5.7 times as dense as water; Venus is 5 11/15 times as dense as water; and Mercury is 9 9/10 times as dense as water, *i.e*., about as dense as lead. We do not yet know the density of Vulcan, but it is denser than lead, while Uranus, Neptune and Pluto are, in their order, increasingly much less dense than water. Another marvel underlies the relative distances of the planets from the sun. It is the fact that there is a mathematical relation between these distances. If the following figures are placed in a line, thus: 0, 3, 6, 12, 24, 48, 96, 192, 384, 768, it will be noted that in those figures following 3, each one is double the preceding one. Now, if 4 be added to each figure, the result will give us the exact relative distance of each succeeding planet from the sun. Thus: Mercury—4, Venus—7, Earth—10, Mars—16, Planetoids—28, Jupiter—52, Saturn—100, Uranus—196, Neptune—388, Pluto—772. Before the planetoids were discovered, the first to be discovered being Ceres in 1801, there was an unaccountable gap in the progressional increase of the planets' distances from the sun, between Mars and Jupiter; but since 1801 over 1,000 planetoids have been discovered, and the central point between the nearest one and the farthest one from the sun, making allowance for their differences in density, fills this gap to a nicety, as indicated above. This is indeed fine order!

It is a further interesting fact that these distances bear an exact mathematical relation to the times of their varied revolutions about the sun. The great astronomer, Kepler, discovered this mathematical relation and expressed it as follows: As to any two

planets, the squares of the periods of their revolutions are to each other as the cubes of their mean distance. On this remarkable fact the great astronomer, Sir John Herschel, comments as follows: "When we contemplate the constituents of the planetary system from the point of view that this relation affords us, it is no longer a mere analogy which strikes us, no longer a general relation among them as individuals independent of one another and circulating about the sun, each according to its peculiar nature and connected with it by its own peculiar tie. The resemblance is now perceived to be a true family likeness; they are bound up in one chain; interwoven in one web of mutual relation and harmonious agreement; subjected to one pervading influence which extends from the center to the farthest limits of our great system, of which all of them, the earth included, must henceforth be regarded as members." It will be recalled that above we gave the orbital velocities of the planets to illustrate immensity in speed and distance. We here give again their velocities in miles per second, this time to show the proportions that hold as between them: Vulcan about 45, Mercury 29.75, Venus 21.79, Earth 18.5, Mars 14.97, Jupiter 8.38, Saturn 5.99, Uranus 4.19, Neptune 3.6 and Pluto 2.95. When we remember that these three important facts, the proportionate distances of the planets from the sun, the proportions between the periods of the planets' revolutions and their mean distances from one another, and the proportionate orbital velocities of the planets, apply not only to our solar system, but that either they or some things similar to them apply to all the planets of all solar systems, we are confronted with some amazing mathematical problems worked out not only theoretically, but also practically, on a scale of such immensity and sublimity as to stupify us in wonder and awe.

The attribute of order in God's creation is also evident in the succession of day and night, effected by

the rotatory movement of the earth on its axis, whereby it is continually bringing successive parts of the earth to face the sun and turning the rest of them away from the sun. Its year is effected by its revolution about its orbit, and that with more than clocklike precision. By the simple expedient of the earth's orbit being inclined at the equator to the sun at an angle of 23.5, we in the northern hemisphere are not only given longer days and shorter nights while the sun is north of the equator, but also shorter days and longer nights while the sun is south of the equator. The seasons in their succession are due to the same expedient. And how beneficial to mankind is this order of affairs in the earth's rotation on its axis, giving us the succession of day and night, and the revolution of the earth on its orbit, giving us longer days in summer and longer nights in winter! Yea, how salutary is the regular succession of the seasons, caused by the earth's inclination on its orbit! And it is all done with such perfect order that we can confidently locate our calendars as to the equinoxes and solstices for innumerable years ahead and thousands of years gone by. The other planets also by their rotation on their axes are continually presenting successive parts of themselves to the sun, and by the same token are turning other successive parts of themselves away from the sun, involving the former parts in day and the latter parts in night. Sometime the benefits of the varying times of other planets' rotating on their axes and revolving about their orbits will become manifest to us, together with the pertinent relation of their orbital inclination to the sun. Here we only desire to call attention to the perfect order maintained by each of these planets in the succession of day and night, the varying lengths of these and the succession of their seasons as governed by their orbital inclination to the sun, which facts become all the more impressive when we recognize that

they are, or will be, illustrated in the axial and orbital movements of planets in all solar systems.

This same principle of order is manifest in the other heavenly bodies in our solar system. It is seen in the movements of our moon, at least as concerns its orbital and axial motions. As is well known, we always see the same side of the moon, because its axial movement is as long in making one complete rotation as its orbital movement is in making one revolution. By its orbital and axial motions it is continually and very regularly, barring its eccentricities, making its rounds on its orbit and axis, and that with such prevision that astronomers, knowing the time of its eccentricities, can quite accurately calculate its phases, its quarters and its positions at any given time in the past, present and future. The same principle of order is observed in the other 26 moons so far discovered in our solar system, and doubtless is or will be manifested in those of other solar systems than that of our own. As one after the other of the planetoids has been discovered, the same principle of order manifested variously in the planets is found to exemplify itself in connection with them. Perhaps the other solar systems have, like our own, their portion of planetoids, or will have them. If they now have them, these exemplify order in their orbital and axial movements, their changes of day and night and seasons, all doubtless on a much smaller scale than ours, but dependably regular in their successions. Comets, as far as known, likewise exemplify order in their movements. For this reason astronomers are able to calculate their courses, speed, time of their appearances and the length of their absences. They work in their motions along the lines of mathematical formulas. They either visit other solar systems than ours, or these have sets of them peculiar to themselves. Thus order prevails amid all the heavenly bodies. They work and move with an exactness that does not vary the fraction of a second in tens of thousands of years.

Another feature of order as an attribute of God's creation is that of the fixity of the suns of the universe in their relation to one another. As is well known, the planets, moons, planetoids, meteors and comets vary in their position toward their peculiar suns and toward all other suns in their relations to them. The suns also vary in their relations to one another, but yet remain in absolutely relative fixity with one another, since they, too, move on their axes and orbits. While the whole universe revolves about a common center, Alcyone of the Pleiades, it does so with such an exactness as keeps it in harmonious relations as between its suns and their planets, etc. All its suns rotate on their axes and revolve on orbits of their own, but do so without the least deviation in their harmonious relations to one another; for their movements are so adjusted to one another and to their common center as to go in harmony unchangingly in their mutual relations, as in numbers of 30,000,000,000 they sweep through our universe's space; hence none of the constellations are variable, evidenced to our senses by the fact that each year as the earth's orbital motion brings it back to the same position toward its sun as it held each year before, the constellations are in exactly the same position relatively to our earth, except for the advance of 50.3 seconds per year caused by the annual advance of the precession of the equinoxes. This phenomenon has been observed by man for over 5,000 years and has enabled him to fix the twelve signs of the Zodiac as the signs of the months, and they have always come out exact. Thus the laws and forces whereby God rules the motions of the suns hold them unchangeably in their relative positions to one another more fixedly than if they were held in a framework of steel.

The heavens declare Thy glory, Lord,
Through all the realms of boundless space
The soaring mind may roam abroad,
And there Thy power and wisdom trace.

Author of Nature's wondrous laws,
Preserver of its glorious grace,
We hail Thee as the great First Cause,
And here delight Thy ways to trace.

And while bright visions of Thy power
The shining worlds before us bring,
The earthly grandeur, fruit and flower,
The praises of Thy bounty sing.

Another feature of order in God's creative work is the permanence of the fixed relations of the suns to one another, despite their axial and orbital motions, that of the fixed relations of the planetary systems to their respective suns and that of the fixed relations of the moons to their individual planets. This, too, holds as to the planetoids and comets. Here is almost infinite motion about untold billions of centers, for the suns have Alcyone as their center, the moons have their planets as their centers, and the planets and planetoids have their respective suns as their centers, not to mention the centers of the comets, all, except the suns, which may have varying axial speeds, working at various speeds axially and orbitally, as well as being different in their axes and orbits, yet all permanent in their pertinent fixed and pertinent changing relations to one another. Here is unity in diversity that works permanently in a fixed order that never changes. How sublime is the order here brought to our attention! What a marvelous universe is that in which we live! Doubtless this same feature of order prevails in all other universes of God's creation! And how much greater than all this marvelous universe must that

Being be who made it all in such unity, immensity, beauty, sublimity and order, and then preserves it in the same attributes! Great is our God and greatly to be praised! And yet with all His greatness, He can and does condescend to draw nigh unto us, if we will draw nigh unto Him, and to enter into fatherly and covenant relations with the sons of men!

We have so far studied order as an attribute of God's creative works in their general relations. But there are particular features of order that govern matter and its combinations, as well as this earth and its living conditions. How wonderful is the order that is brought to our attention in chemistry. Always the same combinations bring about the same result chemically. Thus the proper combinations of hydrogen and oxygen always yield water; always the same combination of certain gases yield air; and various other compounds are brought into existence by an orderly combination of their constituents. In physics, in geology, in zoology, in anthropology, the two departments of biology, in botany, in dendrology: the same conditions meeting, the same order of being and conditions results. We observe order in the processes at work in our earth as viewed by itself. The tides show it; the distribution of the continents and oceans express it; their relations in contour exemplify it; the distribution of mountain and hill chains, plateaus, plains, tablelands, valleys, lakes, rivers and harbors herald it; the ocean currents and their modifications on climates sound it forth; forests and deserts intone it; the watersheds, rains, rainstorms, storms and sunshine proclaim it; insects, reptiles, wild and domestic animals, fish and fowl, men and angels, tell it forth. Even in the creative processes, which further on will be discussed, the same attribute is manifest as present. Everywhere, except in the domain of sin and its consequences, which are not creative works, do we behold this attribute of order in God's creative works. This exception is such, be

cause a higher order than physical order requires it. Hence universal order has led to the rise of the proverb, Order is Heaven's first law. And by the order observed in God's creative works, we are led to recognize the attribute of order as a characteristic of God, of which the Bible gives us the assurance when it tells us, God is not the author of confusion, but of peace and order, which He desires us to practice after His example (1 Cor. 14: 33, 40). And, surely, this attribute of God that marks His character and His works is one by which in its manifold operations and wonders we are constrained to worship, praise and adore Him, who made the heavens and the earth and all beings in them, whether visible or invisible, and, sin apart, regulates them in a most astounding order.

The next attribute of God's creative works to engage our study is wondrousness—a wondrousness that shows itself, especially in the exhibition of power and wisdom, and to a much less degree of justice and love. Indeed, every attribute of creation so far studied in this article manifests wondrousness in the power and wisdom therein displayed. Many were the points in power and wisdom underlying the unity of God's creation that revealed the wondrousness of God's creative works. This is still more manifest in the immensity of bulk, time, space, motions, suns, planets, moons, planetoids and comets in our physical universe, not to mention the other universes that have been discovered. The beauty and sublimity displayed in the universe present the same attribute of wondrousness. Mightily does the order displayed in the universe as a revelation of power and wisdom, also of justice and love, bring out the wondrousness of the universe, as a creative work of God. Thus we recognize that the attribute of wondrousness imbedded in the universe permeates all its other attributes. We will note this principle also when we come to study the attribute of complexity, which we will consider after our study of

creation's wondrousness. But apart from its being manifest throughout the six other attributes of God's creative work studied or yet to be studied, in this chapter, it has independent manifestations of itself apart from these other six attributes of creation. And it is these independent manifestations of it that we desire to study here. To bring this out we will set before our readers some marvelous generalities of our universe. Some of these are of very recent discovery; for since the one-hundred inch lens of the reflecting telescope has been in use at the observatory on Mt. Wilson, near Pasadena, Calif., our knowledge of new worlds about us and beyond the outmost of those known but a few years ago has increased by leaps and bounds in all directions.

As an illustration of this, only about six years ago it was the scientific thought that there were 30,000,000,000 suns in the universe. At that time the scientific thought was that there were 14 Milky Ways in the universe. It will be recalled that we gave these figures in illustrating the immensity of the universe. Such they do; but since those six years the great telescope at Mt. Wilson has made discoveries that make these figures appear as those of microbes compared with a gigantisaurus! We will make a few quotations of recent press reports on some of such discoveries as samples of the attribute of wondrousness stamped on God's creative works. The following is an item published by the United Press under the date of Jan. 25, 1934: "As thick as the stars on the Milky Way is no longer a term of real meaning, according to the findings of astronomers. A late computation of Prof. William MacMillan of the University of Chicago and Dr. Edwin P. Hubble of Mt. Wilson observatory, revealed today that the stars are not at all thick in the Milky Way nor in any of the other 75,000,000 Milky Ways in the astronomer's universe, spaced 650,000 light years apart. Counts of the nebulae or Milky Ways were

made on 1,283 photographs taken with the 60-inch and 100-inch Mt. Wilson telescopes. The pictures covered two per cent of the three-quarters of the sky visible at Mt. Wilson. They were exposed down to the twentieth photographic magnitude, showing 44,000 nebulae. Professor MacMillan pointed out that, assuming even distribution, the number of nebulae within 20 photographic magnitudes, a sphere with a radius of about 300,000,000 light years, would be 75,000,000. Each nebula is believed to be a star system similar to our Milky Way, which in itself contains a billion plus stars." Surely here is wondrousness—more than enough to satisfy the most exacting. But we venture to say that when the 200-inch lens, now under construction, is fitted on a reflecting telescope, the figures of 75,000,000 Milky Ways will again be reduced to relative microbe size in proportion to gigantisauric size of the number of the as yet undiscovered other Milky Ways. Then, no doubt, when still larger and thus more penetrating telescopes will have been made, this process of the discoveries of still vastly greater numbers of Milky Ways will go on almost *ad infinitum*!

Just recently some marvels have been brought to light in the Larger Magellanic Cloud. When Magellan 400 years ago made his circuit of the earth by way of Cape Horn, the southernmost tip of South America, he discovered, when far south of the Equator, two clouds of nebulae—groups of stars so dim, yet so compact to the naked eye as to seem to be clouds. Since then the larger of these has been called the Larger Magellanic Cloud and the smaller one the Smaller Magellanic Cloud. We now will introduce a quotation from the daily press, giving a few facts of very recent discovery as to the Larger Magellanic Cloud: "A brilliant vacuum, far brighter than the combined radiance of all the stars one may see with the naked eye, has been found in a galaxy 90,000 light years distant from earth, Dr. Harlow Shapley, director of Harvard's astronomical

observatory, told the closing session of the American Association for the Advancement of Science. Dr. Shapely spoke in acceptance of the association's Rumford medal, presented 'for distinguished research in physics.' His address was entitled, The Anatomy of a Disordered Universe. A study of the Larger Magellanic Cloud, the key with which it may be possible to unlock some of the mysteries in the cosmic spaces outside our own Milky Way system, disclosed the existence of the vacuum, he said. The star cloud, visible only in the southern latitudes, has been known for 400 years, but only for the last generation has it been seriously studied. Among the new results accomplished by the Lick and Harvard observatories, Dr. Shapely said, were the discovery of some 500 new variable stars among the giants and super-giants previously noted. Their analysis shows the cloud is a little less than 90,000 light years distant. 'A score of new star clusters have been found in the vicinity of the large cloud,' he said. 'They are undoubtedly outlying members of the organization. A census of the giant and super-giant stars in the cloud has been completed, showing there are several millions that are of higher radiance than our own sun. Some of the super-giant stars are of extraordinary size and of exceedingly high temperature, many of them being more than 10,000 times as bright as our sun. A study of the gaseous nebulosity in the cloud was undertaken, with the discovery that its intrinsic radiation greatly exceeds that of all our naked eye stars put together, and yet its density must be exceedingly low—less than that of a very excellent vacuum in the physics laboratory.'" This is wonderful indeed.

Many wondrous facts similar to the two sets of facts described in the two above quotations could be given, but we will pass them by and give a number of smaller details which will illustrate wondrousness as an attribute of creation. The wondrousness of power and

wisdom as displayed in the law of gravitation and centrifugal forces finds an illustration in the balanced relations of the sun and earth maintained by their harmoniously held space relations. The earth is kept in its orbit by the attraction of the sun as balanced by the centrifugal force of its orbital motion and gravitation operating on it from other heavenly bodies. If the latter forces were withdrawn, the earth would drop into the sun, falling only 1/9 of an inch in its first second's fall, but increasing its speed until in two months it would fall into the sun, its last second's fall being at the rate of 380 miles, 5/6 of the time, *i.e.*, 50 5/6 of the 61 days required in the fall, would be required to cover its first half. Or if the attraction of the sun would be withdrawn from the earth, it would drop out into space, falling eternally at an ever increasing rate, unless it would crash into another body and explode into fragments, or otherwise disintegrate. The amount of power exerted to keep the earth balanced in its space relation to the sun is equal to that of a steel rod able to support 50 tons to the square inch, 5000 miles in diameter and 93,000,000 miles long! To keep the planets that are nearer the sun in their balanced space relation to the sun would require a somewhat less strong steel rod, modified by their less distances and sizes, but greater densities, while if rods were required to keep the outer planets in their balanced space relations to the sun, they would have to be much stronger, of greater diameter and lengths, dependent on those planets' difference in size, weight and distance from the sun. Then we are to remember that there are similar manifestations of power and wisdom displayed in the other solar systems. Certainly the wondrousness of power and wisdom manifest in this set of facts is evident on but little thought.

There are some wondrous things in God's creative works manifest in Betelgeuse, which is the bright red star in the southern one of the upper corners of the

nearly rectangular box of Orion, the most beautiful of the constellations. Betelgeuse is the largest of all the suns visible to our naked eyes. His size is quite variable. Extended to his utmost, his diameter is 256,000,000 miles, and contracted to his utmost, it is 186,000,000 miles. Even when contracted to his least proportions he is still by far the largest of the stars visible to our naked eyes. His size is 26,000,000 times that of our sun, which in turn is 1,300,000 times as large as our earth! Yet his weight is only 16 times as great as that of our sun. His mean density (weight) is a thousandth of that of air. Thus Betelgeuse is almost a vacuum. It will be noted from what was said above that his diameter varies from his greatest expansion to his greatest contraction by 70,000,000 miles. He therefore exhibits a stage in the variableness of size assumed during the process of condensing the rarest of gases into relatively solid bodies, a process through which our earth progressed in passing from a gaseous to its present state. This seems to be the process through which all the heavenly bodies pass as they undergo God's creative operations. A cube of Betelgeuse's matter 23 feet square on each of its six sides would weigh only a pound! This shows that he is a fair vacuum.

By contrast we may note the great density in the mass of the smaller of the two stars that constitute Sirius, which is the brightest star visible from earth, which, as is well known, is a double star, and which is the next nearest to our earth of all the stars, it being 8.8 light years, or about 51,000,000,000,000 miles away from us, Alpha Centauri, the third brightest stars to the earth, being 4.3 light years, or 25,000,000,000,000 miles away, is the nearest to the earth of all the stars. The smaller of the two stars that compose Sirius is visible only by a large telescope. The larger of these two stars gives out 10,000 times as much light as the smaller one. But the smaller one is much heavier than the

larger one. Its density is 50,000 times that of water, about 4,500 times that of lead, and more than 2,000 times as heavy as any substance found in the earth. A pint (liquid, not dry) of its matter weighs 26 tons, while a ball of it the size of a tennis ball would weight 7.4 tons. This star's weight is about the same as that of our sun, which weighs 332,000 times our earth. So far as we know, the heaviest star weighs only 75 times as much as our sun, though many of them, like Betelgeuse, are millions of times larger than our sun. As an illustration of the great size of Betelgeuse we might submit the following: If, when Betelgeuse is expanded to his utmost, the middle point of its diameter were placed at the middle point of the sun's diameter, which is 864,000 miles, and if the sun's diameter thus placed were lying alongside of that of Betelgeuse, the latter's surface would reach out to within 13,000,000 miles from Mars, which is 141,000,000 miles from the sun. Our earth would then be within Betelgeuse, 35,000,000 miles beneath its surface. And if this were done at the time Betelgeuse were contracted to his utmost, the earth would still be buried 200,000 miles beneath his surface. Nor is Betelgeuse the only star over 100,000,000 miles in diameter when contracted to its utmost. Antares is one of the largest of the stars. Its diameter is 142,000,000 miles, which is 165 times that of the sun. The facts adduced in this and the preceding paragraphs prove that wondrousness is written into the being of various of the world's suns.

The wondrousness of the universe of God is likewise seen in the luminosity of the planets and the suns. Astronomical instruments have been invented that accurately give the luminosity of the stars. The luminosity of our sun is much greater than the light of the whole canopy of the heavens above the horizon (which is half of the celestial sphere) would be, were it filled with full moons in close contact with one another. Taking the luminosity of the sun as represented by *one*, we

find that many of the stars are intrinsically much brighter than our sun, *i.e.*, if they were as near to us as our sun they would be to us many times brighter. Alcyone, God's dwelling place, has a luminosity 1,190 times greater than our sun. Of course, our eyes could not endure such brightness, were it as near to us as our sun. Nor is Alcyone by a long way the most luminous of the stars. Betelgeuse has greater luminosity, being 1,225 times brighter than our sun. Polaris, our North Star, is still more luminous, being intrinsically 2,570 times brighter than our sun. Spica, the brightest star in Virgo, is 3,600 times more luminous than our sun. Deneb in Cygnus has still more luminosity; it would to us shine with 10,470 times the brightness of our sun, were it at the same distance from us. Rigel, the brightest star in Orion and situated in the box of that constellation diagonally opposite Betelgeuse, has an intrinsic luminosity 18,000 times greater than our sun. Canopus, which is to us the second brightest of the stars, being surpassed only by Sirius, has a luminosity 77,000 times greater than our sun, *i.e.*, if it were as near to us as our sun it would shine upon us with 77,000 times the brightness of the sun. But even Canopus is not the brightest heavenly body. This honor, according to present knowledge, belongs to one of the suns in the Larger Magellanic Cloud—S. Doradi, which, according to Prof. Shapley, has a luminosity of 600,000 times that of our sun. Such light would instantly blind us, if S. Doradi were where our sun is. This star is as much brighter than our sun as our sun is brighter than the full moon. But let us not think that the brighter a star seems to us, the brighter it necessarily is intrinsically. A few examples will disprove such a thought. To our eyes Sirius is the brightest of all stars; but intrinsically he is not at all one of the brightest stars. He is intrinsically only 28 times brighter than our sun; his comparative nearness to us—only 8.8 light years away—makes him appear so

bright to us. Canopus appears only a little less bright to us than Sirius; for his enormous distance from us, 652 light years, despite his 77,000 times luminosity above that of the sun, makes him appear to us less bright than Sirius, though intrinsically he is nearly 3,000 times brighter than Sirius, Alpha Centauri is to us the third brightest of the stars, yet he is intrinsically only about 1½ times brighter than our sun. This is due to the fact that he is the nearest to us of all the stars, except our sun, being only 4.3 light years—25,000,000,000,000 miles away. Surely the luminosity of the stars partakes of the quality of wondrousness.

Some other facts connected with our sun suggest wondrousness. This is seen in its steady axial and orbital movements, the latter being at the rate of 12 miles per second. His mean distance from us is 92,900,000 miles, but in January he is nearest to us, being 91,400,000 miles away, and in July he is farthest from us, being 94,400,000 miles away. His diameter is 864,000 miles, which is 109.1 times that of our earth. His volume is 1,300,000 times that of the earth. His temperature is 10,000° Fahrenheit (6,000° Centigrade). He gives us 466,000 times as much light as the average full moon. Since the celestial hemisphere is 98,000 times the size of the area filled by the moon, if the celestial hemisphere were in all its surface filled with full moons and the spaces between each of the moons were also just as bright as the full moons surrounding them, this celestial hemisphere would give about a sixth as much light as our sun. Yet partly in spite of some, and partly on account of others of the above given facts, the sun is one of the smallest and faintest of the stars. Its comparative nearness to us accounts for its seeming to be the largest and brightest of the stars. Wondrous indeed are these facts. Wondrous is the further fact that through its carrying the earth (and for all that, the other planets, etc., of our solar system) with the fixity of sameness along its orbit, it keeps to the same

(apparent) path through the constellations of the Zodiac. Its weight, being 332,000 times that of our earth, is enormous, being about the average weight of the other suns, which in almost every case are much larger than it, as shown above. None so far discovered has more than 75 times the sun's weight. Its spots are another feature of its wondrousness. It is the fact that these spots are continually moving eastward, then, after a visibility of a certain time, disappear, and then later appear on the western rim of the sun and then complete the same movement again, that has demonstrated the truth that the sun rotates on an axis. A singular fact as to its rotation is this, that the nearer the sun is to the celestial equator, the more rapid is its rotation, while the farther it is from the celestial equator, the slower is its rotation. Accordingly, unlike the earth's rotation on its axis, which is uniform, that of the sun is variable, its rotation on its axis averaging about 25 days, but the variation above indicated being from 24.5 to 25.38 days. The sun's corona during an eclipse often reaching out to 500,000 miles beyond the sun on all sides, is certainly a wondrous thing.

There is wondrousness exhibited in others of the bright stars. Apart from Sirius, the four brightest stars visible at places above 38° north of the equator are Vega in Lyra, Capella in Auriga, Arcturus in Bootes, and Rigel in Orion. The last is very far away, 544 light years distant; the only other more distant star visible above 38° north latitude, where Canopus first rises above the southern horizon, is Deneb, in Cygnus, which like Canopus is 652 light years away. According to this, Rigel, whose luminosity is 18,000 times that of the sun, is intrinsically one of the brightest of all stars, in fact the brightest of any seen by the naked eye, except Canopus, which as just indicated, cannot be seen until one is south of 38° north latitude. Vega, in Lyra, next to Sirius is the brightest star in magnitude visible north of 38°, though intrinsically it is by no

means one of the brightest stars, its luminosity being only 51 times that of our sun. Its brightness to us is due to its comparative nearness, it being only 26 light years away. It is the fourth brightest star visible from earth, ranking next to Sirius, Canopus and Alpha Centauri. Its color is a beautiful blue. Capella and Arcturus are of the same magnitude. In distance they are respectively 43 and 41 light years from us, and their luminosity are respectively 130 and 112 times that of our sun. Capella is of a yellow tinge and Arcturus is of a red tinge. Arcturus is one of the larger stars. Its diameter is 25,500,000 miles, which is 29.5 times that of our sun, and its volume is 26,000 times that of our sun. Until 1718, when Halley, the discoverer of the comet of his name, found out that the stars moved, the stars were all considered as fixed. In that year he announced that Arcturus and Sirius and Procyon had changed their positions since ancient times. Except Alpha Centauri, the nearest star to us, but not visible unless one is far south, no star as bright as the fourth magnitude changes its position among the stars more rapidly than Arcturus does. Yet it changes its position only one degree in 1,570 years. He is moving through space at the rate of 77 miles a second, which seems like a snail's pace compared with the most rapid known star that goes 625 miles a second.

Another star that is not so bright as the four just now noted deserves mention as wondrous in several particulars. It is Antares, which is the brightest star in the Zodiacal constellation, Scorpius. The latter is doubtless the most beautiful constellation in the Zodiac. Antares is a bright red star. Its name, derived from *anti* and *Ares, i.e., instead of Ares* (Mars), was given it because when the planet Mars, which is also bright red, and Antares are near one another they seem to be in rivalry as to which would outshine the other. Its size is enormous. Its diameter is 146,000,000 miles—40,000,000 miles less than that of Betelgeuse when the

latter is most contracted and 110,000,000 miles less when the latter is expanded to his utmost. Its diameter is 165 times that of our sun. Our sun is moving at the rate of 12 miles a second, carrying the earth and all the other solar planets, etc., with it in the direction of the constellation Lyra. This velocity in a year carries the earth nearly 400,000,000 miles. The movement of the earth around the sun on its orbit, combined with its movement with the sun, makes its movement a spiral one. If the motion of the sun were exactly in the direction of Vega and Vega did not move, we would arrive at Vega in 475,000 years! Another star deserves special mention here, because it is suggestive of wondrousness. It is Deneb in Cygnus. It is so distant that its distance cannot be measured with certain accuracy. It and Canopus are the most distant of the stars visible to the naked eye of those so far measured, each of them being approximately 654 light years away. As indicated above, it is 10,470 times as bright as our sun. It is approaching the earth at the comparatively slow rate of 2.5 miles a second, but long observation fails to disclose any change in its position among the stars. This is probably due to its very great distance from us hiding that change.

Deneb lies at the head of what is called the Northern Cross, in Cygnus. There is a beautiful constellation called the Southern Cross, lying too far south to be seen much north of the Tropics. It is very remarkable how many crosses, diamonds, irregular triangles, right angled triangles and equilateral triangles are formed by various of the stars. One of the most remarkable of these diamonds is formed by Betelgeuse, Rigel, Sirius and Aldebaran, the brightest star in Taurus, a part of which constellation the Pleiades also are. One of the finest equilateral triangles in the heavens is formed by Betelgeuse, Sirius and Procyon. Orion by Betelgeuse, Belletrix, Rigel and Saiph forms a rough right-angled quadrangular figure, while Orion's

belt forms an almost perfect measuring rod just 3° long, which has occasioned the name of "yardstick" to be given to his belt. We have not given the matter requisite study and therefore cannot vouch for the truth or untruth of the claim; but Dr. Seiss, whose work on the Pyramid entitled, A Miracle in Stone, is commended and quoted by our Pastor in the Pyramid chapter of Vol. III, claims that the plan of God is depicted in the constellations, somewhat after the manner in which it is depicted in the Pyramid. We hope some time to be able to investigate and report to the brethren on this subject. In passing, we might mention that it was the book of Dr. Seiss, who was one of the most prominent American Lutheran writers, entitled, The Last Times, which first convinced us, contrary to the teachings of the Lutheran Church, of which we were then a member and pastor, that the Bible teaches that there will be a Millennium. He however did not see that during the Millennium the opportunity of restitution would be given the dead. The facts adduced in this paragraph contribute their quota in proof of the proposition that wondrousness is one of the attributes of God's creative work.

The constellation Ursa Major (The Larger Bear) is perhaps the best known constellation of the northern hemisphere. In the United States a part of this constellation is called the Big Dipper. It is also, especially outside of the U. S., called Charles' Wain (wagon), the Plow, and the Butcher's Cleaver. Ursa Major embraces many other stars than the Big Dipper. Almost the entire constellation is so formed as to constitute a double set of many stars. The first set of these, beginning in winter quite a distance northwest of the bowl of the Dipper, forms a rough semicircle ending in two stars at its southwestern extreme. Then beginning with the stars at the bottom of the Dipper's bowl, we find a parallel set of stars, forming a rough semicircle, terminating

at its southwestern extreme in a pair of stars. These two sets of two stars are at one extreme and the center of a straight line, that if projected at the same angle about the same distance as these two pairs are from one another, the straight line will terminate in two other stars, positioned toward one another as the two in the other two sets are. The above described two rough semicircles, the three sets of two stars at the southeastern end (in winter) and the handle of the Big Dipper give us the outlines of Ursa Major, which, next to Orion, is probably the most beautiful of the constellations. In the A. V. of Job 38: 32 the word Arcturus occurs, but in the R. V., A. R. V. and Rotherham the Hebrew word is rendered Bear and refers to Ursa Major, while in these translations the Hebrew words rendered "her signs" are by Young rendered train and doubtless refer to Ursa Minor, in which Polaris is situated. The A. V., R. V., and A. R. V. transliterate the Hebrew word *Mazzaroth*, but in their margins and in the text of Rotherham this word is rendered *the twelve signs*, *i.e*., the twelve Zodiacal constellations. So viewed, Job 38: 31-33 gives us the most extended astronomical allusion to constellations to be found in the Bible. Ursa Major by the two pointer stars in the bowl of its Dipper (the Big Dipper) farthest from its handle and Ursa Minor by the star Polaris at the end of the handle of its Dipper (the Little Dipper) furnish mariners in particular and everybody in general north of the equator the best indication, in the night time, of the points of the compass, since the two pointers in the bowl of the Big Dipper point to Polaris; and if their distance apart be extended by five times in a straight line from the upper and outer side of the bowl, this line will terminate at Polaris, which circles about the North Pole at a radius of 1¼ degree. Hence all one needs to do at night when he can see the pointers is to locate Polaris and thus he can locate the points of the compass.

This is highly practical, if one is lost during the night.

In the constellation Andromeda is a matter that comes well within the range of wondrousness as an attribute of God's creative works. It is Andromeda's Nebula, the nearest of the spiral nebulae, though there are other nebulae not of the spiral sort, like the Larger and Smaller Magellanic Nebulae, that are nearer to us. The spiral nebula in Andromeda is the most distant object visible to the naked eye. It is 900,000 light years away, which means 5,400,000,000,000,000,000 miles away. When conditions are clear, it can be seen as a cloud speck with good naked eyes, otherwise an opera glass will bring it into good view. Our larger telescopes have resolved this nebula into star clusters of billions of stars, and thus have discovered a new universe. Many millions more of such universes have been discovered, e.g., the two Magellanic Clouds. Our own universe is estimated to have 30,000,000,000 suns. The three others just mentioned have each one of them billions of stars. Andromeda's spiral nebula being 900,000 light years away from us, according to the calculations of Dr. E. P. Hubble of the Mt. Wilson Observatory, means that we now see it as it was 900,000 years ago; for it was that long ago that the light which we now see left it. And people living 900,000 years from now will see it as it now is. Dr. Barton, in his Guide to the Constellations, says of this distance the following: "Even the light year is a pretty small unit in which to express such distances. If the scale of the universe were so tremendously reduced that the sun became a sphere of only 1/1000 inch in diameter, in which case the earth would be a sphere 1/100,000 inch in diameter, too small to see in our best microscopes 1/10 inch away—this nebula would still be 90,000 miles away! A photographic plate used with a powerful telescope and with

a long exposure shows that the material in this nebula, like that in many similar objects, is distributed as a central mass with branches of spiral shape extending away from it. In 1924 the outer portions of this nebula and the one in Triangulum were resolved into masses of stars, proving what was long suspected, that they were great systems of stars, universes, somewhat like the one in which we are, only smaller. Thirty billion is the estimate of the stars in our system. But the Andromeda nebula is only one of the spiral nebulae. It is estimated that a million [this statement was made in 1928; Prof. Shapley's estimate of 1934, quoted above, implies many millions] could be photographed ranging from this, the brightest, to the smallest specks recognizable as nebulae. How many others there may be, too distant to be seen, no one can tell. The distances of the remotest ones seen are estimated to be 140,000,000 light years [840,000,000,000,000,000,000 miles!]. The largest diameter of the Andromeda nebula is about 45,000 light years. The view of this nebula should be combined with considerable thinking." Surely, wondrousness is an attribute of God's creative work as exhibited in Andromeda's nebula, as a sample of the millions of others in God's creation.

Wondrousness is stamped upon God's creation in the variableness of many stars, *i.e.*, their magnitudes and sometimes their sizes vary at different times. We have already called attention to the variableness of Betelgeuse in size. It also varies from 0.6 to 1.4 in magnitude. By magnitude is meant the apparent, as distinct from the intrinsic brightness of the stars. Some ancients, classifying the magnitudes of the stars from first to sixth, divided these more loosely than the moderns. They counted about twenty of the brightest stars of the first magnitude; and all those that were the faintest of those visible in a clear sky were classified as of the sixth magnitude, while those between these extremes were roughly grouped into

four intervening classes, according to their brightness. Other ancients divided them into twelve magnitudes. But with the invention of telescopes, and more especially of the very large ones of the present time, a new classification had to be made, not only among those visible to the naked eye, but also and more especially for those that became visible to the telescope, and most particularly for the larger ones visible to the naked eye. Hence in the modern classification the decimal system has been introduced to bring out decimal distinctions. Betelgeuse and Alpha Crucis were taken as the average standard for stars of the first magnitude, and their magnitudes being the average of this class are called magnitude 1, which magnitude, accordingly, varies decimally from 0.5 to 1.5. All stars, therefore, that have a magnitude between 0.5 and 1.5 are now called stars of the first magnitude.

Within this magnitude, in addition to the two just mentioned are Achenar 0.6, Aldebaran 1.1, Altair 0.9, Antares 1.2, Beta Centauri 0.9, Deneb 1.3, Fomalhaut 1.3, Pollux 1.2, Procyon 0.5, Regulus 1.3, Spica 1.2. There are some of higher magnitudes than these, e.g., Arcturus 0.2, Capella 0.2, Rigel 0.3, Sirius -1.6, Vega 0.1, Canopus -0.9, Alpha Centauri 0.1. A star of the magnitude 1.0 is exactly 100 times as bright as one of magnitude 6.0. The number that multiplied by itself five times produces 100, *i.e.*, the fifth root of 100, is 2.51 +. Thus a star of magnitude 1.0 gives 2.51 + times as much light as one of magnitude 2.0, and the latter gives 2.51 + times as much light as one of magnitude 3.0. A star that is brighter by a magnitude than magnitude 1 is designated as 0.0 in magnitude. And one magnitude still brighter is designated as -1.0. Only Sirius and Canopus belong to this last magnitude. The faintest stars visible in the largest telescopes are of magnitude 19., but telescopic photographs of magnitude 22. have been taken. Venus at her best is of magnitude -4.4. Jupiter varies in magnitude

from -1.2 to -2.5; Mars from -2.1 to -2.7; Saturn varies from 1.4 to -0.3. The magnitude of the sun is -26.7, and of the average full moon is -12.5. We might say that when a star varies in magnitude because of its being eclipsed by another star, it is called an eclipsing variable. These remarks will help us better to appreciate the following remarks on variable stars.

The constellation Cepheus has a number of variable stars. Delta Cephei, *i.e.*, Delta (Greek D) of Cepheus is one of its variable stars, indeed, is a type of the variables in Cepheus. Its magnitude varies from 3.7 to 4.6; and it makes this change back and forth regularly every 5.37 days. Mu (Greek M) Cephei is the reddest star seen by the naked eye, and varies irregularly between 4.0 and 4.8. Cassiopeia is the W or M (according to its position) shaped constellation near the polar star. The star of the W which is farthest from Polaris is called Schedir. Its brightness varies irregularly from magnitude 2.2 to 2.8. The star Epsilon (Greek E) Aurigae, the one nearest to Capella, the brightest of Auriga's stars, varies in magnitude from 3.4 to 4.1 within a period of 9,900 days, which is more than 27 years. This is the longest known period of a variable. Additionally it is an eclipsing variable. It goes through this form of its variableness more rapidly than through its own (uneclipsing) variableness; for it decreases in brightness 180 days, remains at a minimum 340 days, then returns to its own brightness in 180 days. It made one of these eclipses from June 1, 1928, to May 2, 1930. And during this time, of course, it was doing its own varying as a part of its 9,900 days' variableness. The star in Taurus that with Taurus V makes a Y is Lambda (Greek L) Tauri. This is both an eclipsing and a variable star. Its magnitude changes regularly from 3.3 to 4.2 and returns to its original magnitude every 3.95 days. Certainly this, as in the case of Delta Cephei, is rapid variableness. The middle star in the bottom line of Gemini's Z is Zeta (Greek Z)

Geminorum. It is a well known variable, whose degree of variableness is 3.7 to 4.3, and whose period of variableness is 10.15 days. Another of Gemini's stars, Eta (Greek E) Geminorum, is a variable. It varies irregularly between the magnitudes of 3.2 and 4.2, a whole magnitude, on an average of 232 days. In the parallelogram of Aquila; the star in the middle of its southern side is the variable Eta Aquila, which varies from 3.7 to 4.5, returning to its original brightness every 7.18 days. This, again, is very rapid variation and strikes the thoughtful mind as wondrous indeed.

The most remarkable of all variable stars is Eta Carinae. It was first noted in 1677 and was of magnitude 4. Later it was observed to be of magnitude 2. Its variability was discovered in 1827, after it had become very bright. In 1843 it was the brightest of all stars except Sirius, remaining among the brightest stars until in 1858 it dimmed to magnitude 2. In a year it was of magnitude 3 and by 1868 it was invisible to the naked eye. In 1886 it reached magnitude 7.6 and has continued such ever since. Near the east end of Hydra is R Hydrae. Its variableness is one of the greatest of all variable stars, changing its magnitude as it does from 4.0 to 9.8, reverting to its original magnitude every 425 days. While its full period of variableness is much longer than some above indicated, its variableness is enormous, being nearly six magnitudes, *i.e.*, at is greatest brightness it is nearly 250 times brighter than at its dimmest. This we cannot otherwise regard than wondrous. Chi Cigni varies still more, from 4.0 to 13.5, its period being 405 days. Algol in Perseus consists of two stars that eclipse one another regularly every 2⅞ days. It remains at about 2.1 for two days and 11 hours, then decreases in magnitude to 3.2 in five hours, and then returns to its original brightness in five hours. Wondrous! Other notable variables are: Alpha Herculis (3.1 to 3.9), Beta Lyrae (3.4 to 4.1, period 12.9 days), R Lyrae (4.0 to 4.7), Beta Pegasi

(2.2 to 2.7), the irregularly varying Myra [wonderful] in Cetus (1.7 to 9.6, period 331 days), Rho Persei (3.4 to 4.2), I Carinae (3.6 to 5.0, period 35.5 days), R Carinae (4.5 to 10.0, period 309 days), Beta Doradi (3.7 to 4.6, period 10 days), L^2 Puppis (3.4 to 6.2, period 140 days) and V Puppis (4.1 to 4.8, period 1.4 days). Certainly the variableness of the magnitudes in some stars partakes of the quality of wondrousness.

Wondrousness also characterizes the stars that are multiple, *i.e.*, there are quite a number of stars and star clusters each of which appears to the naked eye to be but a single star, but which by the aid of the opera glass or telescope are seen to be two or more stars. This phenomenon is due to various causes. Sometimes the stars that form a multiple are very near to one another, so near as to revolve about one another; in other cases they are very far apart, but the angle at our eye between them is very small, so small as to be often less than a second, *i.e.*, 1/3600 of a degree. We will remark on several examples of these. The most frequently occurring of these multiples are double stars. The first double star was deciphered as such by jean Baptiste Riccioli in 1650. It is Mizar, the middle star in the handle of the Great Dipper. The two components of Mizar are 15 seconds apart. Yet so far are they from us that their actual distance apart is about 30,000,000,000 miles. The discovery that Mizar is a double star was soon followed by the discovery of others. Theta Orionis was resolved into a double star in 1656, Gamma Arietis in 1664, Alpha Crucis and Alpha Centauri in 1685 and 1689 respectively. The principle of strict measurement of double stars is due to the work of Sir William Herschel, to whom Astronomy is indebted for much of other splendid and wonderful work. Soon the number of double stars discovered was very greatly increased. It is now recognized that of the naked-eye stars, one in every nine is under telescopic vision found to be double.

And of the nearest known stars, eight out of every twenty are double. Such near stars give the best opportunity of observation as to their doubleness. In 1928 there were 15,000 double stars catalogued; but greater numbers have since been catalogued.

Genuine multiple stars are those which have in common a proper motion. This would rule out of the catalogued genuine multiple stars such as appear multiple but are not at all related to one another by a common motion. There were by 1928 catalogued 120 double stars whose orbits were accurately measured. About 700 others had orbits less accurately measured. The shortest orbital periods so far discovered are 5.7 years, for Delta Equulei, and 6.9 years, for 13 Ceti. About 60 pairs have periods of orbital revolution within less than 100 years. With such double stars, in some of them each revolves about the other, and in others one of them is relatively stationary and the other does the revolving. Among the most noted of double stars are the two dog stars, Sirius in Canis Major and Procyon in Canis Minor. It will be recalled that above we mentioned the very great density of the smaller component of Sirius. The smaller component of Sirius is ten magnitudes less than its larger component, while the smaller one of Procyon is thirteen magnitudes smaller than its larger one. But some multiple stars have more than two members. It was stated in the preceding paragraph that Alpha Centauri, the star nearest our earth, was in 1689 discovered to be double; but under observation by larger telescopes than were had in 1689 it has been found to consist of three stars. More remarkable still is the fact that Polaris consists of four stars. Still more wonderful is the fact that Castor consists of six stars and his twin companion Pollux consists of eight stars! Theta Orionis, which was the second star found to be double (1656), under observation has been found to be a nucleus of four stars for a many starred system, whose number

is being so continually enlarged that it will be doubtless many years before the exact number of the components of this multiple star will be definitely known. Certainly the phenomenon brought to our attention in connection with multiple stars is one that emphasizes wondrousness as an attribute of God's creative works.

Another feature of wondrousness marking God's creative works in the heavens is the fact of temporary stars. Sometimes there suddenly appears a star never observed before, *i.e.*, the position where it is found was even to a telescope formerly vacant. It will then shine quite brilliantly awhile, and then after irregularly shining with decreasing brightness will disappear even to the largest telescopes. These are called temporary stars. Some have ineptly called them new stars. Up to the present there have appeared about 50 of these, so far as the records show most of them appearing in modern times. The earlier ones had to be visible to the naked eye, since no telescopes then existed. Since 1900 at least five of them have reached a magnitude of 4.5. In 1918 one appeared which for awhile became nearly as bright as Sirius. Such a bright star, of course, naturally was discovered by amateurs as well as by regular astronomers. Of course, the brightest of such variable stars could be discovered by the naked eye. They usually make their appearance in the Milky Way. So far, no star brighter than one of magnitude 10 in the beginning ever appeared as a temporary star. No regular star has been known to appear and disappear. Nor has any temporary star known as such ever become a permanently known star. This matter of temporary stars is one of the unsolved problems of astronomy. The star of Bethlehem might perhaps have been a temporary star, making at least two appearances and two disappearances; first appearing and disappearing to the magi in the East (in their own country), then appearing after they left Herod and leading them to Bethlehem and resting over the

house where the child was, and then disappearing. But it is more likely that this star was an angel, whose brightness and nearness gave the impression of a miraculous star to the magi, the Bible describing the matter from their viewpoint.

As on pp. 230 and 231 we quoted from Dr. Harlow Shapley, Director of the Harvard University Observatory, on some features of the Larger Magellanic Cloud, so would we here quote from Dr. Barton of the University of Pennsylvania on both of the Magellanic Clouds: "In the Southern Hemisphere there are two cloud patches which resemble the Milky Way in appearance, but which are too far away from it to be considered parts of it. They are called the 'Larger Magellanic Cloud' and the 'Smaller Magellanic Cloud,' from the name of the early navigator who described them. They are also called nubecula major [larger dark spot] and nubecula minor [smaller dark spot]. The larger one is on the border line between [the constellations] Dorado and Mensa; and the smaller one is in [the constellation] Tucana. Both consist of faint stars, nebulae and star clusters … Dr. Harlow Shapley … estimates that there are 500,000 stars in the smaller cloud, which can be detected, and that about 10,000 are more than 1,000 times, and perhaps 400 more than 10,000 times as bright as the sun. From that distance [85,000 light years] the sun would appear as a star of magnitude 22, which is just the limit of our most powerful photographing (reflecting) telescope. These two clouds are clearly seen with the naked eye, the larger being somewhat brighter. They are believed to be systems of stars entirely outside the system in which we are, that is, other universes. They are smaller than ours, however. The observer sees them as they were [approximately] 100,000 years before; and conversely an observer from one of these clouds would see the sun as it was 100,000 years before, if indeed he could see it at all. Excepting the nebula in

Andromeda … which is scarcely visible at all to the naked eye, the Magellanic Clouds are the most remote objects which can be seen without the aid of a telescope. When face to face with these objects, contemplating the facts which have been cited above, one must be callous indeed who is not stirred to deep thoughts and to reverent and ennobling feeling." Yea, the attribute of wondrousness, written everywhere in God's universe upon His creative works, calls upon us to stand in awe and worship; for "all Thy works praise Thee, O Lord; yea, all Thy works praise Thee"; for "the heavens declare the glory of God; and the expanse showeth His handiwork." They fill us with wonder, praise, adoration and worship.

Having discussed the following six attributes of creation: unity, immensity, beauty, sublimity, order and wondrousness, we will bring to a conclusion our discussion of creation's attributes by a consideration of the complexity of creation. By the complexity of creation we mean the intricacy in which the universe as a whole and in its parts has been made, exists and operates. Indeed, it is so complex as to baffle the comprehension of man, though he can understand many things in and about the universe. The three states in which substances can exist are complex: gases, liquids and solids. Water and iron are simple and common examples of these. In its gaseous condition what becomes water exists as two separate elements, oxygen and hydrogen. These compounded in volume proportions of two parts hydrogen and one part oxygen; and in weight proportion, one part of hydrogen and 7.94 parts of oxygen, make water. And at 32° Fahrenheit it becomes solid, ice. Thus it can exist in three states, counting vapor as a form of water. We know that iron also can exist in three states: as solid—the metal itself, as liquid—when melted by heat, and as gas—under very intense heat. We note that these substances have to undergo artificial manipulation by heat or

cold to change these states. The fact of the change is transparent; the philosophy of these changes is quite complex. All substances, of course, can be resolved into these three states by more or less complex processes. Apart from the 11 of the 92 elements that are gases, all the rest of the 92 elements, regardless of whether they are of the 9 solid non-metal or 71 metal or 1 fluid (mercury) elements, can be resolved into gases; and all of these can be resolved into fluids, except mercury, which is already a fluid. The constitution of these elements is likewise complex. As they progress from element 1 to element 92, the difference is a successive one of each atom having a different composition of one electron in the atom of the element from that of the atom of the element just below it in numerical order. Thus the chemical constitution of the 92 elements in our earth is highly complex, even as matter is highly complex, whether viewed in its gaseous, fluid or solid state. Thus the three forms of matter and its 92 elements confront the student with complexity in their constitution.

Certainly the process whereby from the original gases the universe has been produced is an exceedingly complex one. It is so complex that man without assuming as self-evident the agency of a Creator in manipulating the process at least in the outstart, is unable to give an intelligible explanation of the process. Indeed, it is so complex that after one solution (the nebular hypothesis) offered for the explanation of the process had held the field for a full century, it was found to be unsatisfactory from the standpoint of mathematics and physics and has now been abandoned by scientists, who have offered another hypothesis, the planetesimal or capture hypothesis. This hypothesis seems to be looking in the right direction; and yet who knows but further enlightenment on facts in the universe not yet clear may disprove it also? If we assume that matter in gaseous form is eternal, as is probably

the case, the Bible being silent on this subject, we must assume that it must have been absolutely quiescent for very long periods before motion was imparted to it; otherwise the universe would have come into existence incalculably many ages before it did; *i.e.*, we must assume that the laws underlying gases neutralized one another's operation and this produced motionlessness. To start such quiescent gases into motion must have required the agency of an intelligent and purposeful being, so to manipulate these gases as to undo the neutralizing effect of its underlying laws and so direct their interrelations as to start them into working on one another in a way to condense these gases into more compact gases, and continuing this process until they were condensed into an attenuated liquid form. Under further manipulation of such attenuated liquid matter through the new laws underlying its constitution, it in process of time condensed into still more dense liquid form. Under further direction of the ever new arising natural laws, due to the solidifying of matter, the process continued until a very attenuated solid material substance was reached, and so continuing to advance, the process would ultimately reach a completion in the finished creation of suns, planets, moons, asteroids, comets, and meteors. But to operate such a condensing process from the beginning to the completion of the creative process in one and all solar systems is a thing of such complexity as to over-test human ingenuity, though extended to its utmost capacity. Thus simply as a process creation is exceedingly complex.

How exceedingly complex is the operation of each planet! Its axial movement is complex, implying a very ancient beginning, with an accelerated motion the denser the body became. And this movement is made all the more complicated, as gravitation, centrifugal, centripetal, cohesive, adhesive and repulsive forces operate upon this body. Such interacting forces, to produce the balance maintained by the planet in its axial

movement must be operated upon and operate in the most complex ways. Still more complex does this matter become when to the axial movement the orbital movement is added. Here again the original movement imparted to the planetary body that made it run in the way of an orbit was very complex; and to adjust the forces above-mentioned in such a way as to balance a planet in its orbital movement was a matter of complexity taxing and overtaxing the keenest human minds. They know some of the facts, can explain the actions of some of the factors entering into the problem, but to solve it they are unable. They can work out the mathematical formulas along the lines of which some of these motions go, but the whole subject in its details and the heart of the difficulties thence arising they are unable to explain. They must, one and all, in spite of their spelling out some of the words used in the problems of operating a planet, as to all the details, humbly confess, with the Psalmist, "It is too much for me!" Then the problem becomes all the more complex when we add to it the difficulties that arise from the operation of a family of planets, planetoids, moons and comets, in interrelations among, and yet in separation and distinctness from one another. When we consider the differences in their orbital speeds, the differences in their axial speeds, their proportionate distances and speeds, their harmony amid their differences, a series of problems on the how and the why, and much of the what are forced upon our attention, that very greatly complicates the matter; for the what, *i.e*., the facts of the case, are only partly well known, but how it is done and why it is done just so, puzzle the brightest human minds to stupefied perplexity. Thus each planet and its satellite or satellites present matters of great complexity to the thinking mind. This is made all the more complex when these planets, etc., are seen in their mutual relations and separate conditions.

And how much more complex does it all become when we consider these planets in relation to their sun. It rules them like an absolute monarch. It gives them liberty to move in their axial and orbital ways, but it enslaves them to just that rapidity of axial motion that it will allow, and forces them to follow the course of the orbits that it dictates. But it does not do this of its own unaided power. It must call upon the other suns, as well as the neighbor planets and moons, to lend it assistance to this end, through the operation of gravitational, centripetal, centrifugal, cohesive, adhesive, repellent forces, etc., and so by a most complex series of forces does it order them on their orbits and axes. Still more complex does the matter appear when we consider that the sun also has its own orbital and axial motion. And this makes it draw after it its retinue of planets in a spiral motion. From the outside, our solar system looks like an immense funnel, spirally moving around and around forever. How exceedingly complex does this spiral motion, this huge revolving funnel, become! If our solar system were the only one in which this remarkable phenomenon prevails, it would be complex enough. But add to this the thought that in our universe there are estimated to be 30,000,000,000 other suns, each having its own retinue of planets, etc., that the same complexity as is in our planet is in each of those planets, that the same complexity as is in our planetary system is in each of those planetary systems, that the same complexity as underlies the relations of our sun and its planets, etc., underly those 30,000,000,000 suns, with their some 300,000,000,000 planets and their still more numerous moons, planetoids and comets, and this complexity is very greatly increased. But this is not all. Our large reflecting telescopes have revealed many hundred millions of other universes than ours, all having their billions of suns and many more billions of planets, still many more billions of moons, and added

to these more billions of planetoids—illimitable depths of complexity! So inexpressibly complex is the entire matter as to force us to the conclusion that only an all-wise and almighty Being could make so vast a creation.

Above we mentioned the fact that our solar system moves in the form of a spiral. So do all the other solar systems! This is evident not only from the fact of the precession of the equinoxes, whereby about every 26,000 years the sun returns to the same relative position toward all the other suns in our universe as it sustained toward them about 26,000 years before; but it is also a matter of observation. The 100-inch reflecting telescope on Mt. Wilson has taken time pictures of the heavens that show these spiral shapes in many of the solar systems. In the Encyclopedia Britannica, 14th edition, Vol. 6, in the article on Cosmogony, over against pp. 488 and 492 are pictured six views of these spirals, which we are sure will greatly interest and instruct our readers on this subject. These pictures actually show the funnel-shaped positions of these suns; for be it noted that a vast number of suns go to constitute each one of these spiral funnel-shaped clusters of stars, *e.g.*, there is a number of these spirals in Andromeda's nebula, every one of them consisting of myriads of suns. These are in another universe than ours. When we consider that in the millions of universes this spiral motion is everywhere carried out in proper balance with that of all other solar systems of each universe and that these universes, with all their complicated motions, all revolve about one common center, Alcyone in the Pleiades, and thus add almost infinitely to the complexity that we see in not only one solar system but all other solar systems of each universe, the idea of complexity is increased to an almost infinite degree. At any rate, under contemplation of these things our minds simply recoil upon themselves at the thought of our littleness and God's greatness!

"Great is the Lord and greatly to be praised!" It is even so.

This complexity is seen in the unity, in the diversity and in the harmony that subsist in God's creation. We have already pointed out a number of details on unity as an attribute of creation, but this unity exists in great complexity. When we view this unity as to matter, as to solar systems, as to universes, as to laws of nature, as to forces of nature, as to light, air, water, heat, ether, chemical affinity, sound, life-principle, inorganic and organic nature, and the vegetable and animal creation, it exhibits marvelous complexity. This complexity is evident in the diversity manifest throughout creation. Such diversity we see in the suns, planets, etc., the various universes, the chemical elements of the earth, the various laws underlying matter in its diversified forms, the diverse spheres of nature as these are seen in the various sciences, like astronomy, geology, dendrology, botany, zoology, anthropology, physics, chemistry, sociology, mathematics, mechanics, etc. On every one of these subjects there is great diversity, which makes them very complex. Yet with all this diversity and this nature-pervading unity, there is wonderful harmony, which again shows itself in the most remarkable complexity on all sides. We might instance the human face. While there is general unity in the human facial formation, there are not two human faces, not even those of the most perfect twins, that are exactly alike. Yet in this unity and diversity there is general harmony due to the great complexity in eye, nose, mouth, cheeks, jaws, forehead and skin.

Above we pointed out the complexity of matter considered from the standpoint of the 92 chemical elements in the composition of our earth. This brings up the subject of the molecule as consisting of atoms, of atoms as consisting of electrons [first discovered and announced in 1874!], and of electrons as consisting of protons and neutrons. The molecule is fundamental to

the science of chemistry and physics. A molecule is the smallest part of a substance that can exist separately and will retain its composition and properties, e.g., common salt is chloride of sodium, and water is oxide of hydrogen. Salt consists of exactly similar molecules of chloride of sodium, and water consists of exactly similar molecules of oxide of hydrogen. If a grain of salt were reduced to the smallest possible part that still retains chloride of sodium, and if a drop of water were reduced to the smallest possible part that still retains oxide of hydrogen, the resultant part of salt would be a molecule of salt and the resultant part of water would be a molecule of water. Thus all the chemical properties of salt or of water are inherent in a single molecule of salt or water. And a molecule is the smallest unit of a substance of which such a fact is true. It is possible by chemical or electric agencies to separate such a molecule of salt or water into its components, and thus to reduce the molecule of salt into a particle of sodium and a particle of chlorine, and to reduce the molecule of water into its constituents: hydrogen and oxygen. But in such a case we would no more have salt or water. We would have an atom of sodium and an atom of chlorine; and two atoms of hydrogen and one atom of oxygen. This latter operation illustrates the difference between the molecule and the atom. The former consists of two or more atoms. Again, the atom is made up of electrons. Some atoms consist of two electrons, others of more, dependent on the nature of the substance. In turn every electron consists of a positive and a negative principle, the former being protons and the latter being neutrons. The latter glide among and between the former as water glides among and between the parts of a porous substance. These facts on the constitution of all matter, bringing to our knowledge the peculiar nature of molecules, atoms, electrons, protons and neutrons, certainly illustrate the marvelous complexity of matter in its constitution.

And in all of the elements found in the earth the same constitution is found, *i.e.*, molecules, atoms and electrons. It is the different combinations of these that make earth's elements differ from one another, which again, is a matter of great complexity. This matter becomes all the more complex when we consider the complexity illustrated in the thousands of compounds made by various combinations of earth's chemical elements. Thus matter as such in its raw and compound states presents the idea of complexity as an attribute of God's creative works.

This idea of complexity is greatly magnified when we pass from the world of inorganic matter to that of organic matter. This can be seen in the world of vegetation. Whether the first tree grew from a created seed, or whether it was first created and then produced the first tree seeds, we do not know; but in either case the attribute of complexity is present. So complex is the structure of any seed, and still more so its combination with the germinating life-principle, that human ingenuity has never succeeded in making one; and we are warranted in believing that it likely never will. Yet all vegetation harks back to its producing seed or its equivalent. Note the marvelous complexity involved in the idea of every seed bearing after its kind and after no other, the phenomenon of grafting being no exception to this; for in grafting the grafted twig abides as the producer of the fruit and the involved seed. It is from such complexity that we have the great variety of vegetables, plants and trees, each producing after its kind. How great is the resultant complexity in both flower and fruit! In trees we need only particularize roots, trunk, bark, branches and leaves, and immediately an almost infinite variety of complex matters come to mind. How complex, e.g., are the rings in the trunk of a tree, each separate and distinct, each united to its neighbor and one added each year! Then multiply this complexity with as many

trees as there are in each species of trees and then compound these by the number of species of trees, and complexity is produced by geometrical progression. And all this complexity comes from the variety of seeds, each producing trees and fruits after its kind. Look at the complexity of plant life. It has all the complexity of tree phenomena plus a great deal more by virtue of the greater variety of plant than tree life. Every flower that lifts its lovely face to receive the kisses of the life-prolonging sunbeams presents a series of complexity that is marvelous indeed. Note the texture, the hues, the forms and the fragrance of but one kind of these flowers as they grow together, each separate and distinct from one another; then witness their blending in most beautiful harmony of form, color, texture and fragrance, in the one kind of flower, and here again is an almost infinite complexity. Then heap together all flowers of but one species and of all species and finally all flowers of all species, and the resultant complexity is overpowering to our minds and hearts. Then glance a moment at the vegetable and fruit world. What variety of form, texture and taste is here to be found, and how greatly the idea of their complexity is borne in upon our minds as we contemplate these! What variety in form, color and texture the world of leaves brings to our attention, all of which have a superhuman complexity stamped upon them. Complexity is, therefore, an attribute of the plant, tree and vegetable worlds.

Passing on to a higher plane, that of animal life, we are confronted by more complex things. In every sphere of the animal creation complexity confronts us. How unsearchably vast, varied and multiformed is the fish world! From the tiniest denizen of the great deep to the giant whale, in every form, in every kind, in every genus, we find complexity on a mighty scale. How complex are the things that go to make up the generation of each kind of fish life! Complexity is

stamped upon the factors active in their swimming and in their exercising of the functions and process of growth. Their nerve, blood and other vital functions are indeed complex. These same principles find exemplification in insect life. No one yet has been able to solve the complexity inherent in the many problems seen in insect life. Reptilian life presents some even greater complexities; for reptiles present the same general problems of complexity as do the fish and insect world, plus a number of others—cold blood and, still more remarkable, the poisons of the poisonous reptiles. That their poisons will poison themselves if they infect any other part of their bodies than the sacs and fangs, which are their natural habitat, involves another complex problem. Locomotion as exemplified in the serpent is an exceedingly complex thing. Beast life, both domestic and wild, is replete with the attribute of complexity: from the generation to the death process and all lying between vary only in degree as to complexity. But complexity as seen in man, the highest of all earthly beings, is of a still higher order. Look at the vital processes, breathing, pulsation of the heart, vitalizing of the blood, the blood itself, the lung processes, the digestive and eliminative processes by kidneys, bowels and sweat pores, the chemical processes exemplified in liver, bile, the pancreatic function on the blood, the varied glandular processes, the generative processes, the system of arteries, veins and capillaries and the system of nerves, not to mention many others, constitute a series of facts, processes and results that are complicated in almost the highest degree.

In the realm of man's intellectual, moral and religious nature, there is complexity of the highest order found on earth. For the brain, instinct with life, to be able to remember, to imagine, to inspect, to perceive and to reason, brings to our attention a series of complexities that human wisdom cannot unravel, though it

can perceive the facts themselves. For other faculties of the brain instinct with life to be able to exercise the moral and unmoral sentiments, is still more complicated; for to love or to hate, to be generous or to be covetous, to be humble or to be proud, to be reticent or to be vain, to be at rest or to be at unrest, to seek to retain or give up life, to be longsuffering or angry, to be aggressive or forbearing, to be chaste or impure, to be conjugal or unconjugal, to be parental or unparental, to be filial or unfilial, to be a home, country and friend lover or hater—all these things operated through our brains are matters of very great complexity. Perhaps the most complex of all man's operations is the exercise of his religious sentiments as effected by the peculiar constitution of his vitalized brain. Here we see faith and unbelief exercised. Here hope, discouragement, despondency and despair find their sphere of play. Here self-control and irresoluteness hold sway. Here patience—perseverance—and non-continuity find their field of action. Here love or hatred for God reigns. Here brotherly love or hate holds sway. And here disinterested love or selfishness reigns. The difference between our physical functions on the one hand and our mental, moral and religious functions on the other, is not this: that one acts through physical organs and the other through spirit organs; for man has no spirit being within himself. The difference is due to a difference of organic structure and combination making for different functions and powers. And this very fact presents to us a series of conditions and facts whose complexity is exceedingly great, so great that, apart from the existence of the facts themselves and the functions, man is unable to unravel the complexity of his physical, mental, moral and religious nature. So far we have spoken of man in general. The problem becomes all the more complex When we proceed from the general to the individual man. Here the complexities are all the more

dense; and men's varied physical, mental, moral and religious characters only add to the complexity of the situation. Thus complexity is worked into the nature and condition of man.

The matter becomes all the more complex when we pass from a consideration of the human plane of life to the spirit plane of life. Bodies that consist of one or more of the spirit substances are decidedly more complex than bodies that consist of many of the earthly substances, like the human body. As yet we are unable to comprehend bodies made out of life-principle (those that are Divine) or bodies made of two or more other spirit substances, like light, heat, ether, fire, magnetic rays, radio-activity, etc., combined with life-principle. We do not know their shape nor their members. We know from their incorruptibility that they have no wasting tissues, hence need no food nor sleep. That they do have shape and members is evident from their having bodies. That they can move as quickly as thought for immense distances, many billions times more rapidly than light, is evident from many facts, e.g., Christ in a small fractional part of nine days from this earth reached Alcyone, which is 466 light years away, *i.e*., 2,796,000,000,000,000 miles from the earth; for before Pentecost and after reaching heaven there was a triumphant celebration of His return; thereupon He was inaugurated into His office; then He imputed His merit on behalf of the Church and sent the Holy Spirit from heaven to earth, to reach the disciples at Pentecost. Perhaps He arrived from the earth at Alcyone in the next instant after the cloud hid Him from His disciples' eyes, as they stood watching Him ascend from Olivet. We have other illustrations of angels speeding from heaven—Alcyone—to earth apparently in the twinkling of an eye. This, as well as the nature and qualities of their bodies, is very complex. And what shall we say of their mental, moral and religious

powers and processes? These are in their complexity far beyond our comprehension. Thus as we have briefly surveyed the creation of God, we find it very complex, even as before we found it a unity, immense, beautiful, sublime, orderly and wondrous. And from such contemplations we arise in heart and mind to Him who is the Author of Creation and find Him complex indeed, far more so than the complex creation that He has brought into existence. And lost in the thought of the inscrutinability of much that is in Him, and drawn on by the scrutinability of what He in creation and in the Bible reveals of Himself to us, we worship, praise and adore the God and Creator of heaven and earth, whose unity, immensity, beauty, sublimity, orderliness, wondrousness and complexity raise our hearts and minds into a partial vision of God in His unity, immensity (of mind and heart), beauty, sublimity, orderliness, wondrousness and complexity, and consequently make them overflow with praise, adoration and worship. And as we herewith draw to a close our discussion of the attributes of God's creative works, we do so with souls filled with devout and godly emotions. O come, let us worship and bow down; let us kneel before the Lord, our Maker!—Ps. 95: 6.

It may indeed be phantasy when I
Essay to draw from all created things
Deep, heartfelt, inward joy that closely clings;
And trace in leaves and flowers that round me lie
Lessons of love and earnest piety.
So let it be; and if the wide world rings
In mock of this belief, to me it brings
Not fear, nor grief, nor vain perplexity.
So will I build my altar in the fields,
And the blue sky my fretted dome shall be,
And the sweet fragrance that the wild flower yields
Shall be the incense I will yield to Thee,
Thee, only God! and Thou shalt not despise
Even me, the priest of this poor sacrifice.

CHAPTER IV.
THE CREATIVE PROCESS.
Gen. 1: 1

PROOF THAT ORIGINAL MATTER CONSISTED OF GASES, ORIGINALLY MOTIONLESS. CONDENSATION, THE CREATIVE PROCESS. ITS ALLEGED OPERATION UNDER THE NEBULAR THEORY. THE PLANETESIMAL OR CAPTURE THEORY. THE EXPLOSION THEORY FOR PLANETS, MOONS, ETC.

HAVING with the foregoing ended our discussion of Creation as a product, we now come to our discussion of Creation as a process. On this we have very little to say as a matter of faith or Biblical teaching; for the Bible does not explain clearly the process of God's creative work. Apart from a logical inference derived from one of its statements, it does not even hint that the original materials out of which creation as a product has been made were gases. Ps. 148: 4, 5 tells us that God created the heavens, and the waters. From the fact that water is made by compounding hydrogen and oxygen, in weight 1 part of the former to 7.94 parts of the latter, and in volume two parts of the former to one part of the latter, the creation of water as mentioned in Ps. 148: 4, 5 is proven to have been done by combining two gases in the above-indicated proportion. Hence, in this passage the thought of God's creating the waters, means that out of gases God brought water into existence. Hence, since the word *created* in this sentence has, as subject, the word *heavens* as well as *waters,* by analogy the thought of God's creating the heavens seems to imply that God out of gases brought the stars, planets, etc., into existence. We can not say more than that this seems to be the implication of this passage; for we note the fact that these things are not directly stated in the passage; they only seem to be logically implied therein. Hence only by logical inference from a Bible statement, and not from an express

statement thereof, do we say that the Bible teaches that creation as a product was brought into existence out of gases. We also infer from the Hebrew word *bara,* and from the Greek word *ktizo* (Chapter I), as they are used in the Bible, that they mean to make something new out of previously existing materials. Thus the Bible directly teaches that the heavens and earth were made as new things out of previously existing substances, and by a logical inference that these substances were gases. So far the Biblical proof.

To this Biblical proof of the creation of all things from gases, which it must be admitted is scant and not wholly cogent, we add as corroborative evidence the fact that all of earth's chemical elements of matter can be reduced in our chemical laboratories to gases, and that these can in turn all be made from gases. This as a factual as distinct from a Biblical proof seems to demonstrate that the materials of which our earth consists originally were gases. And so far as reasoning from analogy can carry us, it seems to be a reasonable inference to hold the same as true of the chemical elements of the stars, planets, etc., which elements, so far as we can tell, are the same as are in our earth. Moreover, even before, and especially since the hundred-inch lens reflecting telescope had been installed in the observatory on Mt. Wilson, Calif., long-time-exposure photographs have been made of various funnel-shaped nebulae outside of our universe, which photographs show what seems to be the process of forming new suns out of immensely more attenuated materials than those constituting the resultant suns. Of course these attenuated materials are denser than gases, which no telescope could make visible at such great distances; but as parts of the funnel-shaped nebulae they appear like clouds in the parts away from their basal centers. That these clouds are much denser than gases is evident, we repeat it, from the fact that gases could not

be made visible by the largest telescopes at so great distances, distances that take light traveling 186,000 miles a second hundreds of thousands of years to reach our earth. We suggest that the reader study the pictures of these funnel-shaped nebulae opposite pp. 488 and 492 of the Encyclopedia Britannica, 14th edition, for a visual idea of what has just been said. While the point just adduced does not prove that the universes have been made of gases, it is in harmony with that fact; since if it is a fact, in condensing it could and would likely form funnel-shaped nebulae. In further corroboration we might add that the ablest mathematicians have worked out mathematical formulas that require the existence of gases as the material out of which new suns and solar systems seem to be in process of creation. It is thus upon Biblical inferences and scientific facts that the proposition seems to be proven true that creation was originally made out of gases.

This being so, these gases before the creative processes started must have been quiescent; because had they been in motion by virtue of their own innate powers, our universe would be almost immeasurably older than it is; for on the assumption of materialists that matter in gaseous form was without a beginning, which assumption may be true, our universe would necessarily have existed almost from eternity, if their other assumption were true, that these gases were from eternity in motion. This assumption of eternally moving gases they make to evade the conclusion that an external self-conscious and purposeful Agent—God—started motion in the gases and thereby made to operate on and in these gases certain previously non-operative natural laws. But their second assumption—eternal motion in the gases—produces as necessary conclusions several palpable errors—(1) the almost eternal existence of the universe, whereas every pertinent fact goes to prove its comparative recency; and (2) that unintelligent and unpurposeful matter created itself

into the universe that is everywhere permeated by design and intelligence. Moreover, their assumption contradicts the observed photographed fact that new suns are seemingly constantly in process of creation in universes outside of our universe. Hence, whether these original gases were eternal or had a beginning, it is certain that they were once quiescent, *i.e.,* the laws of nature underlying their being neutralized the activity of one another and thus kept them in a quiescent state. This being true, there must have been a self-conscious purposeful Creator who so manipulated these gases as to have set them into motion, *i.e.,* who put them into such conditions and relations as made their underlying laws cease to make one another quiescent, and who then kept on manipulating these laws in ways to produce changes in these gases, *i.e.,* condensing them.

We just stated that this Creator changed these gases by condensing them into more solid masses. In stating the thought of condensing gases into more solid masses we have described the creative process; for the whole ordering of creation, so far as the inanimate creation is concerned, has been by means of condensing matter from more attenuated to less attenuated forms. How do we know this? By noting the materials—gases—out of which creation originally began and the condition in which inanimate creation now is. Now it is mainly solids, whereas at first nothing but gases existed. Thus, so far as inanimate creation is concerned, the creative process was undoubtedly one of condensation of matter in certain orderly forms and for certain orderly ends. The order of the first four creative days as described in Gen. 1 proves this: First after considerable condensing had taken place there was chaos, then matter condensed to leave space for light to appear, then the heavy vapors condensed enough to allow our atmosphere to come into existence, then the compression of earth substances set in to permit the waters that covered the entire earth to drain off into oceans,

seas, etc., and then the atmosphere increased in height, which implies that things above it condensed and dropped to the earth's surface, until first the sun and then the moon and stars shone through to the earth on the fourth day. These condensations were connected with the earth and its immediate surroundings. Accordingly, we find both from facts and from Scriptural inference that a condensing process was the one through which creation passed. Thus we have found the process along the lines of which the Creator worked in bringing the heavens and earth into existence and into their present state, a process that can be almost seen in operation in the production of what seem to be new suns.

At this point we desire to quote from a letter written in 1692 by Sir Isaac Newton, who of all of Adam's fallen race had perhaps the ablest intellect and whose discovery of the law of gravitation was perhaps the greatest scientific discovery of all times. In this letter, among other things, he said the following on the possible influence of gravitation in the formation of worlds: "It seems to me that if the matter of our sun and planets, and all the matter of the universe, were evenly scattered throughout all the heavens, and every particle had an innate gravity towards all the rest, and the whole space throughout which this matter was scattered was finite, the matter on the outside of this space would, by its gravity, tend towards all the matter on the inside, and by consequence fall down into the middle of the whole space, and there compose one great spherical mass. But if the matter were evenly disposed throughout an infinite space, it could never convene into one mass, but some of it would convene into one mass and some into another, so as to make an infinite number of great masses, scattered great distances from one another throughout all that infinite space. And thus might the sun and fixed stars be

formed, supposing the matter were of lucid (gaseous) nature." According to this the law of gravitation had a part in the condensing process, as photographic proofs show.

In order to show the main chemical changes that this condensing process wrought in the mass that became our earth, we will quote from the abstract of an address that Dr. Sterry Hunt delivered before the Royal Institution of London. We quote it, because it puts the matter much better than we can do: "This hypothesis of the nature of the sun and of the luminous process going on at its surface is the one lately put forward by Faye, and, although it has met with opposition, appears to be that which accords best with our present knowledge of the chemical and physical conditions of matter, such as we must suppose it to exist in the condensing gaseous mass which, according to the nebular hypothesis, should form the center of our solar system. Taking this, as we have already done, for granted, it matters little whether we imagine the different planets to have been successively detached as rings during the rotation of the primal mass, as is generally conceived, or whether we admit with Chacornac a process of aggregation or concretion, operating within the primal nebular mass, resulting in the production of sun and planets. In either case we come to the conclusion that our earth must at one time have been in an intensely heated gaseous condition, such as the sun now presents, self-luminous, and with a process of condensation going on at first at the surface only, until by cooling it must have reached the point where the gaseous center was exchanged for one of combined and liquefied matter.

"Here commences the chemistry of the earth, to the discussion of which the foregoing considerations have been only preliminary. So long as the gaseous condition of the earth lasted, we may suppose the whole mass to have been homogeneous; but when the temperature

became so reduced that the existence of chemical compounds at the center became possible, those which were most stable at the elevated temperature then prevailing would be first formed. Thus, for example, while compounds of oxygen with mercury or even with hydrogen could not exist, oxides of silicon, aluminum, calcium, magnesium and iron might be formed and condense in a liquid form at the center of the globe. By progressive cooling, still other elements would be removed from the gaseous mass, which would form the atmosphere of the non-gaseous nucleus. We may suppose an arrangement of the condensed matters at the center according to their respective specific gravities, and thus the fact that the density of the earth as a whole is about twice the mean density of the matters which form its solid surface may be explained. Metallic or metalloidal compounds of elements, grouped differently from any compounds known to us, and far more dense, may exist in the center of the earth.

"The process of combination (condensation) and cooling having gone on until those elements which are not volatile in the heat of our ordinary furnaces were condensed into a liquid form, we may here inquire what would be the result, upon the mass, of a further reduction of temperature. It is generally assumed that in the cooling of a liquid globe of mineral matter, congelation would commence at the surface, as in the case of water; but water offers an exception to most other liquids, inasmuch as it is denser in the liquid than in the solid form. Hence ice floats on water, and freezing water becomes covered with a layer of ice, which protects the liquid below. With most other matters, however, and notably with the various mineral and earthly compounds analogous to those which may be supposed to have formed the fiery-fluid earth, numerous and careful experiments show that the products of solidification would have commenced at the center,

whose temperature would thus be the congealing point of these liquid compounds. The important researches of Hopkins and Fairbairn on the influence of pressure in augmenting the melting-point of such compounds as contract in solidifying are to be considered in this connection.

"It is with the superficial portions of the fused mineral mass of the globe that we have now to do; since there is no good reason for supposing that the deeply seated portions have intervened in any direct manner in the production of the rocks which form the superficial crust. This, at the time of its first solidification, presented probably an irregular, diversified surface from the result of contraction of the congealing mass, which at last formed a liquid bath of no great depth surrounding the solid nucleus. It is to the composition of this crust that we must direct our attention, since therein would be found all the elements (with the exception of such as were still in the gaseous form) now met with in the known rocks of the earth. This crust is now everywhere buried beneath its own ruins, and we can only from chemical considerations attempt to reconstruct it. If we consider the conditions through which it has passed, and the chemical affinities which must have come into play, we shall see that these are just what would now result if the solid land, sea, and air were made to react upon each other under the influence of intense heat. To the chemist it is at once evident that from this would result the conversion of all carbonates, chlorides, and sulfates into silicates, and the separation of the carbon, chlorine, and sulphur in the form of acid gases, which, with nitrogen, watery vapor, and a probable excess of oxygen, would form the dense primeval atmosphere. The resulting fused mass would contain all the bases as silicates, and must have much resembled in composition certain furnace-slags or volcanic glasses. The atmosphere, charged with acid gases, which surround this primitive rock

must have been of immense density. Under the pressure of such a high barometric column, condensation would take place at a temperature much above the present boiling-point of water, and the depressed portions of the half-cooled crust would be flooded with a highly heated solution of hydrochloric acid, whose action in decomposing the silicates is easily intelligible to the chemist. The formation of chlorides of the various bases, and the separation of silica, would go on until the affinities of the acid were satisfied, and there would be a separation of silica, taking the form of quartz, and the production of a sea-water holding in solution, besides the chlorides of sodium, calcium, and magnesium, salts of aluminum and other metallic bases. The atmosphere, being thus deprived of its volatile chlorine and sulphur compounds, would approximate to that of our own time, but differ in its greater amount of carbonic acid.

"We next enter into the second phase in the action of the atmosphere upon the earth's crust. This, unlike the first, which was subaqueous, or operative only on the portion covered with the precipitated water, is subaerial, and consists in the decomposition of the exposed parts of the primitive crust under the influence of the carbonic acid and moisture of the air, which convert the complex silicates of the crust into a silicate of alumina, or clay, while the separated lime, magnesia, and alkalies, being converted into carbonates, are carried down into the sea in a state of solution.

"The first effect of these dissolved carbonates would be to precipitate the dissolved alumina and the heavy metals, after which would result a decomposition of the chloride of calcium of the sea-water, resulting in the production of carbonate of lime or limestone, chloride of sodium or common salt. This process is one still going on at the earth's surface, slowly breaking down and destroying the hardest rocks, and, aided by mechanical processes, transforming them into clays;

although the action, from the comparative rarity of carbonic acid in the atmosphere, is less energetic than in earlier times, when the abundance of this gas, and a higher temperature, favored the chemical decomposition of the rocks. But now, as then, every clod of clay formed from the decay of a crystalline rock corresponded to an equivalent of carbonic acid abstracted from the atmosphere, and equivalents of carbonate of lime and common salt formed from the chloride of calcium of the sea-water."

So far this abstract, explaining some of the changes which through the condensation of the creative process our earth went as it progressed from its original gaseous to its present mainly solid state. We are now ready to describe some of the theories that have been advanced to explain just how this creative process of condensation has operated.

Above we pointed out that the creative process was one of condensation, but we did not point out how that condensation process worked. This we will now do. It must, first of all, be clearly understood that the Bible nowhere either explains how this process worked, nor, so far as we know, conveys even a hint on the subject. Accordingly, we should not be dogmatic thereon. Why then discuss the subject at all? We reply, first, to refute atheistic errors on the subject, and, secondly, to call attention to what photographic facts reveal to us. If observed facts of nature, as distinct from speculation and guessage, reveal some hints as to how the condensation process of creation operated, by showing us how it is now operating, it would be proper for us to discuss this matter in a book that bases its presentations primarily on Scripture, and secondarily on accordant reasoning and facts. Usually scientific theories on how the creative process worked have been propounded from the desire to eliminate entirely the idea of an intelligent and purposeful Creator from the problem. Of course such a theory is forced

to make creation create itself. It is forced not only to assume unprovable things and unreasonable things, but to ascribe intelligent and purposeful effects to non-intelligent and non-purposeful causes—matter. It is forced to assume the eternity of matter and its being eternally in motion or making itself move after a while. That dead matter could have formed itself into all created things is one of the greatest absurdities ever presented to the mind of man. Hence, the Bible designates him a fool who so believes: for this belief is inherent in the belief that there is no God.

One of the hypotheses developed from the intent to explain creation as coming, not from an intelligent Creator, but from the blind and unpurposeful forces of nature operating on and in alleged eternal matter, is the nebular hypothesis, which for nearly a century, until the last 40 or 50 years, dominated scientific thought on how our solar system and the rest of the universe came into existence. Happily, the theory is now repudiated by the scientific world. While having forerunners contributing something to the theory, its real inventor was a French Academician, Laplace, an exceedingly able mathematician, whose preeminence and reputation as a mathematician added greatly to the acceptance and spread of his hypothesis. His view, popularly worded, was the following: The gases in space were fairly evenly distributed. By gravitation and attraction of their various atoms, roughly in spheres of space of, say 20,000,000,000,000 miles in all directions from their centers, these gases set themselves in motion rotarily and revolvingly condensing toward the center of this space, the motion increasing in rotating and revolving rapidity as the mass condensed. The rotary motion first caused the matter to become increasingly spherical, and then later as a consequence made more of the matter collect toward the equator of this sphere until at its equator it became quite oblate, instead of being a perfect sphere. This

disproportionate amount of matter, collected toward the body's equator, was by centrifugal forces cast off in the form of rings, which rotated themselves into smaller spheres. By and by, the theory claimed, more matter collected at the parent body's equator, as before, which in turn was, again, cast off as a ring. This in due time became a rotating body spherical in form.

Again and again the same process was allegedly passed through by the parent body until it became solid enough to cast off no more of such accumulated matter at its equator, since in such conditions not enough extra matter accumulated at its equator to be cast off as rings. These parent bodies thus became the suns of the solar systems, while the spheres developed from their cast-off rings of matter became the planets of such systems. To account for the moons of various planets, these planets were said to have accumulated at their equators redundant matter which was cast off as rings. These in turn developed into the moon or moons of the planetary bodies. The theory claimed that it thus accounted for all the planets and their moons being in their orbits on practically the same plane with their suns, and for their axial and orbital motions being in the same direction as that of the sun. The theory is called the nebular hypothesis, because it claims that all solar systems in their materials sprang from the original nebula, which they call matter in a less attenuated condition than pure gases. Men like Spencer, Helmholz, Lyell, *etc.,* claimed for the nebular hypothesis the dignity of a demonstrated truth. Laplace, however, claimed no more for it than that it was a speculation that should be received with such distrust as any theory not demonstrated by observation or mathematics should be received. This theory held the field as true for nearly 100 years. But first from the sixties to the eighties of the last century and then later onward facts were accumulated by scientific research, especially with the aid of the telescope, that

eventually proved the impossibility of the theory. And it is now consigned to the scientific waste basket.

We will present some of the considerations that have overthrown the nebular hypothesis: (1) While assuming the eternity of matter, it evades the question as to how the gases, whose natural laws must have neutralized one another, and as a result produced a motionless condition in these gases, were finally set into motion. That the original gases, if eternal, must have for untold ages been motionless is evident, *e.g.,* from the fact that our solar system is of recent origin. Even those extremists whose unbridled imagination claims a 2,000,000,000-yeared age for our solar system do not overcome the difficulty; for an eternal motion in those original gases would have produced, *e.g.,* our solar system almost beginninglessly before those 2,000,000,000 years set in. This fact proves that an outside Agent set those gases into motion by the manipulation of certain laws and forces to that end. If matter in the form of gases was not eternal, its creation by a competent cause is a necessary deduction of pure reason. Thus either view of matter requires an outside Agent to manipulate it creatively. And such manipulation and a concordant supervision must have acted directingly up to and beyond the condition of nebula. Nebular hypothesists cannot be permitted naively to assume as the point of departure for their theory the nebular condition of matter. They must be confronted with the question, How did matter come into that condition from the original gases? And how came those gases to get motion whereby they were gradually condensed into nebulae? It is needless to say that they have always been reduced to speechlessness by such questions.

(2) Another thing that cannot be harmonized with the nebular hypothesis is the fact that three of Jupiter's nine moons and three of Saturn's nine moons travel on their axes and orbits in the direction opposite to that

of the other six moons of their respective planets. If all these moons had been thrown off as surplus matter accumulated about the equators of these two planets, they would all move on their axes and orbits in the same direction. The fact that a third of the moons of these planets moves in a different direction from that of their other two-thirds contradicts Laplace's theory of the origin of our sun, its planets and their moons.

(3) Another fact contradicts it, *viz*., the absence of moons as satellites of Mercury and Venus. If moons were developed by surplus matter collecting at the equators of some of the planets being in due time cast off as rings and becoming spherical by rotating on their axes, why did not the same thing happen in the cases of Mercury and Venus? If it is answered that Mercury is rather small and dense and, therefore, did not have enough matter to dispose of that way, we would say that if that theory were true, Mercury would have thrown off a proportionately smaller amount of matter, say to make a small moon, like the asteroids or planetoids, the largest of which is 400 miles in diameter. Such a moon would be much smaller in proportion to Mercury than our moon is to our earth. Hence, according to the nebular theory, Mercury should have thrown off at least one moon, and that larger than the largest planetoid. But Venus is nearly as large as our earth; hence according to the theory Venus should have thrown off at least one moon, and that about the size of earth's moon; but facts show that she did not so do, while Mars, smaller than our earth, has two moons.

(4) If this theory were true the size of the planets to be successively thrown off would decrease with each such successive throwing off, whereas no such phenomena show themselves, Jupiter, the middle planet, being by far the largest. Again, the principle underlying this fact, the larger accumulation of such detachable matter occurring in each case earlier, would require the number of moons of each latter formed planet to be

less than those of its predecessors, which is not the case, Neptune having only one, Uranus three, while Saturn and Jupiter successively next in order having nine each. Since the theory requires that the more the sun has condensed, the more rapid has its axial motion become, and since, according to the theory, Mercury was the last planet (if we except Vulcan) to be cast off from the sun, its axial motion should be the most rapid of the planets, while its axial motion is actually the slowest of all the planets. Pluto's axial speed not yet being determined, it is not included in this comparison. But the fact that the same side of Mercury always faces the sun proves that it rotates on its axis only as often as it revolves on its orbit, *i.e.,* once every 88 days.

(5) Another fact that is very telling against Laplace's nebular hypothesis is that it contradicts the gravitational expansion of the sun's heat, with which it must be made to operate. On this point we will quote from Prof. Doolittle, the late head of the astronomical department of the University of Pennsylvania, whose eminence as an astronomer led to his appointment to the editorship of all the astronomical features in the 1922 edition of the Encyclopedia Americana, it and the Britannica being considered the ablest encyclopedias in the English language. The quotation follows: "As [according to the nebular hypothesis] the solar system was held to have resulted from the condensation of a globular or planetary nebula, the subject of the nebular hypothesis is closely connected historically with the gravitational theory of the sun's heat. For a long time it was assumed by investigators that the sun was originally expanded into a nebula filling the planetary orbits, and rotating in equilibrium under the hydrostatic pressure and attraction of its parts. In order to keep this figure of equilibrium, the temperature would have had to be enormous, and such a temperature could not be maintained, owing to the extreme

tenuity of the hypothetical [supposed] nebula. For when the nebula is extended to Neptune's orbit, its average density would be 260,000,000 times less than that of the atmospheric air at sea-level; and such a tenuous medium could exert no hydrostatic pressure from the center outward for detaching the planets by increase of centrifugal force under accelerating rotation, as imagined by Laplace. This criticism against Laplace's theory was urged by Kirkland and Pierce over 40 years ago [1880] and such an objection is valid and convincing."

When Mr. Doolittle wrote the above (1922), Pluto had not yet been discovered, its discovery occurring in 1930. According to Laplace's theory, the sun in a nebular condition had to be expanded to the orbit of Pluto, which is about a billion miles farther out from the sun than that of Neptune. This would have made the involved nebula millions of millions times rarer than Prof. Doolittle gives for its rarity, compared with atmospheric air at sea-level, as extended to Neptune's orbit. And if there are some of our sun's planets still farther out in space than Pluto, the results would be still more disastrous to the theory under review, from the standpoint of the gravitational expansion of the sun's heat. Hence from this standpoint Laplace's nebular theory for the origin of the suns, etc., is untenable.

(6) In 1861 a French scientist, Babinet by name, pointed out a fatal weakness in the theory under review. His argument against the theory is called, Babinet's criterion. Its basis is a principle of the branch of mathematics called mechanics—the conservation of areas, which Newton discovered—the constancy of areas encircled by a system of particles contracting and accelerating its rotation under central forces. This principle implies that whatever changes occur in the system, its whole quantity of rotation must remain constant, *i.e.,* "if the mass of each particle of the

system is multiplied by the square of its distance from the central axis of rotation and also by its angular velocity, and if the products thus obtained for the particles are added together, the sum will remain forever constant. Since the mass of the sun and all its planets, their distances from the sun's axis and their angular velocities are all known, one can get this sum. This quantity being found, it can be used to test Laplace's theory in many ways, some of which lead to unbelievable, and others to impossible results." To illustrate one of these impossibilities we will quote again from Prof. Doolittle: "We may readily determine the period of rotation of the solar nebula, when it is extended outward to each of the planets successively; by so doing we obtain the results given in the following table:

"Table showing the application of Babinet's criterion to the planets and satellites, when the sun and planets are expanded to fill the orbits of the bodies revolving about them:

Planets	Observed period Of planets	Time of sun's rotation calculated by Babinet's criterion
Mercury	0.24085 years	479 years
Venus	0.61237 "	1,673 "
The Earth	1.00000 "	3,192 "
Mars	1.88085 "	7,424 "
Ceres (a planetoid)	4.60345 "	24,487 "
Jupiter	11.86000 "	86,560 "
Saturn	29.46000 "	290,962 "
Uranus	84.02000 "	1,176,765 "
Neptune	164.78000 "	2,885,533 "

"It will at once be noticed how greatly the numbers of the third column exceed those of the second. Should we suppose that Neptune, for example, could have been formed in this way [according to Laplace's theory], it would be necessary to assume that the period of its ring [orbit] was diminished from nearly 3,000,000 years to but 165 years, notwithstanding that we can find no imaginable cause which could produce this diminution."

According to the principle of the conservation of areas the quantity of rotation should remain the same, but these figures prove that it does not, if the demands of the theory under review are taken into account. Prof. Doolittle wrote the above before Pluto was discovered; hence its data are not included in the above; but if they were, they would show up all the more the erroneousness of the view under study.

(7) Several other points against Laplace's theory are made from the standpoint of Babinet's criterion, some of them more conclusive than the one just made against the planets having been formed from rings that the condensing nebulae's matter on the way to becoming suns threw off; but, involving various points of higher mathematics, they are too abstruse to be presented here, and will therefore be passed by without further comment. We will offer several other simpler ones: Even if it were granted that such rings had been cast off by the developing suns, the pull of the latter, as exemplified in our moon's raising our ocean tides, would be so great as to have scattered into fragments these rings, which thus could not even start to develop into planets. This fact also has been demonstrated by higher mathematics. Furthermore, it has been demonstrated mathematically that if the greater part of the ring could be gathered into a single planet, it would be impossible for this mass to attract to itself the other fragments of the ring. The above reasons have convinced the astronomical world that Laplace's nebular theory was conceived in imagination and brought forth in error. It is only another "one of the assured findings of science" that has by more accurate science been killed, and then was buried in the vast cemetery of science falsely so called.

If, then, Laplace's nebular theory has failed to explain how the condensing process that produced our and other solar systems was worked, how was this process operated? We reply: God first so manipulated

pertinent natural laws and forces as to operate upon the original gases to put them into motion. Secondly, by these and other laws He condensed them into nebulae. By a nebula we understand matter to be meant which is in a state composed partly of gases and partly of fluids, *i.e.,* matter that is in the process of being changed from gases into liquids. So far, apart from God's manipulating the laws and forces of nature thereto, this manner of operating the condensing process is a matter of inference; for the rest of the operation we combine inference and observation as a guide as to how the process operated, and we permeate both ways of reasoning with the proposition that God operated the entire process through the application of pertinent natural laws and forces. Thus at no stage of the creative work do we leave the creative process and the manner of its operation to the unmanipulated operation of unconscious natural laws and forces; for these were nothing more than the tools of creation. They were not the Creator Himself, as materialism assumes. The 100-inch telescope at Mt. Wilson and others still smaller at an earlier date have brought to our attention through long-exposure photographs the fact that new universes are in process of formation out of immense spirals of nebulae; for they have given us photographs of immense spirals thousands of light years wide at their lower ends (a light year is the distance that light travels in a year—approximately 6,000,000,000,000 miles) and millions of light years long. Some of these spirals are single and some of them are compound, consisting of a number of branches. The spirals are in motion somewhat after the manner of a whirlwind on the land or a waterspout on the sea. At the lower ends of these spirals a great number of new suns, averaging about 20,000,000,000,000 to 40,000,000,000,000 miles apart, are seen appearing, in these pictures about the size of a pea. These are doubtless accompanied by planets, which, however, at such great distances are not photographed

even by the immense power of the 100-inch reflecting telescope on Mt. Wilson, which is not powerful enough to bring out even the planets in the solar systems other than our own in our own universe. Perhaps this will be done by the 200-inch lens telescope now in the making, but we very much doubt that even it will bring out the planets of the suns in the newly forming universes.

It will be noted that these newly forming suns do not appear at the upper, but do appear at the lower ends of these immense spirals, and that not in the centers but in the edges of these. Please see the photographs of these lower spiral ends in the Encyclopedia Britannica, 14th Edition, Vol. 6, pages 488, 492. These spirals are seen to be in motion revolving around immense sweeps of space. From the fact that no suns are seen at the upper ends of these spirals, nor throughout their lengths, until we come to their extreme bottom ends, it is reasonably inferred that the nebulae at their top ends are much rarer and thus much more expanded than at their bottom ends. But according to the photographs the above-mentioned rotary motion extends throughout the entire length of these spirals. From these facts the reasonable inference is drawn that the condensing process increasingly advances the farther down from the top the nebula descends. Of course the tendency of this ever condensing matter is to fall downward within these spirals. But these spirals being matter, they are in themselves a resisting medium. Hence as parts of this condensing matter continually rotate and revolve, which motions slacken its rate of speed in falling, they will continually come in contact with other parts of rotating and revolving matter within that spiral, which means that by attraction and gravitation these contacting materials will unite, ever forming larger bodies until by the time they reach the bottom of the spiral they have grown into suns, planets and moons, which by gravitation and attraction will

form solar systems more or less like ours; for the laws of physics, as well as experiments prove that such matter rotating and revolving in a resisting medium captures to itself neighboring matter as they come in contact, *i.e.,* the larger bodies capture the smaller ones.

From the fact that matter, in rotation is denser in the center than at the circumference, it is inferred that the denser matter in the center of these spirals falls more rapidly than that in the circumference; but as it does so, by suction it draws down after it the matter in the circumference above it, so that the top of the spiral is ever falling into the spiral itself. From this it follows that the spiral passes out of existence when its last substance has been absorbed into the last body of the last solar system formed from that spiral. Thus our universe was once a vast single or compound spiral, which gradually was transubstantiated into our universe, and which, as this transubstantiation advanced, diminished in size until it passed out of existence altogether, when this transubstantiation was completed. This theory does not only account for the origin of the suns, planets and moons, but also for the retrograde motions of Jupiter's three and Saturn's three moons, as follows: Just as near the shores of large and deep streams the current near the shores frequently runs in the direction opposite to that of the current as a whole, so near the circumference of these spirals it is assumed that this is done with the condensing matter which becomes moons rotating and revolving in the direction opposite to that of the other moons that the pertinent planets have attracted to themselves. We have already called attention to the fact that, the sun revolving about its orbit, and carrying its retinue of planets, moons, etc., with it, the whole system operates spirally. This fact is in line with the spiral motions in the spirals from which the theory claims the various solar systems came. This is another of the principles

given as a proof for the planetesimal or capture theory, which are the names given to the theory just explained.

The theory that we have just explained is as a whole nowhere taught in the Bible. Parts of it are Biblical, parts of it are based on logical inferences based on the Bible, and those parts of it that begin with the nebula already gathered into spirals are partly based on observed facts and partly on the deductions of the science of astronomy as it is at present developed. Because it explains the origin of the planets, as well as the suns, from ever enlarging small particles, those parts of our explanation connected with the nebulae as already existing as spirals is called by some scientists the planetesimal theory. Because parts of the condensing matter in these spirals ever capture and hold to themselves smaller parts of the spirals' condensing, rotating and revolving matter, this theory is by other scientists called the capture theory. It will be noted that scientists begin their theory with the nebular spirals already formed. This is due to the fact that they do not desire to build their theory on faith in any sense. Hence they begin their theory on observation of analogies. But they fail to account for how the original gases developed into the original nebula, and then how that nebula took the form of spirals. How much better is our viewpoint, which accepts every observed fact, God's statement on what is beyond our observation, and also the thought that this all-wise and powerful God as a great builder manipulated by the Logos and other angels the laws and forces of nature from start to finish! Such a faith, in the absence of a Divine explanation of how the creative process was accomplished, can say of the planetesimal or capture theory, It was very likely true. It seems very reasonably to fit the case so far as the facts and principles applicable to the case are known to us. Still such a faith, in the absence of a Divine explanation as to how the creative process worked, will not positively advocate the planetesimal or capture theory as

demonstrable truth, since it knows that this theory as a product of human reason, working in part on facts and in part on certain principles, is not infallible and therefore may in the light of later discovered facts be proven erroneous or insufficient, even as the once seemingly impregnable Laplacean theory has been demonstrated to be erroneous. Hence our explanation of the matter of spirals being changed into universes, *i.e.,* our explanation of the planetesimal or capture theory, is not to be understood as setting it forth as Divine Truth, but as a human theory that seems to be well based on observed facts and the proper application of known principles to those facts.

There are some very prominent scientists who accept the capture theory in so far as it applies to the creation of suns, but deny it as applicable to the planets and their moons. They claim, by what they call the tidal theory, that the planets and moons were torn out of the various suns by some other sun or suns coming near enough to the involved suns to accomplish this by gravitation. They illustrate this by the moon's raising tides on the earth's waters. But this theory has no observed facts to substantiate it. It assumes what cannot in any way be proven, and what is contrary to all analogy known to us, *i.e.,* that suns have gone very greatly out of their known orbits in such an alleged approach to other suns and to such tearing out of them the materials out of which the planets and moons were developed. Knowing that they cannot prove such immense orbital aberrations in the suns, they assume that this occurred, *e.g.,* thousands of millions of years ago. But they utterly lack proof that the various suns stepped so widely out of the orbits that they assumed, as a result of the orbital motion imparted to them when they were completed at the ends of their pertinent spirals. Nor are they any more fortunate in their alleged proof that the earth is thousands of millions of years old. Their suggested proof that it would take

radium that long to become lead is no proof at all, for several reasons: (1) They cannot prove that our lead has come from radium decaying by radio-activity, as they claim, though it is possible that it may by chemical experiment be reduced to lead, which, if true, would not prove that lead as a substance originated thus. (2) The rate of radium now disintegrating is no criterion as to the rate of its deterioration under former conditions, e.g., when there were so many decay-producing gases and acids in earth's atmosphere, and similar gases and acids in the earth itself, which would have caused it to disintegrate almost as rapidly as a chemical experiment would. Their fallacy on this point reminds one of the fallacy of those who claimed thousand of years as the difference in time of two bricks of the same make falling in the Nile, alleging that their different depths under the mud proved the contention, also of that Mississippi raft constructed about 100 years ago which was supposed by scientists to have been buried under Mississippi's mud many centuries ago according to their assumptions as to how long so much mud would have been accumulated at a certain annual rate above the raft. They seek to apply this tidal theory in the case of those suns that revolve about one another, some of them almost touching one another. Beside the objections offered to the tidal theory foregoing as applicable to these inter-revolving suns, we might say that it is much more reasonable to consider that such suns were developed side by side with one another in the nebular spirals, as explained above.

Above we set forth the planetesimal hypothesis as seemingly a reasonable and factual explanation of how nebulae, already formed into spirals, were condensed into suns, planets, moons, asteroids, comets and meteors. The Bible being silent on how the condensing process operated into the production of these bodies, we expressly refrained from giving more than a qualified endorsement of this theory, acknowledging that

much of it is based on inferences which later knowledge may prove erroneous. Hence what we said on the planetesimal theory is not to be regarded as binding as a matter of faith in a Divinely revealed teaching on the subject; but as seemingly the best explanation now available that human reason judging from some known principles, some observed facts and some inferences has been able to give. But the possibility that those principles were set aside by the operation of others and that those observed facts by relation to facts not known to us are insufficient to furnish the basis for full and final inferences on how the condensing process operated must be conceded by all who from the history of scientific hypotheses know that thousands of them that for long times were regarded as true were by fuller knowledge set aside as false. The Laplacean, Darwinian, etc., hypotheses are examples of this fact. To one who heartily accepts the Bible as the sole source and rule of faith and practice, as the Author does, such a position toward the planetesimal theory or any other purely human theory that would explain God's creative acts must be maintained. We deem this remark necessary lest any of our readers understand our exposition of that hypothesis as implying that it is necessarily the true explanation of God's manner of operating the condensing process of creation.

We should make another remark on the matter of the suns, planets, etc., emerging as separate bodies in solar systems from the bottom of their respective spirals; for without further explanation the thought might be taken from our explanation as we left it that all these solar systems are left in space rotating and revolving on the same plane. That they do not so do is evident from the fact that our earth is in the midst of untold billions of solar systems visible all around the earth, some to the south, others to the north, some to the east, some to the west and some in all angles of

direction between these cardinal points of the compass. If one should take his stand at the south pole the bulk of those north of the celestial equator would be invisible to him. If he should take his stand at the north pole the bulk of those south of the celestial equator would be invisible. East and west of course one can see only those within the celestial hemisphere at night, though of course our sun is visible and the moon often is so during the day. These facts prove that these solar systems were not left revolving and rotating on the same plane with one another in space.

Their being distributed then in varying heights and depths, lengths and breadths of space could be brought about in a variety of ways, though we are not certain in which of these it was done. They, especially the smaller suns and their satellites, may have broken entirely through the nebular spirals long before they reached the bottom of these spirals. None of our photographs, however, show this; and this may not be true, though these spirals being in some cases millions of light years long, and the bottoms of them being much larger in circumference than their parts above, such a phenomenon could take place and be hidden by the lower parts of the spirals. Again, these spirals, while throwing their materials downward within themselves, may as a whole have an upward and downward movement in space, which of course would result, if the new solar systems always leave the bottom of the spirals, in these solar systems being distributed at varying heights and depths, while their leaving the spirals' bottoms at various places along those wide-flung bottoms would in part account for the length and breadth of the solar systems' distribution. The rest of this distribution could be accounted for by a lateral spiral motion accompanying the up and down motions of these spirals. In favor of this is the fact that in our universe just such an up and down motion is accompanied by a spiral motion not only within each solar

system but in all of them in their mutual relations. Of course we concede that God could have done it in another way. Hence we must not be dogmatic on, this point. This thought is thrown out only as a reasonable and probable suggestion.

Of late several able astronomers have offered a modification of one of the features of the planetesimal theory. Holding to its view of solar developments, they claim that the planets, planetoids and their satellites are not developed in the spirals, but after the suns leave their spirals, by great explosions in the suns, whereby immense quantities of gases are cast off from the suns as novae, *i.e.,* new stars that suddenly appear as faint stars, then wax very bright, then gradually decrease in size until they disappear supposedly as planetary, etc., members of solar systems. One of these scientists, Prof. Frost, formerly of the Yerkes Observatory, now blind, reports that while he yet enjoyed his sight, he witnessed over 40 such explosions occur. The moons, according to this theory, originate by explosions from such developing planets in a manner similar to that in which the planets; according to this view, originated from their suns. The retrograde movements in three of Jupiter's and Saturn's moons and in all of Uranus' moons, this theory explains as arising from the explosions' propelling the cast-off gas in the direction opposite that of the rotating and revolving direction of the pertinent planets. This theory may be true for all planets and their satellites, or it may be true for some solar systems, and the full view of the planetesimal theory may be true for other solar systems. Without expressing a judgment on this matter, to which we have given too little study to justify us in having an opinion thereon, we present it as such to our readers for their information. It is a reasonable solution for the hitherto unexplainable novae. While this book was passing through the press the discovery of the companion star of Epsilon Aurigae was reported by the

Yerkes Observatory. This is the largest of all stars so far discovered. If its center were placed where our sun's center is, it would enclose the entire solar system, except Neptune and Pluto, its diameter being 3000 times that of our sun! It thus displaces Betelgeuse as the largest known star. With these remarks we bring to a close our brief discussion of the creative process and with it finish our lengthy discussion of Gen. 1: 1.

CANST THOU BY SEARCHING FIND OUT GOD?

—Job 11:7—

"Canst thou by searching find out God,
The Almighty to perfection trace?
And pierce the clouds when darkness shrouds
The brightness of the Eternal's face?

"Go count the stars, and call their names;
Sweep with the comet through the sky;
Fix thy bold gaze on the sun's blaze
With an undazzled, tearless eye;

"Go sleep upon the thunder cloud;
Grasp the forked lightning in thy hand;
Or search and find whence comes the wind,
And trace its path o'er sea and land.

"Should thy mind shrink from such attempts,
View the least work of Deity:
The blades of grass thy skill surpass,
And thou art baffled by a fly!

"With Creation's every work so full
Of mysteries we can never scan,
We praise the Great Unsearchable,
For all His benefits to man."

CHAPTER V.

CHAOS.

Gen. 1: 2

THE EARTH'S MOLTEN CONDITION. PROOFS OF THE EARTH'S MOLTEN CONDITION. "WASTE AND EMPTY." THE DEEP AND ITS DARKNESS. THE CANOPY THEORY AS SHOWN IN SCRIPTURE AND NATURE. THE SPIRIT'S HOVERING OVER THE WATERS. A REVIEW OF THE GROUND SO FAR TRAVERSED.

WE now come to Gen. 1: 2, on which we will have decidedly less to say than on Gen. 1: 1. How long a period elapsed from the time God started motion in the motionless gases, as the first step in the creation of our universe, if matter was eternal; or if it was not eternal, how long a period elapsed from the time God started to make the gases as the original materials from which our universe was made, until the pertinent spiral was transubstantiated into our universe in fulfilment of Gen. 1: 1, we do not know. It may have been billions of years; it may have been many hundred million years it may have been a few million years. It is useless to guess; for we have no certain criteria on which to base a fairly sure guess, because many essential conditions connected with the creative process and operation are unknown, and many others are but little known to us. Therefore, remembering that the secret things belong to God, and that only the revealed things belong to us (Deut. 29: 29), we will do well to refuse to speculate thereon, waiting patiently for God's good time to make these known to us—beyond the vail. Nor do we of a certainty know whether a long interval of time elapsed between the creation of the heavens and earth as set forth in Gen. 1: 1 and the conditions described in v. 2. It seems reasonable and factual to assume that the condition described in the first sentence of v. 2—"The earth was waste and empty"—

obtained even before our earth left the spiral from some of whose materials it was formed; for the friction of its condensing process, its hard contacts with other bodies and its capturing to its nucleus smaller bodies all made friction which, developing intense heat, produced the molten mass that, among other things, is covered by the expression, "The earth was waste and empty." Moreover, since we can see by our telescopes that the suns as they leave the spirals are molten masses, proven so by their brightness, it is reasonable to assume that the planets, which are invisible to our best telescopes. (yea, apart from the planets of our solar system the planets of our universe's other solar systems are telescopically invisible), are in the same condition, since they are developed along the same lines and modes of operation as their suns. Accordingly, our earth was in this molten condition for a while also after it left the spiral. How long this molten condition from beginning to end lasted we do not know even approximately.

But if the above is true, as it seems to be, of course that theory invented and taught by Dr. Bullinger and accepted from him by Concordant Versionism, which claims that the earth was perfected by the creative works mentioned in Gen. 1: 1, is false. The theory reasons that all God's work is perfect; that the creative work described in Gen. 1: 1 is God's work; and that therefore the earth as described in Gen. 1: 1 was perfect. Our reply is that all God's completed work is perfect (Deut. 32: 4); but certainly an unfinished work of God is not perfect, as we can see from the condition of our earth and the human family, even as an incompleted house, statue, picture, machine, etc., are not perfect. An additional feature in the theory is that there were perfect conditions on this earth amid which various perfect intelligent beings lived for a while in perfect harmony, that they later sinned and that as a consequence God in displeasure turned the

earth into the condition described in v. 2. The theory therefore assumes that these conditions and experience occurred in an assumed period between Gen. 1: 1 and 2. This theory is a mere speculation without the slightest foundation in Scripture; for such a line of thought is nowhere mentioned, or hinted at in the Bible. It thus hangs suspended in the air-in a blank-the silence between Gen. 1: 1 and 2. The Scriptures place the origin of sin shortly after Adam's and Eve's creation. Satan became the first liar and murderer and thus originated sin through deceiving Eve and bringing death upon the human family by Adam's sin, according to the combined statements of Jesus in John 8: 44 and of St. Paul in Rom. 5: 12-21 and 1 Tim. 2: 14, and of St. John in 1 John 3: 8. Moreover, Is. 14: 12-14 describes Satan's fall into sin as starting in his ambition, first, to become the ruler of the human family and, secondly, to become a ruler of angels. Hence sin never was committed until after the creation of Adam and Eve, in whose procreative powers Satan recognized the possibility of a large race and of his gaining rulership over it. The Bible directly tells us that up to Eden Lucifer was perfect in all his ways and without sin (Ezek. 28: 12-19). The further fact that God after the conditions described in Gen. 1: 1, 2, is spoken of as engaged in creative work with the earth for yet six days (periods), proves that the heavens and earth were not perfected by the work mentioned in v. 1. Accordingly, the theory falls to the ground.

But upon what, beside the reasons given in the second paragraph above, do we base the thought that the earth was once in a molten condition during the later part of its stay in its spiral and during the first part of its stay outside of its spiral? We reply, there are factual reasons for this thought in the present condition of the earth; for the earth gives evidence that it is a body that has merely in its crust cooled off from a former molten condition. One of the strongest factual proofs

for this is the molten matter that volcanoes from time to time discharge from the bowels of the earth, which proves that below the crust this molten matter exists and by pressure some of it is discharged through the craters of volcanoes. Again there are vast and widely separated territories covered by such discharged lava, *e.g.*, the land of Bashan east of the Jordan, which proves that millenniums ago a vast amount of such lava was discharged by volcanoes. These issuing vast amounts of steam, smoke and fire corroborate this view. One of the causes of earthquakes, *i.e.,* the steam generated by the ocean's water seeping through its bottom and coming in contact with intensely hot substances, causing these substances to strike violently against the inner crust of the earth, proves the same thing. Especially those earthquakes that occur just before, during and just after volcanic eruptions and in the vicinity of such eruptions are in line with this thought, for a volcanic eruption is caused by nothing more or less than this steam-driven molten matter seeking a vent. So violent is this steam power that it frequently opens new craters and breaks down long standing volcano cones. Last summer on Mt. Vesuvius we had the privilege of witnessing a number of the above-described phenomena. The rapid increase of temperature the deeper man tunnels his way into the bowels of the earth until the temperature becomes unbearably hot proves the same thing. Again, vast beds of granite, gneiss, basalt and other crystalline rocks are the first crust formed from the cooling molten mass of which this earth consisted. Finally, the hot springs and geysers of hot water and mud are a further evidence of the fact.

We understand therefore that this molten condition is the first thing meant in v. 2 by the Hebrew expression translated in the A.V. as "without form and void," but which is better translated, waste and empty. Every existing thing must have some form. Hence the A. V.'s

rendering, "without form" is unhappy. The second thing that seems to be meant by this expression is the bottom of earth's crust. As geology shows, there are various layers in earth's crust. The bottom on which these rest was formed out of the materials that came to the top of the molten substance after it had discharged from itself certain of its materials; for after the molten mass had by its intense heat thrown off out of itself combustible substances, gases, acids, minerals and various of its other ingredients, it naturally began gradually to cool at its surface. These materials that remained on its surface after shooting off out of them all combustible substances, etc., cooled off as granite, gneiss, basalt and other crystalline rocks. These are the basis of the earth's crust and never left the earth; for they were, so to speak, the scum of the molten cauldron, while the substances that were by the intense heat driven out of the earth were, so to speak, the steam of this molten cauldron. These two conditions then, the molten mass first and its figurative scum secondly, we understand to be described by the terms, waste and empty. And certainly they were a vast waste; and certainly they were a vast emptiness. They were completely waste and empty of everything suggestive of order, life, cultivation and growth. No human eye ever saw it. God, however, the prehuman Christ and the angels saw it in all its waste and nakedness. (Prov. 8: 22-30; Job 38: 7.) Though not beautiful, yet the lurid sights, the thunderously explosive sounds, the restless boiling, the immense bubbles, first forming, then exploding, the black smoke, the bright flares, the black and white clouds of steam forming above it as the oxygen and hydrogen gases united, must one and all have been sublime! We know of these things, partly from revelation and partly from certain facts and principles.

The expressions, waste and empty, are meaningful. The Hebrew is *tohu va bohu.* This combined expression

occurs in, but one other Scripture (Jer. 4: 23), where the waste and emptiness of the second dispensation's earth—society—after the great tribulation are described. Only in one other passage does the word *bohu* occur (Is. 34: 11), where the effect of the utter annihilation of the symbolic heavens and earth in the great tribulation is described in figurative language. The word *tohu* occurs 20 times in the Bible, and the A. V. renders it in eleven different ways, but the meaning *waste,* either literal or figurative, fits its every occurrence. The literal uses will first be quoted: "The earth was waste." (Gen. 1: 2;Jer. 4: 23.) "In a waste and howling wilderness." (Dent. 32: 10.) "Stretch out upon it the line of a waste." (Is. 34: 11.) "He created it not for waste." (Is. 45: 18.) "A city of waste is broken down." (Is. 24: 10.) "Out of the north over the waste." (Job 26: 7.) "They go into a waste and perish." (Job 6: 18.) "He causeth them to wander into a waste." (Job 12: 24; Ps. 107: 40.) The following passages use it in a figurative sense: speaking of the nothingness of idols the Bible says: "For then should ye go after a waste … for they are a waste." (1 Sam. 12: 21.) "Their molten images are waste and confusion." (Is. 41: 29.) "Graven images are all of them a waste." (Is. 44: 9; 29: 21.) "They trust in a waste [a falsehood]." (Is. 59: 4.) "Less than nothing and a waste." (Is. 40: 17.) "He maketh the judges of the earth a waste." (Is. 40: 23.)." "Seek ye me in waste." (Is. 45: 19.) "I have spent my strength as waste." (Is. 49: 4.) These two expressions, waste and empty, describe chaos. Certainly if one could look down upon a huge crater of an active volcano and limit his view to the molten restless mass there, he would see a vast waste, which if in imagination he could enlarge until its limits would be out of sight, he would have a fair view of the waste and emptiness that covered this earth. If one could look down upon a huge crater of an extinct volcano whose molten mass had

turned into cooled surface lava, somewhat like that which is in Vesuvius' crater all around and below its newly formed cone, and then in imagination would enlarge this sight until its limits would be invisible, he would get a fair idea of the waste and emptiness of the scum-like granite, gneiss, basalt, and other crystalline rock covering the red-hot molten mass underneath it, as the cooling surface of the earth appeared in utter waste and emptiness. Seemingly the waste and emptiness refer to the earth's condition when it was in its uncooled, hot, molten condition, as well as to the utter absence from the earth's surface of anything except the cooling granite, gneiss, basalt and crystalline rock surface covering the molten mass within.

Since no human being could have beheld the primeval chaotic condition just described, the knowledge of it must have come to man as a revelation from superhuman sources. Since all the ancient nations give accounts of a primeval chaos, the Lord very likely made this known to Adam before his fall, though it is possible that such a revelation was not made until Noah's time; for in giving Noah the knowledge of the coming flood it would have been quite in keeping with forecasting the downpour of the deluge waters to explain the other downpours that preceded that one and the earth's conditions previous to the first of these. There is another possibility, insofar as the subject affects the heathen records of a primeval chaos. Lucifer and the other fallen angels, who in their state of sinlessness saw the primeval chaos (Job 38: 7), could have revealed the heathen myths on this subject, changing the facts from a monotheistic to a polytheistic cast to enslave into heathenism their dupes; for they either did this or they corrupted the Truth views of it that were brought over to this side of the deluge, and that were held awhile in their proper light until the days of Nimrod, when the demoniac misrepresentations began to set in on this and every other truth that was brought

over the flood to the present order of affairs. That the Genesis record is the one that came from God by revelation is evident from the fact that it is so worded as to fit in with every attested fact that science after thousands of years of investigation has brought to light. It has not only anticipated by thousands of years the latest assured results of scientific research; but as always in the past, it is always found to be far in advance of science, which this side of the perfect revelations in the Ages to come will always be some steps behind the Mosaic account of creation. The marvelous simplicity and comprehensiveness of the story of Gen. 1: 1 2: 4 have proven to be a perfect framework within whose ample pigeon holes every fact of science finds its proper depository, where it is safely and harmoniously filed. The Mosaic account of the creation is one of the mightiest proofs of the Bible's inspiration, and is thus invaluable.

We might by way of contrast and yet by way of corroboration of the general fact of a chaos refer to some of the ancient heathen myths of the primeval chaos. The Egyptian chaos has some slight resemblances to the Hebrew account and more to the Greek myths on that subject. This heathen view differs in very important respects from the Mosaic account of chaos and the bringing of order out of it; for it makes their chaos an intermingling of the elements of heaven and earth. Their chaos they lead back to the conditions of things implied in Gen. 1: 1, while Moses refers only to chaos as on earth. While Moses does not deny a chaotic condition such as the planetesimal hypothesis assures us was in the spiral from which our heavens and earth-our universe-were developed, he simply passes it by in silence, as unnecessary to describe in a brief story which concerns itself after Gen. 1: 1 with this earth, and with other things only as they are related to this earth. Again, the Egyptian chaos fits in harmoniously with, and in part embodies, the Laplacean hypothesis,

which has become scientifically disproven, as we have shown heretofore; but it does not contain the slightest hint as to the planetesimal theory. This myth makes order come out of confusion, due to the intermingling of heaven and earth, by a battle between various gods, which battle allegedly separated the heavens and earth. Then, this myth sets forth the theory of spontaneous generation, through the sole fecundity of the earth, *i.e.*, without the intervention of superhuman agents. Thus it seeks to account for the start of plants, birds, insects, fish, reptiles, mammals and humans. Here again the relation of the ancient myths to materialism is brought out, a thing that the Mosaic account denies by tracing the beginning of all these to the agency of the one God. The Phoenician cosmogony is very similar to that of the Egyptians. Hence they also have a chaos, but similarly unlike that of the Hebrews. The same remark holds true of the Babylonians' chaos, whose creation story sets forth many monsters as existing subsequently to their chaos, which were allegedly destroyed in battle by their chief god Belus, Satan, who palmed himself off as supreme.

The tablets unearthed at Nineveh tell a very similar story, in which by the monster Tiamat is symbolized chaos, as the mother of all things. This personified chaos it presents as the principle of evil, the dragon and tempter of humanity to sin, which of course is the Satanic perversion of the Bible record of the origin of sin in angels and men. This same viewpoint appears in the principle of evil, Ahriman, in the Persian Avesta. In the Greek myths space is chaos and their cosmogony is an intermingling of personified fantasies more or less related to the Mosaic account of creation blended with legendary stories of deceased ancestors. The chaos of the Romans is like that of the Egyptians. Dr. Max Willer has translated a poem from one of the sacred books of India, from which we will quote a short section

as giving a fair view of what Satan palmed off on heathen nations as chaos:

"Nor aught nor nought existed; yon bright sky
Was not, nor heaven's broad roof outstretched above.
What covered all? What sheltered? What concealed?
Was it water's fathomless abyss? …
Darkness there was; and all at first was veiled.
In gloom profound—an ocean without light;
The germ that still lay covered in the husk
Burst forth, one nature, from the fervent heat"

These views of the various ancient heathen nations show that by chaos they meant the confused mass of original matter from which our universe was built, while Moses passes by this condition altogether and in Gen. 1: 1 makes the simple statement that in a beginning God created the heaven and earth; and then describes the earth in a chaotic state by the first clause of Gen. 1: 2: And the earth was *tohu va bohu,* waste and empty (literally, a waste and emptiness; for both of these Hebrew words are nouns and not adjectives, though English favors their being given here as adjectives).

Apart from slight hints the Bible gives us very little on the nature of our chaotic earth. It does in the first clause of Gen. 1: 2 give us the idea of a universal chaos on earth, that, in the light gathered from science and conditions now prevailing in the earth's crust and from a few hints in the Bible, consisted of two stages—the waste and empty condition of the molten mass and of the granite, basalt, gneiss and crystalline rock condition of its surface as the earth was cooling off. Some of these hints we will discuss when we come to explain how the intense heat of the molten mass and of the above-mentioned basis of earth's layers of rock drove out of themselves rings of matter that hovered above the earth as canopies and that were kept in that condition for longer or shorter periods, according to their varying densities by the heat below, etc. Here we desire to call attention to some things set forth in Ps. 104

Which beginning with v. 2 is a poetic description, as Gen. 1: 1—2: 4 is a prose description of creation. The reader will note that in v. 2 the words *"thyself"* and *"with"* before the words "a garment" are in italics, hence are interpolated to fill out what the translators thought to be the sense. The word *with* before light should also be in italics; for it has no corresponding word in the Hebrew. We think the following is a better rendering: "Who coveredst light as with a garment." In the words of this verse, "Who stretchest [stretchedst] out the heavens like a curtain," the creation of the heavens is set forth. While vs. 5, 6 refer to the ordering of the already created earth, they do not specifically refer to the creation of the earth. This leads us to the thought, since the creation of the earth should be referred to in this Psalm, which describes creation, that in the words, "Who coveredst light as with a garment," the later stage of the process of earth's creation is referred to. It will be remembered that above we showed that the earth while in its later stage of development in its pertinent spiral and for a while after its leaving this spiral was a molten mass.

Of course, this molten mass was more or less bright with light before any covering came over it. This is not to be understood to contradict the statement, "Let there be light; and there was light"; for this latter light refers to that which was caused to penetrate through the earth's canopies or rings from without; for the light of the molten mass was covered up when the layer of granite, gneiss, basalt and crystalline rock covered this molten mass. The creation of this basal rock seems to be meant in Ps. 104: 2, first clause, "Thou didst cover light as with a garment." Before this covering of rock set in the light of this molten mass, as is the case with our sun, Jupiter, Saturn, Uranus, Neptune and probably Pluto, shone through its canopies and appeared to God and the angels somewhat as the sun and the above-mentioned self-luminous planets appear

to us-bright and brilliant. This was all set aside when once the above-mentioned basal rock as the bottom of earth's crust covered this molten mass. So understood the first clause of Ps. 104: 2 would be a reference to the creative process acting on the earth, and thus would be a reference to the creation of the earth as distinct from its ordering which was done during the six following days *i.e.,* a long time after the crust of earth began to form over the molten mass. Hence this act of covering light would belong to the creative process as described in Gen. 1: 1, 2 as prior to the ordering of the earth which began to set in on the first day. If this application of the first clause of Ps. 104: 2 is true, as it seems to be, we have a hint in this passage of chaos in its first and second features, as indicated in the waste and emptiness referred to in the first clause of Gen. 1: 2. But it is merely a hint that could scarcely be seen until one would first understand the earth originally to have been in a molten condition.

In Job 38: 9 we find another such hint, "Made the cloud the garment thereof (the earth) and thick darkness a swaddling band for it." The cloud here referred to we understand to mean the canopies surrounding the earth as suggested above, for which later we will give proof, and by the swaddling band the darkness that the bottom of earth's crust over the molten mass first produced under these canopies and above that bottom. Again we remark, if we did not know of the molten mass condition of the earth as its original state and then of the "scum" that covered the surface of this caldron, as well as of the canopies above this, we would be unable to see such a reference in this passage, even as students of the Bible before these facts became matters of knowledge could not so apply it. At best it is but a hint that requires the background of the above-indicated knowledge to bring out its meaning. In our studies of creation how often do we come upon questions that we are unable to answer! This should make

us very humble, and should greatly enhance in our estimation the wisdom and power of our God, and correspondingly should make us very meek toward Him who, if we be so disposed, will graciously supply us the needed knowledge, as it becomes due, and as we become ripe for it. Some of the knowledge of creation He has not disclosed to us either in His inspired book of revelation or in His book of nature, from both of which we are privileged to draw knowledge, only taking heed not to make the knowledge drawn from the book of nature a matter of faith, which we should make only of such things as we may get from God's inspired book of revelation. We desire to stress this thought with emphasis, because while we have the promise to be led, if faithful, into all Divinely-inspired, revealed Truth as due, we not only have no such promise as to knowledge gained from God's book of nature; but in Deut. 29: 29 we are given a caution that should destroy all dogmatism from us as to our interpretation of God's revelation in nature, and should make us hold very tentative opinions on such knowledge, unless it is backed by sober observations examined without speculative thought, and by the inspired revelation given in the Bible.

The middle clause of Gen. 1: 2 reads, "And darkness covered the face of the deep." Because some writers have misunderstood this term to mean the interplanetary and interstellar spaces, we will quote with brief comments all the passages in which the Hebrew word, *tehom,* here translated deep, occurs. We understand it to mean any deep body of water from a lake upward to a body of water covering the entire earth. Some of the occurrences that we will quote are very clear as compelling this meaning, others without being of such a character are nevertheless in harmony with our definition: "Darkness covered the face of *the deep* [the body of water that covered the whole earth before the waters during the third creative

epoch were gathered together in a way to let the land appear (Gen. 1: 9, 10), which before was covered by the water" (Gen. 1: 2)]. "The fountains of the great *deep* were broken up [the waters above the firmament (expanse, Gen. 1: 7) were the source of all the water on earth, except such as occupied the place of the expanse before it was formed; these waters, etc., came down in successive downpours when the earth had sufficiently cooled, etc., to permit their successive falls, each downpour from these fountains increasing the deep on earth until the last of these fountains fell in the days of Noah, making the deluge" (Gen. 7: 11; 8: 2)]. "The blessings of the *deep* that lieth under [the heavens, which proves that it is not the interplanetary and interstellar spaces, but is here the sea" (Gen. 49: 25)]. "The *depths* have covered them … the *depths* were [as it were] congealed, [here the Red Sea covering the Egyptians and the Red Sea by turning, as it were, into a reef through the wind uncovering its bottom is meant" (Ex. 15: 5, 8)]. "The Lord thy God bringeth thee into a land … of fountains and *depths* [these depths refer to the seas and lakes of and beside Palestine" (Deut. 8: 7)]. "For the *deep* that croucheth beneath [the same thought as above in Gen. 49: 25 is here given" (Deut. 33: 13)]. "The *depth* saith, It is not in me [neither the literal sea nor the symbolic sea (the race in rebellion and unrestrained by religion) has the wisdom that rules the universe, as the parallel statement proves" (Job 28: 14)]. "Hast thou walked in the search of the *deep* [again the parallel in this verse proves that the sea is thereby meant" (Job 38: 16)]. "The face of the deep is frozen [here a lake frozen over is meant" (Job 38: 30)]. "One [the unbelief class] would think the deep to be hoary [Leviathan, Satan, (vs. 1-34; Is. 27: 1) has by the evolution theory convinced the unbelief class that the rebellious race, the sea, is millions of years old" (Job 41: 32)].

"He layeth up the *depth* in storehouses [earth's depressions wherein the sea lies are figurative storehouses to the sea" (Ps. 33: 7)]. "Thy judgments [teachings] are a great *deep* [the profundity, of God's thoughts are here likened to the great depth of the sea" (Ps. 36: 6)]. *"Deep* calleth unto *deep* at the noise of Thy waterspouts; all Thy waves and billows are gone over me [one deep sorrow as a sea of trouble invites another through the tumult of distressing experiences that God gave him" (Ps. 42: 7)]. "The *depths* [the Red Sea at the time of Israel's crossing] also were troubled" (Ps. 77: 16). "Thou shalt bring me up again from the *depths"* [seas of trouble (Ps. 71: 20)]. "'Drink as out of the great *depths* [the waters that poured out from the smitten rock were so abundant as to convey the thought that their source must have been a subterranean sea" (Ps. 78: 15)]. "Thou coverdest it with the *deep* as with a garment [before the first and into the third creative day the waters covered the entire earth" (Ps. 104: 6)]. "So He led them [Israel] through the *depths* [the Red Sea" (Ps. 106: 9)]. "They mount up to the heavens; they go down again to the *depths* [after the troubles have removed the symbolic heavens in Armageddon, they will involve during anarchy the rebellious race, the symbolic sea whose waves are lashed into fury by the winds of anger" (Ps. 107: 26)]. "In the seas and all [other] *deep places* [lakes, etc." (Ps. 135: 6)]. "Ye dragons and all *deeps* [oceans, seas, lakes, etc." (Ps. 148: 7)]. "By His [God's] knowledge the *depths* [the waters that covered the entire earth from before the first into the third creative day] were broken up [in separating these waters from the land and forming the seas from them" (Prov. 3: 20, compared with Gen. 1: 2, 7)]. "When there were no *depths* I was brought forth [when the Logos was created, among other things, neither the condition of Gen, 1: 2 nor of v. 7 existed" (Prov. 8: 24)]. "When He set a compass upon the

face of the *deep* [when as by a figurative compass God assigned limits to the universal waters which would confine them to our present seas" (Prov. 8: 27)]. "When He established the clouds above, when He strengthened the fountains of the *deep* [when God by earth's heat, steam, etc., caused the canopies, which by their later breaking up became the fountains of the universal sea and later of our seas, to abide successively their seven thousand year periods" (Prov. 8: 28)].

"He that hath dried the [Red] sea, the waters of the great *deep* [the Red Sea when Israel was about to cross" (Is. 51: 10)]. "That led them [Israel] through the *deep* [the Red Sea" (Is. 63: 13)]. "When I shall bring up the deep [sea] upon thee [Tyre] and great waters shall cover thee" (Ezek. 26: 19). "The waters [peoples, (Rev. 17: 15)] made him [papacy] great; the *deep* set him on high," [the symbolic sea, the rebellious people, (Ezek. 31: 4.)]. "I covered the *deep* for him [for destroying the papacy God will give the revolutionists protection" (Ezek. 31: 15)]. "It devoured the great *deep* [the fire of anarchy will consume the symbolic sea, the anarchistic race" (Amos 7: 4)]. "The *depth* closed me round about [the sea covered Jonah when he was cast into it" (Jon. 2: 5)]. "The *deep* uttered his voice [the rebellious, anarchistic race would make great propaganda and agitation" (Hab. 3: 10)]. The above are all the Old Testament occurrences of the Hebrew word *tehom,* and all of them prove our definition of this word as meaning any literal or symbolic deep body of water from a lake to an ocean, also the universal waters of Gen. 1 and of the deluge to be meant. In Gen. 1: 2 by this word, as a comparison of vs. 2, 7 proves, the waters that covered the entire earth are meant.

Whence came these waters? We reply, from the layers of steam, vapor, etc., that for miles high surrounded the earth, and that later condensed into

water, as well as from the watery canopies. As the earth gradually cooled off these in successive installments dropped to its surface. Doubtless they repeatedly fell as a rain on the yet hot earth and were again and again thrown off as steam until in time the earth cooled, sufficiently to keep the water, still hot, as a covering of its surface. This steam and vapor were formed when, among other gases, acids, etc., the hydrogen and oxygen that were cast off from the molten mass met above the earth and united. Such vapors condensed as above stated and became the source of the waters that covered the earth, as is shown in our text. We are not to understand that all of the steam, vapors, etc., surrounding the earth fell to the earth before the first creative day; rather it was only the lower portions of these that so fell before the first creative day set in. The fact that it was only the lower parts of these that so fell is proven by the fact that the figurative garments and swaddling bands (Job 38: 9) were so dense as to prevent the light of the sun, moon and stars from reaching the earth clearly until the fourth creative day. Accordingly, the surface of our earth was before the first and into the third creative day one vast sea, "the deep," *tehom,* an ocean that had no shores. This water for a long time, due to the heat of the earth, was boiling hot and of course was continually giving off steam, which as it cooled off would as rain fall back into the deep. This process continued long, but how long we do not know. Between it and the molten mass was the figurative scum of granite, gneiss, basalt and other crystalline rock. We have already seen that before the intense heat of the molten mass penetrating its figurative scum allowed any of the vapors above to descend and remain on the earth its scum had formed. Hence these waters lay upon this scum. We also have seen that before any of this steam could condense there was darkness over the face of the earth, because the scum hid the light in the

molten mass, and because none could penetrate from the sun, etc., through the dense layers of various earth-expelled substances. This condition prevailed before the fact brought to our attention by the words "darkness was upon the face of the deep" set in. But that dark condition according to these words also prevailed after the deep was formed, and for the same reason as it prevailed before the deep was formed, which condition was re-enforced by the dirty, slimy water that covered the crust of the molten matter. That darkness must have been worse than that of Egypt, which itself was so dense as to be figuratively felt. It was a blessing that man was not there to experience its gloom—"Darkness was upon the face of the deep."

We are now ready to discuss the canopy theory, otherwise called the ring or annular theory, and sometimes the Vailian theory from its discoverer, Prof. Isaac N. Vail-the view that there were successive rings of matter, water, minerals, sand, slimy mud, acids, gases, etc., that surrounded our earth at varying distances. Their origin was from the molten matter of which this earth before it left its spiral consisted. This molten mass by its intense heat discharged from itself heavily-laden smoke, many gases, acids, minerals, pumice, sand, mud, etc., *i.e.,* its more volatile, combustible substances. These substances varying in weight, the earliest and lightest were thrown up the highest from the earth, the latest and heaviest settled the nearest to the earth, all of them according to their weight forming rings or canopies with more or less clouds, steam, vapor, etc., between each ring, unable as later discharges from the earth to penetrate the canopies already formed above it before their pertinent discharges. Thus these intervening layers of steam formed a sort of a cushion, each holding in place the ring immediately above it, with heat doubtless aiding therewith, especially in the lower rings. This steam did not *as steam* leave the molten earth. It was formed

by the union of the discharged hydrogen and oxygen so greatly heated as to form at first, not water, but steam. These rings not only held the heat below them, but they also shut out the cold that was in space beyond the outermost canopy, which resulted in the earth being in a hothouse condition of fairly uniform temperature under each of its successively nearest canopy. That such was the case can be shown from various statements scattered here and there in the Bible and from facts in nature. We will now proceed to set these proofs briefly before our readers. Among these proofs belong Ps. 104: 2, "Thou didst cover light as with a garment," and the last clause of Job 38: 9: "Who … made the cloud the garment [canopy] thereof [the earth], and thick darkness a swaddling band for it?" These having been sufficiently explained foregoing in two full paragraphs, we will pass them by here.

We will now discuss others, beginning with Gen. 1: 6-9: "And God said, Let there be a firmament [expanse of atmosphere] in the midst of [between] the waters [those that covered the earth and those that as water and as steam, for which there is no Hebrew word, and which is water in an attenuated, gaseous, state, were above this atmosphere] and let it divide the waters [below] and the waters [above it]. And God made the firmament [the expanse of atmosphere] and divided the waters which were under the firmament [those on the earth] from the waters which were above the firmament; and God called the firmament heaven [sky] … and God said, 'Let the waters under the heavens be gathered together unto one place.'" That the flood was caused by the topmost canopy, which consisted of almost pure and translucent water, falling as very heavy rain and snow is shown in Gen. 7: 11; 8: 2: "In the 600th year of Noah's life, in the 2nd month, the 17th day of the month, the same day were all the [remaining] fountains [the canopies are called

fountains of the great deep, because they were the source of earth's] great deep [the deep bodies of earth's waters] broken up [as the topmost canopy when it fell to the earth as rain in the temperate and torrid zones and as snow in the frigid zones]; and the windows of the heavens were opened [the translucent waters that formed the topmost canopy were figurative glass windows through which the people on earth could see the sun, moon and stars. These figurative windows of heavens, sky (Gen. 1: 8), were figuratively opened by the breaking up and falling down of the topmost canopy whereby the flood was produced] … The fountains also of the deep and the windows of heavens were stopped [were made to cease because non-existent and as a result] the rain from heaven was restrained [ceased, because there was no more a watery canopy above the expanse]."

Ps. 104: 3, 6: "Who laid the beams of His chambers [the steam and vapor that were cushions between the various canopies were figurative beams that rested on the canopy below, and that bore up the canopy above it, making the intervening space a figurative chamber or room which God used as a workshop, working creatively in each up to the time through its figurative floor, canopy, falling, it became merged into the expanse below] in the waters [in the midst of the heavy cushioning vapors and between the waters forming the canopy below and above], who made the clouds his chariots [this is true of the clouds of steam and vapor between the canopies and of the clouds that formed since the last canopy fell; for God used the former and has used the latter as instrumentalites of His creative and providential figurative rides] … who coveredst it [the earth] with the *deep* [the waters of Gen. 1: 2] as with a garment [when before the first and into the third creative day the waters covered the entire earth]. The waters [both that which covered the whole earth into the third creative day and that in the

steam and vapors and in the canopies above the earth] stood above the mountains [which formed in part in the scum of the boiling cauldron of the molten matter, whose boiling substance irregularly raised this scum in places into small mountains]." In the book of Proverbs we find several references to this same subject. This naturally comes in the description of the Logos, as the Wisdom of God (1 Cor. 1: 24, 30), partly before and partly after His pre-human existence, as we find it set forth in Prov. 8: 14-36, particularly vs. 22-31, wherein His pre-existence is set forth. In this section Jesus is pointing out how He preceded various of the creative processes and their products.

Among other things, He speaks of matters as they were before the first creative day in vs. 27, 28, which we will now quote with comments: "I was there when He set a compass upon the face of the *deep"* (v. 27). This statement takes us back before the first creative day, and that to a time between the times of the two facts stated in the first and second clauses of Gen. 1: 2, *i.e.* between the time of the condition set forth by the words, "the earth was waste and empty," and the time of the condition set forth by the words, "and darkness covered the face of the deep." We know this, because the expression, setting a compass upon, rather for, the face of the deep, means that God adjusted by measure the spaces for this deep, and that forming our present seas. Hence, this was done before the deep was laid down upon those spaces. Whence came this deep? Surely not as such directly out of the molten mass, whose heat was too intense for water as such to exist therein. Doubtless the water that later formed it was produced first by the heat of the molten mass driving out of it, among others, hydrogen and oxygen gases, each separate and distinct as they were expelled from the heated substance of the earth; then by these gases uniting in proper proportions of weight and bulk to produce water formed steam which changed later

into water; for as chemically demonstrated water is a certain weight and bulk combination of these two gases. The water as such and as steam, therefore, formed above and about the entire molten mass, which means that canopies cushioned as above described formed above and about the molten mass. The lower parts of the steam condensing into water would from time to time precipitate themselves on that mass, contributing to its cooling, yet being again and again dashed off as steam from the earth's hot surface, until after perhaps many thousands of years this process cooled off the earth sufficiently for ever increasing amounts of water less hot than the scum of our figurative cauldron remaining on the earth's surface. Thus the great deep was formed and the process of that formation, especially the process that preceded it, implies the prior creation of the cushioned canopies.

In v. 28 further proof is given: "I was there … when He established the clouds above, when He strengthened the fountains of the deep." The connection between vs. 27 and 28 indicated by the terms "established the clouds *above"* prove that the clouds that formed since the flood cannot be meant; for the connection shows that the word *above* applies to the expression of v. 27, "the face of the deep," which was the water which covered the entire earth before the first and into the third creative day. Hence, the clouds of v. 28 mean the steam that was as a cushion, "beams of His chambers," between each successive set of the canopies. That this interpretation is true is further proven by the rest of v. 28: "When He strengthened the fountains of the deep." We have seen above, when commenting on Gen. 7: 11; 8: 2, that the fountains of the great deep there referred to are the topmost of earth's canopies, the last one to fall, *i.e.*, in the time of the deluge. That canopy was called the fountains of earth's lakes, seas, oceans, because it acted as a source whence waters for them came. For the same reason the

rest of the canopies, those that fell before the Noachian canopy fell, were also fountains of the great deep. In v. 28 all of these are evidently meant, as the connection with the preceding clause and with the last clause of v. 27 proves. God strengthened these fountains of the deep by the intensely hot steam that acted as a ceiling for the lower and as a foundation for the upper parts—beams—cushions of Jehovah's workshops, inter-canopy spaces.

We will offer but one other passage, one from the New Testament, in proof of the canopy, ring, annular or Vailian theory, according to which the earth was clothed with figurative garments, 2 Pet. 3: 5, which we will quote from the Improved Version: "The heavens were of old, and the earth [was] standing, harmoniously with the Word of God, separate from water [that in the canopies and in their cushions] and within water [that which covered the entire earth (Gen. 1: 2, 6-10) which made the earth stand, exist, inside of the water that covered its entire surface]." This passage, rendered poorly in the A. V. and in the other versions whose translators did not understand the thought that St. Peter was expressing, is properly and literally rendered in the Improved Version, as given above. It teaches more clearly than any other of the passages that we have quoted that the earth was for ages encompassed by an annular system, as well as was entirely covered with water. Having finished our Scriptural proofs for this theory we will give a number of proofs found in God's book of nature.

Having finished the study of the Biblical proof in favor of the canopy theory, it would now be in order to consider the proofs for it found in the book of nature. And in the book of nature we find several proofs for it that are both interesting and cogent. The first of these is the fact that the molten mass (that the earth was while it was in its spiral and for sometime afterwards) created conditions out of which the canopies

enveloping this earth were formed. Such a molten mass would automatically discharge from itself immense quantities of smoke, which would be heavily laden with thick charcoal-like soot and heavier solids consisting of chemical elements as well as many gases and acids. Out of these the canopies would naturally form. The heat as well as other forces of the molten mass caused these discharges. Sometimes the violence of the discharge caused mighty explosions which sometimes assumed immense volcanic proportions. Whoever has stood near an active volcano like Vesuvius, Etna, etc., can see how such conditions necessarily were in evidence in the molten mass. Various of the components of the charcoal-like soot, compounding, produced diamonds and crystals, and such soot combining with other elements produced certain precious stones. Chemical elements variously compounding produced gold, silver, copper, lead, zinc and iron dust and larger examples of these. Much of the discharges from the molten mass consisted of various kinds of slime, sand, mud, clay-like fluids, etc. Some of these combinations occurred within the molten mass itself; and some of them occurred after the gases and acids had left the boiling caldron, which this earth then was. We know that oxygen and hydrogen gases combine and thus produce water, which is brought into existence by certain proportions of these in weight and bulk uniting. After these gases had left the boiling caldron such combination of them occurred, since water could not exist in such heat as permeated the molten mass. Other gases combined to produce other forms of matter and the same principle of combination of acids produced still other forms of matter.

These substances left the molten mass in very attenuated forms. This is evident, because the effect of such great heat would be to disintegrate and to attenuate the more or less solids of which the molten mass largely consisted. This is also evident from the fact that they

left the molten mass in large part as soot, mineral dusts, gases and acids. Hence, under the influence of the heat and other expelling forces in the molten earth these expelled things were in more or less volatile condition and naturally would ascend, the lighter and more volatile and attenuated substances being thrown higher up and settling there and the heavier and less volatile and attenuated substances being thrown less high and thus settling nearer the earth. Hence, we may factually infer that the top layer or canopy was at first nothing but steam, which is first of all produced by the combination of oxygen and hydrogen, and which in its top parts as they cooled off more quickly, turned into water. It was this top layer that fell as the flood rains and snows in the days of Noah. Then next under this top layer was another of somewhat heavier substances than the one above kept in place by steam and the lighter acids and gases. Below this was a third layer, counting the layers from top to bottom, consisting of still heavier substances than the one above it and held in place by denser steam, acids and gases than the pillars of the next canopy above. And so on the density increased until the lowest of the canopies, the seventh from the top and the first from the bottom, was reached, the intense heat from below and other forces coming from the molten mass and the dense steam, acids and gases temporarily acting as pillars to keep it up. Evidently the highest canopy formed first, the lowest last.

We just said that there were seven of such canopies enveloping our earth. This was the condition before the first creative day set in (Gen. 1: 3). By a variety of considerations we arrive at the conclusion that there were seven of such canopies surrounding the earth. The first of these is the layers of the earth, its strata, deposited one after another upon one another, and that upon the original foundation of granite, basalt, gneiss and crystalline rock; for there are exactly six of such

strata or layers lying successively upon these. The seventh canopy, being pure water made no stratum deposit, hence there are not seven but six such strata to be found. These strata are not discernible everywhere in their chronological order; for due to the buckling of the earth and mighty explosions of the molten mass some of these layers, while those above them were yet soft, broke through some of the latter and forced their way between and above them; so that parts of earlier ones often overlap higher ones and lie between or above them. We saw the buckling process without any breaking through of the various layers of earth's strata illustrated at the Century of Progress Exhibition at Chicago in 1933 as follows: Six strips of as many different colored rubber were laid severally on top of one another in a specially constructed machine; then by ball bearings these were subjected to irregular pressure, which made the six layers of rubber buckle very irregularly among one another. This produced a very uneven, interwoven series of layers of rubber. At places the lowest strip of rubber was higher than the highest layer was at other places, and that without breaking through any of the upper layers. This illustrates those irregular layers of earth's strata where they have not burst through those above them; but it does not illustrate those layers of earth's strata where such bursting has occurred, which is not an infrequent natural phenomenon. But there are places on the earth where neither the buckling nor the bursting process has acted, but where each stratum is regularly and fairly evenly laid one above the other; and in such cases there are exactly six of such strata above the granite, basalt, gneiss and crystalline rock "scum" that is immediately above the molten mass. These six strata prove that each of them was laid by the falling of the pertinent earth's canopy, which proves that there were six of such canopies as deposited solid matter, while the seventh, consisting of pure water, of course could not

deposit a rock stratum. The Bible also implies this by its six symbolic creative days, ages, at the end of each of which a canopy fell to earth and deposited the matter that formed its pertinent stratum. These two proofs we offer for there having been seven canopies about our earth before the first creative day set in.

While giving in the preceding paragraph the proof that there were seven canopies or rings about our earth before the first creative day of Gen. 1 set in, we anticipated somewhat our second proof from the book of nature for the canopy or annular theory. It is this: The regular layers of earth's strata prove the annular theory; for each of these was formed by the precipitation of such a ring on the earth, whereby it deposited its solid, liquid and gaseous contents on the earth. As we stated above and as one can see on many mountain and canyon sides, these layers are often not regular and often penetrate through one another; but there are places where these layers are almost as regular and even in their being deposited upon one another as though a gigantic mason had built these strata upon one another by placing a level upon each one, making it, generally speaking, level before depositing upon it the next stratum. In that part of the Grand Canyon of Arizona where the Bright Angel Trail leads from the Canyon's rim to the Colorado flowing on its way almost a full mile deeper than the canyon's rim, not only does the river plow its way in a course that it has made in the granite base, but it has also plowed its way through the six layers of vari-colored rocks almost as regularly and evenly laid down as though built to the test of a mason's level. This canyon with its many river-plowed-up and erosion-carved buttes, as varicolored and as regularly built up as the canyon's sides from which through the ages the mighty Colorado plowed them loose, is by world travelers universally considered the sublimest object on earth. It is such and more than such: It is God's clearest revelation in His

book of nature of the six ages of Earth's creative ordering and of its prior sevenfold canopied condition. The walls there look like a huge flag made up of six stripes of unequal width, abutting rather evenly.

To give us this view God caused the plateau here to be on an average of over 7,000 feet above sea level, and has caused the Colorado to plow through this plateau a canyon nearly a mile deep—so deep that it has cut out a course about 150 feet deep in the basal granite and gneiss. We will quote from the Encyclopedia Americana a description of it

"The term Grand Canyon is applied to that portion of the canyon of the Colorado River which lies in northern Arizona. It is in the midst of a wilderness and is inaccessible from most directions, but the Atchison, Topeka and Santa Fe Railroad has a branch line to its southern rim at a locality where some of the finest features are visible. Here are hotels; and [here are] trails down to the river's edge. … The altitude here is 6,866 feet above sea-level; at the river just north it is 2,355 feet; on the farther rim to the north it is 8,000 feet. Few persons can realize on first view that the canyon is nearly a mile deep and from 8 to 10 miles wide. The cliffs descending from the rim form a succession of huge steps, each 300 to 500 feet high, with steep rocky slopes between. These cliffs are the edges of hard beds of limestone or sandstone, while the intervening slopes mark the outcrops of softer shale. These beds are more than 3,500 feet thick and they lie nearly horizontal. Far down in the canyon is a broad shelf caused by a basal hard sandstone; it is deeply trenched by the narrow inner canyon cut a thousand feet or more into the underlying Archaean 'granite.' The rocks of the canyon walls vary in color from white and buff to bright red and dull green. They present a marvelous variety of picturesque forms fashioned mainly from erosion by running water, the agent which has excavated the canyon. … The rocks exposed in the

walls of the Grand Canyon underlie a wide area of the Arizona Plateau and most of them extend far beyond. The first 3,700 feet of beds, all of which lie nearly horizontal, are as follows:

		Feet
Limestone, light colored, partly cherty, mostly massive Kaibab)……..		800
Sandstone, light gray, massive, cross-bedded (Coconino)…….……..		300
Sandstones and shales, all red (Supai formation)…..		1,100
Limestone, massive, light blue-gray, but surface mostly stained red (Redwall) …….		550
Shale, with limestone and sandstone layers	Tonto group	800
Sandstone, hard, dirty gray to buff (on granite)		150

These formations are readily recognized by their color or character as they are practically uniform in aspect and relative position from all points of view. … The top limestone, Kaibab, caps the plateaus on both sides and highest buttes. The outcropping edge of the Coconino sandstone is marked by a distinct band of light gray all along the canyon walls and capping some buttes 700 to 800 feet below the top. The red beds, of the Supai formation everywhere constitute the middle slopes and many buttes, usually presenting a series of relatively small terrace-like steps. The conspicuous cliff below these, and stained red by their wash, is the hard massive Redwall limestone. It projects in many flat topped spurs, buttresses and outliers isolated by erosion. The Tonto group, next below, forming slopes and platform, is recognized by its greenish color. For many miles the shelf of this sandstone of the Tonto group is cut through by a steep inner gorge which descends to the river 800 to 1,000 feet below, and exposes granite and gneiss of the original earth crust …"

This canyon is a veritable Rosetta Stone for geology. It will be noted that in the nearly even edges of these layers of stone as they rest upon one another in the Grand Canyon of Arizona, we have a decidedly different phenomenon from that which presents itself to

view in the bent, twisted, knarled, interwoven, interlocked and interspersed strata that huge bulging and earth-tearing action and strata mixing on many a mountain and canyon side have brought to our view. On such twisted, broken, interspersed and interwoven formations the average geologist has based his calculations and inferences on Scripture-contradictory hypotheses. It seems never to have occurred to them to regard such formations as abnormal, and therefore as unsuitable examples on which to base logical conclusions as to scientific theories, while on the other hand the easily read and plain story graven in the generalized rocks of the Grand Canyon's walls they have most strangely overlooked as basic for general inductions as to the science of the earth's history as set forth in text books on geology. In this they resemble an imaginary Martian who, visiting the earth, and seeing only the Amazonian swamp lands with their vast poisonous insect life and their few, uncivilized and blood-thirsty Indians on a warpath of plunder and devastation, returning to Mars, told its imaginary inhabitants that earth was one vast miasmic swamp infested with disease-bearing insects and predatory savages without sense enough to enable them to seek one another's good. and with ferocity enough to make them more predatory than Mars' wildest imaginary beasts of prey. If our imaginary Martians would thus form their opinions of our earth and its insect and animal life, they would hardly have gone further wrong as to fact on the subject than the average geologist has on his theories of the earth's strata and its geological ages and history. Why form conclusions from abnormal and abstruse exceptions and ignore the orderly, simple and easily deciphered rule, especially since we have God's inspired revelation as a key that beautifully, harmoniously and simply opens the door to the geological ages' processes and history. The six strata of rocks in the Grand Canyon of Arizona are an irrefutable and factual proof

of the six canopies of more or less mixtures of solids and liquids; and the ices and glaciers of the glacial age in the extreme north of the northern and in the extreme south of the southern hemisphere are good evidence that the seventh and highest canopy was of pure water.

The ices and glaciers of the glacial period with the geological evidences of a contemporaneous flood of water south of the ice and glacial fields of the northern and north of the same kind of fields in the southern hemisphere are a factual proof that the highest, the seventh canopy, was of pure water, which falling in the days of Noah produced the vast rains of the deluge, roughly speaking, in the middle half of the earth and the snows of the deluge in the extreme fourths of the earth. Geologists are practically a unit in the thought that, roughly speaking, north of the 50th degree of latitude North America was anciently covered by glaciers and that Europe and Asia in the same latitude was contemporaneously covered with ice, while, roughly speaking, south of that parallel the earth's surface points to a vast, ocean covering these continents. "This should be more than a Rosetta Stone in the path of the geologist." It should not only tell him of the universality of the Noachian deluge, but should point out to him the source of this deluge as having been a canopy of water about this earth acting as a figurative swaddling band, breaking up and falling in the northern and southern parts of the earth as vast cosmic snows and in the central part as torrential rains. Before it fell such a canopy of water would maintain evenness of temperature over the entire earth; for it would have produced a hot house condition of mild climate everywhere on this earth, accordingly making the temperature at the poles the same as at the equator and at all intervening places. This natural conclusion is corroborated by facts that are continuing in ever increasing numbers to come to light. But apart from these,

other facts increasingly coming to light, and the facts of a universal deluge evidenced by the ice and glacial fields and the flood water deposits imply that the last canopy to drop to the earth was one of pure water, which as the seventh canopy left no rock stratum to make a seventh layer of rock upon the original granite, basalt, gneiss and crystalline rock that as vari-formed scum the molten mass threw out of its internals as a surface basal for the strata that were to fall upon it from the first six canopies above. Furthermore, the gradual and increasing recession northward and southward of the fields of ice and glaciers is a proof that such were not always on the earth, but came upon it by some external force suddenly in regions whose climate would melt them.

Animals of the kinds that now inhabit the tropics, as well as the temperate and frigid zones, have been found embedded in the ices of northern Siberia. Among these are mastodons, mammoths, elephants, lions, tigers, antelopes, etc. Certainly such tropical animals have never lived so far north since the dawn of secular human history; for those regions have ever since then been too inhospitably cold for a habitat of such animals. How did they get there and how did they become embedded in ice? Certainly the climate there must have been either tropical or semitropical when they lived there; for such is the climate suited to such animals; hence such ice fields did not there exist when they roamed those lands. And their being embedded in solid ice tells the story of a sudden downpour of water which drowned them and a quick freezing of such waters, which left them embedded in the ice. Whence came this rain, since we read that from man's creation to the flood no rain fell (Gen. 2: 5, 6)? It evidently came during the deluge. And these facts are in harmony with the thought that the first rainbow came after the flood, since no clouds could form under the watery canopy; and hence no rain could fall; and

hence no rainbow could form. This fact enables us also to see why the rainbow could be God's unchangeable pledge never again to destroy society with a flood; because there could not enough water become clouds to make a universal deluge. (Gen. 9: 8-17.) Moreover the great climatic changes that immediately followed the flood (Gen. 8: 22) must have had some competent cause, which we recognize to be the breaking up of earth's hothouse condition incident to the falling of the watery canopy. The process of fermentation, of which Noah was ignorant, and which occasioned his involuntary drunkenness was due to the climatic changes incidental to the same cause, the fall of the watery canopy that enveloped the earth (Gen. 9: 20, 21.) So, too, the great and sudden shortening of the span of human life following the flood bespeaks the same story. And to cap the climax we need only say that several antelopes and other animals have been found embedded in Siberian ice with *undigested* grass in their stomachs, which betrays a sudden watery death immediately followed by freezing within solid ice in which as in a cold storage, the antelopes, etc., and the grass have been preserved intact for over 4,300 years. Not only do all these facts prove the reality of the deluge, but prove that there was a canopy of water that enveloped this earth, and that it fell after six others had fallen, composed of such solids, gases and acids as to form the six great strata of rocks whose best example is the Grand Canyon.

Another fact corroborates the canopy theory: the appearance of the sun, moon and stars only after the third creative day was over. Many mistake the Lord's Word in Gen. 1: 14-18 to refer to the creation of the sun, moon and stars as occurring on the fourth creative day. These by such an interpretation, of course, make vs. 14-18 contradict v. 1, where the creation of the heavens, including as it does the creation of our sun, moon and the stars is set forth as occurring before

the first creative day. It will be noted that vs. 14-18 do not state that God (on the fourth day) *created* (*bara*) the sun, moon and stars. These verses teach that they were on the fourth day made to shine on the earth. This is evident from two facts: (1) from v. 2 onward the creative work is described as respects this earth alone; hence in vs. 14-18 only the relations of the sun, moon and stars to this earth are taken into consideration and described; but their creation as heavenly bodies is not there taken into consideration and described; (2) in vs. 14-18 not the creation, but the work and uses of the sun, moon and stars are set forth, "let there be lights in the expanse of heaven to *separate* between day and night [nothing here is said of their creation, here their work as to day and night is described]. And let them be for signs [symbols, *i.e.,* the sun symbolizes God, Christ, the New Testament, the glorified church, etc.; the moon, the law, the Old Testament, fleshly Israel; the stars, the Apostles and special teachers of the general Church, false teachers, religious systems, Ancient and Youthful Worthies]; for appointed times [like the four seasons designated by the sun, festivals and holidays designated usually by the moon and its phases] days [like literal 12 and 24 hour periods, 7 of these as a week of days and 30 of these as a month of days designated by both sun and moon, then these symbolically considered] and years [literal and symbolic designated by both sun and moon, the stars cooperating in designating these appointed times, days and years; here again we see that not the creation but the uses of these heavenly bodies are set forth].

"And let them be as lights in the expanse of the heavens to shine upon the earth [here again in v. 15 the work and uses of these heavenly bodies are set forth, not their creation] and it was so." [In v. 16 again the mission of the sun, moon and stars are expressed]. God made two great lights [to shine on the

earth], the greater light [the sun] to rule [by shining] the day, the lesser light [the moon] to rule [by shining] the night. In other words, this verse teaches, not the creation of these bodies, but that God caused the sun to shine on the earth by day, the moon and stars by night; hence the work and uses of these, not their creation are set forth in this verse. The same comment applies to vs. 17, 18. Since both Gen. 1: 1 and science teach that the heavens [sun, moon, planets, asteroids, stars] were made before the first creative day, Gen. 1: 14-18, which describes things done on the fourth day, cannot mean the creation of the sun, moon and stars, but their being made to shine upon the earth. How did this occur? Certainly not by making these bodies intrinsically brighter; for if any change in their brightness is to occur, it would be rather a diminishing than an increasing of their brightness that we should expect with the lapse of time. Accordingly, we should understand that something that hindered the light of these bodies from penetrating to the earth was removed and the hindrance being removed in sufficient degree, the light of these bodies penetrated through to the earth and thus these shone on the earth. What was this hindering thing? The four lowest of the canopies each one falling at the end of its pertinent age, day, gradually and increasingly let the light of these bodies in on the earth. Thus at the end of the first day the first canopy dropped and this allowed the first dim rays of light (Gen. 1: 3-5) to penetrate the gloom described in v. 2. The end of the second day witnessed the dropping of the second canopy, which occasioned a slight increase of light; but this was so dim compared with our light that to us it would seem to be little difference between the darkness of its nights and the light of its days. The third day ended with the dropping of the third canopy with its still larger increase of light, whose nights, however, were perhaps as dark as a rather light moonless and

starless night of ours, while its days were perhaps like a moon and starlit night of ours. But with the falling of the fourth canopy on the fourth creative day (age), it was light enough to distinguish very clearly between day and night, both being fairly light as such, but not so light as our day and night, since the other three canopies still dimmed for the earth the days and nights, when compared with ours. Thus we see that the canopy theory is implied in the gradual increase of light from the first up to and including the fourth day, and into and including the rest of the creative days.

As our final proof of the canopy or annular theory we offer the analogies found in our sun and in several of the planets of our system. Vulcan, Mercury and Venus, Earth and Mars do not now have such canopies. They have progressed so far in the creative process connected with their cooling off as to have advanced beyond the possession of these; for their possession is a sign of immaturity, a sign of earlier stages of development. But our sun has these as can be seen from photographs and from dark and telescopic observation and during eclipses. The rings about Saturn are clearly seen by telescopes slightly stronger than opera glasses. Uranus has them; and doubtless Neptune and Pluto have them. We desire in this connection to quote from Mr. Ackland's book the Story of Creation, pp. 173-179, the accounts of the discovery of Jupiter's topmost canopy as an analogous proof of the reality of canopies swaddling our earth in its pristine condition

"In 1828 a very remarkable phenomenon was observed simultaneously, but independently, by three astronomers, Admiral Smyth, Mr. Maclean, and Mr. Pearson, who were watching a transit of Jupiter's second satellite from stations several miles apart. Admiral Smyth's account of it is as follows: 'On Thursday, the 26th of June, 1828, the moon being nearly full, and the evening extremely fine, I was watching the second satellite of Jupiter as it gradually approached

to transit the disc of the planet. My instrument was an excellent refractor of 3¾ inches aperture, and five feet focal length, with a power of one hundred. The satellite appeared in contact at about half past ten, and for some minutes remained on the edge of the limb, presenting an appearance not unlike that of the lunar mountains which come into view during the first quarter of the moon, until it finally disappeared on the body of the planet. At least twelve or thirteen minutes must have elapsed when, accidentally turning to Jupiter again, I perceived the same satellite outside the disc. It was in the same position as to being above a line with the lower belt, where it remained distinctly visible for at least four minutes, and then suddenly vanished. A somewhat similar phenomenon, but of shorter duration, was witnessed by Messrs. Gorton and Wray, during an occultation of the same satellite, April 26, 1863. In this case the satellite reappeared after passing behind the apparent disc of the planet. So lately as 1868 this phenomenon was regarded as inexplicable. (See Webb's Celestial Objects, p. 141.)

"In the winter of 1868-9 the attention of astronomers was called to the fact that rapid and extensive changes were taking place in the appearance of Jupiter's belts, and they have consequently been watched from that time with unremitting attention by astronomers furnished with telescopes of the best quality. The results of these observations are given in two very interesting papers, communicated to the Popular Science Review, by Mr. Webb. (Issues of April, 1870, and July, 1871.) Very curious markings and variations in the depth of shade have been seen, accompanied by equally curious changes of color. Mr. Browning compares these changes to those which are seen when a cloud of steam of varying depth and density is illuminated from behind by a strong light, as when we look through the steam escaping from the safety valve of a locomotive at a gas-lamp immediately behind it.

This appears to be the true explanation of the phenomenon. (Popular Science Review, 1871, p. 307.) These belts are probably due to vast masses of steam, poured forth with great force from the body of the planet. As the atmosphere of Jupiter is probably of enormous depth, the rotatory velocity of its upper portions would be much greater than that of the surface of the planet, hence the steam would arrange itself in belts [canopies] parallel to the equator of the planet. But this view leads us to wonderful conclusions with reference to the condition of the planet.

"Processes of the most amazing character are taking place beneath that cloudy envelope, which forms the visible surface of the planet as seen by the terrestrial observer. The real globe of the planet would seem to be intensely heated, perhaps molten, through the fierceness of the heat which pervades it. Masses of vapor streaming continually upward from the surface of this fiery globe would be gathered at once into zones [canopies] because of their rapid change of distance from the center. That which is wholly unintelligible when we regard the surface of Jupiter as swept like our earth by polar and equatorial winds, is readily interpreted when we recognize the existence of rapidly uprushing streams of vapor. (Mr. Proctor in *Monthly Packet,* October, 1870.)

"Supposing then that the atmosphere of Jupiter is of very great depth, and thus laden with masses of watery vapor, the effect of a sudden current of heated, but comparatively dry, air or gas would be the immediate absorption of the whole or a large portion of the vapor, and the consequent transparency of the portion of the atmosphere affected by it. We see this result continually on a small scale in our own atmosphere, when a heavy cloud comes in contact with a warm air current, and rapidly melts away. Many of the rapid changes which have been witnessed in Jupiter's appearance are readily explained, if this view is admitted.

Supposing such a thing to have happened near the edge of the disc, the phenomenon recorded by Admiral Smyth is at once satisfactorily explained. When the satellite appeared to pass on to the disc, and to be lost in the light of the planet, it would for sometime, proportional to the depth of Jupiter's atmosphere, have behind it a background of clouds only, it would not have entered upon the actual disc of the planet. If then these clouds were suddenly absorbed, the atmosphere behind the satellite would become transparent and invisible, the background would be gone, and the satellite would reappear. In the case of the occultation witnessed by Messrs. Gorton and Wray, the satellite would at first be hidden by cloud only, and would reappear if the cloud were removed. Such seems to be the true explanation of these hitherto mysterious phenomena."

When Mr. Ackland wrote his book [1880] the canopy theory was in its infancy. Probably he knew nothing of its existence, though he described a phenomenon that by analogy proves that theory as to earth's infant swaddling bands. We believe that in the above subject matter we have submitted enough proof from the Bible and nature to demonstrate the truthfulness of the canopy or annular theory as correctly explaining our earth's pristine condition.

With the proof of the canopy theory from the Bible and from nature we have finished our discussion of the middle statement of Gen. 1: 2, "and darkness was upon the face of the deep." Our investigations have given the two causes of this darkness: (1) the figurative scum that as granite, basalt, gneiss and crystalline rock gradually arose from, and covered the molten mass; and (2) the seven canopies with their figurative beams of steam, vapor, gases and acids. The former hid the light that was in the fiery molten mass; and the latter prevented the light of the sun, moon and stars from penetrating to the earth. Hence the dense darkness that covered the deep, the shoreless

ocean that then covered and hid the entire basal earth. All of v. 2 treats of conditions on the earth before the first creative day, whose description begins with v. 3. Having with considerable detail discussed the first and second clauses of v. 2, we will now proceed to the discussion of the last clause of v. 2: "And the Spirit of God moved upon the face of the waters." The word *waters* in this clause is the equivalent of the word *deep* in the middle clause of v. 2. In this third clause of v. 2 the energizing activity of God's Spirit on the surface of the shoreless ocean that covered our earth before the first creative day is set forth. Both the expressions, "Spirit of God" and "moved upon" require some explanation in this connection in order to make the thought of this clause clear to our understandings.

The expression, "Spirit of God," will first receive our attention. In the Bible this expression may mean either one or the other of two things: (1) the power or influence of God; and (2) the disposition of God. The former is impersonal, the latter personal in its operation. Of course God in operating either acts as a person. But considered in themselves the former acts impersonally and the latter personally. In the Old Testament the second sense acted personally in God, the angels and in Adam and Eve before they sinned, as it did in Jesus up to the time of His baptism. Its personal action in Adam, Eve (before they sinned) and in Jesus before His baptism was that of human personality, not of spiritual personality, as in God and in angels. In the sense of spiritual personality the Spirit of God did not act in any human being during the entire Old Testament period, *i.e.,* from Adam's creation to Jesus' baptism. First, at Jesus' baptism of the Spirit (Matt. 3: 16, 17), then at the Church's baptism of the Spirit (Matt. 3: 11; Acts 2: 1-4) did the Spirit of God act personally in any human being. This Jesus and John expressly state (John 7: 38, 39)

"for the Holy Spirit was *not yet given;* because Jesus was not yet glorified." Is. 11: 2; 61: 1 prophesy this of Jesus and the Church. Hence whenever the Spirit of God is referred to as acting in fallen humans in the Old Testament (Num. 11: 17, 25, 26, 29; Judg. 3: 10; 6: 34; 13: 25;14: 6, 19; 15: 14; 1Sam. 10: 6, 10; 11: 6; 16: 13, 14; etc., etc.) the action is to be understood as impersonal, *i.e.,* in the first sense of the word, power of influence. The reason is very clear. Until Jesus with the atoning merit of His sacrifice appeared in God's presence and imputed it for the Gospel Church, He could not be invested with the official powers of the glorified High Priest, *i.e.*, be glorified, and until such investiture with garments of Beauty and Glory, He could not pour out the Holy Spirit upon the Church to act in it personally. Hence we see the clear cut distinction between the Lord's Spirit working with the Ancient Worthies and the Lord's Spirit working in the Church. In the former case it was God's power working with servants as distinct from sons; in the latter case it was God's disposition working in sons as distinct from servants, hence impersonally in the former and personally in the latter; for we are never to forget that so far the personality of the Spirit is the Father, the Son, the good angels and the Church, but will later extend to others.

We will now offer only a few proofs for the second sense, because it is not the sense of the expression in v. 2, and then many proofs of the first sense, because it is its sense in v. 2. Plainly the Lord's disposition in Christ and the Church is meant in Is. 11: 2; 61: 1. The same is proven by the contrast between the disposition of the flesh, of slaves, of the world, of fear, on the one hand, and of God's Spirit, spirit of sonship, of power, of love and of a sound mind, etc., on the other hand, in the following passages: Rom. 8: 9, 15; 1 Cor. 2: 12; Gal. 4: 6, 29; 5: 17; 2 Tim. 1: 7. Sometime we trust to discuss this subject in detail, but since it bears

only indirectly on our present subject, we leave it with but the above briefly given explanation. But as connected with our subject it is desirable to have more details on the sense of the expression, "the Spirit of God," as it occurs in v. 2. In Luke 1: 35, in the poetic form of *parallelism,* in which Gabriel explained to Mary how without a human father she would become the mother of Jesus, he defines the term Holy Spirit to mean the *power* of the Most High: "The Holy Spirit shall come upon thee; even the power of the Most High shall overshadow thee." The Hebrews had a variety of ways to express thought in poetry. Instead of rhythming and rhyming the words, as we do in English poetry, the Hebrews made poetry by rhythming or contrasting the thought. The rhythm of thought is exemplified in parallelisms, in which the same or a very similar thought is repeated in different words. Such an example of poetry Gabriel used in Luke 1: 35. Hence he uses the words, Holy Spirit, to mean the same as the words, the power of the Most High. This is a very clear proof of the first meaning of the expression, the Spirit of God.

Another clear case, somewhat hidden by the mistranslation *the* holy spirit instead of the correct rendering a holy spirit we find in John 20: 22, 23. "Receive ye *a* holy spirit [power]: whose soever sins ye remit, they are remitted unto them; and whose soever sins ye retain, they are retained." The connection between the first clause of the quotation and the rest of the quotation clearly proves that the expression, *a* holy spirit, is the holy power given the Apostles as God's mouthpieces to declare God's forgiveness to those who repent and believe and God's non-forgiveness to those who do not so do. In other words, Jesus was giving them the power of the ministry of the Word (2 Cor. 5: 18-21) based upon the merit of His finished sacrifice. The right translation of Luke 1: 17 proves the same thing: "He [John the Baptist] himself shall go

before Him in the spirit, even power, of Elijah, *to turn* the hearts of fathers unto children." Here the power given John as Jesus' forerunner is described. In Gen. 6: 3 God tells us that His power (spirit) exercised through the ministry of good angels would not eternally put up with the resistance of the wicked antediluvians. God's power coming upon Balaam enabling him to prophesy is described as God's Spirit coming upon him (Num. 24: 2). We have already given similar examples in verses cited above, connected with Othniel, Gideon, Jephthah, Samson, Saul and David. There are remarkable examples of this same exhibition of God's Spirit as power in the case of the two sets of messengers sent by Saul to capture David and later of Saul himself (1 Sam. 19: 18-24). Good illustrations of the same use of the word are found in the case of Elijah (1 Kings 18: 12; 2 Kings 2: 16), Azariah (2 Chro. 15: 1), Zechariah (2 Chro. 24: 20), David (Ps. 139: 7), Ezekiel (Ezek. 11: 5, 24), Israel (Mic. 2: 7) and of Micah (Mic. 3: 8). How do we know this? As the personal aspects of the Spirit did not come until at Jordan and Pentecost, these cases must be illustrations of the impersonal use of the term, Spirit of God, being all Old Testament examples. Hence we know that the expression *the Spirit of God* means in all of them the power or influence of God. The context of the term, "Spirit of God," in v. 2 proves the same; for no persons are at all referred to as objects of its activity; for the activity was as respects the surface of earth; its pristine covering and shoreless ocean; hence it could not have acted personally in this case, which requires persons to be acted on.

Having seen the meaning of the term, Spirit of God, in our text, it would be well for us to study the meaning of the term *moved upon,* as it occurs in our text. The Hebrew word here is *rachaph.* It occurs but three times in the Bible. Beside here it is found in Jer. 23: 9 (All my bones *shake*), and Deut. 32: 11 (As an eagle

… *fluttereth* over her young). In Jer. 23: 9 the relaxation of one's bones under appalling experiences seems to be meant. Lexicographers think the occurrence in Jer. 23: 9 is that of another word than in Gen. 1: 2 and Deut. 32: 11, but spelled the same way, like, *e.g.,* our possessive pronoun mine and a mine where, *e.g.,* coal is gotten. We think this is correct. To hover over is undoubtedly the thought in Deut. 32: 11; and the same seems to be the thought in v. 2. The Syriac translates it *brooding,* as of a hen warming eggs that she seeks to hatch. There is nothing in the Hebrew to suggest such a thought. But God's power hovering over the face of the waters seems to suggest an active energizing function of such power. This activity seems to have had to do with reducing the heat of the water that was condensed from the steam and vapor above and that fell upon the earth, basal rock, as rain. This activity would in time prevent all of this water from evaporating and keep increasing quantities of it remaining on earth's surface through ever-increasing re-enforcing rains from above *i.e.,* condensed from parts of the steam and vapor in "the beams" of the lowest canopy. This power worked several ways: First, it fell as rain condensed from such steam and vapor upon the basal crust of the earth. For a long time such rain was by the intense heat of earth's crust immediately shunted off as steam. The Divine energy continued at these two things until after the lapse of a long time the earth's crust cooled off sufficiently to allow some of the rain to remain without evaporation on its surface. But this water was boiling hot and doubtless emitted dense clouds of steam, as beams of the lowest canopy.

As time went on the cooling of the crust continued as increased amounts of less hot water lay upon it. Thus there was a long-drawn-out cooling off of both the earth's crust and its covering water. But at this stage of creation the intense darkness that preceded

the first creative day continued; for the molten mass was not only entirely covered by its figurative scum, but the latter was everywhere covered with slowly cooling water; and, of course, the seven canopies and their beams shut out the light from above. The beams of the lowest canopy evidently came down to the water's surface during this time, thus preventing an atmosphere from forming, which did not set in until the second creative day (v. 6-8). The above-described working of Divine energy seems to be meant by the last clause of v. 2, the Spirit of God hovered over the face of the waters. What roaring noises, like explosions, must the earlier fallings of the rain on the blistering hot scum have made, when that scum, like an inhospitable host ejecting an unwelcome guest from his home, immediately dashed the rain off its surface as steam that ascended some distance amid the beams of the first canopy. And such noises only gradually were lessened as the repeated rains falling on the basal granite, etc., gradually decreased their heat. It must have taken centuries for God's power to have accomplished God's design for which His power hovered over the surface of the water. And when the first creative day opened the waters over earth's surface were still hot; for before the first canopy fell at the end of the first day the heat below must have been intense to keep with the assistance of the "beams" that canopy with all its weight in its place for the 7000 years of that day. Thus did God's power hover in creative activity for many more millennia over the surface of the waters—during the seven of the first creative day, and who knows how many before these began. With these remarks we have finished our study of Gen. 1: 2. But before beginning a discussion of the first creative day, we wish to sum up the preceding discussion of our subject, make a few remarks on creation as presented in Geology, and then give a comparative

summary of the six creative days as presented in Gen. 1: 3-31.

We have above indicated, both on scientific as well as on Scripture lines, why we accept the Bible account of our earth as true and reliable rather than the guesses and reasonings of Geology—wherever the strata of the earth has remained comparatively undisturbed the stages of stratification bear out the account of the Bible and contradict those of Geologists whenever these contradict the Bible's story. We instanced the stratification process and product as seen in the Grand Canyon of Arizona as one, among others, as demonstrating this. We also showed that the theory of many Geologists on many more strata was unscientific, inasmuch as it ignored the fact that they have counted doubly and at times even trebly a number of strata which through mighty convulsions of this earth were made to break through higher and softer ones and spread themselves over the surfaces of these, as well as at times forcing themselves between two layers of strata. Ignoring this fact they have counted such a stratum twice and sometimes even thrice and thus they get more than the Bible's six. Again, the Bible begins earth's history earlier than Geology, *i.e.*, while the Bible begins with the earth as a molten mass, carries us through the stage of basic rock, the scum of the molten mass as these are found in the granite, basalt, gneiss and crystalline rocks, advances through the darkness and the watery stage of Gen. 1: 2, and the first and second day stages of Gen. 1: 3-8 and into the separation of land and water stage of Gen. 1: 9, 10 before Geology begins. In other words, Geology does not begin its theory of earth's strata until after the second stratum had been entirely laid, and earth was ready to receive the third stratum atop the second above the original basic rocks. From this we see that the first and second strata were deposited in the shoreless

ocean that covered this earth from before the first creative day began.

This fact made possible in many places several overlappings of strata before Geology makes its beginning. Others of such overlappings occurred with strata after Geology begins with its first stratum. Hence Geology has many more courses of strata than the Bible calls for; but blunders on the subject by counting these interlapping strata as independent ones. And thus Geological theories come into conflict with the Bible, a thing that the majority of geologists, being unbelievers in the Bible, are glad to effect. But the above-given explanation shows how unscientific they are and how truly scientific, factual, and reasonable the Bible Geology is. Hence as we proceed we will usually ignore Geology, though we will from time to time point out how to harmonize some of its findings with the accurate teachings of the Bible. The Bible account of creation does not go into details. It states creation's general course in broad comprehensive terms, leaving much to be read between the lines; and in these gives us pigeon-holes that will accommodate every real fact of nature and assured finding of real science, as distinct from science falsely so called (1 Tim. 6: 20). Certainly the progress of creation as given in Gen. 1 is scientific in its truest sense. There are wonderful groupings of the creative work, dividing the account thrice into periods of two creative days each, and twice into periods of three creative days, and six times with one creative day in each division, each division having from the standpoint of its character scientific proof and justification. In the twofold division we may speak of the first three days respectively as related and preparatory to the second three days respectively. Thus the first appearance of light on the earth in the first day (vs. 3-5) is related to the appearance three days later of the sun, moon and stars on the fourth creative day (vs. 14-18). Thus the creation of the

atmosphere on the second day is related to the creation of breathing beings three days later, on the fifth creative day (vs. 20-24); and thus the appearance of land on the third day (vs. 9-13) is related to the appearance of dry land animals three days later on the sixth creative day. In each case the relation is that of preparation and fulfilment. Then the threefold division of the creative days into twos is also scientific. Light and air came respectively in the first and second days; the appearance of earth and heaven came respectively on the third and fourth days; and the appearance of non-mammals and mammals came respectively on the fifth and sixth days. Thus there are relation and preparation brought out in the twofold division into three days each, and progress brought out in the threefold division into two days each. All the facts of nature agree with this order in the two methods of dividing the six creative days. Then the relation of each successive day of the entire six shows a logical and progressive development, each day making advance on its predecessor and at the same time preparing for its successor, and that in a way corroborated by every scientific fact that has come to light.

Having now come to the end of the first part of our subject, creation before the six creative days, it would be well for us to review the ground already traversed as a means of refreshing our minds on the salient features of the subject so far discussed. We began the subject by going over some general considerations on creation in a fairly detailed discussion, first distinguishing between the Bible and creedal view of creation, citing many Scriptures under seven heads on the two senses of creation, process and product, refuting the view that creation means to make something out of nothing, and proving it to mean to make new things out of previously existing things. This last thought was shown by passages in the Old Testament in which the Hebrew word *bara* occurs and from the

New Testament by passages in which the words *ktizo* and *ktisis* occur. Then the spheres of creation, the world of spirit and the world of matter and the laws of nature were set forth in their relations to God's creative work. Then the nature and duration of the creative days were discussed as ages, and in this connection the creedal view that the creative days were periods of 24 hours was refuted. At the fitting place a more detailed discussion of the laws of nature as God's creative tools was undertaken. Thereupon the Greek and Hebrew words for the English word, beginning, were studied and were shown to refer to periods of time, not eternity. With this our general remarks on creation were brought to an end. Details were then taken up and that first as to the world of spirit. Naturally a discussion of the pre-human Christ was here first in order, since He was the first and greatest of all creatures. This discussion entered into the pertinent details. Then followed a study of the good angels as creatures of the realm of spirit. Next we discussed the evil angels, especially Satan, and then his fallen angel accomplices.

This brought us to the discussion of God's creative works in the world of matter. After some general remarks on the source and materials of creation as a product, seven of its qualities were discussed in Chapter III—unity, immensity, beauty, sublimity, order, wondrousness and complexity: The completion of the discussion of this phase of creation as a product, to which we will later return for other features of it, brought us to a consideration of creation as a process, which we began with the proof of its origin from gases, as proven by the Bible and nature. This process was by a variety of proofs from the Bible and nature proven to be that of condensation, especially along chemical lines. Thereafter we took up a discussion of the methods that operated the creative process. This led to an examination and refutation of the nebular

hypothesis, which reigned for a hundred years in the materialistic world of science falsely so called. Then we unfolded as the product, partly of Biblical hints, partly of theory and partly of observation the planetesimal or capture hypothesis as quite likely the true method of the process whereby all suns and some of the planets came into existence; and after presenting certain points against the tidal theory of planetary origin we supplemented the capture theory with the hypothesis that some of the planets were by great explosions probably cast off from their suns, a fact that many observations connected with the novae seem to corroborate. This completed our study of Gen. 1: 1;. and thereafter we took up the study of Gen. 1: 2, which in Chapter V we have just completed. Its first line of thought, the waste and empty condition of the molten mass, was first discussed. Then we discussed the second line of thought in Gen. 1: 2, "darkness covered the face of the deep," wherein we described earth's basal "scum" formed from the molten mass as the first cause of the darkness of Gen. 1: 2 and the seven canopies of earth as taught in the Bible and nature as the second cause of this darkness. And, finally, we discussed the third thought of Gen. 1: 2, "the Spirit of God hovering over the face of the waters."

This brings to an end the summary of our discussion so far in this book—Creation. We trust the study so far has blessed our readers in head and heart, and pray the Lord to bless our discussion of the rest of our subject. It has uplifted the writer in head and heart. The wonders of the heavenly and earthly creations so far brought before our view in this study have enhanced God's glorious being, holy character, wondrous word and great works in our esteem, and filled our hearts with gratitude and appreciation. Surely the words of the sweet singer of Israel have repeatedly welled up in our minds: "The heavens declare the glory of God and the expanse showeth His handiwork

Day unto day uttereth speech; and night unto night showeth knowledge. There is no speech nor language where their voice is not heard. Their rule [that of nature's laws] is gone out through all the earth, and their words unto the end of the world. By them hath He set a tabernacle for the sun, which is as a bridegroom coming out of his chamber, and rejoices as a strong man to run a race. His going forth is from the end of the heaven and his circuit unto the ends of it; and there is nothing hid from the heat thereof" (Ps. 19: 1-6). And repeatedly during this study there have welled up in our hearts the words of the same sweet singer of Israel: "Not unto us, O Lord, not unto us, but unto Thy name give glory, for Thy mercy, and for Thy Truth's sake" (Ps. 115: 1)!

A THANKSGIVING

For the wealth of pathless forests,
Whereon no axe may fall;
For the winds that haunt the branches,
The young bird's timid call;
For the red leaves dropped like rubies
Upon the dark green sod
For the waving of the forests,
I thank Thee, O my God!

For the sound of waters gushing
In bubbling beads of light;
For the fleets of snow-white lilies
Firm anchored out of sight;
For the reeds among the eddies,
The crystal on the clod;
For the flowing of the rivers,
I thank Thee, O my God!

For the rose bud's break of beauty
Along the toiler's way;
For the violet's eye that opens
To bless the new-born day;
For the bare twigs that in summer
Bloom like the prophet's rod;
For the blossoming of flowers,
I thank Thee, O my God!

For the lifting up of mountains,
In brightness and in dread;
For the peaks where snow and sunshine
Alone have dared to tread;
For the dark of silent gorges,
Whence mighty cedars nod;
For the majesty of mountains,
I thank Thee, O my God!

For the splendor of the sunsets,
Vast mirrored on the sea;
For the gold-fringed clouds, that curtain
Heaven's inner majesty;
For the molten bars of twilight,
Where thought leans, glad, yet awed;
For the glory of the sunsets,
I thank Thee, O my God!

For the earth and all its beauty,
The sky and all its light;
For the dim and soothing shadows,
That rest the dazzled sight.
For unfading fields and prairies,
Where sense in vain has trod;
For the world's exhaustless beauty,
I thank Thee, O my God!

For an eye of inward seeing,
A soul to know and love;
For these common aspirations
That our high heirship prove;
For the hearts that bless each other
Beneath Thy smile, Thy rod;
For the amaranth saved from Eden,
I thank Thee, O my God!

For the hidden scroll, o'er written
With one dear Name adored;
For the heavenly in the human,
The Spirit in the Word;
For the tokens of Thy presence
Within, above, abroad;
For Thine own great gift of being,
I thank Thee, O my God!

CHAPTER VI.
THE FIRST CREATIVE DAY—LIGHT.
Gen. 1: 3-5

THE NATURE OF LIGHT. A SPIRITUAL SUBSTANCE. ITS SOURCES. ITS MISSION. THE DIVISION OF LIGHT FROM DARKNESS. HOW "LIGHT BE" WAS SAID. LIGHT'S PRIORITY IN ORDERING THE EARTH. THE MOSAIC ACCOUNT OF CREATION INSPIRED.

HAVING finished our general discussion of creation, and that of Gen. 1: 1, 2, we now proceed to the study of the first creative period as this concerns conditions on earth. We are to remember that the creation of the earth, described in Gen. 1: 1, 2 as a planet, both in its molten mass condition and in its condition as covered by granite, basalt, gneiss and crystalline rock, antedated the ordering of the earth and its surroundings during its six creative days or periods, as described in Gen. 1: 3-2: 4. The distinction between vs. 1, 2 and vs. 3-2: 4 is this: while the former refer to the bringing into existence of the heavens and earth, the latter refer to the ordering of things in or related to the earth. It is only when this distinction is kept in mind that we avoid many absurdities that have been taught with reference to creation as it affects the universe and our planet, and are guided into a correct appreciation of the entire record of God's creative works, as these are set before us in Gen. 1: 1-2: 4. We trust that our previous study has clarified before our minds God's creative work as it is implied in Gen. 1: 1, 2, as we also trust that our study of the six creative days or epochs will clarify before our minds God's creative work as to ordering this earth and things related to it. And above all we trust that both phases of our study will enhance in our faith, love, appreciation, worship and adoration of the great Jehovah who is revealed in His glorious attributes to us by such creative works as our study brings to mind.

Gen. 1: 3-5 treats of the first epoch, "day one," of God's ordering matters with reference to our planet; and it treats as the work of that day God's providing light for our earth. Many misunderstand the statement, "Let there be light; and there was light," to mean God's original creation of light. This, of course, is a misapprehension of the facts in the case. Since light is emitted by any shining object; and since the earth before it got its covering of figurative scum was a fiery mass, it must have emitted light. Ever since the gases from which our sun was formed solidified enough to become a burning mass our sun emitted light, which was, according to Gen. 1: 1, before the first creative period. The same thing holds true with the suns, planets, etc., of the solar systems other than our own. Accordingly, we are estopped from holding that the record of Gen. 1: 3-5 sets forth the original creation of light. If we keep in mind the distinction made above between the original creation as being recorded in Gen. 1: 1, 2, and the subsequent ordering of matters as related to our earth, as set forth in Gen. 1: 3-2: 4, we will be in a position to recognize vs. 3-5 as teaching the fact of light being given to our earth, after it had become covered with a figurative scum, and not as teaching the original creation of light. The fact that in the first creative period there was day and night (v. 5) due to the presence of a measure of light in the day and its absence by night proves that the sun caused at least some light to penetrate through the canopies of the earth to the earth itself. Accordingly, the words, "let there be light," (v. 3) do not mean, let light as a new thing come into existence; but let light penetrate to the earth itself. And the fact that this was done is stated in the words, "And there was light." Accordingly, we do not think that to be a happy translation which gives the involved words as, Light become: and light became.

This brings us to a short discussion of light; for which we suggest the following definition: Light is

the spiritual luminous substance emanating from shining substances. For about a century the view of light as being a substance, the thought of Sir Isaac Newton, who is, perhaps, the greatest of all scientists, and whose intellect was, perhaps, the greatest that graced fallen mankind, has been rejected in the interests of a theory that light is not a substance at all, but is simply the undulations of ether, waves in the ether. But latterly, due to the advances in knowledge of sub-atomic physics and a growing doubt of the ether hypothesis, scientific opinion is returning to the view of Sir Isaac Newton. We are of the opinion that light is a substance. The following considerations as to light are in line with the thought that it is a substance, and not merely an attribute of a substance, as the undulatory theory implies: Under certain conditions light is a curative agent and under others a destructive agent. Pathology makes frequent and various uses of it in effecting cures. Then, too, we know that an excess of it is injurious, *e.g*., the blinding effect of too much of it. Its absence sets up a set of negative effects, blindness, ill health, deterioration of various kinds. It frequently promotes growth in the animal creation, as its absence interferes with such growth. It certainly promotes growth and quality in the vegetable, fruit and grain worlds, as certainly its absence stunts growth and quality in all of these. Its traveling in varied wave lengths is in harmony with its being a spiritual substance. So, too, is the fact that there are varied lengths of its waves, that these various wave-lengths produce ultra-violet, violet and blue rays when they are short-wave or high-frequency, and red or infra-red rays when traveling in long-wave or low-frequency. The fact that light is of different colors, some dark, some white, proves that it is a substance. The fact that by means of the prism light is distributed into the seven basic colors, the seven colors of the rainbow, is in harmony With the thought that it is a substance, not simply a

quality of a substance. The fact that it is changeable into other things like sound, heat, electricity and magnetism proves that it is a substance. Its being affected by various forms of energy like gravity and magnetism proves that it is a substance. These facts are sufficient in proof of the fact that light is a substance.

That light is a spiritual substance as distinct from a material substance is evident from the fact that it is a force or energy derived from spiritual or material substances. We have already seen that spiritual substances more or less permeate matter, *e.g.,* life-principle permeates the air, electronic protons permeate electricity, heat permeates carbon, etc. All of these are spiritual substances closely related to various material things. So light permeates shining substances. And as the former are separated in various ways from the matter that they permeate, so is light separated from the material or spiritual substances with which it mingles. The Creator has been pleased to make this mingling of spiritual and material substances quite a general thing in nature. That which differentiates light from other spiritual substances is its luminosity. Life-principle vitalizes, electronic protons energize, heat warms, fire disintegrates, the various rays penetrate among others with visibility, ether acts as the medium through which light and heat travel, and by which electricity and magnetism are produced and radio communicates; but the office of light is to make luminous. It is often defined as that which makes the retina of the eye see. Those who so define it usually deny that it has any existence apart from the eye. Thus to them light is not a thing in itself, but is a creature or figment of sight. While our power of sight is acted upon by light, and we cannot see without it, *i.e.,* there can be no sight without light, yet light is an actual energy that exists independently of sight. In other words, if there were no sight at all, light would nevertheless exist, for it is a substance that has actual independent existence apart

from the eye. Spiritual substances, though distinct from matter, are substances that have actual existence in themselves.

But so far as we know light always originates in, or is emitted from shining substances. These substances may be material or they may be spiritual; but whether one or the other it seems always to be emitted by some other substance. Thus the electricity in the lightning, aurora borealis and the electric lamp yield light. The suns and comets in our and other universes constantly exude it. The planets, moons, asteroids, etc., borrow it from their suns and reflect it. It comes from fire, a spiritual substance. Petroleum, its products, olive oil and other carbons produce it through the medium of fire. Then we are Scripturally assured that it emanates from spiritual bodies. Some, at least, of the angels have bodies composed of fire (Heb. 1: 7), which makes light shine forth from them. It is expressly stated of the angel that rolled away the stone from the door of our Lord's sepulchre that his countenance was like light, not lightning as the A. V. gives it (Matt. 28: 3). Our Lord shone with a light above the brightness of the noonday sun when He manifested Himself to the persecuting Saul (Acts 9: 3; 22: 6; 26: 13). So bright was the light emanating from our Lord's body that it blinded Saul's eyes before they could penetrate through it and see the body out of which it shone forth (John 14: 19; 1 Tim. 6: 16), so that when St. Paul says he saw our resurrected Lord, we are to understand that he saw, not our Lord's body, but a representation, a vision, of it, the light that shone out of it (1 Cor. 15: 8; Acts 26: 13) representing that body to Paul. Of the Lord Jesus (1 Tim. 6: 16) it is said that He dwelleth in a Light unapproachable, yea, so bright as permits no man to see Him. This light unapproachable is none less than the Heavenly Father, in whom the Son dwells (John 17: 21). And this light is not only a substantial one that makes luminous, but a

mental one that is the Truth itself. These examples and all our observations are in line with the thought that light shines forth from luminous substances, regardless of whether these substances are material or spiritual.

The fact that we have just set forth lays for us the foundation of understanding the creative work as to light on the first day. Most people understand the language of Gen. 1: 3, "Let there be light," to mean that God thereby first called light into existence out of nothing on the first day. We have seen that in the Bible record of creation there is nowhere taught the thought that God brought our universe and its energies into being out of nothing. We have also seen that Gen. 1: 3 has no reference to the original creation of light. Moreover from the standpoint of light in the first example of it as shining forth from God's body, we would have to consider that form of light as eternal, since God is eternal, even as we have to consider life-principle as it exists in God as eternal. Whether in the creation of the Logos God used the light with which He made the Logos' body replete from that which shone out of His body or used light originating in other substances we do not know. Nor is it wise to speculate on the subject, in view of the silence of the Bible. But this much we can say, that as far as we know light seems always to originate from some luminous body. Hence there has been a continuous succession in the creation of light, *e.g.*, as the gases condensed into the various suns, etc., while they were undergoing the creative process, until they became luminous, light was thereby created. Yea, the creative process continues as new suns come into existence in other universes than our own. These considerations prove that Gen. 1: 3 does not refer at all to the original creation of light, apart from its eternal existence as an emanation from God's body, but to its shining on and

about our earth after our earth ceased to be self-luminous, after receiving its scum.

We have now arrived at a place where the question arises, How was Jehovah's fiat, "Let there be light," realized? We think that it came about by light appearing on this earth from other bodies, and that from two sources: (1) from our sun above earth's canopies; and (2) from electrical discharges perhaps in the form of the aurora borealis underneath the second canopy at and probably before the time that the first canopy was falling. This came about for both of these sources of earth's light through the falling of the first of earth's canopies. While all seven canopies surrounded our earth, *i.e.,* after our earth had received its scum and before the first "day" of the creative period was well over, neither the sun could shine through these seven canopies because of their density, nor could electricity discharge itself under the first canopy in the beginning of the first 7000-years day since it was so dense, and since it came down to the surface of the earth. Hence before light could come from either of these sources, the first canopy had to drop, which it did in its main part as the first creative day was ending, as all along during that day God's power, the spirit of God, was operating to cause its fall, *e g.,* in causing some of its vapors to condense and fall to the earth as rain. As it was falling, which likely took some considerable time, concluded from the fact that the seventh canopy was 40 days in falling, room and other conditions were provided for the electrical discharges that produced light perhaps abundantly enough to form an aurora borealis. Thus this light then arose through electrical discharges made possible by the fall of the lower parts of the first canopy; for the friction created by the conditions produced within the first canopy naturally made electricity, which needed only sufficient space in order to discharge, and which got such space during and after the fall of the first canopy, as well as during

the later of the preceding rain falls. In this way do the conditions imply that light first shone on and about this earth after the latter had received its scum arising out of the fiery molten mass, which our earth once was.

But there was a second source from which light in a very faint measure shone in the first creative day on and about our earth, the sun. We proved that Gen. 1: 14-18 does not refer to the creation of the sun, moon and stars; but to their shining on the fourth creative day on earth with a fair measure of brightness, *e.g.,* in the day time with a light probably like that of a clear half-moon-light night; for by the ending of the fourth day a sufficiency of earth's canopies, the four densest of the seven, had fallen, which admitted of such a degree of light to shine upon the earth from the sun during the day and a much fainter degree of light to shine thereon from the moon and stars at night. If a change of order in some of the words of Gen. 1: 16 is made, the creative process as operative in this sense on the fourth day becomes clear: "God made two lights to rule [shine], the greater light the day, the lesser light and the stars the night." This change of word order gives the precise sense of the original; and the thought of vs. 14-18, if understood as giving the mission of the heavenly bodies as to this earth, which must be done to harmonize with v. 1, since v. 1 places the creation of the sun, moon and stars before the first creative epoch. The general misunderstanding as to the meaning of the fourth creative day's work being set aside, we are prepared to see that in a very faint measure the sun—light as a second kind of light first pierced through the other six canopies while the first one was falling. One may ask why we make this claim. Our answer is that v. 5 tells us that God then called the light (time) day and the darkness (time) night. In such a connection the contrast between light and darkness and day and night implies the period of the sun's revolution about the earth, and a giving at

least of some light to the parts of the earth that the sun faced. Of course, if the light coming at the end of the fourth creative day was about that of a clear half-moon night at present, the light of the sun at the end of the first creative day was perhaps about like that of a moonless and starless night of the present, quite dark; but in contrast with the night at the first canopy's fall, it was light, however faint; and the Spirit of God, working within that canopy during the first day, created the needed electricity there for the electrical discharges to occur when the rains of those times and first canopy fell, which things furnished conditions for electrical discharges and for some of the sun's rays to pierce through its canopies to the earth.

Light has a marvelous mission. It is indeed "that sweet and heavenly messenger which comes to us from the depth of space, telling us all we know of other worlds, and giving us all [much of what] we enjoy of life and beauty on our own," and that in all natural spheres. In the vegetable world it performs wonders in the way of producing growth and in its ripening herb, grass, plant, fruit and flower. It assists in imparting red to the apple and pear, yellow to the lemon, orange and grapefruit and other colors to other fruits. It helps to add vitamins to fruit and vegetables. It assists in filling the floral world with sights of beauty in most various forms. With its usual companion, warmth, it is indispensable for beauty, variety and utility in the vegetable world. It likewise has a blessed ministry in the animal world. Through the eye it brings the animal world in touch with the objects indispensable to life, like heat, water, food and places of security and rest. Without it how could animals locate these? What it does to the world of vegetables and fruit ministers indirectly to the animal world. And in the case of the domestic animals it ministers indirectly to them by giving men, their lord, necessary contacts

with them for their sustenance, refreshment and comfort.

It is to man that light gives its highest ministries. By its assistance to the eye it enables man to establish his contacts with nature, whereby his physical needs are supplied and furthered, as it enables him to recognize the approach of danger and injury in many forms to his body and its interests. It is increasingly ministering to man curatively by its disease-healing and health-sustaining effects. Its withdrawal is conducive to his finding rest after the fatigues of the day's labor. It greatly assists his mental life by bringing inanimate nature to his sight in its many natural objects on which the roving mind may exercise its perceptive, reproductive and reasoning faculties. Through the contacts that it assists to establish with persons it helps toward the knowledge of mankind in perceptive, reproductive and reasoning respects. By the same means it also opens up the field of natural history whereby man learns much of the lower animate creation. By the contacts that it enables one to have with books it gives opportunities for the employment of all his mental faculties. By bringing him into touch with the works of art in poetry, painting, sculpturing, music and architecture it makes it possible for him to enjoy many pleasures of the mind as it perceives their beauty, etc. Many indeed are the mental pleasures that he derives from the beautiful and sublime objects in nature brought to his view by the revealing power of light. It contributes to his moral elevation by the contacts that it establishes with good books, elevating works of art and noble examples of plain living, high thinking and excellent conduct, as the warnings that it gives against evil books, wicked art and bad examples shield from their contaminating effects. It likewise contributes to man's religious well-being through bringing him into touch with religiously elevating books, works of art and fine religious examples. The contemplation of its many

blessings arouses the heart and mind to gratitude, praise, worship and adoration Godward. Thus it has indeed a benign ministry.

Surely these considerations are some of the things that God had in mind when beholding the light He recognized that it was good, good in the sense that it is useful (v. 4). How sublime is the statement of v. 3: "Let there be light; and there was light." The literal rendering of the Hebrew for these words is "light be and light was." Sublimely terse and clear indeed is the statement. That in v. 4, "And God divided between the light and darkness," is likewise in line with the thought that some, though little, light from the sun reached the earth as the first canopy was falling. This division between light and darkness is based primarily upon the rotating of the earth upon its axis, giving it the orderly succession of day and night, as the next verse implies, and secondarily upon its revolving about its orbit whereby the duration of light and darkness is varied. From this remark we are not to construe that such rotation and revolution began on the first day; for we have already shown that they were going on while the earth was yet in its spiral. Rather we are to understand that such a succession of light, however obscure, and darkness, however dense, first set in for the scum-covered earth while the later rains under the first canopy were falling and the first canopy itself was falling, by which latter thing the first rays of the sun's light shone on the scum-covered earth. It will be noted that the word, day, in its first, differs from its second use in v. 5. In the first use it carries the thought of the light part of a 24-hour period; while in its second it means a 7000-year period, which is quite a difference.

Benign is the division of day and night. Plant and tree life finds it good. During the daytime it imbibes oxygen from the sun-lit air; and at night it exhales the poisons left after the life-giving powers of the oxygen

have been absorbed by the plant, tree and flower. This consideration should move people not to sleep at night in a room where there are plants and flowers. To man and beast the succession of day and night is beneficial. In the day time they get energy from the rays of the sun whereby they are strengthened for their day's experiences; while the night air due to the withdrawal of the sun's rays becomes conducive to relaxation, rest and sleep, even as the darkness of the night is of itself conducive to these. The last clause of v. 5 may well be translated, There was an evening and there was a morning of day one. While the day one of this verse is a period of 7000 years, the expression is an indirect allusion to a 24-hour day in harmony with the view of the 24-hour day as beginning from the Divine standpoint, which Israel accepted as such, with the evening and as ending at the next evening's approach. From the standpoint of a 7000-year day the word evening suggests the obscure beginning of creative works of the pertinent period and the expression, morning, marking the progressive development of such creative works. It will be noted, too, that the Hebrew uses ordinal numerals in giving a summary of the various creative days' activities, however, there is an exception with the initial day having a cardinal numeral (See Young's Literal Translation). It uses the cardinal numbers; for the expressions are day one, day two, day three, etc. Nor are we to understand the words of v. 3, "Let there be light," to have been uttered by God audibly as a command. Rather these words were uttered in pantomime, *i.e.,* God did such speaking by acts, in harmony with the principle expressed in the proverb, "Acts speak louder than words." This would mean that God's varying acts whereby He produced conditions under and in the first canopy leading up to vapors condensing into rain and to the canopy itself dropping upon the earth, were His saying, "Light be." There was doubtless by God a charge given to the Logos to bring these conditions about; but this charge seems not to be meant by the words, light be.

It was the logical thing that of the six periods devoted to ordering matters creatively respecting the earth the first should have been devoted to that of furnishing it with light. In the nature of the conditions prevailing about the earth the coming of light had to precede the second day's work, the making of an expanse (*rakia,* mistranslated firmament; which idea was appropriated by Jerome's Vulgate, followed by the AV. translators, from Greek mythology—that of a solid covering over the atmosphere about the earth); for such an expanse could not exist while the first canopy was upon and over the earth, nor while the thick clouds existed under the second canopy from the earth upward. And before the waters could recede from parts of the earth and form dry land and sea, the third day's work, it was necessary that enough of water fall on the earth to depress it in the places where its crust was softer and thinner than in other places, which would result in other places being elevated above the water's surface. Thus these depressed parts received larger quantities of water, and the elevated parts thus became continents, whereas before the whole earth was a shoreless ocean. To furnish such a sufficiency of water as would effect these results, the water in the first three canopies had to drop to the earth. This consideration combined with the former one proves that producing light was the work of the period preceding the making of an atmosphere about the earth and the separation of land and water. And it goes without saying that light had to shine on the earth before the vegetation, etc., of the third and later creative periods could come. The same remark applies to light as the necessary antecedent to the work of the fifth and sixth days, that of producing fish, fowl, insect, beast and man. All scientists agree that the chronological order of arranging the earth in the six creative days as Moses gives them is the only

logical and scientific one for it, and that light had to be the first thing brought to the earth in its ordering.

This raises the question, How did Moses know this order nearly 3,500 years ago, whereas man's laborious efforts unaided by inspiration have only recently found out on scientific lines this order as the proper one? Certainly neither Moses nor any other human witnessed the development of these matters of order; for before the close of the sixth period no human being lived. While not agreeing with the Bible on how long man has been on earth, scientists are agreed that man is the latest product of creation. If this be true, in an age when science was as yet only in its embryo condition, and when no one could by unaided human powers have reasoned out this order, how could Moses have come to know it? The only possible answer to this question is, he got it either by direct or indirect revelation from a spirit or spirits, superhuman beings, who lived at the time to behold these creative acts. If by direct revelation, he got it from a spirit or spirits apart from other instrumentalities. If by indirect revelation, he got it from humans who, in ultimate analysis, got it from a spirit or spirits. This spirit or these spirits evidently were not evil, and that for two reasons: (1) Evil beings, fallen angels gave the heathen foolish and demoralizing views of creation, as their various mythologies prove; and (2) the Mosaic record of creation is connected with religious views that are physically, mentally, morally and religiously inimical to degradation and are conducive to the elevation of man physically, mentally, morally and religiously. Accordingly, this revelation came from a good spirit or from good spirits. Hence it must have been at God's direction. Hence the Genesis account of creation is an inspired record and a Divine revelation. If, therefore, we had nothing else as a proof of the Bible as a Divine revelation, the Genesis record of creation would be a sufficient proof thereof. But the Bible has many other

proofs of its being a Divine revelation, the two greatest of which are the character, teachings and works of God and the character, teachings and works of Christ therein revealed. Next to these, we place the Genesis record of creation as probably the third greatest proof of the Bible's being a Divine revelation.

"Let there be light," said God; and forthwith light
Ethereal, first of things, quintessence pure,
Sprung from the deep; and from her native east
To journey through the aery gloom began,
Spher'd in a radiant cloud, for yet the Sun
Was not; she in a cloudy tabernacle
Sojourn'd the while. God saw the light was good;
And light from darkness by the hemisphere
Divided: light the Day, and darkness Night,
He nam'd. Thus was the first day even and morn:
Nor past uncelebrated, nor unsung
By celestial quires, when orient light
Exhaling first from darkness they beheld;
Birthday of Heaven and Earth, with joy and shout
The hollow universal orb they fill'd,
And touch'd their golden harps, and hymning prais'd
God and his works; Creator Him they sung,
Both when first evening was, and when first morn.

THE DAYSPRING FROM ON HIGH.

Come, thou bright and morning Star,
Light of Light without beginning,
Shine upon us from afar,
That we may be kept from sinning:
Drive away, by Thy clear light,
Our dark night.

As the soft refreshing dew
Falls on drooping herb and flower;
Let Thy Spirit shed anew
Life on every wearied power:
Bless Thy flock from Thy rich store,
Evermore.

Let Thy love's pure fire destroy
All our earthly taint and leaven,
Kindling love and holy joy
With the dawning eastern heaven
Let us truly rise ere yet
Life has set.

Ah! Thou Dayspring from the height,
Grant that now at Thy appearing,
We, who with the flesh do fight,
May arise, Thy summons hearing,
And rejoice in our new life,
And its strife.

Light us to those heavenly spheres,
Sun of grace, in glory shrouded;
Lead us through this vale of tears,
To the land where days unclouded,
Purest joy and perfect peace,
Never cease.

CHAPTER VII.

THE SECOND CREATIVE DAY
THE EXPANSE.
Gen. 1: 6-8

CONDITIONS DURING THE SECOND DAY. THE *RAKIA*-EXPANSE. LOGICAL ORDER OF THE SECOND DAY'S WORK. CREATION OF THE ATMOSPHERE. THE SECOND DAY'S CREATIVE PROCESS. CONTINUANCE OF THIS PROCESS DURING THE REST OF THE CREATIVE PERIODS ENDING WITH THE FLOOD.

HAVING discussed Gen. 1: 3-5, treating of the first creative day's work, in the last chapter, it is our pleasant task now to take up the study of the second day's creative work, which is described in Gen. 1: 6-8. In the outstart of our present study we will be assisted, if we have clearly in mind the condition of affairs as to our earth at the end of the first creative epoch, after the first canopy of earth's swaddling garments had fallen to the earth. The following is a general description of that condition. During the days of earth's 24-hour periods, as distinct from their nights, there was a very faint light penetrating to the earth from the sun's rays piercing through its six remaining canopies. From time to time the aurora borealis lighted up the scene, though this could occur either during the day or night (Gen. 1: 3-5). The entire earth was covered with water, which made its surface consist of a shoreless ocean (Gen. 1: 9, 10). By reason of the intense heat of the molten mass and of its coating of scum, which, in turn, was covered by a layer of slime deposited by the matter in the first canopy at the time of its fall, this shoreless ocean was boiling hot and discharged immense volumes of steam which densely filled the surrounding space extending from the surface of this shoreless ocean to the second canopy. It was the densest of fogs.

During the 7,000 years of the second creative day the amount of steam thus discharged by the hot water

gradually diminished as this water gradually lost its heat, which loss of heat was promoted in part by the "scum" ever thickening, through the addition of new scum being discharged from the molten mass onto the bottom of the already existing scum, in part through the covering of slime deposited upon the scum by the first canopy's fall gradually hardening first into mud, then into clay, and this, in turn, gradually hardening into stone, and in part through the shoreless ocean's contact with the cooler steam, fog and mist above it. Thus gradually the "scum" was cooling off during the 7,000 years of the second creative epoch, and consequently the boiling water increasingly threw off less and less steam. Thus there was no empty space between the water-covered earth and the second canopy—it being filled with steam, vapor, clouds and mist. This, then, was the condition of the earth and its immediate surroundings just after the end of the first creative day. And this is the point of departure of vs. 6-8, the basis of our present study. The point of arrival toward which the second day's work advanced was the creation of an empty space between the surface of earth's shoreless ocean and the bottom of the third canopy, and the filling of this empty space with air, as earth's atmosphere. It will be necessary to keep this point of departure and this point of arrival in mind, if we are properly to understand and appreciate the work that was performed on the second creative day, as described in vs. 6-8.

This work is spoken of in the A. V. as the creation of a *firmament.* The word *firmament* is a faulty translation of the Hebrew word *rakia*. The faulty translation of this word was first suggested and made by the Septuagint, the first of all Bible translations, which was begun in 283 B. C. at the command of Ptolemy Philadelphus, the Greek king of Egypt, who desired to have the Old Testament in Greek as a part of the Alexandrian Library. The Septuagint translates

the word *rakia* by the word *stereoma*, which in Greek means *firmament*. The Vulgate, Jerome's Latin translation of the Bible, renders it by the word *firmamentum*, from which our English word *firmament* is derived. The idea back of the word *stereoma* and *firmamentum* is that of solidity and strength; and the use of these words in the translation of the Hebrew *rakia* betrays heathen influence upon the translators of the Septuagint and the Vulgate. The heathen idea was the following: Surrounding the plane or sphere, which our earth was varyingly thought to be, was at a great height a metallic sheet, which was solid and strong. Above this sheet, which acted as a floor for their dwelling, the gods lived. Their abode was very bright, shining with a heavenly light. There were at various distances holes in this metallic sheet through which this heavenly light shone as so many reflections of the gods' light. These separate lights the heathen called stars, while they called the sheet itself, in Greek, *stereoma*, and in Latin, *firmamentum*. While rejecting some of the heathen notions connected with this *stereoma* or *firmamentum*, the translators retained the idea of the strength and firmness of a solid as the thing that was made in the sky on the second creative day. The translators of the A. V. accepted the thought of these two translations on the word *rakia*, and rendered it into English by the derivative of the Latin *firmamentum*, firmament, which, as seen above, is wrong.

An examination of the etymology and of the Biblical occurrences of the word *rakia* will prove that the word does not mean a solid with strength and firmness, but means an expanse that is permeable, and is used to mean the heavens in the sense of the sky, which of course is more or less empty space, having in parts of it air or atmosphere and in parts of it heavenly bodies, but is not at all a solid. This word occurs in the Bible 17 times. In some instances it is used literally, in the sense of the sky in its widest application, as including

the space and its contents above the earth's surface. In other instances it is used figuratively, in the sense of the powers of spiritual control. We will first cite its uses in its literal sense: Gen. 1: 6, 7 (3 times), 8, 14, 15, 17, 20; Ps. 19: 1 (its use here is both literal and symbolic); Dan. 12: 3. The following, in addition to its use in Ps. 19: 1, are its figurative uses: Ps. 150: 1; Ezek. 1: 22, 23, 25, 26; 10: 1. An examination of the main literal passages cited above will readily prove that the *rakia* was not a solid. In Gen. 1: 7 the *rakia* is shown to have divided the waters that were on the surface of the earth from those that were in the canopies above it. Until late in the second creative day there were six of such canopies which contained more or less water, the sixth being of pure water. The successive dropping of the last six through the successively enlarging *rakia* proves that it was not nor could it be a solid.

Again, Gen. 1: 14, 15 and 17 tell us that the sun, moon and stars shone in the *rakia*, which proves that it was not a solid. Their becoming visible as such on the fourth day occurred through the fourth canopy falling, as a result of which the *rakia* was extended upward to include enough space to make these bodies visible. We are not, however, to understand this to mean that these bodies were locally within the space cleared by the dropping of the first four canopies, but rather that they were then shining through to the earth with enough brightness to make them visible to a human eye, had one then existed. The language is used in an accommodated sense to show where these heavenly bodies would be in the *rakia* in its finished work, *i.e.*, at the end of the fall of the seventh canopy, all of which proves that the *rakia* is not a solid. Gen. 1: 20, showing that the birds fly in the *rakia*, proves that it is not a solid. Ps. 19: 1-6, both in its literal and symbolic senses, proves that the *rakia* is not a solid. The parallelism of v. 1: "The *heavens* declare the glory of God;

and the *rakia* showeth His handiwork," proves that the Lord's *heavens* and *rakia* here are used synonymously, as they are so defined in Gen. 1: 8. In these heavens, *i.e.*, *rakia*, Ps. 19: 4-6 proves the sun to be; hence the *rakia* is not a solid, or the sun could not travel through it. Vs. 2, 3, imply that the sun, moon and stars are in the *rakia* and thence give utterance to knowledge. Applying Ps. 19: 1-6 symbolically, they prove that Jesus and the Church individually will move amid the symbolic *rakia*, the powers of spiritual control. In Dan. 12: 3 the sun is called the brightness of the *rakia*, *i.e.*, to man the brightest object in the *rakia*. This verse gives us a basis for understanding what the symbolic heavens, *rakia*, are; for it shows that Christ and the Church will be to the Millennial world (order of affairs) what the literal sun is to the literal world. Thus these literal passages prove the *rakia* to be the sky in its widest sense, the heavens in their first and second literal senses, the first literal sense being the space where the birds fly, and the second the space where the heavenly bodies are, and including them. The third set of the literal heavens is the abode of God, etc., and is not included in the *rakia*.

The proper translation of *rakia* is *expanse*, *i.e.*, of the heavens, as also the etymology of the word suggests. It is derived from the verb *raka*, *i.e.*, *to stretch out*, *to expand*. Hence the Bible speaks of the heavens as being stretched out like a wrapped-up curtain, which stretching out occurred by the falling of the earth's canopies, each in falling stretched out these figurative curtains a fold wider, and when the last fell the figurative curtains, the heavens, had reached the utmost extent of their expansion. There is but one passage that is quoted as a proof that the *rakia* is a solid, but it occurs in the speech of Elihu, who, like job's other three friends, was not inspired. But even if viewed as inspired, job 37: 18, while teaching that the sky is strong, does not say anything about its being solid.

The thought of its being solid is imported into the text. Of course an uninspired statement is not a source of faith. The literal translation of the passage is as follows: "Didst thou with Him expand [*raka*, the verb, not *rakia*, the noun] the skies [which are] strong as a molten mirror?" The idea of the skies as being a *rakia*, a thing expanded, is in this verse, and the skies are spoken of as strong in unbreakableness, like a molten mirror; but they are not here spoken of as solid, for whose proof the proponents of the *firmament* theory claim it. But even if it taught such an idea, we would not be obligated by the Lord to believe the thought any more than we would be obligated to believe, *e.g.*, Satan's uninspired and false statements in Gen. 3: 1-5, or the statements of other uninspired persons recorded in the Bible, like those of Job's other three friends, the falsehoods of the Jews against our Lord at His trial and crucifixion, Peter's advice to elect a successor to Judas, the Judaizers' claim that Gentiles must be circumcised and obey the law of Moses to be saved, etc., for we must distinguish between the utterances of uninspired speakers recorded in the Bible and the utterances of inspired speakers and writers in the Bible. The latters' sayings are infallible and are obligatory as sources of faith and practice, while the formers' are not. Hence Elihu's statement, even if it meant that the *rakia* is solid, which it does not assert, would not obligate us as a matter of faith. Accordingly, we conclude that the firmament theory of the *rakia* is false, and that the Bible thought of the *rakia* as an expanse is true. Now we can proceed with our study.

Above we spoke of the point of departure and the point of arrival of the second creative day's work. This would include the work done in the second epoch of creation. It started with an ocean-covered earth and with a steam, fog, cloud and mist filled space from this ocean's surface up to the second canopy, and

ended with an empty space and an atmosphere extending from the surface of earth's shoreless ocean to the bottom of the third canopy. Thus the second day's creative work did a destructive and a constructive thing. It removed the dense clouds of steam, fog and mist that enveloped our planet, and gave it an atmosphere. The former was a means to the latter, for the above-mentioned clouds had to be removed to make room for earth's atmosphere; and both were necessary, partly to pave the way for the earth to become a habitat for the vegetable and animal creations that were to follow. We can readily recognize that after the introduction of light to our planet the second day's work would be the next logical step. It is true that it was not the only step necessary for the introduction of vegetable and animal life to the earth, but it was the natural next step before the gift of life on earth could come. The first part of the third day's work, making the land appear out from underneath earth's shoreless ocean, had to be done before there would be land, and that dry enough to grow vegetation, before such vegetation could come and, of course, before land animals could exist. The priority of the second day's work to that of the third day's work was also the logical thing; for there could have been no dry land as long as the dense clouds of steam, fog and mist reached from the earth to the second canopy. Accordingly, we recognize the logical order of the second day's work as coming between that of the first and third creative days.

The main part of the second day's work was giving earth its atmosphere, which was possible by making the expanse of the second day. Earth's atmosphere is, of course, its air, which had to exist separately from the clouds of steam, fog and mist, to fulfill its mission as air. Air, or the atmosphere, consists of certain gases. These gases existed as such amid the clouds of steam, fog and mist, perhaps as separate things, whereas to

constitute air they had to be mingled in certain proportions. There were amid earth's swaddling clouds other gases besides those that are required to form air. Additionally there were many acids there. These gases and acids do not call for study here; but those gases that constitute our atmosphere do call for our present study. Air is not a chemical compound. It is a mixture of gases. Prof. Schule in 1772 first discovered that air contains two gases: oxygen and nitrogen. Prof. Cavendish in 1781 first discovered their nearly relative proportions. Thinking that air consists of only two gases, he fixed their proportions on the basis of oxygen being in volume 20.83% and nitrogen as 79.17%. A little over a century later other gases were found to be constituents of air, which fact required a small modification of these figures. Dr. Priestly, whose work on chronology has greatly helped to establish the date of Nehemiah's finishing Jerusalem's walls, was, a few years later, the first scientist to discover that the constituents of air are not constant in their amounts; but it remained for Prof. Bunsen definitely to establish this variability. That air is a mixture in its constituents, and not a compound, is evident from three facts: (1) Its composition is not constant and the quantities of its different constituents do not have a simple relation to their weights. (2) Its components can be and have been separated, *e.g.*, oxygen is taken from the air as a therapeutic agent for invalids and high-altitude travelers on mountains, in airplanes, balloons, etc.; and nitrogen is taken out of the air to enrich soil, etc. (3) Air dissolves in water, and, when expelled from it, contains a larger proportion of oxygen than before dissolution. The constituents of air vary a great deal in high altitudes and also slightly at the surface of the earth, dependent on the latitude, or on the presence of much vegetation or sea water.

Prof. Humphreys, as quoted in the Encyclopedia Britannica, 14th Edition, Vol. 2, page 640, from the

Scientific Monthly, 1927, gives the following table on the permanent per cents and kinds of gases in dry air

Substance	Volume % in dry air
Total atmosphere	
Dry air	100.00
Nitrogen	78.03
Oxygen	20.99
Argon	0.9323
Water vapor	very variable
Carbon-dioxide	0.03
Hydrogen	0.01
Neon	0.0018
Krypton	0.0001
Helium	0.0005
Ozone	0.00006
Xenon	0.000009

Immediately below the above-given table comes the following table of Prof. Hahn, showing the variation with latitude in the main components of air.

	Nitrogen	Oxygen	Argon	Water vapor	Carbon-dioxide
Equator	75.99	20.44	0.92	2.63	0.02
Latitude 50° N.	77.32	20.80	0.94	0.92	0.02
Latitude 70° N.	77.87	20.94	0.94	0.22	0.03

In very cold weather the amount of water vapor in the air approaches zero. Usually there is about 1.29%, but at times, in great humidity, it reaches 5%. Its great variability caused Prof. Humphreys to omit its amount from his table given above. We are, however, not to understand that the above-given tables set forth the amounts of the gases in the atmosphere at the end of the second day; for if now the presence of large populations, manufacturing sites, swamps, volcanoes, decaying bodies, *e.g.*, on battle fields, slaughter houses like Chicago's stockyard, and bodies of water, particularly oceans, modify these proportions and charge the air with still other gases, surely the immense quantities of these and other gases discharged from the uncovered molten mass, later escaping from it through its scum, still later through its scum and the latter's covering of water, must have made the

air at that time rank with gases; and still later through the successive strata deposited by the falling canopies, such gases, however, in gradually diminishing quantities, must have escaped. Certain facts that we will give while treating of the third creative day, usually called the carboniferous age, will further prove the statement to be true, that at the end of the second day's creative work the air was not pure and in the same proportions in its ingredients as now, but rank with what would be deadly poisons to vegetable and animal life. Nor was the atmosphere so high at the end of that day as it is now; for then there was no stratosphere, which now begins at about 6.25 miles above our sea level and extends an unknown number of miles upward. The great differences of opinion on its height among scientists proves that they are guessing or basing their calculations on unreliable data. Nor did the atmosphere at the end of the second creative day extend so high as the top of the troposphere, which begins at sea level and ends at the stratosphere. The five remaining canopies limited the height of the expanse probably to not less than three miles. Thus we see that as giving light to the earth was not finished, but only begun in the first creative day, so giving an expanse and an atmosphere to the earth was not completed, rather only begun during the second creative day.

We are now ready to study the process through which God made the expanse and the atmosphere. Let us remember that none of God's creative work was done by the unassisted operation of blind laws and forces of nature, as materialists hold; but by God, through the Logos and the latter's angelic assistants manipulating such laws and forces to realize the Creator's plans and purposes as to creation. The process that He used was a fourfold one: (1) cooling the waters that covered earth's surface; (2) causing the dense clouds of steam, fog and mist to disappear;

(3) causing earth's second canopy to fall to the earth, and (4) causing part of the rank and surplus gases to ascend into the higher canopies, some of them then passing through the last of these, dissipating themselves into space beyond. We say that *part* of these rank gases were so disposed of, because we know that part of them remained and were disposed of mainly during the next creative day, as will be shown later. That the first of the above processes operated is evident from the fact that the flight of time and contact with the less hot, heavy clouds of steam, fog and mist, must have made this water cooler. Then, too, the constant thickening of the crust over the molten mass and the constant hardening of the first deposit of slime on this crust, first into mud, then into clay and finally into stone, would result in this water cooling. Hence it kept giving off a constantly decreasing amount of steam. This was a step preparatory for operating the second process of bringing the expanse into existence, causing the dense clouds of steam, fog and mist to disappear. This disappearance must have started some distance from the bottom of, and not immediately under the second canopy; for after some distance away from the molten mass the banks of steam, etc., would be cooler than toward their bottom or top, since the heat would ascend to, and gather just under the canopy. This fact caused the central parts of these columns of steam, fog and mist to condense and to fall as rain into earth's shoreless ocean, a fact that would tend further to cool that water. The reason we know that this must have happened is that rain is caused by colder air coming into contact with the clouds and condensing their moisture into rain. Accordingly, clouds of steam, fog and mist began to disappear gradually from the center first, then gradually this process worked toward the top and toward the bottom until these clouds had as a constant thing entirely disappeared. By the time this process

had ended it had, combined with the other conditions mentioned above, considerably cooled the earth-covering water that had at the beginning of the second creative day been boiling hot; hence little or no steam arose from it by the end of this creative epoch.

The third process was now ready to operate, the fall of the second canopy, which occurred at the end of the second creative day. That it was denser than the banks of steam, fog and mist previously under it is evident from the fact that part of its constituents was water and the rest slime, soot, mud, minerals, etc. We know this to be the case, partly from the fact that part of these condensed into a thick rock stratum, and partly from the fact that water was in all the canopies, as implied in the nature of the case, and because this is expressly taught as being the case of five of them, by the words of v. 7, "the waters above the expanse." This canopy was quite thick, as we may surmise from the fact that its heavier materials condensed as it solidified into the second stratum deposited above the granite, etc., layer immediately above the molten mass. The stratum deposited by the second canopy is solid and hard rock 800 feet thick at the Grand Canyon. And presumably it averaged that thickness everywhere, which we infer, not only from general principles, but from the fact of its uniform thickness at the Grand Canyon. If the solid parts of it petrified into stone nearly a sixth of a mile thick, in its condition as the second canopy it must have been many times thicker. Two miles thick would be a conservative estimate; for the large mixture of water in the slime, soot, mud, etc., must have swelled these enormously beyond the compressed resultant rock of 800 feet thickness. Thus the space formerly occupied by the first canopy, then by the thick banks of steam, fog and mist, and the second canopy, must have made an expanse of probably three miles high. It is quite likely that it was higher than three miles, but we would

rather underestimate it than overestimate it. Of course, the making of so much more empty space conduced to make the gases within this space more attenuated, *i.e.*, less dense, because they had all the more room to spread, which fact made them approach nearer to the nature of our present air than they were before this space was made vacant of its former occupants.

The final process that worked during the second creative day toward creating an atmosphere, more and more becoming like our own, was the ascending of part of the ranker gases through the canopies yet remaining, parts of them passing into the vast spaces beyond the seventh canopy, and parts of them remaining amidst upper canopies for epochs. This doubtless went on during the entire second creative day, discharging a greater amount of these noxious gases than came up from below during that period. We know that it is the nature of rank gases to seek a way of escape, which could alone be found through the canopies above. As a result of this operation parts of the surplus amounts of these noxious gases escaped; and as they increasingly did so the gases that remained increasingly approached the constituency of our air, which constituency, as said before, was not completely effected until long after the third creative day. Thus we see how the work of the second creative day was accomplished. It brought to a successful issue its Divinely intended purpose, the creation of a large expanse probably three miles in height all around this earth, filling it with an atmosphere that in due time could be developed into one fit for vegetable and animal life. This was the mission of that day: not to complete the expanse and its atmosphere, but to bring it along sufficiently to contribute its part to the full preparation of earth for its vegetable and animal life in due time. Hence from the standpoint of the purpose of that day its work was a full success. Later periods were to extend the expanse to its utmost and

to perfect earth's atmosphere, which when completed will be a perpetual and perfect arrangement. And as shown above this day's work was done in its logical order in relation to the past and future creative processes. How like God to do all so well! It will be noted that the statement that God saw that it was good is made in connection with the work of every day as respects things lower than man, except in connection with the second day. Of man's creation God saw that it was *very* good, while the term *good* alone is applied to the creation of things lower than man. It will be further noted that twice is it said of the third day's work, "God saw that it was good" (vs. 10, 12). The absence of such a characterization of the second day's work and its twice presence as a characterization of the third day's work, as well as its presence as the characterization of all the other days' works, as to those lower than human, raises the question, Have not the pertinent words been taken from v. 8 and placed by mistake in v. 10? It would seem so, but should not be affirmed positively.

In v. 6 the expression, "Let there be an expanse *in the midst* of the waters," would better read, "Let there be an expanse between the waters," as is proven by the next clause, "Let it divide the [lower] waters [those on the earth] from the [higher] waters [those above the expanse, even as v. 7 teaches]." The expanse was to be on the second creative day, yea, until Noah's flood, between the waters on the earth "under the expanse" and "the waters above the expanse," the waters in the canopies. That those err who teach that the waters above the expanse are our clouds, is evident from the fact that our expanse reaches to the farthest stars of our own universe, while clouds seldom are five miles high. Those who understand the Bible's teaching on the canopies as earth's swaddling bands, the bands that covered it in its early infancy, at once recognize that the second day's expanse separated the

waters on earth from those in the canopies above the expanse, and progressively the expanse did this later, as long as any of them remained there. It will also be noted that our view of the expanse is evidently correct, from the fact that God called this expanse the heavens in v. 8, a name suitable to the expanse throughout the time that there were canopies above it and since the last one passed away. Well may v. 8 end the description of the second day's work with the words, "There was an evening [obscure beginning] and a morning [progressive development] of the second day."

Again, God said, "Let there be firmament
Amid the waters, and let it divide
The waters from the waters"; and God made
The firmament, expanse of liquid, pure,
Transparent, elemental air, diffus'd
In circuit to the uttermost convex
Of this great round; partition firm and sure,
The waters underneath from those above
Dividing: for as Earth, so He the world
Built on circumfluous waters calm, in wide
Crystalline ocean, and the loud misrule
Of Chaos far remov'd; lest fierce extremes
Contiguous might distemper the whole frame:
And Heaven He named the Firmament: so even
And morning chorus sung the second day.

THE SECOND DAY OF CREATION.

THIS world I deem but a beautiful dream
Of shadows that are not what they seem,
Where visions rise, giving dim surmise
Of the things that shall meet our waking eyes.

Arm of the Lord! Created Word!
Whose glory the silent skies record
Where stands Thy name in scrolls of flame
On the firmament's high-shadowing frame.

Soft they shine through that pure shrine,
As beneath the veil of Thyself Divine
Beams forth the light that were else too bright
For the feebleness of a human's sight.

I gaze aloof on the tissued roof,
Where time and space are the warp and woof,
Which the King of kings as a curtain flings
O'er the dreadfulness of eternal things—

A tapestried tent, to shade us meant
From the bare everlasting firmament;
Where the blaze of the skies comes soft to our eyes
Through a veil of mystical imageries.

But could I see, as in truth they be,
The glories of heaven that encompass me,
I should lightly hold the tissued fold
Of that marvelous curtain of blue and gold.

CHAPTER VIII.

THE THIRD CREATIVE DAY-DRY LAND, SEA, VEGETATION.

Gen. 1: 9-13

THE POINTS OF DEPARTURE AND ARRIVAL. THE ANTECEDENTS OF THIS DAY'S FIRST CREATIVE WORK. THE PERTINENT CREATIVE PROCESS. VOLCANIC AND EARTHQUAKE EFFECTS. THE PRESSURE EAST AND WEST RATHER THAN FROM NORTH AND SOUTH. THE PROCESS PROGRESSIVE THROUGH OTHER EPOCHS. IT WAS GOOD. THREE POETIC DESCRIPTIONS QUOTED FROM THE BIBLE. ORDER, KINDS AND FIXITY IN VEGETATION. GRASS. PLANTS. TREES. SOME PARTICULARS ON VEGETATION.

THE next part of our study of God's works of Creation is that of the gathering of the waters of our sphere into seas and the consequent appearance of dry land. This is briefly described in Gen. 1: 9, 10, in words simple, in sense sublime. This will readily be recognized when it is seen that in these few simple words God has described the gigantic work of causing the shoreless ocean that covered our globe to be gathered into earth's seas, with submerged parts of its bottom arising as continents, etc. This great work occupied but a part of the third creative epoch, the rest of it being occupied in bringing forth earth's grass, plants, bushes and trees of that period. The better to visualize this work, its point of departure and its point of arrival must be kept in mind. Its point of departure was a shoreless ocean, covering the primeval crust of this earth, on whose top by the fall of two of earth's seven canopies the first and second strata over that crust had been deposited. These strata were in a more or less soft condition, as was earth's underlying primeval crust. Thus such was the point of departure for the first part of the third creative epoch's work. The point of arrival of the first part of earth's third creative epoch was collected aggregations of water, called seas, and dry land. If this point of departure

and this point of arrival are kept in mind, it will be possible to obtain a clear view of the first part of the creative work during the third epoch of creation. And the clear view is one that presents to our mind's eye some sublime works.

The antecedences of the gathering together of earth's shoreless ocean into seas and the appearance of its continents, will next engage our attention. Certain of these relate to conditions in and under earth's primeval crust or scum, and others to conditions above that crust or scum. The first of these below earth's crust that had to do with the gathering of earth's waters into seas and the appearance of dry land was the nucleus in the center of the earth. It is the nature of a more or less solid sphere in revolving to condense its center more rapidly than its parts farther away from its center. Such condensation of course would make this center denser and thus smaller. This center we call earth's *nucleus.* Its condensing naturally made it attract to itself surrounding matter, which likewise became denser, and thus gradually the interior of the earth, *i.e.*, that below earth's primeval crust or scum, contracted until there was quite a distance from the top of the molten matter and the bottom of earth's primeval crust or scum. This is the first antecedence to be kept in mind in order to clearness on the subject under study. Later on we will point out how this factor cooperated in producing the gathering together of earth's waters into seas and the appearance of the dry earth.

The second antecedence to the gathering of the waters of earth into seas is the molten mass proper. Its continued cooling also caused it to condense in size and at the same time also to generate between its surface and the bottom of earth's scum highly explosive gases. Then, too, the surface of this molten mass was very likely quite uneven: in some places nearer, in other places farther away from the bottom of earth's

primeval crust or scum. This molten mass in its constant agitation, due to its boiling and exploding, contributed to making its surface more or less uneven. In other words, there were doubtless on its surface ridges, valleys and hills, some of which may have approached mountains in size. These irregularities would doubtless be constantly shifting their positions, some even disappearing and others appearing. All of these conditions of the molten mass have their relations to the first part of the work of the third creative day, which will later appear.

Then there are certain conditions in earth's crust above the molten mass that played their part in producing the collection of earth's waters into seas and the appearance of dry land. This crust did not have a smooth outer surface. It arose and fell in the forms of ridges, valleys and hills, some of which attained mountain proportions, as can be seen in the granite, basalt, gneiss and crystalline rock coming out above the present seven layers of earth's strata. Ridges, hills and mountains imply valleys. And this entire condition proves that earth's crust was of varying thickness. Hence, parts of it were capable of resisting pressure more than were others. It is also quite probable that parts of this crust were denser than others were, which would also contribute to their being able to bear a varying amount of pressure. These considerations played their part in the work of our study, which will be brought out in their proper place.

Some conditions above earth's primeval crust likewise contributed to produce the collection of earth's waters into seas and the appearance of dry land above the water. The fact that earth's crust, as just shown, was not smooth, but irregular, by reason of its ridges, hills, mountains, plateaus and valleys, implies that the crust was much thinner in some than in other places; and the more or less solid deposits that were laid upon it by the falling canopies were of varying degrees of

thickness and density, which made the pressure upon this crust vary in proportion to the weight and amount of the more or less solid materials in these deposits. The same fact also proves that in places the shoreless ocean that covered earth after the first and second canopies fell was deeper than at other places, and this, too, would make a varying pressure rest upon earth's primeval crust. And at these deeper places the primeval crust was thinner and hence, generally speaking, weaker than elsewhere. Then, too, the two strata formed by the falling of the first and second canopies were neither solid nor dense. They were at first more or less soft, and parts of them, agitated from below and above, drifted hither and thither, which, again, would make variations in the amount of pressure in different places, with the greater weight gravitating upon the thinner parts of the crust, because their surface was deeper. These things also had their parts to play in the work of producing the seas of earth and the appearance of dry land.

These considerations prepare us to understand the process whereby earth's waters were collected into seas and whereby the dry land was made to appear. This process itself was a simple one: It consisted of a sinking of the thinner and weaker parts of the bottom of earth's shoreless ocean to a great depth, which in turn caused other parts of this bottom to buckle, whereby parts of it rose higher and higher until they appeared above the water's surface. How was such sinking possible? We answer: By a combination of the conditions mentioned above as antecedences of the collection of earth's waters into seas and the appearance of dry land. In the first place, the hollow space formed between the molten mass and earth's primeval crust became so deep as to conduce to such sinking of that crust and its superincumbent strata and water. In the second place, the greater thinness of that crust at some places, with heavier pressure thereon from the greater

weight of the above-lying two strata and water than in other places, contributed to this fall at the places where that primeval crust was thin and weak, while where it was thicker and stronger it would by that fall tend in places to rise, in others seem to rise, the waters settling increasingly lower, leaving other parts free of water.

A phenomenon that doubtless all of us have witnessed will illustrate this: Often streams of water rise to a greater than their normal height, and while in that condition receive a thick covering of ice. Somewhat later the water receding more and more leaves this ice unsupported, until, unable longer to bear its unsupported weight, the ice falls down to the surface of the water. So, the molten mass becoming denser and denser, receded farther and farther away from the bottom of what was once its scum, earth's primeval crust, until the latter, unable longer to bear in its weaker and thinner places its own and its superincumbent weight, fell to the surface of the molten mass in the above-mentioned parts. And as parts of the ice in the above illustrations the parts near the surface of the water usually rise, so parts of the earth's crust and its overlying strata rose, and that in a number of ways. In some places the sinkings were so deep as to cause the land to appear above the water by the mere flowing of the water from those parts, as it sought its level in the deep sinkings above described, without the land actually rising at all. This applies mainly to the land that is very near the level of the sea. How are we then to explain the forming of plateaus, hills, mountains and valleys? In part by the fact that they had existed as such under the water, as described above, the mere sinking of the water causing it to drain away from them, thus leaving them dry and more or less high above sea level when it had receded to its place in the immense depressions made by the sinking of the primeval crust, etc.

But there were other causes that helped to produce some of the high plateaus, hills, mountains and valleys. When the bottom of parts of the primeval crust lit upon the adjacent molten mass it doubtless caused it to sink there, and this pressure made adjacent parts of the molten mass rise, just as a huge rock cast into some mud makes the mud immediately under the rock sink and the adjacent mud not under the rock rise. Such rising molten matter would raise the overhanging primeval crust, etc., to varying heights, which also would go to produce our plateaus, hills, mountains and valleys. In some cases this molten matter burst through the primeval crust, etc., and spread itself over immense territories, producing the great lava countries like Bashan, etc. Still another cause contributed to producing such elevations: The immense amounts of gases that arose from the molten mass and remained awhile between it and earth's primeval crust forced by explosions a rising of this crust, etc. Then, also, two or more processes combined to produce these results.

Volcanic activities contributed more or less to the production of mountains and hills. Science assigns a variety of causes to volcanoes and earthquakes. One of these is the subsidence of the earth's primeval crust from time to time in various places to the molten mass, as explained above, causing in other places that molten mass to rise and discharge part of its contents through vents already existent or forced by the present pressure of the discharged matter. Many of our mountains are extinct or active volcanoes and have been built up gradually by the repeated discharges of lava through their craters. Earthquakes have also contributed toward elevating parts of the earth into plateaus, hills and mountains, and, by rending them apart, forming valleys, though streams of water have been the chief causes of valleys apart from those up heaved from the bottom of earth's primeval shoreless ocean, as described above. The softness of the

primeval crust and its two strata contributed its share toward the forces above mentioned, under Divine manipulation producing the results that we are studying.

Thus pressure internal and external produced the gathering of earth's waters into seas and the appearance of land. This pressure seems to have been lateral, *i.e*., east and west, rather than from top to bottom, *i.e*., from north to south. The following facts suggest this: The lay of the continents is north and south, indicating that the pressure was from east and west. Had the pressure been from north and south, there would have been no continent at the south pole and no immense masses of islands in the Arctic Ocean. The direction of the mountain ranges is generally north and south, and still more generally along the seas and oceans, and that because the pressure produced by the sinking bottoms of the primeval ocean would be mainly along or at some distance from its newly formed shores. The general contour of the continents suggests such pressure. The shores of eastern North America and of western Europe would fit, roughly speaking, into one another. The same is true of eastern South America and western Africa. In a more modified sense this is true of western South America and eastern Australia; western Mexico and Central America and the eastern Philippines and East India. So is it true, too, of southern Europe and northern Africa; and of north-east Africa, and south-west Asia. South-east Africa and western Australia fit to one another. Eastern Asia and western North America recede gradually and harmoniously away from one another as they extend southward. The general lay of the oceans, especially the Atlantic and Pacific, is in line with this thought. All of these facts are in harmony with the thought that the pressure that sank the bottom of the primeval ocean was exerted, generally speaking, laterally—east and west, and not north and south.

We are by many facts led to see that the process

that has just been described was not exerted only in the third creative epoch, but also in succeeding epochs. That it began in an epoch in which our globe was covered by a shoreless ocean is manifest from the fact that high up on the mountains of western North and South America, on the Alps, on the Himalayas and on numerous other mountains are found innumerable shells and shell fish embedded in the rocks, having been deposited while they were yet under water. The same phenomenon appears much nearer the sea level, *e.g.,* in parts of France. On the other hand, high up on other mountains are found rocks that were deposited in the fourth, fifth and sixth creative epochs, as in other places on earth's surface near sea level strata appear that were laid down by canopies that fell after the third canopy fell, its fall being at the end of the third creative period. These facts show that this process was not confined to the third creative epoch. In our time, as might be expected, because of the preparation of our earth for the Millennial conditions, the same process is going on. A number of new islands have been upheaved in the Pacific Ocean, especially along the coast of Alaska. This accounts for the frequent earthquakes and volcanoes along the shores of certain lands: Japan, China, California, Italy, India, Turkey, many isles of the sea, etc. Accordingly, we are warranted in believing that this has been an intermittent process, extending over all the creative epochs from the third to our own. The earth gives evidence, therefore, of its gradual and intermittent operation. Our explanation foregoing has been the Christian view of the matter for centuries, even as Milton nearly three centuries ago stated it in the following description:

"The mountains huge appear
Emergent; and their broad bare backs upheave
Into the clouds; their tops ascend the sky
So high as heaved the timid hills, so low
Down sunk a hollow bottom, broad and deep
Capacious bed of waters."

The appearance of the dry land as it emerged from the shoreless ocean's bottom was not that of our present earth. Five of earth's strata have from as many canopies since fallen to our earth and have greatly changed its appearance from what it was as it arose from under the water. There were no grass, plants, bushes and trees to beautify its face, and to relieve it from its monotonous appearance. It doubtless for several thousand of the seven thousand years of the third epoch presented the appearance of a muddy swamp unrelieved by the sight of any vegetation, with turbid lakes and muddy streams draining the new land. It certainly was not yet fit for habitation. As formerly pointed out, there is good reason for believing that the expression of v. 10 in our text, "And God saw that it was good," belongs in the middle of v. 8. But if it does belong to v. 10, the language might be well interpreted to mean that its possibilities from the Divine standpoint made it seem good prospectively to God. The word *good*, used in connection with God's creative works lower than man, has the sense of useful, beautiful, fitting. In such a sense the earth before vegetation appeared was good prospectively. It is because of such possibilities of the dry land at that stage of creation that we can call it good. God's benevolence toward man, as well as His wisdom and power, are manifest to our eyes of faith, even in this stage of His creative work, for He was then benevolently preparing earth to become a fit habitation for man; and this was one of the steps toward that object.

Above we have cited scientific facts in corroboration of the process whereby God gathered together earth's waters into its seas and made the dry land appear. Scientists are, generally speaking, a unit in describing the matter as given above. As children of God, however, we are more desirous of seeing how God in His other Book, the Bible, describes it than in seeing how He describes it in His book of nature. We will, therefore,

quote some pertinent Scriptures, using the A.R.V., which translates the passages much better than the A.V. First we will quote in strophic form from God's poetic description of creation in Ps. 104: 5-9, 32:

"Who laid the foundations of the earth [first the primeval crust, then the six strata],
That it should not be [re]moved forever.
Thou coverest it with the deep [earth's shoreless ocean] as with a vesture;
The waters stood above the mountains [of earth's primeval crust].
At Thy rebuke they fled [sinking parts of that ocean's bottom is here called a rebuke];
At the voice of Thy thunder they hasted away [the explosions of gases, contributing to the sinking of parts of the ocean's bottom, are here called thunder].
(The mountains rose [out from under the shoreless ocean]; the valleys sank down [the low places in the earth's crust between its heights are here called valleys]):
Unto the place which Thou hast founded for them. [The waters are here spoken of as seeking their level when earth's crust at places, its valleys, sank This is evident from the statements of vs. 6, 7, 9, v. 8 being a parenthesis.]
Thou hast set a bound that they may not pass over [Job 38: 10, 11; Jer. 5:22],
That they turn not again to cover the earth [as before the third creative epoch].
He looketh upon the earth and it trembleth [earthquakes connected with this process];
He toucheth the hills and they smoke [volcanoes connected with this process]."

The above description of the Psalmist is not only beautiful poetry, but also true and perfect science. The famous description of our Lord in His pre-human existence, as God's Wisdom, also gives us some thoughts on this subject. We quote Prov. 8: 25, 26, 29, from the A. R. V.:

"Before the mountains were settled [in their places after being brought up from under earth's shoreless ocean],
Before the hills were brought forth [from under the universal ocean],
While as yet He had not made the earth [dry land, in contrast with the sea],
Nor the field, nor the beginning of the dust of the field [In vs. 25, 26, conditions before the third creative day are negatively described] …
When He gave the sea its bounds [during its creative day],
That the waters should not transgress His commandment [expressed in His act of gathering them together into the seas to which He forever confined them],
When He marked out the foundations of the earth [in making it appear above the waters and remain there forever]."

We find another very fine poetical description of this work in job 38: 4-11, which we also quote in strophic form from the A. R. V.:

"Where wast thou when I laid the foundations of the earth [the creative work with this earth from its beginning until the dry land got a substantial basis]?
Declare, if thou hast understanding.
Who determined the measures thereof [when God appointed the place of the sea and the land], if thou knowest?
Or stretched the line upon it [accurately arranged for its boundaries]?
Whereupon were the sockets thereof fastened [in the laws of gravitation]?
Or who laid the corner stone thereof [probably the primeval crust];
When the morning stars [angels] sang together,
And all the sons of God shouted for joy?
Or who shut up the sea with doors [confined it within its sphere],
When it brake forth and issued out of the womb [fell down from the canopies, their birthplaces]?
When I made clouds [the canopies] the garment thereof,

And thick darkness a swaddling-band for it [the seven canopies covered the shoreless ocean with thick darkness as its infant clothing],
And marked for it My bound [He set its bounds in the third creative epoch],
And set bars and doors [securely kept it within those bounds],
And said, Hitherto [to its bounds] shalt thou come, but no further;
And here shall thy proud waves be staid [It is remarkable that, while rivers have built up some of the land's space into the seas, *e.g.,* the Euphrates, the Mississippi, etc., there is no record of any part of a continent being submerged under the sea. The land and the seas, as referred to in our text, have been perpetually divorced]."

Yea, "God saw that it was good." The work was well done. The seas keep their places; the continents keep their places. This is good for both of them: good for the inhabitants of the land, for the sailors over the bounding main and for the denizens of the oceans. This work praises the Lord. Yea, all God's works praise Him; and we, too, praise Him, who alone doeth wonders, whose name is holy and reverend!

We will now study the second part of the third creative day's work, treated of in Gen. 1: 11-13. The first part of the third creative day's work is described in vs. 9, 10, and was discussed in the preceding part of this chapter. The creative work described in Gen. 1: 1-10 concerns inanimate nature; with vs. 11-13 the creation of land animate nature begins. By this statement we are not to understand that no created life existed before the second part of the third creative day's work began; for not only were various orders of spirits created before this, but some very small forms of sea life, like some shell fish, existed before, as they form part of the strata deposited before the third creative day. But no land beings could have existed before, because (1) there was a shoreless ocean that

covered our sphere, and (2) because they needed the vegetable world for their food in order to exist. The creation of such creatures as shell fish, as living before the third creative period, is merely ignored in the Genesis account. The logical order in which creation proceeded is evident, among other matters, by the time order assigned to the creation of the vegetable world. It logically follows the formation of the land as distinct from the sea, and logically precedes the creation of land animals, so as to be available for their food. While no human or animal being lived during the third creative day to see that the yet unfallen canopies so obscured the sun that it could not have been visible to the sight of such, had they existed, yet a sufficiency of its light pierced through these canopies to the earth to give enough of it to the vegetation then created to sustain its life. Evidently the vegetation of that time was much different from that of our times, since the air was then highly charged with carbonic gas, which that vegetation absorbed in great quantities, as can be seen from the fact that in its plants and trees it went to form the coal beds of our earth.

The description of the creation of vegetation contained in vs. 11-13 is simple, yet very complete. In these verses the term *grass* includes not only what we now call grass, but also mosses and weeds; the term *herb* covers not only what we call herbs, but also plants; and the term *tree*, literally *wood*, covers what we include under the terms trees, bushes and vines. Accordingly, under three heads the entire vegetable world is covered in the terms used in vs. 11-13. By this remark we are not to be understood to mean that during the third creative epoch every species of grass, moss and weed, every species of herb and plant and every species of bush, tree and vine, were then brought into existence; for certainly the highly carbonized condition of the atmosphere of those times

would have been fatal to the existence of many of the grasses, mosses, weeds, herbs, plants, bushes, trees and vines of our time. Rather we are to understand the language to mean that examples of all these three forms of vegetation were then brought into existence, *i.e.,* such only of them as were hardy enough to exist in the gaseous atmosphere that then prevailed. It will be noted that God endowed the various forms of the vegetable world with the wonderful power of reproduction: grass and herb yielding *seed,* the fruit tree yielding fruit, *after its kind,* whose *seed is* in itself. These verses also teach the fixity of each species of the vegetable world, *after its kind.* There is nothing here of one vegetable species developing into a higher species. While, as witnessed in horticulture, it is possible to cultivate each species into higher development and into different varieties, yet it is always within its kind, species; it is never from a lower into a higher species, as evolution claims. Each remains after its kind, so far as we can gather from the Bible. That such a thing as a change from one species into another had not happened, it seems to us, is evident from the fact that in the over 6,000 years of human experience it has never been noted as occurring. But the way that the creation of the vegetable world was unfolded pleased God as a good thing—God saw that it was good, which means that the creation of the vegetable world had proceeded far enough during the third creative period as to manifest its usefulness—"good" (v. 12). Thus the third day's creative work had in both of its features a dim beginning and a useful completion—there was an evening and there was a morning, day third (v. 13).

The creation of grass, as including also that of mosses and weeds, is set forth before that of herb and tree. While its being mentioned first would not necessarily prove that in point of time it was created first, yet its order' of mention likely means that. This likelihood

is increased by the fact that grass, moss and weeds in their organization are, generally speaking, the least complex of the vegetable kingdom. And it is reasonable to suppose that the Creator, as He did with creation as a whole, since each succeeding epoch dealt with increasingly higher things, proceeded from the simple to the complex in the detailed creations in each of the epochs. However, the point is of a kind on which dogmatism is unnecessary and fruitless. A number of things in the vegetable kingdom of grass strikes us. It is almost universally distributed throughout the land surface of the earth. Unless displaced by civilization in the form of houses, roads, etc., it is found everywhere on land, except in arid wastes, above the grass line on mountains and far north or south in the frigid zones. Its color, green, is noteworthy, especially when its wide prevalence is considered; for green is the most restful and most beneficial of all the colors to the eye. If grass were white or red its effects on man and beast through the eye would be exciting and nerve-racking. The progressiveness in the creative process of grass deserves note; for the grass that could have endured the carbonic gas of the third epoch must have been coarser and would be less beneficial for man's and beast's uses than in its present condition, which proves that it has progressed in quality since the third creative epoch.

Great, indeed, is the variety of grass in its three forms already mentioned. Using the word in its present restricted sense, there are hundreds of varieties of grass, among which may be mentioned Bahama grass, Bengal grass, Bermuda grass, Kentucky blue grass, black-seed grass, blue-eyed grass, alfalfa grass, snake grass, dog's-tail grass, esparto grass, five-leafed grass, four-leafed grass, etc., etc., etc. Mosses, too, are of many kinds, *e.g.,* long or Spanish-moss, animal-moss, canary-moss, Ceylon-moss, Corsican-moss, cup-moss, feather-moss, flowering-moss, fork-moss, golden-moss,

hair-moss, Iceland-moss, Indian-moss, Irish-moss, etc., etc., etc. The kinds of weeds are myriad and, as a rule, may be dismissed as enemies of other plant life and of man and beast, though some varieties have valuable food, medicinal and other uses. But most of them are a part of the curse (Gen. 3: 18). Certainly there is a great deal of beauty in these three kinds of grass. Their forms in many cases manifest much beauty, so too, their texture, their shades of color, their leaves and blades. Often much delicacy of form, structure, shape and color is manifest in them. Most of their kinds are useful, some for food, some for enriching the soil by drawing to it nitrogen that they extract from the air and some for drawing poisons out of the air. Even weeds enrich the soil with nitrogen, though often stealing away from more useful plants the riches of the soil needed by the latter for their better growth. And there is more or less similarity in their essential or constituent parts and the connecting links of these. All of them have an organism; all of them have life-principle vitalizing that organism; and all of them have sap that is the connecting link between the organism and the life-principle, just as blood in animals is the connecting link between their organisms and life-principle. So wonderful are the organisms of grass, moss and weeds that their construction argues design and intelligence in their creation, and thus they imply the existence of a purposeful and intelligent Creator. Thus even so lowly a thing as a blade of grass by its constitution and intricacies proves God's existence as a reality.

Arising from the grass forms of the vegetable world we come next to the plant forms of the vegetable world. While not seeking to point out a line of cleavage between the world of plants and the world of trees more than that the texture of the latter is wood while that of the former is of vegetable materials softer than wood, and while in some cases it is hard to tell to

which of the two domains certain examples of them belong, in general people will be able to recognize without scientific precision of definition to which of these domains the examples at hand belong. Certain it is that size will not determine it; for in the carboniferous age, which is the same as the third epoch, some ferns, as evidenced from their fossils, attained heights of from fifty to eighty feet. In fact at that time, as evidenced again by fossil remains, vegetation was decidedly ranker and the trees were much more enormous in height and girth; for the thickness of some of the coal beds giving no evidence of seams within them, which we would expect, if in such cases layers of trees were laid upon other layers of them, seems to suggest that they are the "skeletons" of but single trees. The fact that between the higher and lower layers of the veins of coal layers of sand, clay and gravel are found, implies that floods rolled over the lower layers, depositing above them such debris, upon which in turn other trees, etc., were deposited. Nor are we to conclude that this process of laying down our coal deposits was limited to the third epoch or carboniferous age, for in higher strata such are also found. It was also during this period and in later periods that immense quantities of gas were caught and imprisoned between lower strata and the newly deposited strata from falling canopies. During this period and some subsequent periods highly carbonized water, in which all kinds of debris, including carbon-filled wood and plants, were contained, was caught and imprisoned between the strata and in time was changed into petroleum. It is from these "captives" that we are getting our supplies of petroleum and natural gas. Accordingly, we see that the rank plant and tree growths of that time have proved useful to us—"good." All His works are good.

Like grass the plants ("herbs") of the vegetable world are widely distributed. Indeed, like grass, we find them everywhere on land, except in arid lands,

above the plant line on mountains and plateaus and in the northern and southern parts of the frigid zones. While in color they are generally green, they are exceptionally of other colors. Indeed, among their leaves all the colors of the rainbow are present. This is more particularly true of many of the plant leaves native to the tropics, whose rich vegetation by far surpasses from almost every standpoint that found in the other zones. One of the finest collections of tropical plants in the world is found in Hope Gardens near Kingston, Jamaica. Here one can see a riot of colors, not only brilliant, but even gorgeous in leaf and flowers. Castleton Gardens in Jamaica from a different standpoint are another marvelous example of an exhibition of tropical plants. Adjectives fail us to describe the plant colors found in Hope and Castleton Gardens; for they beggar description. Travelers in the Amazon regions of South America have there found plants of the most diverse coloring. In the park of Georgetown, British Guiana, are to be found some most striking examples of the brilliant and gorgeous coloring of tropical plants. Of course, with such colors beauty is inseparably connected; and such beauty is evident even more in the flowers than in the leaves of tropical plants. Here, also, beauty riots as well as color. While plants are more luxurious, colorful and beautiful in the tropics than in other zones of earth, those of the semi-tropical and temperate zone lands afford much color and beauty. The inhabitants and visitors of California, Florida, Palestine, Hawaiian Islands, etc., can give abundant testimony on this subject. While inferior in color and beauty to the plants of the tropics and semi-tropics, the plants of the temperate zones and even of the warmer parts of the frigid zones can offer a multitude of hues and beauties in their leaves and flowers.

The varieties of plants are multitudinous. Botanists have classified them by the hundreds of thousands and

they probably run into the millions; for some of the richest plant sections of the world, *e.g.,* the largest parts of the Amazon district, have never been visited by civilized man. Here, indeed, full many a plant and flower are born to blush unseen and waste their fragrance on the desert air. It would be needlessly freighting this chapter merely to mention their species, let alone the subdivisions of some of them. Some of them are for adornment, others of them are for utility. This utility in some is along the lines of producing food and drink, in some along the lines of enriching the soil and purifying the atmosphere, in some along the lines of producing and conserving rain and dew to make fruitful the earth, and in some to supply remedies against disease and poison in man and beast. As a matter of fact, man and beast derive almost all their nourishment either directly or indirectly through the plants of the vegetable world. There is a similarity along general lines in their organization and life, *i.e*., they have the same general component parts of their being, even amid almost infinite variety; for all of them have an organism and life-principle animating that organism; and they all have sap as the connecting link between their organism and the life-principle, since the sap is the vehicle through which the life-principle vitalizes the plants' organism. Thus, the same general law of existence operates in the plant world as operates in the animal world, though different forms and modes operate in each. As we saw in the grass of the vegetable world, so do we recognize in the plants of the vegetable world, that they have developed from a coarser to a more refined stage as conditions about them became more refined, *e.g.,* while gigantic ferns and trees thrived during the third creative epoch, a plant like the sensitive plant could not have existed then, since the conditions of that time were too strenuous for its delicate organization to exist.

The world of trees, in the sense of hard, woody growths, is according to Gen. 1: 11, 12, the third form of the vegetable world. Here, again, we may remark that some forms of the vegetable world are hard to classify, *e.g.*, some may classify the bamboo as a tree, but its hollow stem proves it not to be wood and it is usually classed as a plant; so, too, some would classify the banana, plantain and castes as trees, but their softness proves that they are not wood and they are, therefore, classed as plants. As we saw, the word translated *tree* in Gen. 1: 11, 12, should be rendered *wood.* It, therefore, covers what we mean by bushes, vines and trees. We find them widely distributed, except in most arid lands, above the timber line on mountains and plateaus and in the bulk of the land of the frigid zones. Their bark is of different colors; and their leaves are usually green, though when embraced by the arms of autumn's early frosts they blush first into yellowness and then into redness. More or less of beauty marks them, especially when they put forth their flowers. Few things on earth are more beautiful than some of the flower bushes in bloom; and a similar remark fits some fruit trees when in bloom, *e.g.,* cherry and apple trees. The varieties of bushes, trees and vines are many, and each of these three classes of the tree has many divisions and subdivisions, though these are not so numerous as the varieties of plants. Their utility is great. The fruit and nut bushes, trees and vines, particularly trees, yield products good for food or drink. Their presence distributes rain and preserves moisture much needed for the soil, while their absence conduces to rainlessness at places, at other places to floods. They conserve the soil from erosion. They supply welcome shade amid torrid heat. They furnish shelter for birds and some beasts, and fire for the preparation of food, heat against the rigors of cold and building material for houses, furniture, vehicles, fences and utensils, as well as weapons for the more primitive peoples and

almost countless other useful things. They exhibit the same principles of being as we see in grass and plant being: organism and life-principle, with sap as their connecting link; and they give evidence of having progressed from their course and rude condition in primitive times to their present development, which will doubtless continue as ages advance.

A few words may be devoted to some of the big trees of the world, as the largest and oldest of all living things on earth. The best known of such trees are the Sequoias, or Giant Redwoods, of California, where there are several national parks set aside for their preservation. The largest of these is called General Sherman and the next largest is called General Grant. The diameter of the former is 36 feet, about 115 feet in circumference at the base, and its height 280 feet. These two trees are about 4,000 years old. There is a very wide-spread picture of a noted Sequoia called Wawona (Indian for *big tree*), in the Mariposa Grove, near the Yosemite Valley. The picture shows a large stage coach which carries a number of seated passengers, and which is drawn by several horses through a 27 foot tunnel, ten feet square, hewn through the standing tree, while on each side of this tunnel the bulk of the tree's trunk from the ground upward remains to keep intact the standing tree. This tree is, however, considerably smaller than General Sherman or General Grant, being 227 feet high and 90 feet in circumference at the base. Though less known, the eucalyptus trees of southeastern Australia are as high as the redwoods of California. Another tree very remarkable for its immense breadth is the Banyan tree of India. In width it covers in some cases an immense area. Some of them stretch out their branches until these run parallel with the ground upward of 75 feet on all the sides of the tree, *i.e.,* a diameter of over 150 feet! They are, of course, supported by the branchlike roots that these branches at various places along

their lengths send down to the earth, into which they then grow as roots. In Queens Park at Kingston, Jamaica, are several of these, one of which sends out branches in all directions, of about 50 feet in length, parallel with the ground. A large one looks more like a grove than a single tree and affords a fine shade against a torrid sun, as many can testify.

But, perhaps, the largest (not the tallest) and oldest tree on earth is the Tree of Tule. Tule is about 360 miles south of the City of Mexico and several miles south of the town of Oaxaca. This tree is 50 feet in diameter. Its circumference at six feet above the ground is 154 feet and 2 inches. Its height is over 160 feet. The tree belongs to the family of the Montezuma Cypress and is closely related to the Swamp Cypress or Bald Cypress of the Southern United States. The Montezuma Cypress was once very numerous in Mexico and many examples of it were very large. Even in the days of Cortez the Big Tree of Tule was known as the largest and oldest living thing. Over a hundred years ago, Humboldt carved on its trunk an inscription which has by the growth of the tree become so covered as to admit of only the beginnings and endings of its lines to be deciphered. Recognizing its worth the government has kept soldiers there as guards against the depredations of sight-seers. Assuming that the growth of the annual rings of this tree is the same as in other large specimens of the same species, the age of the Big Tree of Tule is estimated as over 4,000 years. The noted tree in Mexico City called the Tree of the Sorrowful Night, under which Cortez rested after his worst defeat at the hands of the Aztecs, belongs to the same species.

Above we have discussed generalities as to the vegetable world in grass, plant and tree. There are a few particulars connected with all three of them on which we desire to treat briefly. Flowers are common to almost every species of all three of them. Practically

every kind of flower has in common the sepals, or the green leaf-like covering of the unopened flower, petals, or colored flower leaves, stamens, which are the parts of the flower with knobbed ends, and the pistils (usually only one—though often compound) or carpels, which are the center of the flower. The box-like ends of the stamens are the anthers, which contain the pollen. Each carpel, or pistil, consists of a stout base called the ovary, and a portion rising from the ovary called the style, whose upper portion is called the stigma. The stigma's surface secretes a sweet fluid in which grains of pollen from the same kind of flowers grow. The flower is fertilized by the pollen passing through the style into the ovary, where it grows into the ovule, which in time grows into a seed in the ovary. Remarkable, indeed, are the processes of pollination. Sometimes self-pollination occurs, *i.e.,* the pollen of a flower fertilizes its own reproduction; but it usually occurs through insects, like bees, wasps, ants, flies, etc., becoming more or less covered with pollen during their visits to flowers and then carrying it to flowers later visited by them. These insects do not intend to pollinate the styles of flowers. It is unconsciously done during their search for food from flower to flower. Sometimes the wind carries the pollen from the stamens of one flower to the pistils of another. The Creator has furnished remarkable means assistful to pollination, like the hair-like projections in the pistils' styles, as well as the pistils' sticky and sweet secretions. It is needless to speak of the beauties that God has condensed into flowers, which make them so loved by mankind. Flowers could carry out their purpose of reproduction without sepals and petals, but not without stamens and carpels or pistils.

The main purpose for which a plant exists is reproduction, as indicated in vs. 11, 12. This is done through the process of fruitation; for in the fruit are embedded the seeds, whereby reproduction takes place. And in

many cases the fruit is to man the most valuable part of a plant or tree. Indeed, many thousands of tree fruit-units are used for food purposes to one of the seeds being used for reproductive purposes. And almost a similar proportion of vegetable units as to food and seeding purposes prevails. The Lord has arranged for the fruit usually to be a covering to protect the seed until it is mature, at which time the fruit is usually ripe. What we have said of fruit applies to fruit in the wide sense of that term and not simply to tree fruits, *i.e.,* to berries, grapes, nuts, vegetables eaten as such, grains, etc., as well as to true fruits. Though usually not the most important for food, the seed is most important to the plant or tree on which it grows, for almost exclusively by seed does reproduction occur, though in some cases it occurs through seedlings. Hence, the most important thing that the vegetable world produces is seed for its growth after its kind. Always in these seeds are the reproductive powers. There is always life-principle in them and there is always in them a farinaceous substance. And through the chemical action of the earth combined with moisture this life-principle develops out of the farinaceous substance of the seed a root which it sends downward and a shoot which it sends upward, thus producing a new plant. So reproduction takes place, which preserves the existence of the kind of plant to which the pertinent seed belongs. Thus has God arranged for each form of grass, herb or plant and tree to have seed within itself, after its own kind, in order to preserve in existence each of them. Of course, Divine wisdom and power, and to a less extent Divine justice and love, express themselves in each one of these products of God's creative work.

No less do these qualities exhibit themselves in the roots of grass, plant and tree. These roots have divers functions. The first of these is to hold the grass, plant or tree in its place, which makes the vegetable world

void of locomotion. Then, too, the root takes in moisture from the earth, through which the plant makes sap, as the point of contact between the life-principle and the stock, and as the means of its growth. Also the root extracts from the earth the chemicals required for body builders and as part of the food in the grass, plant or tree. To achieve these purposes the roots send out hundreds, yea, in some cases thousands, of root-hairs, which draw to the roots the moisture and chemical elements of the earth needed for sustaining life and ministering growth to the stem, etc. The usual downward course of roots is due to their search for moisture and to gravity. Remarkable in the process of growth are the bud and stem. These are related; for the bud is the point of departure of a new stem, as the bud is often the point of arrival of an old stem; for a new stem is but the development of a bud which before was the product of an old stem. Light has a powerful effect on the growth of stems; for these always grow toward the light; and curious, indeed, are some of the antics of stems under artificial checks in their travels toward the light. This habit is necessary because much of growth and food value depends on the amount of sunlight the leaves receive. As before implied, buds are the promise of the future branch. The factors that influence the germination of seeds have much to do with the opening of buds.

It is interesting to note that through the leaves food in the form of starch is manufactured for a plant. Since starch as such is insoluble it must be changed into a soluble form, which is done mostly in the leaves by the process of digestion, which occurs through a digestive ferment called diastase. So, too, plants form proteids as food for themselves and for man and beast. Besides preparing and digesting food, the leaves have other functions. They do the breathing for the grass, plant and tree. They turn to the light to gain more vitality and energy from the sunlight. They draw

much nitrogen from the air, used in manufacturing proteids. Their drooping in darkness is due to their sleeping. They are more or less sensitive to contact, a fact that reaches its highest development in the sensitive plant. These leaves purify the air by imbibing some of its gases during sunlight, but they poison the air at night or in the dark by exhaling poisonous gases. Hence, plants may well be kept in the room where people spend their day time, but never where they spend their night time, especially in bedrooms. Leaves throw off excess of moisture in grass, plant and tree.

While, as a rule, the vegetable kingdom develops flowers, there are some flowerless members of that world, called Cryptogams. Some of these are the ferns and their allies. Mosses also belong here. Both of these forms of plant life love shade and moisture. They are of very great variety and especially beautiful are many kinds of ferns. To this group—flowerless plants—belong also the various kinds of algae and fungi, among which the best known are mushrooms. Some forms of bacteria are of the vegetable world.

We have given a brief description of the second part of the third creative day's work. This brief study serves to show that its part of the third day's creative work was good. In this feature God saw that its work was good, and we trust that this study has enhanced the Lord's creative powers in our hearts and minds.

I think that I shall never see
A poem lovely as a tree;
A tree whose hungry mouth is prest
Against the earth's sweet flowing breast;
A tree that looks at God all day,
And lifts her leafy arms to pray;
A tree that may in Summer wear
A nest of robins in her hair;
Upon whose bosom snow has lain;
Who intimately lives with rain.
Poems are made by fools like me,
But only God can make a tree.

CHAPTER IX.

THE FOURTH CREATIVE DAY-SUN, MOON AND STARS.

Gen. 1: 14-19

LOGICAL ORDER OF THE FOURTH DAY'S WORK. SUN, MOON AND STARS NOT CREATED, BUT MADE TO SHINE THROUGH THE CANOPIES DURING THE FOURTH EPOCH. HOW THIS CAME ABOUT. THE FIVEFOLD MISSION OF THE SUN, MOON AND STARS AS TO THE EARTH. IT WAS GOOD. PERTINENT BIBLE TESTIMONY.

BY THE end of the third creative day whatever was left of the third canopy fell to the earth and completed the deposit of the third layer above the original crust of granite, basalt, gneiss and crystalline rock formed by the scum arising out of the boiling caldron of which the earth once consisted. This third canopy was less dense, *i.e.,* had proportionally less solid and more fluid matter, than the two lower ones. It was this fact of its consisting of more volatile matter that made its contents work their way up and remain above the other two canopies. Its fall greatly enlarged the expanse and thus increased the range of earth's atmosphere. At the same time the gaseous matter in the expanse became less dense because spread out over a larger expanse, much of its disappearing through absorption by the vegetable world, especially by the trees, and through escaping into the higher canopies and the stratosphere. The more solid substances of this third expanse settled down into the third stratum of the earth. At first this stratum like all others was very soft, being mixed with much water, but gradually during a period of many thousand years it hardened into rock. It felled and covered many of the forests and turned them into the deepest of our coal beds.

It will be noted that the description of the fourth creative day's work mentions nothing as being done on

our earth. From this we are not to infer that nothing happened on the earth. Rather we are to recognize that as the falling of the third canopy enlarged earth's expanse and atmosphere and thus continued to bring forward toward perfection the work begun on the second, and progressing through the third day, ever purifying the atmosphere, so the separation of the land and water and the production of grass, plant and tree, which began in the third day, continued to operate during the fourth epoch, evidenced by the fact that many coal deposits lie between the strata deposited in the third and fourth creative epochs. Apparently no new thing as such was creatively started on earth in the fourth day. Thus during it there was only an improvement of things formerly begun. The wisdom of this is manifest from the fact that before animal life could exist, not only would conditions have to improve on earth, especially the purification of its atmosphere from its rank gases, which occurred as above explained, but light in larger quantities had to be supplied to the earth in order to animal existence. Hence between the creation of the vegetable and the animal worlds light in greater abundance had to be supplied in order to furnish certain necessary living conditions for the various orders of animal life that were to be placed in this earth. Hence we find that the supply of such light in sufficient quantities had to come before the creation of the animal world. Accordingly, the fourth creative epoch logically required that a greatly increased supply of light should reach this earth from the heavenly luminaries, if it should be followed by epochs devoted to the creation of earth's animals. Hence we see that the ordaining of the sun and moon and stars to serve as light bringers to the earth is properly placed by the creative record of Genesis. Infidels who boast of the advancement of science during the 19th and 20th centuries as their peculiar possession are at a loss to explain how Moses

3,550 years ago could give such a logically and chronologically correct account of the progress of Creation in Gen. 1.

Nor are we to understand that the work of the fourth creative day consisted in *creating* the sun, moon and stars. This would make the record of that day's creative work contradict both the Bible and science. To begin with the latter, science proves that many of the stars are so far distant that it has required millions of years for their light, traveling between five and six trillions of miles a year, to reach our earth, which of course proves that they were created long before the fourth creative epoch. Again, such a view contradicts the statement of Gen. 1: 1, which shows that the heavens, *i.e*., the sun, moons, planets, asteroids, comets and stars, were created long before the first creative day. How long before we do not know, but in the case of some stars it was, as just shown, millions of years ago. Again, this view contradicts the fact that light, however faint, came from without to this earth during the first creative day (Gen. 1: 3-5). We know that before our earth received its scum, which resulted in its being enveloped in thick darkness, it was a self-luminous body. These facts prove that neither in Gen. 1: 3-5 is the first creation of light referred to, nor in Gen. 1: 14-19 is the original creation of the sun, moon and stars referred to. Rather, the first set of these verses refers to light first coming to our earth from without, after the earth had received its scum covering; and the second set of these verses refers to the light of the sun, moon and stars first breaking through the unfallen canopies of earth to the degree that would make them as bodies visible to animals, if there had been any of these on earth at that time. In other words, a sufficiency of the canopies had fallen so that the sun could have been thus visible in the beginning of the fourth creative day and the stars at its end, and the moon some time after its middle.

And when we look at the language used in Gen. 1: 14-19, it favors such a view of the work of the fourth creative epoch. Nowhere in this section is the Hebrew word *bara* (*he creates, brings into existence*) used. And the word *asah,* rendered *made* in v. 16, should better have been here rendered *appointed,* as it is in similar connections properly so translated (Job 14: 5; Ps. 104: 19). An examination of this section proves that, not the creation of the sun, moon and stars is here set forth, but their acting in certain ways toward the earth is the subject set forth. Thus v. 14 says, "Let there be lights [luminaries] in the firmament [expanse] of heaven [not the atmospheric expanse is here meant, but that of the celestial spheres] *to divide* [here is proven that the luminaries' mission toward the earth, not their creation, is set forth in this verse; for the language of v. 14, "let it be, etc.," is the same in v. 3, where, not the original creation of light, but its shining from without on the darkened earth, is set forth] the day from the night [it is the mission of these luminaries to separate day from night]; and let them be for signs, and for seasons, and for days, and years [here again plainly the various missions of these luminaries is given and the whole verse shows that their purpose, not their creation, is set forth in v. 14]. By its repetition v. 15 emphasizes the idea of their purpose, and not that of their creation—"Let them be for lights in the firmament [expanse] of the heaven to give light upon the earth; and it was so."

Properly translated, v. 16 proves this thought with greater force: "And God appointed two great lights to govern, the greater light the day, the lesser light and the stars to govern the night." Here again, not the creation of these heavenly bodies, but their appointment to their mission of governing day and night on earth, is given. When it is recognized how they were thus appointed, immediately it is seen that their creation is not meant. God appointed them to the work

of ruling the day and night by letting a sufficiency of the earth-girdling canopies fall to the earth, whereby these luminaries that were in their respective places for untold millennia penetrated through the remaining canopies with a sufficiency of light to govern day and night. The movement of the earth on its axis in relation to the sun resulted in these luminaries ruling the day and night after the hindering canopies fell. Vs. 17 and 18 add their part of the proof to the same effect. "God set [arranged by the canopies' fall] them in the expanse of heaven [again, not the atmospheric expanse, which then was within the fourth canopy] *to give light* upon the earth, and to rule over the day and over the night, and to divide the light from the darkness; and God saw that it [not they, these heavenly bodies, but their mission] was good." Thus we see that everything in vs. 14-18 proves that, not the creation of the heavenly bodies, but their adjustment to their mission as to the earth's receiving light, etc., from these, was the work of the fourth creative epoch. This explanation harmonizes vs. 14-19 with v. 1 and vs. 3-5 and the Bible record of creation as to light and the heavenly bodies with science, while it is the darkness of the Dark Ages that, expounding vs. 14-19 as referring to the creation of the heavenly bodies, makes these verses contradict vs. 1, 3-5 and science. From the standpoint of these explanations we are able to see daylight in the record of the fourth creative period as it is presented in vs. 14-19.

In v. 14 it is stated that God said, "Let there be lights in the expanse of the heavens." This command was given by God to the Logos, our pre-human Lord, through whom God did the creative work as through an agent (John 1: 3; Col. 1: 17). The Logos in turn gave this charge to His assisting angels, who with Him carried it out. As we have already intimated, they carried it out by letting at the extreme end of the third creative epoch the remainder of the third canopy fall

to the earth, and at the beginning of the fourth creative epoch by clearing away such vapors, etc., as prevented the sun from becoming so bright in relation to the earth as would have made it visible to man, had he been then on the earth. The fall of the last portion of the fourth canopy at the extreme end of the fourth creative period accomplished the same for the stars, which, according to record, reached the same condition relatively to visibility from earth during the fourth day. Sometime between the beginning and end of the fourth day, probably a little after its middle, the moon reached that condition of visibility possibly by the fall of the inner, more dense, part of the fourth canopy; for it is not necessary for us to conclude that each canopy in its entirety fell at the end of its respective period. Rather, it is more probable that the denser parts of each canopy fell earlier than its more volatile parts. This would make the last part of each falling canopy consist of more or less roily water, except the last canopy, which consisted of translucent and pure water, as is evidenced by the color of the glaciers, which, as we know, were formed in the extreme north and south and on mountains from the waters and snows of Noah's flood. So viewed, we have a reasonable and factual proof of the fact that the heavenly bodies, which were created very many years before the chaotic period of the earth (v. 2), did not assume visibility from the earth until the fourth creative epoch. How harmonious with facts the Mosaic record is!

From this standpoint we can readily understand why vs. 14-19 say nothing about the creation of the heavenly bodies, but describe their mission relatively to the earth. And this, too, is to be expected, since from Gen. 1: 2 to the end of the chapter the creative works are described from the standpoint of effecting or being related to the earth. Our attention in passing should be called to the position assigned to these heavenly bodies in the creative record. It will be noted that the record

does not place them in the expanse that was between the waters under it and over it (v. 7). It places them in the expanse that was immensely removed above the waters that were above the expanse mentioned in vs. 6, 7. This is another fact that implies the correctness of the canopy theory. And certainly the facts of science prove the Mosaic statement on this subject to be true. Having stated in v. 14 the positions of the heavenly bodies, their mission as the main subject of vs. 14-19 is then discussed.

Their first mission is described as that of dividing between the day and the night. And certainly this is true; for the rotation of the earth on its axis in relation to the sun, moon and the stars, especially in its relation to the sun, brings about this division between day and night; for that part of the earth that its rotation causes to face the sun gets its day from the sun shining on it; and that part of the earth that its rotation causes to be turned away from the sun gets its night from the sun's rays being withdrawn from it and from the light shed upon it by the moon and stars or even from the absence of the light of all of these heavenly bodies. By these operations of these natural bodies the beneficences of day and night are bestowed on plant, beast and man. The many benefits and opportunities of day and of night prove this. As beneficial as the succession of day and night is to man, beast and plant, so injurious would the continual presence of day or night be to them. Thus we see the wisdom, power, justice and love of God shining out of the marvelous provision of day and night. Yes, the division between day and night is the first purpose of the heavenly bodies as to our earth.

The second mission of the heavenly bodies is that they serve for signs, which are both physical and symbolic. They serve for physical signs of location. Their related positions enable the mariner to locate his exact position in the seas, as they enable travelers in desert

and uninhabited places to locate their positions. A Godsend are they often to the lost in enabling them to find their way. Thus they are good signs for position and direction. The careful study given to their position in relation to the earth from generation to generation enables the knowing to understand where to look for each one at any hour of any day of the year. Thus they are dependable signs of position and direction. This fact is also used to great advantage by the astronomer. And in this fact the dependability of God's creative works is seen. Hence the astronomer can determine the positions of the heavenly bodies many millennia of years in the past and in the future, even as planetariums show this factually before our eyes. They, especially the moon, give useful planting signs. The sign use that astrology makes of the heavenly bodies is occultism and demonism, with which God's people should have nothing to do, observer of times (Deut. 18: 10).

But the chief sign use of these heavenly bodies is symbolic; e.g., the sun has many symbolic sign uses. It, first of all, symbolizes God as the light (the Giver of true knowledge) of the universe and of His people. (Is. 60: 19, 20; Ps. 84: 11.) Then, secondly, it represents our Lord as the light of the world (John 9: 5). Then, thirdly, it symbolizes the Bible as the light-giver (Rev. 1: 16; 10: 1, comp. with 2 Cor. 4: 6; Rev. 19: 17; 22: 5). Fourthly, it represents the true Church as the light of the world (Matt. 5: 14). Fifthly, it represents Jesus and the Church as the Millennial light of the world (Mal. 4: 2; Matt. 13: 43). Sixthly, it represents the New Testament (Ps. 121: 6; Is. 13: 10; 30: 26; 60: 19; Luke 21: 25; Acts 2: 20; Rev. 12: 1; 21: 23, etc.). Then, seventhly, it represents the nominal as the counterfeit of the true Church (Rev. 9: 2; 16: 8). Eighthly, it represents the pope as the counterfeit sun of the Romanist Church (Jer. 15: 9). It is, ninthly, used to symbolize fierce temptation (Is. 49: 10; Matt. 13: 6; Rev. 7: 16). And, finally, it represents Satan

as a counterfeit of God, as Sun (Is. 24: 23). The moon is used symbolically to represent Jesus as the giver to the Church of the light derived from God as the Sun (Is. 60: 20). Its main symbolic use in the Bible is as a representation of the Old Testament and Law Covenant (Ps. 121: 6; Cant. 6: 10; Is. 60: 19; Joel 2: 31; Matt. 24: 29; Luke 21: 25; Rev. 12: 1; 21: 23). It is also used to represent the fallen angels as getting light from Satan, a counterfeit sun (Is. 24: 23). The stars have various symbolic uses. First they represent our Lord (Num. 24: 17; 2 Pet. 1: 19; Rev. 2: 28; 22: 16), then the twelve apostles (Rev. 12: 1), then the seven messengers of the seven churches (Rev. 1: 20; 2: 1; 3: 1), then the Ancient and Youthful Worthies as true teachers in the Millennium (Dan. 12: 3), then, finally, false teachers (Matt. 24: 29; Jude 13; Rev. 8: 10-12; 12: 4). These Biblical considerations prove that the sun, moon and stars are used as symbolic signs.

The next mission of the heavenly bodies is to mark seasons. The four seasons of the year are here especially meant. This marking is mainly indicated by the sun in relation to the earth as the latter revolves about its orbit. The axis of the earth is inclined away from the plane of the ecliptic 23°. This makes it change its position toward the sun as it revolves on its orbit 46° every six months and then returns. Thus it makes the revolution about its orbit once a year. The motion seems to be that of the sun, and thus we speak of it in popular language, e.g., at the vernal and autumnal equinoxes we say that the sun has reached the equator, and at the summer solstice we say that the sun has reached its northernmost point, and at the winter solstice we say that it has reached its southernmost point. Actually and scientifically at these times the earth by its eccentricity or inclination on its axis has in its revolution about the sun alternately exposed its northern and southern hemispheres more or less directly to the

sun's rays, while the sun in relation to the earth has remained stationary, except for the slight aberration that the gravitational attraction of the planets causes the earth to make in its orbit. It is this inclination in its orbital motion, making the earth stand in different zone relations to the sun, that makes our seasons, as well as marks them. But these seasons are also marked by the position of the stars, which also, due to the earth's inclination on its axis and revolution on its orbit, seem to change their positions relatively to the earth, and come into the same positions relatively to the earth the same days 50.2 seconds later each year, due to the precession of the equinoxes. Accordingly, the sun and the stars by their positions relatively to the earth mark the seasons, and in the case of the sun makes our seasons. It is this fact that is referred to in our text, when it says of them, "Let them be … for seasons."

V. 14 also states that they were to serve for days and years. This is true of all three sets of heavenly bodies—sun, moon and stars. It will be noted that no mention of the planets is made in vs. 14-19. In fact the word *planet* occurs but once in the Bible, where the margin suggests for planets twelve signs or constellations (2 Kings 23: 5). We are, therefore, to understand that in this section they are included in the expression *stars.* These bodies do serve to mark days and years. Actually the sun makes the days in connection with the earth's axial movement; and in connection with the earth's movement about its orbit the sun makes and marks the solar year and the moon makes and marks the lunar year. It will be noted that no mention is made of the month period in this verse. While not asserting positively that the months are indicated by the word "days" in this verse, it would not surprise us, if such were the case, especially as the office of the heavenly bodies is in the first part of this verse shown to be to mark and make days. If in

this verse the expression "days," which in the Bible is used to designate a great variety of time periods, does refer to months, a frequently mentioned Biblical term of time, then it is doubtless the lunar month that is here meant. But we do not stress this point; we only mention it as probable, in view of the otherwise absence of specific mention of the month and the presence of the previous mention of the day, in the first part of this verse.

The next office of these heavenly bodies mentioned in this section (v. 15) is that they serve as luminaries. This is perhaps their chief mission, though so far as the sun is concerned, to give warmth is one of its chief missions. To both of these missions man and beast and vegetable are greatly indebted for preservation in existence and for most of the blessings of existence. What could we do without light and warmth? Without these the vegetable and animal world would long ago have passed out of existence, in fact we can scarcely see how they could after their first beginnings have reproduced themselves. Hence we see their indispensableness to the animate world. They exercise their office from the positions in which they have been placed by the Creator—in the expanse of the heavens. And the charge that God gave for them to exercise this part of their mission (v. 15) was carried into execution—"and it was so" (v. 15). That the Mosaic account is speaking of the heavenly bodies from the standpoint of their relation to the earth and not from the standpoint of these heavenly bodies in themselves, is very evident from the statements of v. 16, that the two great lights are the sun and the moon. As a matter of fact, there are stars that are intrinsically very much brighter and larger than our sun, let alone than our moon, which is much less bright and large than even our planets. *E.g.*, Canopus is intrinsically 77,000 times brighter than our sun, but its great distance from our earth (652 light years) makes it appear less

bright to us. S Doradi, a star of the ninth magnitude, in the larger Magellanic cloud, is 600,000 times brighter than our sun. Again, Betelgeuse is immensely larger than our sun, being in volume 26,000,000 times larger, but its great distance from us makes it appear smaller to us. That the language of v. 16 is restricted to earthly relations is also evident from the statement that the day that the sun, and night that the moon and stars govern, are earth's day and night. We have already explained v. 16 sufficiently as teaching, not the creation of the heavenly bodies, but their being arranged to fulfill their respective missions of governing earth's days and nights. Of the earth's two great lights the sun is both intrinsically and apparently the greater.

The mission of these heavenly bodies toward the earth is again emphasized in v. 17. The way they were adjusted in the expanse of the heavens to cause light to shine upon the earth is a twofold one. Firstly, their absolute position in the expanse of the heavens was intended in due time to have this effect and, secondly, the removal one after another of earth's canopies increasingly allowed their light to penetrate to the earth. V. 18 in its first clause repeats the mission of these heavenly bodies, as their mission is stated in vs. 16 and 14. This repetition is doubtless to emphasize the fact that this section, vs. 14-19, does not treat of the creation of the heavenly bodies, but of their mission toward the earth. Thus in this section the Lord has repeatedly shown us that the work of the fourth day was not the creation of the heavenly bodies, but of adjusting matters connected with the earth so that these heavenly bodies might then begin their Divinely intended mission toward the earth. And the seven thousand years of the fourth creative epoch were sufficient to introduce this mission of those bodies. As the beginning of that period witnessed the sun smiling in bright and warm rays upon the earth in a way as would make it visible to animals, had any then existed, so perhaps a little after

the middle of that period witnessed the same condition existing as to the moon, and the end of that period found in existence a similar condition as to the stars, all of which increased in these activities as one after the other of the remaining canopies fell to the earth.

And v. 18 also assures us that "God saw that it was good." Indeed the light of the sun, moon and stars is good. It gives us all the pleasure of sight. It brings to our view the good things that we need for our preservation, and apprizes us of the dangers from which otherwise we would receive no warning. It blesses the vegetable world with beneficence, from whose bounty we are dependent for the supplies of many of our needs, and it ministers much of similar blessing through these to the lower animals; and through these come not a few of his blessings to man. The warmth that the sun sheds upon us has many blessings for us. These are manifest in the modifications that it imparts to the seasons whereby varied blessings are bestowed upon the vegetable, animal and human worlds. To its heat we are indebted for the setting into motion of winds and electrical storms, whereby our atmosphere is purified. Evaporation is another benefit of the sun's heat, whereby the clouds are made and bring the blessing of rain. From this our lands are helped to produce, our wells and streams are replenished for man's, beasts' and plants' good. Its vivifying action produces earth's fruitage for the blessing of man and beast. Yes, every plant and every animal are indebted to the sun's light and heat for the support and sustenance that they give to life. Surely "God saw that it was good"! Yea, this fourth day witnessed its small beginning—there was an evening—and ending—and there was a morning of the fourth day.

In closing our discussion of the fourth creative day we desire to quote a few pertinent Scriptures. Several of these we will find in the book of Job: "Which commandeth the sun and it riseth not; and sealeth up the

stars, which alone spreadeth out the heavens and treadeth upon the waves of the sea, which maketh Arcturus, Orion, and Pleiades, and the chambers of the south." "Hast thou commanded the morning since thy days, and caused the day spring to know his place? Canst thou bind the sweet influences of Pleiades, or loose the bands of Orion? Canst thou bring forth Mazzaroth in his season? Or canst thou guide Arcturus with his sons" (Job 9: 7-9; 38: 31, 32)? From these passages we note that in the days of job, a contemporary of Abraham, men had already given names to some of the constellations and the stars. By Mazzaroth the twelve signs of the Zodiac and by Arcturus the Bear are meant. The following passages from the Psalms are eloquent descriptions of the heavenly bodies: "O Lord, our Lord, how excellent is Thy name in all the earth! Who has set Thy glory above the heavens. When I consider Thy heavens, the work of Thy fingers, the moon and the stars, which Thou hast ordained, what is man, that Thou are mindful of him? and the son of man, that Thou visitest him?" "The heavens declare the glory of God; and the firmament showeth His handiwork. Day unto day uttereth speech, and night unto night showeth knowledge. There is no speech nor language, where their voice is not heard. Their line is gone out through all the earth, and their words to the end of the world. In them hath He set a tabernacle for the sun, which is as a bridegroom coming out of his chamber, and rejoiceth as a strong man to run a race. His going forth is from the end of the heaven, and his circuit unto the ends of it; and there is nothing hid from the heat thereof." "He telleth [counts] the number of the stars; He calleth them all by their names. Great is our Lord, and of great power; His understanding is infinite" (Ps. 8: 1, 3, 4; 19: 1-6; 147: 4, 5). So beautiful and wonderful are the heavenly bodies that poor fallen man has often been prone to worship them, against which the

Lord has had to warn His people (Deut. 4: 19; 17: 3; Job 31: 26-28; Jer. 8: 2). It is well for us to admire, not worship the heavens as expressing God's glory.

A SURVEY OF THE HEAVENS

Ye many twinkling stars, who do hold
Your brilliant places in the sable vault
Of night's dominions—planets, and central orbs
Of other systems, big as the burning sun
Which lights this nether globe, yet to our eye
Small as the glowworm's lamp—to you I raise
My lowly reflections, while, as bewildered,
My vision strays o'er your ethereal hosts;
Too vast, too boundless for our narrow mind,
Warped with low prejudices, to unfold,
And sagely comprehend. Thence higher soaring,
Through you I raise my solemn thoughts to Him,
The Mighty Founder of this wondrous maze,
The great Creator! Him, who now sublime,
Wrapt in the solitary amplitude
Of boundless space, above the rolling spheres
Sits on His silent throne and meditates.

The angelic hosts, in their inferior heaven,
Hymn to the golden harps His praise sublime,
Repeating loud, "The Lord our God is great,"
In varied harmonies. The glorious sounds
Roll o'er the air serene, the aeolian spheres,
Harping along their viewless boundaries,
Catch the full note, and cry, "The Lord is great,"
Responding to the seraphim. O'er all,
From orb to orb, to the remotest verge
Of the created world, the sound is borne,
Till the whole universe is full of Him.

Oh, 'tis this heavenly harmony which now
In fancy strikes upon my listening ear,
And thrills my inmost soul! It bids me smile
On the vain world, and all its bustling cares,
And gives a shadowy glimpse of future bliss.

Oh, what is man, when at ambition's height!
What even are kings, when balanced in the scale
Of these stupendous worlds! Almighty God!
Thou, the great Author of these wondrous works!
Say, canst thou cast on me, poor passing worm,
One look of kind benevolence? Thou canst:
For thou art full of universal love,
And in thy boundless goodness wilt impart
Thy beams as well to me as to the proud,
The pageant insects of a glittering hour.

Oh, when reflecting on these truths sublime,
How insignificant do all the joys,
The gauds, and honors of the world, appear!
How vain ambition! Why has my wakeful lamp
Outwatched the slow-paced night! Why on the page,
The schoolman's labored page, have I employed
The hours devoted by the world to rest,
And needful to recruit exhausted nature?
Say, can the voice of narrow fame repay
The loss of health? Can hope of human glory
Lend a new throb unto my languid heart,
Cool, even now, my feverish, aching brow,
Relight the fires of this deep-sunken eye,
Or paint new colors on this pallid cheek?

Say, foolish one, can that terrestrial fame,
For which thou barterest health and happiness—
Say, can it soothe the slumbers of the grave,
Give a new zest to bliss, or chase the fact
Of everlasting punishment condign?
Alas, how vain are mortal man's desires!
How fruitless his pursuits! Eternal God!
Guide thou my footsteps in the way of truth,
And oh, assist me so to live on earth,
That I may die in peace and find a place
In thy high dwelling! All but this is folly,
In the vain illusions of deceitful life.

CHAPTER X.

THE FIFTH DAY—AQUATIC AND WINGED LIFE.

Gen. 1: 20-23

THE TWO PRODUCTS OF THE FIFTH DAY. CETACEANS. FISH. CRUSTACEANS. MOLLUSCA. ANIMALCULES. THE AQUATIC WORLD. THE WORLD OF FOWL. THE INSECT WORLD.

OUR discussion of God's creative works now brings us to the work of the fifth day, which was the bringing of aquatic and winged life into existence. The creative work had advanced, so far as our earth is concerned, through the stages of making light shine on the earth, of making an atmosphere, of separating land and sea, of producing grass, plants and trees, and of causing the light of the sun, moon and stars to shine with much increased light upon the earth. The next stage of the creative process was the production of aquatic life in the oceans, seas, bays, lakes and streams of water. The wording of the creative act shows that such life would be most abundant, as can be recognized in the rendering of the A.V.—"Let the waters bring forth abundantly." More literally, as Dr. Young gives it: "Let the waters teem with the teeming living creature [*nephesh, soul*]." This was a command given by God to the Logos, God's Executive in creation (John 1: 3; Col. 1: 16, 17); and the Logos with the assistance of the cooperating angels executed it. In vs. 20-23 the creation of animal life, using the word animal in its widest significance, is given in its start, the tiny shell fish of preceding periods being here ignored. In every case we find that blood [or its equivalent], whether cold, as in the case of most reptiles, or warm, is the medium through which the life-principle is connected with the body and thereby is produced sentient being,

soul. It is quite logical that water should be the first sphere of sentient beings, since the absence of the poisonous gases that yet abounded in the atmosphere made water a fit abode for its denizens, while the gaseous air was yet unfit for the usual breathing animals. Moreover, fossil remains prove that the waters were the abode of the first animal life. Thus we see that the Mosaic record properly locates the production of water life in the creative work. Later in the same day as came the charge to create water-souls came the charge to create fowl-souls (v. 20), whose sphere of life was the earth and air, the latter in the meantime becoming free enough from gases to allow of their existence.

In v. 21 the A. V. states that God created great whales. The Hebrew word *tanninim,* here translated *whales,* is a broader term yet than the Hebrew word for whales. It should have been rendered *sea-monsters.* It includes the cetaceans (the whale, dolphin, porpoise, grampus, norwhale, etc.), and saurians (lizards, crocodiles, alligators, huge turtles, which yet persist, and the extinct pterosauria [flying lizards with wing stretch of 20 feet]), plestosauria [of fish-like body, very long neck and small head], and ichthyosauria [fish-lizards, with enormous fish-like body, short neck and long head], aquatic dinosauria, etc., etc. It is such creatures that are meant by the term *tanninim,* which word occurs in the following passages: Ex. 7: 9; Deut. 32: 33; Job 7: 12; Ps. 74: 14; 91: 13; 148: 7; Is. 27: 1; 51: 9; Jer. 51: 34; Ezek. 29: 3. The word *bara* is the word properly translated *create* in v. 21. The living creeping (mistranslated *moveth*) souls of v. 21 doubtless are the crustaceans, including crabs, lobsters and the like. Their great numbers are indicated in the words *brought forth abundantly,* literally *teemed.* The fixedness of their species is indicated in the words *after his kind.* The mention of fowl last each time this day's product is described proves what geology corroborates: that

fowl were brought into existence at the end of the fifth creative day. Certainly, if of the inanimate and vegetable world the Lord could say it was good, it can truthfully be said of the creation of the aquatic world that it was good. God's blessing these (v. 22) shows that existence even to the lower orders of creation is a blessing. Of the previous creations God spoke, but did not speak to them. It is only to the animal creation that God is said to speak (v. 22), saying to the aquatic animals, "Be fruitful and multiply and fill the waters in the seas," and to the birds, "Let fowl multiply in the earth." Thus there was an evening and there was a morning of the fifth day, wherein God made aquatic and aerial souls. It will be noted that the A. V. suggests (v. 20) that the creations of this day were made out of water. This notion is imported into the text by the mistranslation of the word that Dr. Young very properly renders by the word *teem,* though we believe that water did furnish a part of their bodies' constituents. The Bible says nothing one way or the other on the water bringing these forth. It will be noted that, except the cetaceans, all of the creatures of this day were oviparious, hatched from eggs.

So far we have given generalities on the fifth day's creations. We will now proceed to particulars on certain of the creations of this day, and will begin with the cetaceans—whales, grampuses, dolphins, porpoises, norwhales, etc. These stand midway between fish and land animals, being a connecting link between them. They are like fish in bodily form, place of abode, manner of movement and habits. Unlike them, but like beasts, they have lungs, hearts with partitions driving warm and red blood through the body. They breathe the air, carry the fetus and suckle the young, like most land animals, *i.e.,* mammals. Let us now limit our attention to the greatest of the cetaceans—whales. At present they are the largest of earth's inhabitants, some examples of the sperm whale having been found to be

60 to 70 feet long, while some common whales have been found to measure over 100 feet. Their spinal column is the size of the trunk of a large tree. Their main artery is the size of a pipe into which a man can crawl; their enormous heart throws out 15 gallons of blood at each pulsation. A whale's mouth has contained a boat with its whole crew; its tongue is many feet long and broad; its tail has the surface of a hundred square feet and has more than once dashed a large boat into fragments and scattered as so many flies its sailor occupants. It moves powerfully and rapidly, churning shallow water into foam, and when wounded it plunges with one leap 5,000 feet deep, where it endures the pressure of 200,000 tons. It plays with the storm tossed waves as negligible forces. Its hide and the oil encased in it, covering it to a depth of three feet, keeps it warm in coldest arctic weather. This blubber helps it to swim, enables it to float while asleep and protects it against the great pressure of deep water. Whales sometimes live in pairs, sometimes in schools; some are herbivorous, feeding on seaweeds; others are carnivorous, feeding on fish, of which sometimes they swallow a whole school at one gulp and still desire more.

Whales have the same senses as land animals. Their smelling and hearing are acute, even when deeply submerged. Their eyes are so located that they can see ahead, above and behind, and that at great distances. As indicated above, they sleep and they often indulge in play, showing great pleasure therein. They mate for life and are remarkable for their conjugal fidelity and affection for their mates. They are equally marked with parental love. The mother whale is tenderly affectioned toward her young; and they are often seen playing together with great zest. When danger threatens, the mother whale bears her young to a place of safety; and when this cannot be done, she defends her young with utmost perseverance, bravery and self-denial.

She prefers to perish with her young rather than give it up undefended to unconquerable enemies. In playfulness and fidelity to mate and offspring the porpoise is like the whale. We recall an experience that we had with them near Galveston, Tex. We were in a small boat with a number of friends; and surrounding us on all sides, some less than, others not much over 100 feet away, were numerous porpoises playing and seeming not to mind our presence at all. Rather they seemed to be putting on a show for our entertainment! Whales have many enemies, chiefly humans, who seek to catch them to get their blubber, whale bone, etc. Surely it is a pathetic sight to see one of these giants of the sea wounded and dying at the hands of whalers. Their main enemies in the fish world are sharks and swordfish. Frequently, a hungry shark and a swordfish as companion marauders pursue a whale, and on overtaking it attack it, one on one side and the other on the other side, attempting to force its mouth open in order to eat its tongue. The fight lasts for hours and almost always ends in the overpowering of the whale, which in the fight suffers much from the thrusts of the sword of the swordfish. When the whale is weakened unto non-resistance, its mouth is forced open and its tongue eaten before it is yet dead. Then the shark and the swordfish leave it to death, which finally overtakes it. The sight of a whale from the decks of a ship is one of the most coveted opportunities of ocean travel and one frequently boasted of.

We now take up a brief discussion of fish, another product of the fifth creative epoch. There are several hundred thousand species of these that have already been classified and who knows how many of such are yet undiscovered; for new species of them are of frequent discovery. They range from the huge white shark, examples of which have been found that are 70 feet long and 10,000 pounds heavy, down to the little minnow. Their shapes and structure are much varied.

Admittedly, fish are more varied, monstrous and grotesque than land animals. On the other hand, some of them are most beautiful in color and graceful in form. Some of them are silvery, some golden and some reflect all the colors of the rainbow. Moreover, they are in form and structure admirably adapted to the localities that they inhabit. All about them, their form, structure, color, size, characteristics, conspire to give them a happy existence. Their not having much of a nervous system spares them suffering when they fall into the power of those preying upon them. If we knew only of land and aerial life, we would be tempted to think water to be an impossible sphere of life. But the multiform wisdom and power of God has so ordered the constitution of fish that they are well adapted to their aqueous environment. Some details as to fish which we will now set forth, will show this.

Their form is well adapted to their needs. In most cases the head is a sharp oval, the flanks gradually broader to their middle, and from there on to the tail there is a gradual tapering of the girth of the fish. This form has been mathematically proven to be best adapted to swift and easy movement in water. Their fins, air bladder and tails enable them easily to rise, sink, float, swim quickly or slowly as they may wish, or as need dictates. The covering of fish is also well adapted to their needs. The covering of land animals, hair, feathers, bristles, wool, etc., however well adapted to their needs, would be unsuitable to water animals. Instead, horny scales or heavy skins give the fish excellent coverings. Their scales, if joined at the edges, look like the finest mosaic work; if the edges cover one another like tiles on a roof and have a slimy surface, they present the appearance of the finest coat of mail, enabling them to move with least obstruction through the waters. This covering keeps them from becoming wet to the skin or cold through the skin. Thus their covering is well adapted to their needs. How wonderful

their provision for breathing! Gills serve them instead of lungs, their tissue being many blood vessels. By these gills they extract the oxygen from the water as easily as we extract it from the air. Sometimes fish are caught and drawn so rapidly through the water by a fast launch as to prevent their extracting the oxygen from the water. The result is their death by *drowning!* Thus fish can and sometimes do drown. But their natural endowment prevents their voluntarily swimming so rapidly as to drown. Their eyes are another marvelous example of adaptation to surroundings. They are so constituted that contact with water, even of the saltiest kind, is no more troublesome to them than contact with air is to our eyes. Those of us who swim under water with open eyes know how our vision is by the water dimmed. But convex spectacles enable one to see clearly under water. God has given just such a form to the fishes' eyes, whereby they see clearly under water. Usually fish eyes have no lids, but such of them as bury their heads in the mud, like mud-fish, eels, etc., have a Divinely provided covering over their eyes that shield them better than eyelids would do. The analeps fish of Eastern Asiatic rivers has a most remarkable eye, divided horizontally into two hemispheres by a band of membrane, each half being an eye, the lower halves being near-sighted and the upper halves being far-sighted, the former enabling it to see the nearby worms on which it feeds, and the latter the far-off approaching enemies. The lens in the eye of a cod-fish has been found to consist of 5,000,000 fibers, united by 62,000,000,000 teeth.

Fish have the five senses of land animals, though those of touch and taste are supposed to be weak in most of them. Some have flexible feelers or organs of touch. Acute are their smelling and hearing, which have no external organs as in the case of land animals, doubtless because of the ruinous effect of water on such organs; yet they have pertinent large membrane

and nerves especially for smelling, *e.g.,* they cover 12 to 13 square feet in a large shark. Thus fish can discover their prey or enemies at a great distance, despite turbulent water or darkness. Such sense perception gives them some wisdom; they can be trained to come at call of voice or bell and answer to their names. They are long lived. Carp have been known to live over 100 years. A pike was caught at Kaiserslauten in 1754 which had a ring fastened to its gill covers marked as put into the pond of that castle by order of Frederick II in 1487—267 years before. Fish are very strong, not wearying from much swimming. The shark can travel farther and longer than an eagle. The salmon can swim faster than the swallow can fly. Sharks are known to follow a fast steamer across the ocean, often encircling it as a comparatively slow traveler. They have been known, when harpooned, to draw a heavy vessel at high speed against wind and tide. Some of them are carnivorous. At Dublin, Ireland, the skeleton of a frog fish two and one-half feet long was exhibited, having a cod-fish skeleton two feet long in its stomach. Within the cod were two whitings of ordinary size, while in the stomachs of the whitings were numerous partly digested fish too broken to be recognized.

Some fish can utter sound, *e.g.,* the gurnards when drawn out of the water croak peculiarly. Some, the flying-fish, can fly several hundred yards through the air, their fins acting like wings and sails. Others are very tenuous of life, like the carp, which can be kept alive several weeks in wet moss. Some, like eels, leave the water and wander about the land in search of worms. In China there is a fish that crosses meadows a quarter of a mile to another stream. The flat-head hassar, an Essequibo fish, when their pools dry up, march in droves over dry land in search of others, traveling as fast as man walks and taking a direct course to the nearest water, even if it be out of sight. A fish found in Tranquebar climbs the fair-palm, seeking

insect food thereon. These facts prove that God gave those the instincts that impel them to self-preservation in their environment. The fruitfulness of fish as indicated in v. 22 is most marvelous. The blessing of the verse implies the implantation of the necessary powers to the fish. The number of the eggs in the roes of various fish gives a faint idea of the great fecundity of fish. The following are the number given by standard authorities: The roe of the cod contains 3,686,000 eggs; of the flounder, 225,000; of the carp, 203,000; of the roach, 100,000; of the mackerel, 500,000; of the sole, almost 100,000; of the tench, 350,000; of the herring, 30,000; of the pike, 50,000; of the perch, 25,000; of the smelt, 20,000. These are only samples of other kinds equally prolific. It is fortunate that many fish roes are destroyed unhatched by other fish, birds, reptiles, etc., for food, and that untold billions of those hatched are devoured by other fish—otherwise the seas would be packed solid with fish and would become one mass of corruption and disease. But the number that mature is enormous, as can be fairly inferred from the immense numbers of those that are migratory.

It is a familiar fact that many of them migrate in great numbers in search of safe places for reproducing their kind. These occur often from the ocean up rivers. The salmon is a familiar example. Almost all salmon that are caught are caught in traps, tons of them in each trap, over night in rivers as they migrate up stream. When they leave the sea their flesh is blood-red; but it rapidly corrupts after they come into fresh water. When the corruption is about half complete their flesh has turned pink, and when it is complete it is an ugly white. People ought not to eat the white canned salmon; for it is literally rotten and is often treated with chemicals to destroy the stench of corruption. Nor ought they to eat the pink salmon. This explains why the red salmon is the dearest, the pink a

medium price and the white the cheapest. The cod is another migratory fish that for spawning travels northward to ocean shallows. The haddock does the same. Shoals of them at spawning time are known to have been 20 miles long and 3 miles broad, and nobody knows how deep. The mackerel at spawning time (spring) leaves the Arctic and the Antarctic oceans for warmer waters in innumerable millions. The same remark applies to the tunny. The herring is the most remarkable of all in this respect. In summer they travel from northern seas at different times to warmer waters for food and spawning. Years ago when the fishing business was less well organized than now, no less than 20,000,000 of them were captured in a single night's fishing off the coast of Norway, and the average catch for the season was more than 400,000,000. At Goteburg, Sweden, the season's catch aggregated 700,000,000 annually. These are but a fraction of the numbers caught by the English, Dutch, Belgians, French, Spanish, etc., combined. Despite these numbers, the ocean literally teems with them. One authority says that tens of billions of them in a constant stream, many leagues in width, many fathoms deep and so dense as to crowd one another, pass by a given point nearly all summer long. But these are only a few samples among many fish, whose total number the mind of man is unable to grasp, proving that the sea is inhabited by a million to one creature that inhabits the land, and that fish have been fruitful.

To prevent the extermination of fish species by one another, the Lord has provided them with means of defense, usually in the form of great speed, sometimes with the ability to fly, sometimes with the ability to hide themselves, either by burying themselves in the mud, diving much deeper than their enemies can go, or by emitting black or blue offensive fluids from their bodies, thus darkening and bestenching the water about

them. Again, to prevent their becoming too numerous, God has given others weapons of assault by which they destroy and devour many fish. Some of these attackers use remarkable stratagems to decoy their intended victims, *e.g.*, the sea-devil, not gifted with strength or speed, covers itself with seaweeds, etc., the extremities of the filaments that fringe its body being the only parts not concealed, which, agitated to make them look like worms, attract little fish which are then devoured. The norwhale and the swordfish are armed with terrible weapons of aggression. They are the special enemies of the whale; and sometimes supposing the hulls of ships to be whales they attack them with tremendous blows. A case is on record according to which a swordfish, mistaking a ship's hull for a whale, attacked it with such force as to drive its sword completely through the bottom of the vessel, which would doubtless have sunk had not the fatal struggles of the fish to loosen itself broken its sword, leaving it embedded in the hull, thus stopping up the hole that it made. A fragment of this ship with the sword still embedded in it is in the British Museum. The hag fastens itself by vacuums created by its lips to the sides of other fish, sucking their juices and blood, like a leech, until they die, while when it is attacked it hides itself by darkening the waters about it, as described above. Numerous fish emit a bright light, which when they travel in companies hides them from attackers and the attacked. Another species, armed with snouts like a gun, shoot a deadly liquid at their prey, seldom missing it. Several species called the torpedo are armed with an electrical battery, by which they strike deadly blows. Another, the electric eel, strikes with tenfold more force, killing even horses and mules adventuring into their waters. Surely, when we consider these features in the fish world, we are struck with wonder at the Creator's power, justice, wisdom and love, exemplified from various standpoints in the world of fish.

In our study of the inhabitants of the waters we now come to the crustaceans, which mainly inhabit the "great and wide sea, wherein are things creeping innumerable" (Ps. 104: 25). By the term crustaceans naturalists embrace sea animals encased in hard jointed shells, *e.g.,* lobsters, crabs, prawns, shrimps, sea-spiders, etc. There are thousands of species of these, into which, of course, we cannot go in detail. Their forms are peculiar; their structure is remarkable; their covering is neither skin nor scale, but a hard crust. They have three or four pairs of legs curiously jointed and hinged. Some of them have powerful claws for seizing and bringing food to their mouths. Many have long, slender feelers keen to feel, smell and see; and almost all of them are pop-eyed. Remarkable is their system of nerves, breathing, circulation and digestion. The lobster is the most marked example of these species under study. His hind legs have small claws at their ends. His two front claws are large and powerful and never relax their hold in a fight unless they are broken. Its antennae or feelers are as long as its body and are slender and remarkably jointed. He can swim better than he can walk. His tail by folding and unfolding propels as well as pilots him, but always backwards. One stroke often suffices to carry it 30 feet. It often lives for 20 years. It produces no less than 12,000 eggs, which it conceals under its broad tail. These are hatched in midsummer about the size of an ant, clinging to the mother's fibres until all the eggs are hatched. Detached they cling to the marine plants on which they feed until developed enough to betake themselves to the waves. The case of the lobster does not allow it to grow much; but when its growth crowds the shell it is shed, and a larger one grows in its place. Its struggles for more room burst the shell and it must do much struggling until it is entirely relieved of it, the process beginning with drawing its claws out of their case, then its feet. The head and antennae next rid

themselves of their cases, then the eyes, then the jaws and finally the tail. After the shell is cast off the lobster expands suddenly to about a fifth larger than before. It is very weak, but crawls to some retreat. While, and before shedding it has been secreting materials which in three days it converts into a hard and perfect shell like, but larger than, its former one, all of which shows the Creator's care for even so lowly a creature as the lobster.

As the final set of animals that we will consider in this connection, we will study the Mollusca. This word is derived from the Latin word *mollis*, *soft;* and the Mollusca consist to a great number of soft bodied animals encased in hard shells. These are some of the things with which the water was made to teem during the fifth creative period. There have been classified probably 50,000 species of these. Doubtless there are many more than these, because the bottom of the ocean is literally covered with them; and to its depths no man can come. They are of most diverse sizes and forms, all displaying God's manifold wisdom, power, justice and love. Marvelous are their shells in size, forms, colors, structure, variety and embellishment, often rivaling in beauty the products of the vegetable world. Some of them look like works of art; and some of them have the five lines and dotted notes, and they constantly sound forth accordant music. They sometimes are formed as cups or tubes, sometimes as cones, spires and columns. Others have graceful convolutions and complicated joints. These shell fish are called univalve, bivalve and multivalve, dependent on the number of pieces that constitute their shells. In some species the shell contains male or female, in others both sexes are in one shell, and in others both sexes are united in one individual. Some hatch; others bear. Some are herbivorous, others carnivorous. Some have locomotion; others are stationary. The univalves are the most numerous of shell fish and have the most diverse

forms, usually spiral. The murex was the source of the ancient's purple dye. Some of these, the cowries, have been used in many parts of Africa and Asiatic Islands as money. The carinaria vitrea is the most beautiful and rarest of these fish, and is very fragile. Its inhabitant is a sailor often skimming along the ocean's surface. Other species, *e.g.*, the violet snails and the hyaloea also skim as boats sailing on the ocean's surface. They have sails which they expand to the breeze. The most celebrated in this respect is the nautilus. The shell of this animal is lined with a pearly gloss, and in the East is often used as a drinking cup. The nautilus (*little sailor,* in Latin) has eight arms. Two of these have a thin oval membrane, which it holds up to the wind as sails, and the other six it uses as oars. When sailing it looks like a sailing vessel in the distance. Let danger come, down come its sails, in come its oars and, turning its mouth to the water, it catches enough of it to make it sink deep below the surface out of the reach of harm.

Bivalves are headless, lack sight, hearing and smell, but have gills, heart and nerves. They have a soft fleshy foot by which they perform their external tasks. The most beautiful of bivalves are escallop shells. The best known and used are the oyster and the clam, widely dispersed among earth's six continents. Oysters are very prolific, a single one containing 1,200,000 eggs. The pearl oyster is the most prized of all, and it reaches its greatest perfection along the coasts of Ceylon and the Gulf of Persia. Its pearls, of course, are highly valued. They are produced by the oyster seeking relief from discomfort by exuding a substance about a grain of sand that has lodged as an unwelcome, irritating guest within its shell. Sometimes these pearls are so numerous as to prevent the closing of the shells, which results in the oyster's death. The internal lining of the shells is beautiful and is called mother-of-pearl. The singing mussel is also a bivalve. Its music is

melancholy and soft, later becoming sweet and louder, then dies down. This is repeated over and over again, and doubtless gave rise to the thought of the existence of the mythological sea nymphs. In size bivalves vary from the giant clam shell of 500 pounds, containing a full meal for 125 men, to those too small for ocular inspection. One of the remarkable features about the shells of univalves, bivalves and multivalves is the sizes and distances of the whorls. These "follow a geometrical progression and the spiral formed is logarithmic, of which it is a property that it has everywhere the same geometric curvature and is the only curve, except the circle, that has this property." Whence came this mathematical precision, if not from God, the Master Mathematician? It builds its shell in a uniform direction about its axis, in a geometric curve.

With the Mollusca are usually classed the loligo, cuttle-fish, octopus, squid, etc., whose appearance is as remarkable as it is ugly. The cuttle-fish and the octopus are marvelous works of God. They have perfect breathing organs, faculties for sight, sound and smell, parrot-like jaws and a triturating gizzard. Their circulation is produced by three hearts, not one. Their mouths are surrounded by eight arms, bending strongly in every direction, having suckers by which they can fix themselves firmly to any object desired, thus overpowering their prey. Their jaws are of great power. Their eyes are large and fierce. In Indian waters the natives rarely betake themselves to the sea, unless armed with axes with which they can chop off the arms of these monsters, which there grow to great sizes.

In the preceding part of this chapter we have treated on only part of the product of the fifth creative epoch, whales, fishes, crustaceans and molluscans, leaving for further discussion other interesting features of that period's work—animalcules, birds and insects. We will

consider these three classes of that epoch's work in the order just cited. Our discussion of them can be merely fragmentary, inasmuch as many volumes have been written on each one of them. As previous to the invention of the telescope men thought that the only planets, moons and stars in existence were those visible to the naked eye, so previous to the invention of the microscope the only denizens of earth's waters were supposed to be those visible to the eye. But as the invention and use of the telescope came, new stars were brought to man's knowledge, and as these telescopes became very large, even new universes were brought to man's ken; so with the invention and use of the microscope the existence of new denizens in earth's waters came to man's view. Thus there opened up to man the world of animalcules, tiny creatures too minute for even the best of human eyes to see. They have been found in waters, in the air and in earth, yea, even in the bodies of larger beings, as they have been found to be one of the main causes of disease in man and beast. They confront us in all sorts of shapes—some ribbon shaped, some circular, some globular, some like wheels turning on axes, some double-headed, some hairlike, some cylindrical, some wormlike, etc. Some of them are almost large enough to be visible to human sight and some are so small that millions of them are contained in a drop of water.

One of the species of animalcules, called the polypi, lives at the bottom of the oceans in certain, especially tropical, localities, where through the millennia of their existence they have built reefs, promontories and islands, not a few of the last named being now inhabited by man. Often the waters of the Arctic Ocean are discolored by the presence of animalcules called medusae, which are usually found to the number of 100,000 in a cubic foot of water taken up at random. And the minutest, as well as the largest, of the animalcules have vital organs similar to those of larger water

animals. They give evidence of feeling, will, intelligence, love, hatred, fear, suffering and pleasure. The species called the proteus, as their name indicates, can assume at will different forms—extension like a long hair, contraction to a minute point, expansion to a sphere, flattening into a pancake shape and roughening its surface as with horns. Examples of the species called rotifers have been taken from their native habitat, the water, and have been put in a dry place, where for six months they have lain all dried up but when placed into water have revived and lived on, as though they had always remained in the water. The freshwater species called the hydra seem to be nothing but stomachs with hairlike tentacles with which they seize their food, and true to their form they live almost only to eat, which they do most voraciously, and yet they can fast for several months without starving. Turned inside out they go right on functioning as though nothing had happened to them. Cut lengthwise into several strips each strip within 24 hours lives on as a separate individual, as though it had not been violently divided. Many of them have together been cut up into many parts, which then have been mingled together, and presently new ones develop through the union of parts that were once in different hydras. The hairlike animalcules form armies, marching sometimes in solid bodies, sometimes as different bodies, officered and keeping perfect order. One of the smallest of the animalcules are the infusoria, which a scientist has studied and found to be of over 1,000 varieties, which he claims are 1/40,000th of an inch in diameter, and which he found to be so small as to be present in a drop of water 500,000,000 in number. Some animalcules are herbivorous; others are carnivorous; some are shelled; others not. Yet as minute as they are, they have mouths, teeth, stomachs, muscles, nerves, veins, glands, eyes, etc. Their membrane is 1/50,000,000th of an inch thick.

They are for their size very lively; their motions are various: some move like serpents, some dart, some move rotarily, some have seemingly a wheel on each side, moving like a side-wheel steamer, and some drag their bodies onward. And the blessing of fruitfulness that God pronounced on all animal life these enjoy in great fulness. A member of the species *hydantina septa* is said to increase at the rate of 1,000,000 in ten days, 4,000,000 in eleven days and 16,000,000 in twelve days. Great as these figures seem to be, a member of another species is claimed to be capable of increasing in four days to 170,000,000,000. Some of them multiply by eggs and spawning; some develop on their surface buds which grow into the form of the parent and then separate from it as independent *souls*; some divide into two, four, six, eight, or sixteen parts, each of which then leads an independent existence, making it impossible to distinguish between parent and offspring; some gradually distend, then burst, but as they thus perish as an individual, thousands of infant animalcules crawl out of them; some individuals reproduce in different from the above-mentioned ways. When the animalcules are thus seen to exist and do, we wonder at the wisdom and power of the Creator. It is truly wonderful to think of the visible organisms that He has made in whale, fish, crustacean, moluscan, insects, birds, reptiles, wild beasts, domestic animals and man, with all their marvelous mechanism, functions, characteristics and abilities, but in certain respects, especially in that of size, number and modes of reproduction, the wisdom and power of the Creator shine out in the world of animalcules even more astonishingly than in His larger creations in the animal world. To illustrate the wonders that the telescope and microscope have brought to our knowledge we will quote the following:

"The one led me to see a system in every star; the other leads me to see a world in every atom. The one taught me that this mighty globe, with the whole burden

of its people and countries, is but a grain of sand on the high field of immensity; the other teaches me that every grain of sand may harbor within it the tribes and families of a busy population. The one told me the insignificance of the world I tread upon; the other redeems it from all its insignificance, for it tells me that in the leaves of every forest, and in the flowers of every garden, and in the waters of every rivulet, there are worlds teeming with life, and numberless as are the glories of the firmament. The one has suggested to me that above and beyond and all that is visible to man there may be fields of creation which sweep immeasurably along, and carry the impress of the Creator's hand to the remotest scenes of the universe; the other suggests to me that within and beyond all that minuteness which the aided eye of man has been able to explore, there may be a region of invisibles, and that could we draw aside the mysterious curtain which shrouds it from our senses, we might there see a theatre of as many wonders as astronomy has unfolded, a universe within the compass of a point so small as to elude all the powers of the microscope, but where the wonder-working God finds room for the exercise of all His attributes, where He can raise another mechanism of worlds, and fill and animate them with the evidence of His glory."

While treating of the inhabitants of the aquatic world, we must not overlook the wonders of the world that they inhabit. There are beauties under the waters of our earth that well rival those of the dry land. There are there mountains and hills that in beauty, height and grandeur compare well with such as rear their heads at varying heights above the earth. There we find sunken gardens like those off Santa Catalina Island, whose flowery bowers, secret retreats and gorgeous vegetation, where gambol playful fish and other denizens of the deep, are more marvelous than any garden that can be seen on the dry land. There are valleys there that

show us sights that well compare with the beauties of Yosemite. There are present in its wide spaces canyons that in height and depth, length and breadth, in variety of colors and different rocks, may well make the sublime Grand Canyon of Arizona look with envious eye toward them. There are in its great expanse plains and plateaus richly bejeweled with the beautiful shells of the seas. Surely the aquatic world beneath its surface has scenic beauties and sublimities at least equal to those of the dry land. And these as well as those of the dry land, join in ascriptions of praise to the wisdom and power of the great Creator.

The fifth creative day brought into existence beings other than these of the aquatic world, viz., the winged creatures consisting of fowl and insect (Gen. 1: 20-23). On the basis of a mistranslation some have thought that the creations of the fifth day had their bodies made of the highly chemicalized and mineralized waters of that period. In this they include all the creations of that creative epoch. The A. V. of Gen. 1: 20, 21 suggests the thought that the bodies of the aquatic and the fowl and insect worlds were formed out of water. While such may have been the case, the Hebrew of Gen. 1: 20, 21 does not contain that thought. The literal translation of Gen. 1: 20, 21, as Dr. Young gives it on the pertinent subject, is as follows: "Let the waters teem with the teeming living creature; and let fowl fly on the earth and on the face of the expanse of the heavens … every living creature … which the waters have teemed with." Since the Bible does not teach that the creations of the fifth day were made of the substances of and in the water, we should not teach it as a matter of revelation. It is one of the secret things that are unrevealed, on which therefore we will do well not to speculate as a matter of doctrine; but the fact that the aquatic fowl and insect worlds derive their sustenance and replace their depleted cells from both water and earth elements may well satisfy us that

the Lord originally used both spheres as storehouses for the constituents of the bodies of the fifth day's creations. We will now turn our attention briefly to the world of fowl, by which we understand the winged, warm-blooded creation to be meant. These consist of the winged creatures that fly and that do not fly. The latter are mainly what we call domestic fowl, like chickens, ducks, geese, turkeys, peacocks, guinea-fowl, etc. Ostriches are examples of fowl that do not fly and that are not domestic fowl. The fowl that fly we call birds, which are a fine part of the Creator's work.

Birds by their power of flying prove that a body heavier than air can overcome gravity to the extent that it can remain for long intervals above the earth in the air. It took man over 6,000 years before he could learn so to overcome gravity. There are perhaps 15,000 species of birds so far discovered and classified; and as man presses on in exploring hitherto unexplored or but scantily explored parts of the earth he still finds new species of the winged tribes. They range in size from the giant condor to the tiny humming bird. Design is shown in their bodily formation, adapting them to aerial flight—beginning at their middle they are wedge-shape, ending forward in a sharp bill and backward in a fanlike tail, whereby they glide through the air with a minimum of resistance. Their lightness, increased by their bones and certain other parts being filled with warm air, conduces to flight. Their flight is accomplished by the downward stroke of their outspread wings on the air, while they fold their wings as they raise them preparatory for another downward stroke, thus diminishing the resistance of the air. Those birds that get their food by diving into the water for it have a set of muscles that contract with great rapidity, expelling the air, which permits them to sink into the water, while those birds that do not have such an apparatus can no more sink than can a cork. The feathery covering given birds is adaptable to their purposes.

This is light, smooth, warm, beautiful and oiled. The oil preserves the other four qualities and keeps birds from becoming wet through and through. In birds we find the greatest diversity. All colors of the rainbow are represented in them as a whole, and usually several colors are seen in each representative of the feathered tribe. Many different forms are represented in this tribe, which we can readily recognize as we mentally run through them from the condor to the humming bird. Here, as well as in the domestic fowl, we see diversity and unity combined. They differ in their habits, habitats, food and social instincts. Each, however, is adapted to his own way of living. *E.g.,* the beak is modified accordingly as to whether the bird is a swimmer, wader, runner, climber, percher, preyer or scratcher. So, too, their feet are adapted to their habits: those that swim are web-footed, those that walk are not web-footed but gifted with widespread and divided toes. Those that perch have feet-muscles that contract automatically so that they hold them steadily on their perches even while they sleep. Those that prey have long, sharp, rough and strong claws suitable to their mode of gaining their food. In these things we recognize the Creator's wisdom and power.

The principle of adaptation in birds is manifest in their internal organs. Grain-eating birds have crops and gizzards adapted to the digestive process working on grains, while birds of prey have a membranous stomach and strong gastric juices adapted to digesting their kind of food. Since their food need not be chewed, moistened or ground, they have no teeth, crops or gizzards. The muscles of birds in wing and tail are proportionately exceptionally strong, evidenced by their much flying. The ostrich can outrun the fastest of beasts. The condor and the eagle can fly higher than Mt. Everest. A falcon has been known to fly 1350 miles in a day. The swift can speed at the rate of 180 miles an hour. The frigate-bird is the fastest

of all. It can cross from North Africa to the U. S. in twelve hours. It has been mathematically demonstrated that a body falls fastest not in a perpendicular line, but in a curve called the cycloid, which is the mode of an eagle's descent from great heights to the earth. So, too, birds in sight, hearing and smelling excel all other animals. It is the eagle's keenness and length of sight that occasioned God to use it as a symbol of His wisdom. Birds of carrion can see and scent their food many miles away. The organs of hearing in birds are proportionately much larger and keener than those of any other animal.

In intelligence they are remarkable, as can be seen from their building their nests in the best and safest places, from their adapting their nests to the needs, comfort and development of their young, from their varying habits of migration, from their ability to learn tricks, such as canaries can do, from their habits of imitation of almost every sound of the human voice, such as mocking birds can do and from their habits of imitating human speech, such as the parrot can do, and that often in a way as to show considerable *reason.* One could say the Lord's prayer in Dutch. An authentic story is told of a gander that acted as a guide to a blind old lady in Germany by pulling her skirts with his bill in the required direction, habitually leading her from her home to the church Sundays, ushering her to her pew, then retiring from the church during the service, to feed on the church lawn, and returning at the conclusion of the service, would lead his charge from her pew to her home. The memory of birds is vivid. They will return to their former abodes left at the beginning of their migration, when it is ended, as they always migrate to the same locality. So, too, they excel in voice. Their vocal organs are remarkably organized to sing their varied songs. How the nightingale, the mocking bird, the canary and the lark have delighted human ears that rejoice in harmonious

and sweet songs! Who has not felt invigorated in body and mind by the choruses of the meadows and woods intoned by these happy songsters? Each variety of birds has its own peculiar song, which by variety lends all the more delight to the woodlands. And their evident joy in singing indicates that they have pleasure in one another's songs. Their voices have remarkable power for carrying, both in height and distance. The lark ascending in its spiral course can be heard long after it has disappeared from sight, and on the level its voice carries easily over half a mile, which means that they communicate circular waves to the air a mile in diameter! Where is the beast, not even the lion, that can make himself heard farther than this? It proves that perfect balance between the explosive power and nerve force issues from their throats, inasmuch as voice is the balanced proportion of air and nerve force exploding on the surface of the throat. Thus the Creator has worked out wonderfully the principle of design and adaptation in the various endowments of the feathered races. In this the creative wisdom and power of God is seen.

One of the most remarkable things in bird experience is their mating. Early in the spring those not yet mated choose their mates. We say that those not yet mated choose their mates early in the spring; for in almost all species of birds they pair for life; and certainly their courtships are most noteworthy and interesting. They go about it in dead earnest, and give an example of courtship experience that outrivals that of the ordinary human male and female in their courtship. In their married life they are certainly examples of faithfulness, mutual love and kindness. From the eagle to the pigeon, from the condor to the humming bird, with rare exceptions, such conditions prevail. This can daily be observed, *e.g.,* from pigeon couples. They mourn each other's death; and often the dove refuses to mate again, though sometimes she does after

a long period of mourning. A case is on record of a canary that fell dead while singing to his incubating mate, which flying to him and finding him dead refused to eat and starved at his side. If a female pelican proves unfaithful to her mate, the other females of the neighborhood gather, hold a council over it; and after discussion, if they decide on the death of the faithless one, they fly to her and peck her to death. But sometimes they declare her guilty with mitigating circumstances, in which case they banish her from their neighborhood. Accordingly, with rare exceptions, birds are neither polygamous, polyandrous, unfaithful, nor promiscuous; and in this they certainly preach a wholesome and needed lesson to humans. Thus God has creatively endowed the winged tribes with a high sexual and conjugal morality.

Once paired, birds go about the work of building nests for themselves and more particularly for their expected offsprings. It is remarkable how they choose the location for their nests. Here a great variety in kind of the location of their nests prevails, and that according to the varying conditions of climate, comfort and safety adaptable to each variety. The main thing sought is evenness of warmth for incubation. The strong and predatory birds are not so particular as to climate, comfort or safety for their fledglings as the weaker and preyed-upon birds are. Hence the eagle, the hawk, the emeu and the osprey build rough, exposed and uncouth nests, they depending on the size of their bodies to communicate enough warmth for incubation and on the strength of their young to endure the hardness of their nests; but the goldfinch, the thrush and the wren, whose little bodies can communicate but little warmth take much care in the construction of their nests to insure comfort and safety against cold. And their nests are architectural wonders, considering their builders. The ostrich makes a hole in the tropical sands and there deposits

her eggs; but the eider duck, in the colds of the polar regions, tears out the down of her own body to make the nests of her young warm. Great skill is used by birds in constructing their "home, sweet home." The woodpecker after examining many trees selects the best for his purpose, cuts out a well measured and symmetrical hole, inclined for six inches, and then straight downward for ten inches more. The entrance is no larger than will admit snugly the body of these birds; inside, however, the den is much more capacious, and is as to its surface, smooth as though cut out by a machine. Woodpeckers usually carry the "chips" quite a distance away from the tree so as not to betray the whereabouts of their home. The South American woodpecker goes about his nest-building in another way, because he must guard his young against snakes and monkeys. He uses Spanish moss as his main building material, then chooses the most distant and weakest branch obtainable and builds at its end, upon which a monkey or snake would not venture for fear of its breaking and plunging him to the earth. It builds strands of rope out of the Spanish moss and mucilages this rope to the end of the chosen branch with a sticky substance that it finds in the forest. Then at the end of this rope it builds a pouch that serves as a nest. Here the eggs are laid and hatched; and if a wind blows this nest back and forth—well, it is a "rock-a-bye baby on the tree top," however, with ne'er a fall; and if snakes and monkeys seek prey thereon, they seek it in vain, for they dare not go out so far on so fragile and swaying a branch. The tailor-bird beats them all in skill and caution. It sews with its bill and fine fibers a dead leaf to a live one and out of this makes a pocket-like nest capable of bearing its less than a quarter-ounce weight and its young!

As all know, birds are oviparous—breed by eggs. The predatory birds lay few and thus propagate sparsely, while those that are preyed upon lay many.

Thus the Creator has arranged for a balance to be preserved among the feathered tribes. The work of incubation is carried on wondrously. The mother bird usually sits on the eggs, while her mate stands by encouraging her with his songs and antics. Then he flies away in search of food for the brooding mother and brings it to her to her delectation. If she desires a change or exercise or a hunt for food, her mate takes her place on the eggs and remains there until she returns. At night they sleep side by side in the nest and thus neutralize by more warmth the comparative coolness of the night. The mother instinct in the female bird makes her willingly give up the pleasures, songs and pranks of courtship and nest building days in the long, patient self-denials of incubation. She covers the eggs well, equalizes the heat by turning them at regular intervals, until her pains receive as her gains the little ones. And with what joy do the parent birds greet their young! With what tender affection do they treat them! And with what busy and self-denying labor do they seek and give food to their young, whose large open mouths are ever ready to receive the grub, the worm, the berry, the cherry, or other succulent morsel that parental love and care have secured for them! And when the fledglings leave the nest, with what care the parent birds teach them to fly, to be on their guard against predatory enemies and to learn to secure their necessary food! And if danger approach, what care and stratagems do the parent birds exercise to protect their young! On one occasion we saw parent robins seeking to give one of their offsprings a start in life. Unknown to the parents a cat watched them, especially the young. The cat stealthily approached; the parents were not aware of any danger; we sought to intervene to protect the fledgling. In a second the mother bird flung herself between the little one and us, very near to us, but so as to avoid being caught and then retreated

from us in a direction away from her young, pretending that one of her wings and one of her legs were broken, and seeking to draw us on after her and away from her precious charge; but we made for the young bird and got it just in time to save it from the cat, which felt the impact of a vigorous kick administered by a foot that had in adolescence been strong in football playing. Instantly the birds recognized in us a savior of their young. Their attitude of fear and strategy quickly changed into joyous gratitude and expectant faith, which were, as soon as the danger no more threatened, rewarded by the release of their young robin. Their rushing to it in strong affection and wholesome joy showed in another form their parental love. When the parental labors and responsibilities of the bird mates are over, by the easing up of life's labors and cares they remind us of the easing up of life that we observe in human parents who have successfully launched on the sea of life the fruit of their wedded love. In the many families and tribes of bird life we recognize the fulfillment of some of the words of our text: "And God blessed them, saying … let fowl *multiply* in the earth" (v. 22). We could write more on birds as God's creative works, but this will suffice for our present purpose. Surely in the fowl world God's wisdom and power are displayed.

And now we will turn briefly to a consideration of the insect world as a part of God's creative works. Since most of these fly their creation may be considered as included in the word *fowl*, if used in the widest sense, of things with wings; otherwise we would have to conclude that the record of their creation is omitted entirely from the history of creation as contained in Gen. 1: 1—2: 4. The thought of such an omission is, we think, not to be entertained, especially when we call to mind two of the most interesting members of the insect world—ants and bees. It has been suggested that there are from 2,000,000 to

3,000,000 species of insects. Be this as it may, there certainly are many of these. Every one of them is susceptible of thorough study, such as would require volumes to describe to exhaustion. Herein again we see the marvels of Divine wisdom and power illustrated. Some insects are exceedingly numerous, *e.g.,* locusts, which at times have increased to untold numbers, as witness the pertinent plague upon Egypt. A case on record of an army of them in Southern Africa covering an area of 2,000 square miles; part of these were drowned in a broad river, which was so fully covered by them as to make the water invisible. Then a strong wind blew the rest into the sea, whose billows washed them back to the shore, where they were piled three feet high along many miles of the coast. The kingdom of ants, in great variety, is also very numerous. Insects have many habits like large animals and live and act in all essential matters very much like them. They can swim, dive, walk, run, leap, jump, creep and fly, like other animals. Yet they have movements peculiar to themselves. So complicated is their structure that years of study of but one of them do not exhaust the subjects presented to a scientist for investigation. A scientist in the body of one insect found 306 plates in the outer envelope of its structure, 494 muscles putting these plates into action, 24 pairs of nerves and 48 pairs of breathing organs. The finest thread of a spider's web is said to be composed of 4,000 strands. On the wing of one butterfly 100,000 scales were counted and 400,000 on that of a silkworm moth. These are certainly wondrous products of Divine wisdom and power. Their bodies are remarkably formed. Usually they have six legs and four wings; most of them have antennae-feelers, an awl, a proboscis and in some cases a sting. Their mouths have various members: some have biting jaws, some have a piercing proboscis, some have suckers, some have licking tongues, some have cutting lancets, some

have sharp saws and some have stings. The microscope reveals many wonders in these. They have no mouths, but breathe through spiral holes in their sides, these holes differing in number in different species.

In discussing insects it must be said that they have the same senses as other animals. Usually they feel by antennae. The bee illustrates their power to smell, since he scents the honey from afar; so does the fly that smells corruption at a great distance, thousands of times his length. They hear distinctly and their possession of taste is evident from their choosing delicacies and rejecting nauseous things. Their sight is powerful and many of them have multiple eyes, as illustrated by the multitude of lenses in the great eyes of flies, all of which are so many eyes, ranging from 4,000 in the house-fly to 13,500 in the dragon fly and to 25,000 in the queen bee. Insects, like bees and ants, have ways of talking to one another, both by sound and by signs. *E.g*., when the queen bee dies or is stolen, those who know it give by sound and touch the alarm to others and soon the greatest agitation sets in. The ants communicate even more with one another than bees. Both ants and bees have sentinels and police. When the ant sentinels see an enemy approach they communicate this by bumping the corselet of every ant they meet, with their heads. Each one in turn does the same to others. Soon some rush to repel the invader, while the others hide the eggs and larvae. Most insects manifest love, hatred, sorrow, happiness, fear, anger, sympathy, appreciation, secretiveness, etc. For their size they are strong indeed, often bearing or pushing objects many times heavier than themselves. The speed of movement in some of them is often faster than the fleetest racehorse. Some of them can stop at once, no matter how fast they are flying. Thousands of bees hang upon one another without tearing out the feet of the upper ones. Their strength is seen in the many times

greater than their size they are able to leap. If a horse could leap in proportion to the size and leap of a flea, he could at one bound leap higher than Mt. Everest and across our continent. They are mainly oviparous and usually pass through four stages of being: (1) in eggs, (2) as grubs, maggots or caterpillars, (3) as a chrysalis and (4) as adult insects. The butterfly is a well-known illustration of this fourth state of being. They are fertile beyond comprehension, as can be seen in the case of the queen bee and the queen ant, the former laying in one season 40,000 to 50,000 eggs, and the queen white ant laying 86,400 eggs a day and 2,592,000 in a month, the record of any animal above animalcules.

The bee and the ant are decidedly the most interesting of insects and of these two the ant leads the more complicated and developed life. Hence Solomon's advice to the sluggard: "Go to the ant, thou sluggard, consider her ways and be wise." (Prov. 6: 6) Both of them live a highly developed social life. *E.g.,* certain of the ants have what is called a marriage flight, during which there is a courting. Then the marriage takes place; and thereafter copulation. In the meantime the soldier and worker ants of the colony are divided into as many equally numbered groups as there are females in the marriage flight. Each group is assigned to one of these females after the copulation takes place. These eat off her wings, then make ready a home for her, ever enlarging it as the eggs that the queen ant lays increase, as the larvae come forth and as the ants in four groups are developed. The workers receive the least nourishment and consequently are the smallest members of the ant colony. Next come the soldiers, which are given more nourishment. Next come the males that are destined for marriage and that by more nourishment are grown larger than the soldiers. Finally come the females that are destined to become queen ants and that by the

most nourishment are grown four times the size of the workers. The workers gather food, build the apartments and corridors of the home and take care of it and the young ants. The soldiers do sentinel work and fight the battles with intruders and other ants, often taking ants captives, which are enslaved, but treated so well as to love their masters and new homes. The breeding males are drones, whose end comes after copulation with the prospective queen ants. They have funerals, the burials always occurring away from their abodes, games, dances, banquets, courts, prisons, executions. In fact, they have an elaborate social life. The bee is only a little below the ant in the social life that they lead. Many details could be given on other features of insect existence, but enough has been given to show the glory of God's creative wisdom and power in their creation and preservation.

Thus we come to the end of the fifth creative day's work. Surely the facts given above prove that what God then created was good—useful, ornamental and diversified. Yea, all God's works, even those that are the lowest of His animal creation, praise Him and enhance Him in our gratitude, appreciation, love, worship and adoration!

"O dreary life!" we cry, "O dreary life!"
And still the generations of the birds
Sing through our sighing, and the flocks and herds
Serenely live while we are keeping strife
With Heaven's true purpose in us, as a knife
Against which we may struggle. Ocean girds
Unslackened the dry land: savanna-swards
Unweary sweep: hills watch, unworn; and rife
Meek leaves drop yearly from the forest-trees,
To show above the unwasted stars that pass
In their old glory. O thou God of old!
Grant me some smaller grace than comes to *these*;—
But so much patience as a blade of grass
Grows by, contented through the heat and cold.

CHAPTER XI.

THE SIXTH DAY—BRUTE LIFE.

Gen. 1: 24, 25

THE EARTH THE MOTHER OF ANIMAL LIFE. DOMESTIC ANIMALS. WILD BEASTS. PRIMATES. CHIROPTERANS. PREDACIOUS BEASTS. RODENTS. EDENTATES. UNGULATES. RUMNANT & PACHYDERMS. MARSUPIALS. REPTILES. SAURIAN. TORTOISES AND TURTLES.

NEXT to engage our attention is the creative work of the sixth and crowning day of the earthly creation; for in it the higher forms of animal life were brought into existence, culminating in man, the crown of God's earthly works. While animal life was brought into existence in the fifth day, including marine, aerial and saurian terrestrial life, the creation of the higher forms of animal life was reserved for the sixth day or epoch. Some have inferred from the expression, "And God said, *Let the earth bring forth* the living creature [being] after its kind" (v. 24), that spontaneous generation, a theory that materialists have sought, but failed to prove, is the Bible view of creation, *i.e.,* that unassisted the forces of nature of their own automatic operation produced the universe and all that is in it, especially all forms of life. Certainly this is a broad conclusion to draw from so slender a basis. There is nothing in the expression giving such a thought. The expression, to bring forth, is a frequently occurring one in the Bible and is, in its literal uses, employed to show the mother's part in bringing things into being or bringing things to birth. According to the Bible, the father in the generative process supplies the being, the soul, and the mother supplies the body and brings the being to birth. The bodies of earthly animals consist of the elements of the earth, and because the earth supplies these elements it therein performs the mother function. Hence we rightly call the earth our mother;

and it is this thought that is contained in the expression of our text, "Let the earth bring forth the living being." Our text also classifies these animals into three groups: cattle, beasts and creeping things. By cattle it means domestic animals, tame animals; by beasts, wild animals, especially the carnivorous animals, and by the creeping things, serpents and worms. This threefold grouping gives us a convenient division for the discussion of our text. It will be noted that our text shows the fixity of the various species of the animal creation—"after its kind." Thus God has provided against the confusion of these species. This fact is a telling one against the evolution theory.

We cannot in this article go into detail on the earthly animal creation, since immense works of many volumes can be and have been written on this subject; but a few generalities will serve our purpose. We begin, then, with the cattle, using that term, not in its narrow, but in its broad sense of covering domestic animals, which are usually herbivorous creatures. One of the widest spread of these and the earliest mentioned (Gen. 4: 2) is the sheep. Docility and harmlessness are its special characteristics. Its flesh supplies man with food, and its wool with clothes, and its hide with shoes and other useful articles. Man could not well do without the gentle sheep, whose uses certainly show God's wisdom and goodness in making it for man. Many indeed are the varieties of sheep, which can live in almost all of the earth's zones. Cattle in the narrow sense of that term, the bovine family, are also constituted for man's welfare. They supply him with milk and butter. They give him much needed meat and fat, and provide him with leather for shoes, harness, etc. The ox additionally helps him till his fields and draw his burdens. Perhaps man is more dependent on this gentle creature than on any other. And they come in many varieties, some of the cattle of India being but slightly larger than a large dog, and the Eluth Tartars growing to

seven and eight feet in height. This animal also can endure great extremes of heat and cold and quickly accommodate itself to various climates. In giving man this animal God again shows His wisdom and love.

Another fine domestic animal is the horse, which all in all is perhaps the best of the domestic animals. It helps carry man's burdens and puts itself at man's disposal when he needs speed in locomotion. Its strength and endurance are for man's uses; and until the locomotive, electric engine and automobile were invented, it was in the temperate zone man's most dependable servant for speed, strength and endurance purposes. Its average strength is used as the basis of calculating mechanical power. And usually it is one of the gentlest and most docile and affectionate of beasts. It is undoubtedly the most symmetrical of all animals, often is very intelligent and ministers to man's needs and pleasures alike. These qualities and uses show that God in designing it for man's service showed His wisdom and love in still another form. The horse is adapted to the temperate zones and to the more solid parts of the earth. It is poorly adapted to the deserts of Arabia and Africa, whose loose sands give its heavy and narrow hoof no firm foundation. Accordingly, the goodness and wisdom of God has provided a servant for man, useful under such conditions, the camel. This animal thrives only when associated with man, and, whether the usual camel or the occasional dromedary, is indispensable for man's journeys through deserts like those of Arabia and the Sahara desert of Africa, where sometimes travelers must go for a week or ten days without meeting an oasis. Therefore, in addition to its digestive stomach, the camel has a second one that serves as a reservoir, where it can store up water for from seven to ten days' use. Its hump, or two humps, consist of a storehouse of fat, etc., on which it draws for nourishment when having to go many days without food. Its broad, but uncleft foot makes

an admirable and non-sinking means of travel over soft sand, where the horse's hoof would sink so deep as to impede its speed and exhaust its strength. For all day travel the camel can out-distance and out-travel even the horse. Its faithfulness will make it travel on until it will die of sheer weariness. Sometimes its water reservoir becomes the means of saving its water-famished master's life. Its milk provides him with a nourishing drink and welcome butter, while its flesh satisfies human hunger. In battle, in travel, in commerce, indeed, in tent and in clothes the trusty camel is a most useful servant to man, especially to nomadic man and to man of the desert.

The uses to which the elephant is put, especially in India, entitle it to be classified among the domestic animals. It is now the largest of land animals, as the whale is the largest of sea animals. It often attains a height of ten feet and some of them have attained a height of fourteen feet. It is a most intelligent animal, and many are the records of its sagacity and memory. It is also very affectionate, as its devotion to its master and its fondness and care for anything of which it makes a pet prove. Its weight is immense, its strength marvelous and its tameness under teaching wonderful for such a large and powerful animal. It never forgets a kindness—nor an injury, as mischief-makers, to their grief, have years afterward learned, who gave them tobacco, which sickens them. It serves as a burden-bearer, as a hunter-bearer and as a warrior-bearer; and in hunting and battle it has given very valuable service to its master. Many are the records of its devotion to its endangered master in the chase and in the battle, where some of them have willingly given their life to save that of their masters. For man's needs in the frigid regions, where neither sheep, cattle, horse, camel nor elephant could serve them, God has provided another animal, the reindeer, which is admirably fitted to bear the burdens and furnish power and speed for

man. Its appetite can be appeased by the scant growths of the frigid zones. It provides man with milk, butter, cheese and flesh for his food, power for his burdens and speed for his travels.

In the dog, man's most faithful friend among the animals, man finds service rendered to certain of his needs that none of the hitherto mentioned animals can supply. It is the faithful sentinel of his home, the watchful protector of his property and, above all, the devoted guardian of his person. It accompanies and helps him in the chase and relieves him in guarding his flocks, herds and horses. A thousand tales are told of its sagacity, faithfulness and watchfulness. The finest of its kind in the service of man are the St. Bernard and the Scotch Shepherd dog. The St. Bernard has rescued many a life from freezing in Alpine storms. In the Museum of Berne, Switzerland, is a mounted St. Bernard, whose name was Barry, and who saved 40 lives, and that when he had lived but a few years. He met an untimely death while attempting his 41st rescue—an Alpine-lost man who mistook his rescuing tactics for hostile attacks and shot him. Imagine his grief when he learned the true situation. The shepherd dog is also a very useful canine, capable of fine training. They are especially useful in tending the flocks and herds. With one of them there is practically no need of a shepherd or cowherd. It will take the sheep from the fold and the cattle from the stall and drive them to pasture, tend them all day and return them to their fold or stall as night approaches. We recall a shepherd dog during a pilgrim visit near Courtland, N. Y., that was told in one order to bring certain horses to the barn and drive the rest of them to another pasture and to separate certain cows from the others and bring them to the barn and drive the rest of them to another field; and this complicated order that dog carried out. Then the master varied the orders, naming different horses and cows, and the dog carried out that order.

The dog regards its master as its god and treats him as such. Among domestic animals the goat should be mentioned, whose milk is the best known for nutrition, whose cheese is the most valuable, whose butter is the most delicious, whose hair furnishes man with clothes and whose skin provides him robes and shoes. Despite its stubbornness and butting, it is a useful animal.

In furnishing man with the domestic animal (and fowl) God has provided man with many helps to supply certain of his needs; and herein we recognize the wisdom, power, justice and love of God to man, yea, even to fallen man. He is thus in these a Giver of good gifts, for which we should not only thank and praise Him, but be appreciative of the gifts themselves, at least to such a degree as to use them kindly. It is certainly a matter of gross ingratitude when man overworks, beats, underfeeds and poorly houses his beasts. It is written, "A righteous man regardeth the life of his beast." (Prov. 12: 10.) Certainly, one of the marked evidences of man's fallen condition is his being cruel to the dumb animals that serve him. These have feelings, and when mistreated give evidence of distress, as they usually respond in kindness and appreciation to kindness. We trust that all of our readers will be kind to their animals; for a righteous man regardeth the life of his beast. It is noteworthy that almost all of the above-mentioned animals are used as symbols in the Bible. The ox and bullock represent God's justice; the sheep, the Lord's people; the lamb and the kid, our Lord; the goat sometimes the humanity of the Little Flock and Great Company, sometimes the wicked of the next Age. The horse represents doctrine; the bullock, perfect humanity; the heifer, the Ancient and Youthful Worthies; the dog (oriental dogs are a savage and quarrelsome lot), the sectarian, etc. With this we conclude our brief discussion of domestic animals.

The second grand division of the sixth epoch's creative work is beasts of the earth, by which term we

understand the wild animals as distinct from domestic animals to be meant. There is a great number of species and each species consists of many varieties. There are various ways these different species are designated. Formerly the first species among them was called quadrumana (four-handed); but latterly they are called primates (firsts), as the beasts most nearly resembling man. These include the gorilla, orangutan, chimpanzee, ape, baboon and monkey; and of these, especially of monkeys, there is a great variety. None of these are carnivorous, living as they do on fruits, vegetables and nuts. Their homes are in the forests, to which their bodies are adapted. Their inner toe on all four of their feet is really a thumb, and with the aid of their toes or fingers they are able to run from branch to branch and from tree to tree through the forest, as well as climb a tree with incredible rapidity. The largest and strongest of this group is the gorilla, whose habitat is Africa. Its height is often six feet, and one has been killed that was about eight feet. Its legs are disproportionately short, but its arms more than make this up, being as disproportionately long and often are four or five feet in length. Though not carnivorous, it is, except the crocodile, more powerful than any of the carnivorous animals, not even excepting the lion, which because of its dignity and strength is called the king of beasts and which is usually supposed to be the most powerful of beasts. In the warfare between the gorilla and the lion the latter has been so badly worsted that no lions are to be found within a thousand miles of the gorilla. The male defends his family against anyone who happens to be near his habitat. Courageously he advances to the fray, beating his huge bosom. Experienced hunters, knowing that a missed shot will result fatally to themselves, usually wait until the beast is within ten or fifteen feet away and then shoot him in the chest,

which invariably proves fatal to the gorilla, killing him on the spot, and that to the hunter's relief.

The orangutan is the member of the species whose home is Borneo and its neighboring islands. It most nearly of its species resembles man. It attains the height of 5½ feet, is broad-chested and very strong, though not so strong as the gorilla. Its face is much like man's except his eyes are more deeply sunken. It has strong instincts, and is very imitative, learning by imitation to put on clothes, sit down at a table, pour out tea into a cup, put milk from a bowl and sugar with a spoon into it, wait until it cools and then drink it like a human being. The chimpanzee lives in Congo and Guiana, and nearly approaches human stature. As a rule, it lives, not in trees, but on the ground, in caves, or under rocks. If they are attacked they unite as an army and fight with savage courage, compelling even the lion and elephant to retreat before their onslaughts. The ape comes next to the chimpanzee in size in this species, but looks more like a human than the chimpanzee, is less strong and fierce and, like the baboon and monkey, trusts more to his speed and tree-traveling ability for safety than to his strength. The baboon is as much smaller and weaker than the ape as the latter is to the chimpanzee. The smallest, weakest and most timid of the primates is the monkey, which varies in size from that of a small cat to that of a large dog. Some, however, are very savage and some are very ugly. They are by far the most numerous of the primates, as well as have the greatest varieties of this class of animals. The ring-tailed monkey lives and moves in great troops or armies. Many monkeys are quite wise—for monkeys. While all of the varieties of quadrumana are quite imitative and will learn some things by imitation under most pains-taking and patient tutoring, they cannot be taught to reason, to worship or to exercise the moral sense. The brain of man is five times the size of that of the orangutan, which is

the most gifted of the primates. There are parts to the human brain not found in that of the orangutan; and a celebrated scientist has pointed out fifteen anatomical differences between the human and the orangutan's brain, the most developed primate's brain.

A second species of wild animals that we will briefly consider is called the chiropterans (hand-winged)—bats, vampires, flying cats, etc. The bat is midway between birds and quadrupeds. It can by some sense other than sight know of its approach to other objects and of its presence with them; for blind bats, as well as seeing bats, fly among trees and avoid obstacles quite as deftly as do those that see. Our bats are small, but the Madagascar bats are enormous, having a wing stretch of four feet and are very numerous and destructive. The predatory animals are the most diversified of the carnivorous animals. They include the lion, tiger, jaguar, puma, leopard, bear, panther, wild cat, hyena, jackal, wolf, fox, lynx, otter, marten, sable, ermine, mongoose, raccoon, weasel, mink, skunk, badger, walrus, seal, etc., etc. Among these the lion is easily chief, being called the king of beasts. His appearance, both in repose and in motion, is majestic. Dignity, strength, courage and grandeur are written all over him. He is most gentle, loving and faithful to his mate, who, however, if he is killed in fight with another lion, trots off with the victor as her mate! Gratitude marks them, as can be seen from the case of an explorer who, lost in the forest, met some lion cubs and fed them in the absence of the lioness. She, coming and seeing him feed her cubs, quietly walked up to him and licked his hand. Presently the lion appeared and was soon apprised of the situation by his mate. He in turn licked the hunter's hand. Then both of them disappeared and presently returned with a sheep, which they laid at his feet for food. It was now dusk and he laid down to sleep, while the lions stood guard over him. The next morning they piloted and guarded him out of

the forest, and he leaving them, they by gesture and expression gave him an affectionate farewell, and stood at the edge of the forest watching him until he reached his camp. Then they disappeared in the forest. The tiger, smaller and less powerful than the lion, is fiercer. He is strong enough to drag a buffalo to his den. He is undoubtedly the most beautifully skinned of all quadrupeds. Many tigers are man-eaters; and their predatory tactics make them the quests of large hunting parties, for, single-handed, men usually can do little with him. The jaguar, when fully developed, is as fierce and strong as the tiger; in fact he is the tiger of the western hemisphere. Up to four years of age, if kindly treated, he makes a dependable house pet, but thereafter one must beware of him. The puma and panther are more or less like him and like each other, but not so large, strong or fierce, and their coats are decidedly less beautiful. The leopard is inferior to the tiger in strength, fierceness and courage; yet he is not lacking in these qualities. His spots always betray him as such; yea, they have become proverbial—"Can the leopard change his spots?"

The bear is another mighty carnivorous beast. He is of many kinds, various in size, color, strength and habitat. He lives in every zone. His largest representatives are the grizzly and polar bear. The latter can with comfort stand the coldest of weather, comfortable at 90° below zero seated on an ice pack or plunged into the arctic water. The grizzly is the most sagacious and powerful of all bears. Bears can be taught many tricks. And their begging postures and gestures are most appealing. They become quite tame under care; and their cubs are quite playful and can be easily trained into trick bears. The parent bears are most affectionate to their cubs. The bear furnishes the hunter and trapper with food and fur. The wildcat is chiefly famous for his ferocity. The hyena, one of the ugliest of animals, certainly is a benefactor of humanity

in that he disposes of much carrion which otherwise would breed disease. In the unsanitary condition of many villages of Africa and Asia, where garbage is cast out into the streets to rot in the heat of the sun, many epidemics would arise but for the nightly feasts of the hyena on this garbage. The jackal is noted for his stealthiness under cover of darkness, though he will at a distance follow a caravan in hope of some prey. The wolf is worse than the jackal as a beast of prey, and is the sworn enemy of the flock. Often congregated in hordes, he attacks people in villages: and many a traveler on the steppes of Russia has fallen a victim of their rapacity, and thrilling stories of narrow escapes from them have been told by others. His predatory character as against sheep and lambs has made him the emblem of rapacious religionist leaders, while their victims are called sheep and lambs. The fox is valuable for his fur and is chiefly famed for his sagacity, as the following tale will show. A fox, desirous of relieving himself of an abundant crop of lice, tore some wool off a sheep. Perching it on the end of his nose, he went to a river, backing himself very slowly into it, beginning with his tail's end and slowly submerging it part by part, more and more, then his hind feet gradually, more and more, then his legs, deeper and deeper, then his hips, more and more, then successively and slowly the next adjoining parts of his body, then his forefeet, then his forelegs, then his shoulders, always slowly and gradually deeper, then his throat, his neck and his head, ever slowly and gradually until only the wool at the end of his nose and his nostrils were above water. This wool was now covered with lice, which continually fled from before the approaching water and as a last refuge sought the wool as the only dry place left them. Thereupon our Reynard let go to the mercy of the river the wool with its load of lice, and he left the river a clean fox—quite foxily washed!

The lynx is somewhat like the fox, but less crafty, though fiercer. The otter is a weasel-like marine animal, feeding mainly on fish, both in salt and in fresh water. Its skin is valuable. The mongoose is very valuable in India as the enemy and killer of the venomous cobra. The marten, the sable and the ermine are valuable chiefly for their fur, the ermine furnishing the trimmings of royalty's robes. The mink, the badger, the walrus and the seal are especially valuable for their furs, which are much prized for winter coats for ladies. Moreover, the walrus' tusks are like ivory and, accordingly, are quite valuable. The mink, the walrus and the seal subsist mainly on fish; and especially the seal is very prolific and can be made very tame. The weasel and the raccoon are valued for their fur; and the raccoon is considered in many quarters as a much desired table delicacy. The skunk, whose odor has made him infamous, performs a real service for the farmer in keeping down certain very destructive rodents, like field mice and moles.

The rodents, nibblers, gnawers, are another species, consisting of the hare, rabbit, pika, beaver, porcupine, rat, mouse, marmot, guinea pig, squirrel, etc. The hare, rabbit and guinea pig are very timid, but remarkably prolific. The pika, a close relative of the hare and rabbit, dwells in northern regions and gathers in late summer a large harvest of grass, herbs and hay, stacked sometimes six feet high and eight feet in diameter, over their burrows; and in winter, without coming out into the cold, they feed on this from the entrance of their burrows, upward and horizontally. Frequently the lazy farmers of those regions rob them of their store to feed their horses and cattle, leaving the prudent pika to starve. The field mouse frequently lays up his store, but within his burrow. The squirrel performs similar tasks with nuts and acorns, which he stores in his tree den. The beaver is the most remarkable of this class of animals. The dams that he builds

are a wonder architecturally, and his home, built at the water's edge, so that he leaves and enters it by the water, is a marvel. It has various rooms like bed rooms, living rooms and dining rooms, and their home life is wonderful for its manifestation of convenience, love and peace, the young benefiting the most by these arrangements. Their skill in cutting down trees, often ten inches thick, always felled by them toward the water, is remarkable. They live in communities of from 200 to 300; but each family has its own home.

The next set of beasts to receive our attention are the beasts that have no fore teeth, or incisors. These are scientifically called Edentates. They include the various kinds of sloths, ant-eaters, armadillos, duckbills, pangolin, aardvarks, etc. The sloths, as a rule, lives in trees, hanging on to their branches by their fore and hind legs, both when awake and when asleep. The remarkable feature about the duckbill, which lives both on land and in water, is that, though a hairy quadruped, it is oviparous. Its duck-like bill and almost web-feet give it a peculiar appearance. Its male is like a serpent in that it is provided with a poisonous sting, which, peculiar to say, is in its hind legs. The ant-eater is one of the oddest appearing animals. It sometimes grows to seven feet in length, though but two feet high. It is clothed with a scaled armor. Its snout is nearly two feet long and out of it issues a tongue that is shaped like a thick wire and is sometimes two and a half feet long. Its tongue is black and very sticky and is thrust out among ants, especially white ants, which by the thousands adhere to it when touched by it, and which are then drawn into the animal's mouth and eaten by it. It devastates portions of ant hills whereby it attracts the ants out of their dens to become its food. It is for the most part covered by long hair, especially on its legs. The armadillo, whose name in Spanish suggests the idea of armor, looks like a beast covered with a coat of mail. It is widely distributed,

especially in Central and South America. The pangolin is covered with heavy and large scales, which give it a heavy armor. It is a rather harmless, though repulsive-looking beast, about 35 inches long, and exists in several varieties in Africa and Southeastern Asia, including India. The aardvark, or earth pig, looks much like the ant-eater, though less hairy and with much shorter tongue. It is an African animal, nocturnal in habits. It feeds on ants, near whose mounds or hills it lives in its burrow. It digs rapidly with its forefeet, even in hard soil, and in a few minutes can excavate a burrow large enough to hide its large body. It is harmless—except to ants.

The Ungulates, *i.e.*, hoofed animals, are of very many varieties. They include cattle of all kinds, which are of many varieties: the bison, yak, buffalo, sheep, goat, ibex, chamois, eland, antelope, kudu, emsbock, gazelle, prongbuck, giraffe, deer, elk or moose, caribou, musk, chevrotain, camel, llama, alpaca, swine, boar, hippopotamus, tapir, rhinoceros, horse, zebra, ass, mule, hyrax (the Biblical coney), elephant, etc. Some of these, like the cow, sheep, horse, camel, goat, reindeer and elephant, we have already considered, under the head of domestic animals. Of some of these ungulates there are almost as many varieties as there are countries in the world. The Asiatic bison is amphibious and, next to the crocodile and gorilla, is probably the most formidable fighter among the animals. His smooth skin is almost as hard as steel and is able to escape almost unscratched from the tiger's claws and teeth. His horns are most formidable weapons, that finally defeat the lion and the tiger in their fights. He moves so quickly that his horns are always pointed toward the lion or the tiger in a fight; and thus he tears great gashes in them while their teeth and claws can scarcely scratch his steel-like hide. The American buffalo, though once multitudinous on our broad plains, is now almost non-existent, except in parks

and specially sequestered herds. The bulls were very pugnacious. There is a story told of one of these challenging to battle the first locomotive to pass over the great American Prairie on the Southern Pacific Railroad. According to the story, there was an immense herd of buffaloes covering the railroad bed and the country for miles on both of its sides. On approaching it the engineer slowed up the train, in the hope that its slow approach would move the buffaloes to clear the track. A large bull buffalo thought the engine was a strange animal and advanced to attack it, with tail high in the air and lowered head. When he had approached within about 25 feet from the train, the engineer let go a terrifically loud and shrill whistle. This frightened the advancing bull into a terrified and high jump, and he fell to the track—dead of fright! The bull must have thought, "If he can yell that loud, what must his bite be! I give up!" This shrill whistle frightened the herd, which immediately started to run in one direction across the railroad, and despite its speed it took more than an hour for this herd to clear the track and thus allow the train to proceed.

The chamois in his Alpine home is an animal of the surest tread. He can climb an almost perpendicular precipice and jump down precipices 30 or 40 feet high, lighting on his feet unhurt by the descent, and is immediately ready for another jump as deep. This occurs frequently when he is hunted, and when grown his surefootedness makes him escape all efforts to capture him. The llama is as surefooted as the chamois, though not so expert a jumper and escaper from would-be captors. He well serves his master as a burden-bearer in negotiating the difficult trails of the Andes. The antelope is noted for his beauty, grace, speed and frolicsomeness; and if caught, which, if he be grown, his speed makes almost impossible, he makes a most lovable pet. The gazelle is much like the antelope. The alpaca is noted chiefly for his fine hair,

which in the Orient is quite an article of commerce. The boar is another hardy warrior and his destructiveness and uncleanness makes him a Biblical symbol of the papacy (Ps. 80:13). The giraffe is chiefly noted as being the tallest of present living animals, in some cases reaching a height of 19 feet. He is quite gentle in captivity and is much like a horse in disposition and appearance, except for his long neck and the comparatively large size of his forelegs and the small size of his hind legs, which differences come him in good stead in browsing on the leaves of high trees in his native habitat. The deer is another of nature's beauties and in captivity makes a fine pet. Indeed in some of our national parks, like the Yosemite, he roams free among the people, coming every morning to those cabins where he has been fed and eats out of the hands of his feeders and tamely accepts their caresses and returns them with his tongue-given kisses. The hippopotamus (river horse, so-called because he lives more in the rivers than on land) belongs to the ungulates. His square head, long and fat body and short legs combine to make him very ugly, and he is, next to the elephant, the largest of beasts, he frequently weighing between four and five tons. Frequently he becomes very savage, sometimes even attacking steamers sailing in his rivers. Many stories are told of his great strength, courage and prowess in battle. His huge tusk-like foreteeth make him a most dangerous biting beast, able to fight as well in water as on land.

Some of the ungulates are also ruminants, *i.e.,* cud chewers. Among such are cattle, sheep, ox, camel, deer, elk, antelope, llama, chamois, giraffe, buffalo, musk, ibex, etc. It will be recalled that such of the ungulates as chewed the cud and parted the hoof were called by Moses clean, *i.e.,* hygienic and as such fit for human consumption. Chemical analysis shows that such have the same chemical elements as has the human body, for which reason God declared them clean, hygienic

(healthful) for human consumption; while those animals that do not chew the cud and part the hoof, or do only one of these two things, are declared unclean, unhygienic (unhealthful) for human consumption, containing as they do chemical elements foreign to the human body, which elements act as a poison when eaten by humans. Among ungulates that are not ruminants the swine are the most common example. The ruminants are all herbivorous, and the ruminating process implies a most remarkable structure in the stomach of its subjects. Surely design and a Creator are implied in this, as the following shows: Their stomach, generally speaking, is made up of four chambers. In the first of these the grass, leaves, herbs, etc., are moistened. In the second they are rolled up into balls. Then these balls are drawn up into the mouth, where they are more thoroughly chewed. Thereafter the twice chewed food goes to the third part of the stomach, where it undergoes a further preparatory process. Finally, from the third it is carried to the fourth part of the stomach, where it is digested. Certainly this method of preparing the food for digestion not only argues design and a Creator, as clearly as a mill that grinds grain or a machine that makes carpets, but also is a revelation of His love and care for His creatures. The liquid that such ruminants drink goes at once to the second part of the stomach, where it makes the balls moist; but the milk partaken of by the calf, not undergoing the cud-chewing process, passes at once into the stomach's fourth compartment!

Among the ungulates are also a class that are often called pachyderms, *i.e.,* thick-skinned animals, among which are to be found the elephant, Indian water bison, hippopotamus, rhinoceros and the tapir. We have already given a few points on the first three of these; and a few words may be devoted to the other two as illustrating the power and wisdom of God in their creation. The tapir looks like some of the animals

that have become extinct. One of its five species is found in the Malayan region; the other four are found in Central and South America. It is solitary, nocturnal, shy, inoffensive and vegetarian, dwells in the thickest parts of forests, avoids open spaces and is almost never seen except from river boats in the morning when it comes to the banks to drink. It is an excellent swimmer and diver. Generally it is harmless, fleeing quickly before even the smallest dog. Sometimes it will attack its enemies fiercely, especially does the female so do when deprived of her young, rushing violently at their foes, knocking them down and trampling upon and biting them. Its flesh is in appearance and taste like beef, which makes it the quest of native hunters. Its thick and strong skin makes excellent whips and harness, and its hair, hoofs, etc., are used by the natives for medicine. Its hunting starts from the banks of streams where and when it comes to drink, and between dogs and humans it is soon run down and dispatched. Sometimes the young tapir is caught alive, and when too large to be carried on a horse in front of the rider, a hole is bored through its snout, which gets a thong, and it follows obediently as thus led.

The rhinoceros almost disputes with the hippopotamus the distinction of being the next largest beast after the elephant; for while its body is not so large around nor so long as that of the latter, which averages four feet longer, its head and legs are also less bulky, though longer. But it is far more formidable. The lion and tiger retreat before its onslaught, and even the elephant is hard put to before he can overcome it; for its two horns are most deadly weapons, which are used with much power and precision. In some varieties the front horn attains a length of from 40 to 44 inches, one in the British Museum measuring 56½ inches. This with its strength and speed makes it an adversary of no mean mettle. Its teeth are enormous. In the Indian rhinoceros we find the hide arranged like armor

made up of definite plates. All of its varieties are usually stupid and timid in man's presence, generally striving to flee before him; but when it is brought to bay it is a most dangerous antagonist, for it attacks ferociously; but being vulnerable by knife and rifle shots in many places on its huge body, an experienced and sure-shot hunter can successfully cope with it. In its Indian representative more reliance is placed in its lower sharp-pointed tusks than in its horn as an offensive and defensive weapon. It is nocturnal, some of its representatives preferring the tall grass jungles and swamps, others the open plains. It is vegetarian and is found in southeastern Asia and Africa. The Asiatic rhinoceros is single-horned, the African usually double-horned. The latter is the greater fighter and the larger animal. When killed it falls down on its legs and feet and lies as asleep, not turning over on its side as most mammals do in death. Its sight is poor, but its scent and hearing are quite acute. Certain birds are its friends, for they eat the ticks that adhere to its body; and by flapping their wings and crying excitedly they warn it of the approach of the hunter, thus awakening it from sleep and enabling it to flee.

Pouched mammals, or marsupials, so-called because they carry their young in pouches and suckle them there after a very short period of gestation, and that before they would in other mammals be mature enough for birth, consist of the kangaroo, phalanger, koala, wombat, bandicoot, Tasmanian wolf, Tasmanian devil, dasyure, pouched mouse, banded ant-eater, pouched mole, opossum, etc. The kangaroo is often as large as nine feet from tip of nose to tip of tail, and as heavy as 150 pounds. Its face and head are in appearance like that of a rat greatly enlarged. Its forelegs are rather short—14 inches—and lean, but its hind legs are very long—40 inches—thick at the thighs and exceedingly muscular. These enable it to outstrip the fleetest greyhound, not by running, which it does not

do, but by jumping with great rapidity, often covering 30 feet at each leap; for scarcely does it alight from one when it is off on the next jump. When not in motion it stands erect, seated on its haunches and tail. It carries its young in its pouch. These, as is the case with all the young of pouched mammals, are prematurely born. They are emptied into the pouch from the womb and each is attached to a teat, to which it clings without letting go for months, until it is about as developed as the usual animal at birth. Then it lets go its hold on the teat, and returns to it from time to time as it becomes hungry. The kangaroo is herbivorous, partly nocturnal, very timid, gregarious, having strong senses of sight, hearing and scent, peaceful, except in the mating season, when the males fight with one another. When hard pressed he will take to water, sometimes swimming two miles; and the mother, when hard pressed, to save self by increasing speed, will often cast away the young. Phalangers are of many species: some of them look like rats; some like foxes, with short noses, however; some like cats; some like flying squirrels. The kudu looks like a bear cub and lives in trees in his Australian home. The Tasmanian wombat looks much like a grown bear, but, of course, is much smaller. The Tasmanian wolf looks like a wolf, except for his pouch, while the Tasmanian devil has a face somewhat like a chow. The pouched anteater has the head and face of a rat and the body of a long cat. The opossum is an American animal, has more teeth than almost any other animal, numbering 50, and has an unusually long tail, useful in climbing trees, holding to branches around which it winds itself, and holding its young secure while they are perched on its back, twisting their tails around their mother's tail. Its simulating death has given rise to the expression, "playing 'possum."

By our text's expressions, "creeping thing" and "everything that creepeth upon the earth," not only

the creatures mentioned in a former connection, but also the reptilian world is meant. We will give a brief glance at this department of God's creative work and will therein also recognize the power and wisdom of our God. Here belong the crocodile, alligator, gavial, lizard, chameleon, tortoise and snake. The first three of these belong to the saurian family; and they and the tortoise are survivors of the families of extinct saurians of the geological ages. The crocodile, all in all, is the most formidable of all animals. His hide is a veritable coat of mail that is almost bullet-proof. It is made up of innumerable small plates which are parts of large plates of armor. Its mouth is enormous, sufficiently large to hold inescapably a struggling lion or a tiger around the center of its body, on which it seizes as it springs from its hiding place in the tall grass when the former comes to the river to drink, and which it in the same spring carries in a dive under the water where its helpless catch soon dies and is then later devoured by the crocodile at its leisure. Its teeth stand in fierce and multitudinous array all along its long jaws, and when its huge mouth is opened to its full extent at its extremes it in some cases is over five feet wide. Its short legs are muscular and its webbed feet are adapted alike to walking and swimming, for it is one of the most amphibious of beasts. Its head is enormous, and by its tail it can strike a harder blow than can any other beast with any of its members. This tail is so constructed that it can sway from side to side and one blow with it breaks a strong boat into kindling. Often it will seize a horse fording a river, its lower jaw fastening its teeth in the horse's belly and its upper jaw fastening its teeth in the horse's back, breaking it with one bite. Despite its power and predatory habits it has often been tamed, for the ancient Egyptians regarded it as a sacred animal, a god, and so kindly treated it that it became a pet on whose back children would frequently ride, unmolested.

They are, of course, a tropical and sub-tropical animal, living in and beside rivers and fresh-water lakes, though the Indian crocodile, the gavial, takes to the salt water from time to time. They are fine swimmers, their tail being their main propeller, though their webbed feet, which are used chiefly for walking on shore or bottom of the stream, help therein. They are quick of movement, especially in water. In repose on water and on land they look like logs. They are carnivorous, some living on fish alone, others on fish and flesh. Their small gullets prevent their swallowing their large prey, which is, accordingly, torn to pieces and then swallowed piece-meal. Often they seize a human being who, if unarmed, can escape only by gouging out their eyes. They are considerably nocturnal in their habits, and in protracted droughts many of them bury themselves in the mud, where they become torpid. The female lays 20 to 30 eggs about the size of a goose egg. It buries these in the sand at varying depths, averaging two feet, and leaves them there to hatch. It lies upon this "nest" until the eggs are ready to be hatched, which the mother learns from the cries of the young yet in the eggs. Thereupon she digs up the eggs and lays them on the ground in the open air, and soon the young break the shells and come out. Then the mother leads them to the water. Their size varies. Those of the Nile often reach a length of 19 feet, but those of India often attain a length of 30 feet or more. Except the anaconda the Indian variety is the longest of animals. There are a number of varieties of this family of reptiles, of which we have been writing: crocodiles, alligators, gavials, or garials, and caimens, and they are found in Asia, particularly in India, Egypt, South and North America, in their tropical and sub-tropical parts. Many interpreters of the Bible consider the Leviathan of Job to be the crocodile, as also many of them consider the Behemoth of Job to be the hippopotamus. The descriptions there

given seem to be in harmony with this thought. It might be added that the four species above mentioned have each one of them many varieties. These like most other forms of wild life have greatly decreased by the advance of civilization. Fossil remains prove that earlier members of this family attained a much larger size. Surely in this beast power is represented; and hence it well reveals to us God's power and wisdom.

Another branch of the reptile world is found in the tortoise and turtle. These are distinguished from all other animals by a bony shell to which they are attached for life. This shell greatly varies in all varieties of these, but in almost all cases they are a work of beauty and intricacy. Both the upper and the lower part of the shell is beautiful. The head looks sometimes like that of a crocodile, sometimes like that of a serpent. The tail is short and the legs are proportional to the size of the subject. It has the power to draw all of these members into the shell and thus to conceal them, which it always does when afraid of the threat of danger. Of the tortoise, which is found on land and water, its land representatives are the more numerous. There are about 40 varieties of these. They are distributed over the south of Europe and Asia, all of Africa and the southern portions of North, and in South America, including the Galapagos Islands, where they exist in large numbers and great sizes. They are herbivorous. Some of the island ones are giants indeed, their weight sometimes reaching 500 or 600 pounds. They are endowed with length of days, some of them living over a century, and of some it is claimed that they live several centuries. They usually "dig in" during the winter and remain in a torpid state until spring, when they come forth. They feed mainly at night and in the morning. During hot weather they love to plunge into water, of which they drink large quantities. The female excavates a shallow pit where she lays her eggs, usually four in number,

then covers them up with the mud that she had scraped out of the hole. She beats down the loose earth until it is level with that surrounding it. This she does by stamping it down with her feet and by raising herself as high as she can and dropping down upon it. When she is through a human eye cannot differentiate the place from surrounding places. Tortoises, especially the males, are quarrelsome and bellicose, but their fights are chiefly trials of strength, each trying to upset the other, placing him on his back, from which position the defeated one is unable to free himself, unless the ground where he lies is uneven. The tortoise and the turtle are much valued as food. In a famine a giant tortoise was caught; and it made a hearty meal for 125 hungry men. We have all heard of turtle soup. Turtles often make fine pets. Children delight in capturing and keeping them as such. One must be on his guard against snapping turtles, which sometimes refuse to let go their hold until their heads are cut off and then broken loose from the member in their mouths. There are more varieties of the turtle than of the tortoise. In their structure, etc., we again see revealed the wisdom and power of God.

We will pass by the lizard, which consists of many varieties, and the chameleon, which are members of the reptile family, with a mere mention of them, and speak but briefly of snakes, as the last branch of reptiles. Snakes are of many varieties: something like 500 different kinds have been found. They range from the harmless garden snake to the giant anaconda, which is said in some members to have exceeded 45 feet. One was killed in Brazil said to have been 60 feet long, which is hardly believable. Despite such very probable exaggerations, it is, however, the longest of all land animals. Snakes are hard to differentiate from some varieties of lizards. The snake is scale-covered, elongated, slender, limbless, usually flat-headed, with a dilatable mouth, enabling it to swallow

prey larger than its head. It has no eyelids, though a transparent disk covers its eyes, like lids; it has no opening for an ear, but is supposed to hear by its tongue, for which reason it protrudes it frequently. It has numerous joints in its backbone and moves by the edges of the shields of its belly, drawing it over rough surfaces. It cannot move over a smooth surface like glass, because these shield edges can obtain no hold thereon. Conformably with its elongated shape its organs are long. Snakes are of two kinds, poisonous and non-poisonous, though this distinction does not follow the lines of distinct varieties. Some of them are most beautifully colored, especially the tropical ones. Usually the tropical snakes are the largest, for next in size to the anaconda, the largest variety of the boa constrictor and a South American inhabitant, comes the python, a tropical serpent, an inhabitant mainly of India. Boas other than the anaconda sometime attain a length of 30 feet and the python of 28 feet. These, the two largest serpents, are non-poisonous. The boa seizes and crushes its prey to death, then swallows it, while the python will sometimes swallow its prey alive without crushing it, at other times first crushing it, then swallowing it. The most deadly of the poisonous snakes are the cobra, viper, copperhead, rattlesnake, moccasin, coral snake and mamba, the last being the most poisonous of all snakes, an inhabitant of Central and South Africa. To humans the snake is the most repulsive of all beings. Doubtless this feeling is a matter of heredity. The relation of the serpent to Satan and sin and as a symbol of both of them are doubtless the origin of humanity's feelings against it. Perhaps the reference to the serpent (Is. 65: 25) has a literal application. If so, it means that serpents will sometimes cease to exist, which undoubtedly will be true of poisonous snakes, either in the sense of their total extinction, or in the sense of their losing their venom. Primarily

the statement refers to Satan, who will "bite the dust," die, which is "a consummation devoutly to be wished."

As we meditate on the creation of the animals on the sixth day, as in the case of those of the fifth day, from every angle we are struck with the marvels of God's wisdom and power shining forth therefrom. Their structure, their qualities, their diversities, their harmonies, their utilities, their purposes, their numbers, one and all, bring before us the greatness of our God. Even in their creation we see a blending of God's wisdom, power, justice and love, as we view them from the standpoints indicated in the last sentence. If we should suppose our earth to be without these creatures, it would surely lose to us some of its attractiveness. Since man by sin has in a large measure lost his lordship over the animal creation, and since in his fall his kingdom as exemplified in these animals has greatly fallen into disorder and anarchy, we are not to expect the lower animals now to be satisfactory to man, nor man to them. But we are assured that with man's return to his former sinlessness, his lost dominion over the animal creation will be restored; and, subject to a sinless master, the animal creation will lose its wildness and predatory ways and become in all its members subject to perfect man and will be greatly ennobled in comparison with its present disordered, lawless state (Is. 65: 25; 11: 6-9); for like king like subjects, which effect will reflect still more the glory of the great Creator!

CHAPTER XII.

THE SIXTH DAY—MAN.

Gen. 1: 26-31; 2: 7, 21-25

"LET US MAKE MAN." GOD'S IMAGE IN MAN. ITS BIBLICAL ASPECTS. GOD'S LIKENESS IN MAN. MALE AND FEMALE. MAN'S BLESSINGS. ADAM FORMED, EVE BUILT CREATIVELY. THE CREATIVE PROCESS USED ON MAN. ADAM'S BODILY CONSTITUENTS. HIS ALIMENTARY SYSTEM. THE BLOOD. THE MUSCLES. THE BONES. THE LUNGS. ELIMINATIVE AND REPRODUCTIVE ORGANS.

AS WE have seen, the first part of the sixth creative day's work was the creation of land animals; and now our study brings us to the crowning creative work of the sixth day, as well as the crown of all God's earthly creations, man. His creation is described, in a summary, in vs. 26-31, and in detail in Gen. 2: 7, 21-25. In v. 26, God said, "Let *us* make man." Some have used the expression, "Let *us* make man," to mean that there are more than one God. They use the expression to favor their theory that there are three Gods, which is polytheism, *i.e*., the doctrine of a plurality of Gods. Such a doctrine is unbiblical, unfactual and unreasonable. While undoubtedly more than one Being is referred to in this passage, these do not constitute God. According to the language here used God is doubtless the Speaker of these words and includes Himself among the Ones who are exhorted to act in man's creation. Who else is included? We answer, the precarnate Lord Jesus. This is taught in John 1: 3; Col. 1: 16. Whether the angels who co-operated in the creative works under the Logos are also included in this term "us" cannot be positively determined from this passage or from other Scriptures. But at least the Father and the Son are therein included, and the wording of the passage, "God said," proves that the Father only is the Speaker, who exhorts at least the Son to co-operate with Him

in man's creation. The relation of the Two in creation is as follows: The Father was the Architect of the creative plans and the Supplier of the materials for creation, while the Son was the Contractor who took the plans and materials and worked them up into the finished product under the direction of the Architect of the universe.

The language, "in our image," is quite meaningful. That a physical image is not here meant is evident from Jesus' statement, "No man hath at any time seen His shape" (John 5: 37); for if a bodily image were meant every time we look upon one another we would be seeing God's shape. According to the Bible the expression, the image of God, refers to the perfection of the original man in his intellectual, artistic, moral and religious faculties as such, and in the capacities of these faculties. This would mean that every one of man's intellectual, artistic, moral and religious faculties was perfect in quantity and quality. In the intellect it would mean that none of the mental faculties was stunted or dulled, but that each one was capable of complete use in quality and quantity for the needs of a perfect human being. This involves the possession of perfect abilities to observe—perceptive faculties—things as objects of man's senses and thoughts. This means that he had perfect ability in regard to language as a vehicle perfectly to express perfect thoughts, that he had perfect ability to determine the weight, color, minutia, size and form of all objects brought to his attention, that he could perfectly determine questions as to time, condition and place of such objects, and that he could perfectly calculate the numerical relations of all things coming under the scope of human observation. Thus his intellectual faculties of observation—perceptive faculties—were perfect in their quality and quantity. So, too, his reproductive faculties, those that deal with matters of memory, were likewise perfect in quantity

and quality, so that having once perceived a matter he had the power never to forget it. This includes thoughts, words and acts of his own and of others insofar as they would come under his cognizance. Finally, in his mental powers his reasoning faculties were perfect in their quantity and quality, *i.e.,* he could reason perfectly both in deductive and inductive matters, draw perfect conclusions from his premises and make perfect generalizations from specific cases. Moreover, in the three forms of his intellectual powers, the perceptive, reproductive and reflective powers, there was a balance that was perfect as to order in both quality and quantity of these powers. These things made him an image of God intellectually.

The original man as made in God's image was perfect in his artistic faculties, which are semi-intellectual and semi-moral powers. Thus he was endowed with perfect imaginative powers enabling him perfectly to originate and to construct physical, mental, moral and religious works. He was additionally created perfectly capable to enjoy, partake in, and originate music, both vocal and instrumental. He was endowed perfectly with the ability of humor and mirthfulness, both to enjoy these in others and to originate them himself. He was perfectly endowed with the ability to love, appreciate and originate the beautiful and the sublime, which with imagination made him capable of becoming a perfect poet, painter, sculptor, composer of music and architect. His endowment with agreeableness gave him the ability perfectly to please and delight and entertain others. And, finally, in his artistic endowment he had the ability to be a perfect orator and actor. Not only was each of these artistic abilities perfect in quality and quantity, but each was as such adjusted to the others so as to produce a balance in the artistic side of the image of God in Him.

Adam as God's image was also perfect in his moral faculties in their quality and quantity. He had two

sets of such faculties, selfish and social, the former enabling him to maintain a proper attitude and to engage in proper activities toward self, and the latter enabling him to maintain a proper attitude and to engage in proper activities toward others, his fellows. Thus he was able to exercise a proper attitude and activity as to a proper self-estimate, as to others' estimate of him, as to his comfort and rest, as to his life, his existence, his health, his safety, his self-defense, his aggressiveness, his concealing disadvantageous things, his gaining and retaining possessions, his food and his drink, etc. All of these abilities were perfect in him in quality and quantity and fitted him to exercise a proper and perfect self-love—natural as distinct from sinful selfishness. These selfish moral faculties existed in a perfectly poised relation to one another in Adam. By the exercise of these selfish powers Adam had the ability to develop a proper self-respect, self-satisfaction, self-confidence, approbativeness, peace, self-preservation, combativeness, secretiveness, carefulness, providence, destructiveness and alimentiveness—all lower primary graces and thus parts of God's image. These embrace his moral powers insofar as they were concerned with self. But the moral powers are also concerned with others, one's fellows, one's neighbors. And as a part of God's image in Adam these were in each case also perfect in their quality and quantity. He was perfect in his adaptation to the opposite sex in the quality and quantity of his amativeness. Then, too, he had perfect ability to be an ideal husband and father. Not only so, but he had the ability to be a perfect friend and home and country lover. These adapted him perfectly to the enjoyment of his social privileges and to the discharge of his social obligations in family, community and state. By the exercise of these social moral powers he could develop the social graces, which are also lower primary graces:

Sexliness, conjugality, paternality, friendship, domesticity, communality and patriotism.

In his religious faculties Adam was perfect as to quality and quantity. His religious faculties were adapted to bring him into a proper attitude and activity toward God primarily, and secondarily toward man, from the standpoint of man's relations to God. His religious powers enabled Adam primarily to exercise faith, hope, self-control, patience (perseverance), piety, brotherly love and charity. Thus he had the ability to believe and hope as to religious matters, the power to be firm (determined) and to be steadfast in a religious course and to exercise conscientiousness, appreciation, sympathy, benevolence and veneration in religious respects. He had these powers as abilities perfectly, *i.e.,* his religious faculties were perfect in their quality and quantity, and properly exercised these gave him proper attitudes and activities toward God, and toward man insofar as he was related to his fellows from the religious standpoint. The qualities that the exercise of Adam's perfect religious organs would have developed in him are those mentioned above, faith, hope, self-control, patience, piety (duty love to God), brotherly love (duty love to the neighbor) and charity (disinterested love to God and one's fellows). These are the higher primary graces. Adam's religious organs were adapted to one another in perfect balance. In addition to the balance that each set of Adam's organs had within itself, these four sets of organs—the intellectual, artistic, moral and religious—were in perfect balance with one another, which implies that the religious organs were the controlling, dominating organs in Adam.

So far we have assumed that the image of God in Adam, consisted in the things mentioned above. Since we have shown above from John 5: 37 that the image of God in Adam was not in the shape of his body, *i.e.,* that the image of God in Adam was not a physical

one, we are by reason forced to conclude that this image was in the faculties of man that are higher than the physical, and hence to conclude that it was in the realm of mind as distinct from the body. And this conclusion of reason the Bible proves to be true; for in the Bible the word image is frequently used to mean character, *i.e*., the quality of the mind as distinct from the body. Thus the evil disposition of the wicked is described as their image (*tzelem,* the same word as is used in the Hebrew of Gen. 1: 26 and there translated image) which God here is spoken of as abhorring (Ps. 73: 20). God's faithful people to become joint-heirs with Jesus must be conformed to His image (character, disposition, Rom. 8: 29). So, too, when speaking of the first man St. Paul says (1 Cor. 11: 7) he was the image and *glory of God* (the one who reflected the disposition of God); for frequently God's character is in the Bible shown to be God's glory, on the principle that as the glory of a good man is his good character, so God's glory is His good character. In 2 Cor. 3: 18 we not only see the glory of God and His image identified, but are told that by devoutly and steadfastly looking at that glory in the Bible as a mirror we are by God's Spirit changed into the same image from the glory of a less near image into the glory of a more near image. In Eph. 4: 24 we are told that the renewal of God's image in us is a renewal of us in the righteousness and holiness of the Truth. In the Greek the expression reads as we have just indicated it—in the righteousness and holiness *of the Truth.* Here we are shown that the Truth taken through the head into the heart renews us after God's character in righteousness and holiness. In Col 3: 10 we find the same thought expressed, "the new man which is renewed by knowledge (the intellectual hold of the Truth) after the image (character) of Him (God) who created him." The reason given in Gen. 9: 6 against murder is that man had been created in God's image (character

likeness). Thus these scriptures prove that the image of God in Adam was his being like God in disposition—his mental, artistic, moral and religious faculties were like God's in kind and perfection, though, of course, not in range and quality and quantity.

Perhaps we can better visualize the image of God in Adam, if we imagine a man who united in his own person in a still higher measure the qualities of the most talented and best of mankind, one who would surpass in the perceptive powers Darwin, in linguistic powers Cardinal Mizzofanti, who spoke upward of 70 languages, in reasoning powers Sir Isaac Newton, in imaginative powers Homer, in powers of memory Dr. Johnson, in powers of humor Rabelais, in powers of poetry Shakespeare, in vocal powers Caruso, in oratorical powers Demosthenes, in architectural powers Michael Angelo, in powers of musical composition Beethoven, in powers of instrumental music Rubenstein, in powers of sculpture Phidias, in powers of painting Raphael, in histrionic powers Booth, in gallantry Galahad, in conjugality Isaac, in fatherliness David, in friendship Damon and Phintias, in domesticity Jacob, in patriotism Leonidas, in combativeness Jashobeam, in aggressiveness Napoleon, in executiveness Caesar, in simplicity Tolstoi, in secretiveness Pinkerton, in providence Rothschild, in love of life Methuselah, in love of rest Joshua, in approbativeness Milton, in benevolence Lincoln, in faith Abraham, in hope Peter, in courage Samson, in love and tenderness John, in faithfulness and wisdom Russell, in patience and zeal Paul, in piety Daniel, in chastity Joseph and in meekness and humility Moses. Add to these capacities of mind and heart more than the physical strength of Samson and more than the physical handsomeness of the most beauteous Greek, and we get a fair idea of the image of God in Adam. His stature must have been large; and his head, with brains perfect in quality and quantity, must have been in the neighborhood of

28 inches in circumference. This we deduce from the fact that the average head is now 22 inches in circumference, while that of the average skull found in Pompeii is 24 inches. If in less than 2000 years the average skull shrank 2 inches, in 6000 years since Adam the shrinkage must have been something like 6 inches. These considerations help us to a better idea of what Adam was as an image of God. And what a contrast does this present, when compared with the average of present humanity! How fallen is man now!

Besides having been created in the image of God, according to v. 26 Adam was also created in the likeness of God and the Logos, *i.e.,* with the capacity to be the king of the earth and of its manifold forms of life, and was given such a rulership. This constituted his likeness to God and the Logos. That such is meant by the expression "after our likeness" is manifest from the proper translation of the pertinent part of v. 26: "After our likeness let him also have dominion over [the wild animals of the earth; so the Septuagint and the Syriac] the fish of the sea, and over the fowl of the heavens, and over the tame animals and over all the earth and over every creeping thing creeping upon the earth." The wording of this translation furnishes us with a definition, of God's likeness in Adam—his rulership over this planet and all its manifold forms of life. Thus Adam was constituted king of the earth and of the animal creation. In the immediately preceeding parts of our study of Creation we took a rather rapid glance at the various forms of life in earth's lands, waters and air. Over every form of such life, regardless of whether the sea, air or land was its habitat, Adam was made the ruler, as well as over the earth itself. His rule over this latter sphere of his dominion implies that he had the ability to discover and manipulate in his and in his subjects' interests all the laws and forces of nature connected with the earth, himself and his subjects, as his and

their needs required. This implied inventive and executive ingenuity of the highest order possible to man. We are not to understand that Adam exercised such ingenuity in all directions; rather that he had the ability so to do, and did it, until his fall, as much and as little as his and his subjects' needs called forth such use. Had he not fallen, such use in a decade or two, we doubt not, would have resulted in inventions and other forms of control over nature surpassing those of our day of inventions and use of nature's forces and laws for man's comfort and convenience. His rule over the animal creation was doubtless exerted by a combination of kindness, will power and magnetism, exerted through sight, voice and touch. For the rule of the tame animal creation doubtless kindness and the magnetism of eye, voice and touch were sufficient to make them subject to his will, illustrated by the way kind masters now control their domestic animals. With wild animals there had to be applied more will power, a fearless and steadfast look of the eye and the power of magnetism exerted by a sense of superiority, such as we see exemplified in the trainers of wild animals in circuses, zoos, etc. That Adam used this power over the animals is manifest from his summoning them before him and from his giving them names adapted to their habits, etc. Gen 2: 19, 20; 1: 28; Ps. 8: 4-8; Heb. 2: 6-8 are other Scriptures showing Adam's original rule over the earth and its animate creatures. But as with the image so with the likeness of God in Adam, the fall wrought havoc and ruin. The glory of Heb. 2: 6-8 refers to the image of God in Adam and Jesus as humans, while its honor refers to God's likeness. And the glory and honor of Rom. 2: 7, 10; 1 Pet. 1: 7 refer respectively to the image and likeness of God restored to the faithful Church of Christ.

In v. 26 God's determination to create man in His image and likeness is set forth, while in v. 27 the execution of this determination is described: "And

God created the man in His image, in the image of God created He him; male and female created He them." Here undoubtedly a specialized creation is described. In the repetition of the thought that man was made in God's image this verse emphasizes the thought. Doubtless on account of the image of God being a nobler feature in man than the likeness of God in him was, the former is emphasized by the repetition of the pertinent thought; and the mention of the latter is omitted, in v. 27, though it is given in v. 28. The Lord here gives us His contradiction of evolution; for if the first man had been but one step removed from the monkey, he would have been far removed from being an image of God, and would have been completely unfit to be in God's likeness, the ruler over the earth and its various forms of life. God might, had He so willed, created man sexless like the angels. Had He so willed, to fill the earth (v. 28), as is His ultimate design, He would have had to create billions of our kind directly, either at once or at intervals. This not being His will He arranged to secure the filling of the earth by propagation on the basis of sex distinction. Hence, as v. 27 teaches, He made the human family consist of males and females. According to the detailed account of man's creation in Gen. 2: 7, 18, 21-24, Adam was first made and afterward Eve was made. Since the Chronology as related to God's plan shows that Adam was created two years before sin entered the world, and since he was alone in the garden for a sufficient time to realize that he could not be satisfied in his companionship desires with beasts as companions and came to realize a sense of lonesomeness, he was perhaps not given Eve as his companion until about a year after his creation.

Since Eve was taken out of Adam (Gen. 2:21, 22; 1 Cor. 11:7-12), not only was a rib with some surrounding flesh taken from Adam, but certain features of his qualities were also removed from him and were

given to Eve as her qualities. This made her the glory—image—of Adam as St. Paul says in 1 Cor. 11: 7. Originally therefore, there resided in Adam all of the qualities that were later divided between Adam and Eve. The stronger features of Adam's qualities remained with him; and his more tender and delicate qualities were given to Eve. The qualities that fitted Adam to be Eve's head remained in Adam, and those that fitted Eve to be his complement or counterpart were given to her. It is these differences that make the sexes appreciate each other more than each sex does those of its own sex; for the real man appreciates the tender and delicate qualities of the true woman, while the true woman admires the strength, courage and executiveness of the real man. Each appreciates and loves in the other what the other has and it lacks. Of course each has all the fundamental qualities, but in different degrees. In making humans male and female, God gave each sex great ability to increase one another's happiness, usefulness and adaptability. As Rotherham renders Gen. 2: 20, each found in the other a helper as his or her counterpart. Implied in this married relation are the joys of companionship, trust, love, helpfulness, parenthood, with all the joys possible in the home and family. As man was made the head of the woman and of the future family, so this implies on his part, the responsibility of direction, support, protection and cherishment, and on her part helpfulness, obedience, endearment and co-operation. Had sin not entered the world, the husbandly and wifely relationship would have proven, next to the relationship between God and sinless man, to be the source of humanity's greatest happiness and usefulness. But sin has only too often made that relationship the source of humanity's greatest misery and undoing. But happy beyond our present powers to realize must have been the year of companionship that Adam and Eve had in their state of sinlessness.

God did indeed bless them (v. 28) with one another, with their godlike dispositions, with their Edenic home and with their dominion over the earth and its animate creatures. The charge to multiply (v. 28) given them in their sinless state, proves that sexual intercourse was not eating of the fruit of the tree of experience with good and evil, as many have believed and yet believe. Such a thought not only lacks all corroboration from the Scripture, but it directly contradicts the charge to multiply given them in their sinless estate. The A. V. rendering, "replenish," is not only a false translation, but implies an error, as though the earth had once been filled with people, and is to be filled again. The rendering should be, "fill." Thus God arranged that the Millennial and post-Millennial earth will be well populated with perfected humans. The charge to subdue the earth meant that as the perfect race would increase Paradise might ever be enlarged, until the whole earth would become Paradise. And this was to be from the standpoint that the race would remain perfect. Even in man's fallen condition he has done much toward subduing the earth, though he has, of course, not made it perfect, which will be done in the Millennium. The exercise of the powers implied in the "likeness of God," as explained above in the comments on v. 26 and repeated in the rest of v. 28, call for no further comment here. V. 29 shows that the perfect man was not to live on flesh, permission to eat which, coming only after the flood (Gen. 9: 3, 4), was granted because of the great change of climate due to the fall of the last of earth's engirdling canopies, making it cease to be a sort of hot-house. This made man need a more concentrated nourishment. According to v. 29 man's food was to consist of vegetables, grains (every herb bearing seed), fruits and nuts (every tree in which is fruit of a tree yielding seed), while according to v. 30 all animals were to be vegetarians. Hence the so-called carnivorous beasts

were not such by nature. Man's fall caused his subjects to degenerate; and one form of this degeneration is animals' preying and feeding on one another. No wonder when God looked upon all that He had made respecting man (v. 31), He pronounced it "very good." Thus closed the work of creation—day sixth.

With the preceding discussion we have finished our study of God's Works—Creation, in so far as these are described in Gen. 1. It will be noted that only a general description of man's creation is given us in Gen. 1: 26-31. A few details of man's creation are given in Gen. 2: 7, 21-25, which for those details will now engage our attention. There are two very significant words used in describing the creation of Adam and Eve which in a general way describe the creative process. As to the creation of Adam the Hebrew word *yatzar,* he formed, is used; and as to the creation of Eve the Hebrew word *banah,* he built (see margin), is used. These give in a general way a description of the creative process. It will be noted that none of the creative processes are given in much detail in Gen. 1 and 2. But these two words used in connection with the creation of Adam and Eve are detailed enough as thoroughly to disagree with the doctrine of man's evolution from the lower animal creation; for they describe it as a special creation. Not only so, but they imply the use of materials worked up into various forms and then built up into the bodies of Adam and Eve. The former process is the one emphasized in Adam's creation; and the latter process is the one emphasized in Eve's creation. Such emphasis implies in neither case the exclusion of the other process where it is not expressly stated. Rather, as the creation of Adam began with no previously existing form as a foundation, it was the natural thing to emphasize the forming of the parts of Adam in describing his creative process; while the rib used in Eve's creation was already a form, and therefore

erecting about it as a foundation the body of Eve would naturally require the emphasis to be laid upon the *building* process.

While the Scriptures contain hints on the angels' cooperating with the Logos in the creation of the universe, a thing implied in its immensity and complexity, they give no hint as to their cooperation with Him in man's creation. Indeed, as we saw when commenting on Gen. 1: 26, the "us" of that verse seems to imply that only God and the Logos are therein included. While human architects use elaborate plans, specifications and detailed drawings put down on paper to be followed in erecting edifices, the perfection and almost unlimited scope of the Logos' intellectual powers made these unnecessary for God to draw up, either in the creation of the universe or in that of man. God simply told Him what, how and with what to do, and He did it. Therefore God described verbally, not in writing and drawings, to the Logos every detail as to the kinds and proportions and manner of composition of the materials to be used in Adam's creation, as well as told Him every detail of shape, size and function of each part of his body. Thus the Logos knew before beginning to create Adam just what substances to use, in what proportion to use them; how to compound them in each organ and part; and what size, shape and function He was to give each part of Adam's and Eve's bodies. In a word, God gave Him perfect knowledge of what He was to do, with what He was to do it, how He was to do it and why He was to do it. All this is implied in the words of Gen. 1: 26; 2: 7, 21-25, as we shall see.

Accordingly, the Logos set about to bring man into existence. First of all, He assembled the materials that were to be worked up, formed and built into Adam's and Eve's bodies. Chemistry shows that now the average human body of 150 lbs. contains the following substances of approximately the following

bulks: about 90 lbs. of water (about 11 gallons), about 24 lbs. of carbon, about 7 lbs. of lime, about 2 lbs. of phosphorus, about 2 oz. of salt, about ¼ oz. of iron, about 4/5 oz. of sugar, and less amounts of potassium, sulphur, magnesium, calcium, aluminum, arsenic, manganese, copper, sodium, chlorine, silicon, fluorine and iodine, about 5 lbs. of nitrogen and about 13 lbs. of hydrogen and oxygen in addition to what is contained in the body's water. The rest of the body's weight consists of air and wastes. The mineral salts above mentioned are combined in such ways as to produce the 12 cell-salts of the body. Counting these 12 cell-salts and the water, carbon, nitrogen, hydrogen and oxygen in the body, we see that it is compounded from 17 different substances. To assemble these in proper proportion was the Logos' first work in creating man. There is some reason to believe that Adam was probably about eight feet tall; for under the curse not only has man's skull shrunk on an average from 28 in. to 22 in., but the rest of his body has correspondingly shrunk. *E.g*., the Napoleonic wars killed off almost all of France's tall men, so that the average Frenchman is now about 5 feet 6 inches tall, whereas the average height before those wars was about 5 feet 10 inches. Perhaps Adam's weight was between 250 and 300 lbs. Accordingly, more materials than the above-mentioned amounts, perhaps twice as much, were used in making his body. This is all the more probable, when we consider the imperfection, among other ways, that impoverishes our fallen bodies.

Just in what order the Logos created the various parts of man's body is not revealed; hence we cannot be dogmatic on that feature of his creation. There are several probable ways that suggest themselves to the mind that reflects on the meaning of the words *to form* and to *build* as perhaps revealing the creative process used with man: (1) Beginning at one end, *e.g.,* the toes and feet, and making in consecutive order every

successive part of the body in its bones, flesh, muscles, tendons, ligaments, arteries, veins, capillaries, lymphatic system, nerves, glands, skin, organs, brain, skull, etc., until the whole body as an organism was completed, then infusing the blood into the body. (2) Making first the skeleton, the brain and its twelve nerve ducts and the eyes preceding the making of the skull, which was closed about them, the spinal-cord being inserted into each part of the vertebral column as made, all the vital organs, with their nerve, artery, vein and capillary connections, being then placed into their respective cavities, which were then closed about them, with the diaphragm separating the lungs and heart in the higher cavity from the lower cavity where the stomach, liver, pancreas, spleen, gall-bladder, small and large intestines, kidneys, bladder, etc., were placed. Thereafter in one piece of many parts the rest of the body may have been made and drawn over the skeleton, somewhat as a lady's gloves are pulled on over her hands and as a union suit of underwear is put on; then the connection made between the nerves, arteries, veins, capillaries, etc., that were put into the skeleton and those that belonged outside the skeleton, so that the body might be made a one united whole, an organism; and finally, the blood put into the circulatory system. This would complete the body according to the second possible order of the creative process. A third order might have been a combination of various features of the two preceding methods. Or there may have been still other processes and ways used. We do not know this unrevealed thing. But whatever the order was, it was brought to a completion in the perfection of a physical organism by whose union with another creative feature a human soul, a human being, was produced. Spirits, being able to penetrate material substances, as is evidenced by our Lord's resurrection body passing through the walls of the upper room

where the disciples assembled, by evil spirits inhabiting the bodies of demoniacs and by evil spirits injecting themselves into our minds and then injecting thoughts into them in such ways as to make us think we are originating these thoughts, the objection to various features of the above-described probable ways of man's creation, as requiring the creative Spirit to act within the body, is seen to fall to the ground. The above-cited Scriptures on forming and building and the possible order in which the creative processes were worked, are what Herbert Spencer ridiculed as the carpenter theory of man's creation, to which he preferred evolution as the process of man's creation.

Whatever the order in creating man's body was, the Biblical processes of forming and building applied in man's creation resulted in the production of a perfect human organism, a perfect human body, whose divers powers, parts and functions enabled it, when vitalized, to work as a united harmonious whole. All of these capabilities were worked into their pertinent parts in the creative process. This we know to be true because, despite the depraving of the body introduced by sin, it still has these powers and functions, though in an imperfect condition. A brief glance at the main features and functions of the body will demonstrate to us some marvels of God's wisdom, power, justice and love, as they stand revealed in man as a creation of God's inventive ingenuity. One of these features and functions of the human body is its adaptation to use food to produce growth, to replace depleted cells and to provide energy. These foods consist of carbonates (sugars and starches [carbohydrates] and fats [hydrocarbons]), nitrates (lean meats, gluten of bread, eggs, cheese, etc. [proteids]), mineral salts (the twelve cell-salts) and water. From the carbonates our bodies derive the needed energy and lubrication; from the nitrates they derive muscle-building food for the cells, which gives them strength; from the cell-salts they

derive the nerve substance and certain blood substances and the body builders; and from water the fluid parts of the blood and of the tissues and the moisture needed to promote the removal of wastes from the body. How necessary water is for the body appears from the fact that it constitutes slightly less than ⅔ of the body's weight. While individuals differ, the average adult requires about four times as much carbonates as nitrates and about eight times as much nitrates as mineral salts, with about as much waste as he needs of nitrates, [*e.g.,* a grain of wheat is a balanced food, containing about 66⅓ % carbonates, 16⅔% nitrates, 2% mineral salts, about 15% waste food (for bulk)] and about 2 quarts of water (daily). The science of chemistry has given us these facts.

In creating Adam's alimentary system perfect God performed a miracle of invention! The tongue to taste and thus to pass on the food's appetitiveness, the teeth to grind it, the salivary glands to help fit it for digestion, the gullet to direct it to the stomach, the stomach partially to digest it, the stomach glands and the spleen to provide the gastric juices as digestive fluids to further digestion, the liver to purify the blood, to store glycogen and to furnish bile, another digestive fluid, the pancreas to furnish still another digestive fluid, the bile partially to emulsify fats and make them pass through the intestinal walls as lubricants for the body, to carry off waste and to prevent fermentation in the intestines, the pancreatic fluid to change starches into sugar, to change nitrates (proteids) into peptones and to emulsify fats and cause them to pass through the intestinal walls as lubricants for the body! The liver has a still more important office, that of forming glycogen, animal sugar, which assists in oxidation, as it also prepares the peptones for assimilation. So far the food stuffs are only partially digested. The digestive process is completed in the over 20 feet length of the small intestine, where by means of the villi and

their connected glands, present in vast numbers, the digestive process is finished and most of the absorption of food takes place, though a small amount of it occurs in the stomach, and some occurs through the walls of the large intestine. And as a prevention of disease from the waste substances undigested and unassimilated the appendix and the gall-bladder contribute to the colon's emptying its contents through the rectum. By the operation of the alimentary system God provided for the permanence of Adam's body; for its product, plus what the blood supplied from the lungs, replaced all its waste cells, and gave it all the energy it needed for its various parts and functions.

This leads us to a brief discussion of the blood, in relation to assimilation, to body building, energizing and cleansing and to circulation. The blood receives the elements of food, absorbing them mainly from the villi in the small intestine, though also in small quantities from the stomach and colon, through minute capillaries. It then flows into what is known as the portal circulation, thence into the liver. From the liver this nourishment-laden blood goes to the heart, thence to the lungs, then back again into the heart, whence it is pumped to those parts of the body where the food elements are needed for replacing depleted cells, forming new cells and imparting energy. In addition to the above-described functions of the blood, it has several other functions, the main ones being to discharge surplus water and waste nitrogen (urea) through the kidneys and surplus water and waste carbon (carbon dioxide) through the sweat pores. In doing these things it partially purifies itself and prevents disease. Another of its functions is to remove carbon-dioxide by carrying it to the lungs, whence it is expired as a poisonous gas. Its chief function—that of permeating the body with life-principle derived from the oxygen that it receives from the air in the lungs—we will discuss in another connection. The blood consists of

about 90% water; it also contains some nitrates, carbonates (sugar and fat) and mineral salts, as on returning to the lungs it carries with it about 50 cubic centimeters of carbon-dioxide to every 100 cubic centimeters of its solids, of which it rids itself when it reaches the lungs. Thus blood consists of serum, a fluid portion, and fibrin, which while in the blood vessels is in a fluid state, but coagulates when removed from the body, becoming clot.

In the blood are two kinds of corpuscles—red and white. About 35% of each red corpuscle, which is in the form of a disk, consist of hemoglobin, containing a large amount of iron. It readily unites with oxygen, which it imparts to the various parts of the body. This is the chief function of the red corpuscles, which, when worn out, are replaced by new ones manufactured in the red marrow of bones. The white corpuscles are irregular and changeable in shape. They are in number as to the red ones in the proportion of 1 to 300. Their function seems to be to change food elements into protoplasm in the body and to destroy bacteria in the blood, which they do by engulfing and digesting them; but if the bacteria are present in too great numbers for this to be done to them, the bacteria kill these white corpuscles and disease sets in. These corpuscles are formed by the lymphatic glands. Also the spleen and the marrow of bones manufacture them. The blood by weight forms about a thirteenth of the body. Its distribution as to amount varies, being mainly in the stomach when food is there, unless one does physical or mental work, when it is largely withdrawn therefrom. Normally half of the blood is in the body's cavity below the diaphragm, about a fourth of it in the muscles and the rest in the heart, lungs, arteries, veins and capillaries outside of the body's cavity. Its normal temperature is 98.4° Fahrenheit; it is usually at its highest at about 5 P.M. and at its lowest at 4 A.M. In fevers it rises much higher; usually at 107° one

dies. To keep it at its best, wholesome food in moderation, fresh air, good sleep, moderate exercise and cheerfulness are necessary. Iron is especially necessary, the deficiency in which makes one weak and anaemic. "The life of all flesh is the blood thereof" (Lev. 17: 14; Deut. 12: 23). This indicates its chief function, *i.e.,* to impart life-principle to every part of the body and to keep it there.

Another marvel about the blood is its circulation. This is produced by the heart's pumping the blood throughout the body. The heart, the body's powerhouse, is a conical muscular organ above the diaphragm and lies so that its downward-pointing muscular apex moves in expanding and contracting against the fifth and sixth ribs, just a little left of the body's midline. It is surrounded by a loose membranous sac called the pericardium, filled with fluid, in which the heart lies, and by which it is protected against jars. It is divided into two separate and unconnected parts, each of these is again divided into two parts, the upper called the auricle and the lower the ventricle. The right auricle receives the blood from the veins, whose office is to return the blood from its trip around the body to the heart and the right ventricle sends it, when received from the right auricle, to the lungs where it rids itself of its carbon-dioxide and some water and receives new supplies of oxygen. Thereupon it returns to the left auricle, whence it is sent out into the left ventricle, which by way of the aorta pumps it into the arteries and through them it circulates all over the body. The arteries and veins thus are differentiated: the arteries take the blood away from the heart, while, after it has gone to the body's various parts, the veins return it to the heart. The capillaries' function is to receive the blood from the arteries, bring it into contact with all the bodily parts and functions and then discharge it into the veins, which then return it to the right auricle and ventricle, whence it is expelled as

above. The heart is a great power-house: the two ventricles at each pulsation expel about ¾ of a pint of blood into the arteries. Its beats average 70 a minute. In a single day the ventricles exercise enough power to lift 193 tons a foot high, or do as much work as a man of 200 lbs. would perform in climbing a mountain 3,600 feet high. The heart is thus powerful.

Though separated and unconnected, the two parts of the heart handle every drop of blood in the body and control its three forms of circulation: (1) That from the right auricle and ventricle to the lungs and back to the left auricle and ventricle; (2) that from the left ventricle by the aorta through the arteries throughout the body, except the digestive organs, spleen, pancreas, liver and gall-bladder, and back again to the right auricle and ventricle; and (3) the portal circulation, which takes the blood from the left ventricle by the aorta through certain arteries to certain organs in the body's lower cavity, *i.e.*, the digestive organs, spleen, pancreas, liver and gall-bladder. The second of these systems of circulation is the farthest flung and most detailed, carrying as it does the blood to the legs and feet, arms and hands, bronchi, throat, head, brain, spinal column, nerves, intestines, kidneys, bladder and sexual organs. The second is the least far-flung, traveling but from the heart's right auricle and ventricle to the lungs and back to the heart—to its left auricle and ventricle. But in making these three circuits the blood gets and brings the life-principle and needed nourishment to every bodily part, extracts the nourishment from food and drink, and discharges the body's waste nitrogens as urea and some waste water through the kidneys and bladder, some more waste water and a little carbon-dioxide through the sweat pores, fecal matter through the bowels and rectum and some more waste water and the bulk of the carbon-dioxide through the lungs. And to do this the blood and the heart now perform almost perpetual

motion, and were in Adam capable of performing such, and would have been doing it, had sin not entered the world. Lymph is semi-blood. Its function is to take the blood's food materials and give them up to the tissues as it bathes them. It therefore acts as the medium of exchange between the blood proper and the cells in the body's tissues. In its course it passes through the lymphatic glands, which remove impurities from it, as it also removes many impurities, like carbon-dioxide, urea, etc. The blood vessels, the heart, the lymphatic system and many organs are controlled by the sympathetic nervous system.

Another marvelous feature of the human body is its muscular system. The muscles are constituted so as to contract and expand. They are fastened by tendons and ligaments to the bones, which thus act as levers and supports for the muscles. They are of two kinds: voluntary, which act under the direction of the will, and involuntary, which act, apart from the exercise of will power, by the control of the sympathetic nervous system. Muscles usually exist in pairs: extensor, which straighten the joints, and flexor, which bend the joints. They contract to exercise strength; they relax when they cease to exercise strength. They are biceps or triceps, dependent on whether there are two or three tendons at their heads. The involuntary muscles have to do mainly with our vital functions, *i.e*., brain, spinal-cord, heart, lungs, stomach, liver, gall-bladder, spleen, pancreas, kidneys, bladder, intestines and sexual organs, though there is also partial voluntary muscular activity connected with the brain, lungs, bladder, intestines and sexual organs. It is a great blessing that our vital organs are under control of involuntary muscles, made to work by the sympathetic nervous system; for if these would have to depend on the activity of our voluntary muscles we would soon die, *e.g.,* the moment we would fall asleep or give our attention to other matters, these vital

functions would cease acting, and death would at once set in. Our muscles constitute half of our weight. We have over 500 of them, varying in size from that of a pin head to about two feet in length; and our movements, of course, depend upon them. They also have to do with the body's form; and they protect our more delicate organs and blood vessels, especially those within them. They enable us to do all physical and some mental work. They expend an immense amount of energy, especially the involuntary ones, *e.g.,* the muscles of the heart expend each day enough energy to raise a pound 434,112 feet high. Their exercise is promotive of health, warmth and the utilities of life.

There is very much of the marvelous displayed in man's skeleton. There are (depending on various methods of classification) from 206 to 245 bones in the human body. They make a most substantial foundation for the body, as well as a protection for various of its parts, *e.g.,* the brain, spinal-cord, lungs, heart, sense of hearing, etc. It would be impossible to improve on them by change, addition or subtraction. If the spinal column with its 26 bones, in an adult, is considered, its wonderful adaptation to its purposes is seen in its maintaining the body erect, in its protecting the spinal cord and part of the main central nervous system, in its supporting the ribs in their protection of the heart and lungs, in its flexibility for bodily bending, in its protecting the 31 pairs of nerve ducts that leave it to perform their functions toward various bodily organs and in its support of the head. How finely the humerus (upper arm bone) and the scapula (shoulder blade) fit together by their ball and socket joint! How well the femur (thigh bone) and the pelvic girdle fit into one another by their ball and socket joint! How well our hinge joints, *e.g*., those at the knee, elbow and ankle, fit together! How well do the cartilage and the lubrication fluid in these joints perform their functions! What shall be said of the wonderful adaptability

of our fingers, due, among other things, to their bones and joints? The bones' utility in working, walking and running are apparent at first sight. And perhaps most wonderful of all are our skulls, from the standpoint of their formation. As the cover of our brains, they do a most needed protective work. The skull's sockets are indispensable for sight, its nares for breathing and scent, its separate three little bones in the auditory channel of each ear for hearing. Its jaws and teeth are finely adjusted for chewing and for certain articulations. Its pivot joints, *e.g.,* the atlas, the topmost bone of the vertebral column, and axis next to it, perform wonders. The gliding joints as seen in the spinal column, have varied useful functions, *e.g.,* bending. And certain of our bones help to form levers in our bodies, *i.e.,* of three kinds, according to the position of the fulcrum: (1) the atlas for nodding the head; (2) the toes for raising the body and (3) the lower arm and leg for flexing them. Truly the bones are among the body's marvels!

The lungs certainly give us some more bodily marvels to consider. These by respiration perform a series of wonders. Their power of expansion and contraction serves for their performing their work of breathing, which in turn performs marvels. Their inhalations give us oxygen, so necessary for the oxidation of foods and tissue in order to release energy used in growth. Oxygen also burns up dead cells and helps us rid ourselves of the resultant carbon-dioxide, which would kill us by poisoning, if it remained in our bodies. Above all, the lungs constantly replenish our supply of life-principle, which they extract from the oxygen, and thus they serve to keep us alive. By the oxygen they enrich the blood and help to cast off its impurities by exhalation. The lungs are wonderfully constructed to accomplish their work. The air passages attached to the bronchial tubes are well adapted to receive the air and bring it into contact with the

blood in the lungs. Their cilia drive back to the bronchial tubes and into the throat foreign matters that would otherwise remain in the lungs. The pleura, covering the lungs, form a protective bag in which the lungs lie, having a covering of lymph between them and the pleura. Our respiration is mainly under the control of involuntary muscles, though we can make it be measurably controlled by the voluntary muscles. The lungs expire 540 cubic inches of air a minute and 770,000 a day. The amount of water evaporated by the lungs daily is thought to be a half-pint. By the oxygen that they give to, and the carbon-dioxide, etc., that they take from the blood, they change its color from a dark crimson to a bright red color. They should be given plenty of fresh air, deeply inspired and as fully expired as possible.

The body's organs of elimination are likewise marvels. These are the lungs, the sweat pores, the kidneys, the bladder and the intestines. Their proper functioning is indispensable; if they all were to cease from functioning, we would soon die from autotoxication. Each of the organs is remarkably constructed and finely adapted to perform its excretory function. What marvels of construction are found in the kidneys, with their ten million tiny tubes or filters, the sweat pores, the excretory features of the lungs and the bowels, with their operating glands and tissues! Wonderful are the sexual organs' function of reproduction!

CHAPTER XIII.

THE SIXTH DAY—MAN (Continued).

Gen. 2: 7, 21-25

THE NERVOUS SYSTEM. THE FIVE SENSES. MAN'S BODY SUPERIOR TO THAT OF EVERY OTHER ANIMAL. THE BREATH OF LIVES—*NISHMAT CHAYIM. NESHAMAH. NAPHACH.* SATAN'S TRIPLE FALSEHOOD AN EISEGESIS. *RUACH—PNEUMA* IN THE BIBLE. THEIR TWELVE SENSES, WITH PROOF PASSAGES FOR EACH. CERTAIN OF THEIR OCCURRENCES MORE CLOSELY EXAMINED. THE NATURE OF DEATH. VITALIZING THE BODY. THE SOUL IS A SENTIENT BEING. THE THREE SENSES OF THE WORDS *NEPHESH* AND *PSYCHE*—LIFE, SOUL AND DISPOSITION. THE WORD SOUL MAY BE SUBSTITUTED FOR BY PERSONAL PRONOUNS, ETC. THE SOUL IS NEITHER THE BODY NOR THE LIFE. IT RESULTS FROM THEIR UNION. ILLUSTRATIONS. DEAD SOULS, KILLING SOULS, DEATH OF SOULS, KEEPING SOULS ALIVE. A SUMMARY OF THE DISCUSSION ON *NEPHESH* AND *PSYCHE.*

DOUBTLESS the most marvelous part of man's body is his nervous system, having over 10,000 nerves. It consists of two parts—the cerebrospinal or central nervous system and the sympathetic nervous system. The central nervous system centers in the spinal column and in the brain; and because of its delicacy it is protected by the cranium and the vertebrae in which it is imbedded. The sympathetic nervous system has to do with the body's vital processes and thus acts mainly, but not exclusively, in the two cavities of the body, that are separated by the diaphragm. The functions of the nervous system are (1) to give man sensations connecting him with his surroundings; (2) to enable his brain to perform its functions of thinking, feeling and willing; and (3) to make of the body in its varied functions, powers, etc., one united whole, an organism. The chief part of the central nervous system is the brain, from which come out twelve nerve ducts, ten of these functioning exclusively in the head in connection with its various organs, senses, etc., and two of them additionally functioning in the heart, lungs, liver and stomach. Of

the brain there are three divisions; the cerebrum with its two lobes; the cerebellum or little brain, a part of the hind brain; and the pons, connecting the cerebrum and the cerebellum. Out of the spine come 31 pairs of nerve ducts. Of these the seven pairs coming out of the cervicles function: the first in the brain, the second in the face, the next three in the throat and neck and the last two in the shoulders and arms. Those of the first and second dorsals control the heart; of the third and fourth, the lungs and bronchi; of the fifth to eighth, the stomach; of the seventh to ninth, the liver; of the eighth, the diaphragm, spleen and pancreas; of the tenth to twelfth, the kidneys; of the first and second lumbars, the ovaries and bowels; of the second and third lumbars, the appendix; of the third to fifth, the bladder; of the fourth and fifth, the genitals and of the third to fifth the legs; and those of the sacrum and coccyx control the sexual organs and legs. The nerves enable us to exercise our five senses, and are capable of giving us much pain and pleasure.

The organs through which our five senses operate, especially the eyes and ears, are indeed remarkable. The sense of touch is active in every part of our skin, though it is more acute in some members than in others, *e.g*., in the fingers. Taste is exercised by the nerves of the tongue distinguishing between sweet and sour, bitter and salt: it yields various reactions. The sense of smell is located in the membrane of the upper nasal chambers, and is also capable of various reactions. The organs of hearing are the ears, which use therefore the outer, middle and inner ears, with certain membranes and fluids as the means for audition. But the sense of sight is even more remarkable. This involves the use of the optic nerve, the retina, the lens, the cornea, the iris and the anterior chamber with its vitreous humor. Our senses are our means of contact.

Man in his physical organization as an organism is so vastly superior to the highest member of the brute

creation as proves him to be an animal standing immeasurably apart from all of earth's other animals, which is a sure disproof of evolution. His upright position, with all its implications, physical, mental, moral and religious, and its guarding him from degradation in these four respects, is one of his marked physical differentiations from the brute creation. His external form surpasses in symmetry and beauty the form of any of the brute creation. Note his expressive eye, his winsome smile, his charming voice and his intellectual, benevolent and religious countenance! Where in the brute creation is there anything at all comparable with it? The human skin in complexion, delicacy, softness and informativeness stands head and shoulders above any in the brutes of earth. The keenness of his five senses as a whole surpass those of the brute kingdom though in certain directions, *e.g*., certain features in the scent of dogs, certain features of some brutes' senses surpass man's, and that because of their need of what man does not need. Above all other external members, the hand of man in its shape, adaptability and achievements shows an almost infinite superiority to anything in the animals lower than man. Contrast this with the fin of the fish, the wing of the bird, the hoof of the horse, cow or sheep, the pedal of the elephant, the paw of the lion, tiger, dog or cat and the combination of the foot-hand of the simian groups, and what a nearly heaven-high difference is brought to light in favor of man's hand. In one of the Bridgewater Treatises the hand of man in its form, powers, adaptabilities and products is made the basis of a remarkable proof of the Creator's existence, wisdom, power, justice and love. Man's body is also in all its parts made over a by far finer last than that of any of the lower animals. Even apart from Adam's being in God's image and likeness, his body stood out as almost infinitely superior to that of any member of the brute world. Surely man's body, apart from his intellectual,

moral and religious endowment, in contrast with the bodies of earth's lower creatures, is a strong disproof of evolution, a strong proof of his being a special creation, and a wonderful tribute to the credit of his Creator's wisdom, power, justice and love. Surely the Psalmist was right when speaking, among other things, of his body he exclaimed, "I will praise Thee; for I am fearfully and wonderfully made; marvelous are Thy works; and that my soul knoweth right well. My substance was not hid from Thee, when I was made in secret and curiously wrought in the lowest parts of the earth. Thine eyes did see my substance, yet being imperfect; and in Thy book all my members were written, which in continuance were fashioned, when as yet there was none of them" (Ps. 139: 14-16).

As we look upon the human bodies about us we, of course, see them more or less imperfect by virtue of the fall. Yet even in its fallen condition the human body is a marvel and a miracle so great as to be an irrefutable argument for the existence of God and of the reality of His wondrous wisdom, power, justice and love. But when we remember that as Adam and Eve came from the creative hand of God, they were not only absolutely flawless mentally, morally and religiously, but also physically, we can realize how they must have been thrilled with the exuberance of perfect vitality and health. The elixir of life coursing through the bodies connected with their perfect dispositions must have filled them with ecstasy. Perfect bodies endowed with perfect life! How that must have filled them with joy unspeakable and full of glory! And how they must have praised God, the Giver of such a blessed existence! Surely as we view the perfect man as God's image in disposition and as God's likeness in rulership, possessed of a flawless body in perfect life, we must admit that as the crown of God's earthly creation man so constituted reflected glory

upon God's creative wisdom, power, justice and love; and as we view man in all the marvels of his physical constitution we must cry out, Man, as the work of God's finger, is an impressive proof of the Creator's existence and glorious character!

Having completed our brief description of the first feature of man's creation—making his body—we will now proceed to a study of its second feature—uniting it with the breath of lives (the literal translation of the Hebrew words *nishmat chayim,* Gen. 2: 7), *i.e.,* with the breath common to all living animals, air. Because of the widespread misunderstanding as to the meaning of the second feature of man's creation, the uniting of the breath of lives with the body, we will first quote the translation of the pertinent words from the Improved Version: "And He [Jehovah] blew into his [Adam's] nostrils the breath of lives." That the expression, breath of lives (*nishmat chayim*) means the air as received into the nostrils of all breathing creatures, is evident from the following passages, in which we will italicize the words that are given as the translation of the Hebrew word *neshamah:* (1) All in whose nostrils was the *breath* of life (literally, the breath of lives' air, Gen. 7: 22). (2) Thou shalt save alive nothing *that breatheth* (literally, no breath, *i.e.,* no breathing person, Deut. 20: 16). (3) He [Joshua] utterly destroyed all *that breathed* (literally, all breath, Josh. 10: 40). (4) There was not any left *to breathe* (literally, no breath, Josh. 11: 11). (5) Neither left they any *to breathe* (literally, no breath, Josh. 11: 14). (6) At the *blast* of the breath of His nostrils (literally, at the breath of the air of His nostrils, 2 Sam. 22: 16). (7) He left not to Jeroboam any *that breathed* (literally, no breath, 1 Kings 15: 29). (8) There was no *breath* left in him (1 Kings 17: 17). (9) By the *blast* [breath] of God they perish (Job 4: 9). (10) Whose *spirit* [breath] came [went forth] from Thee (Job 26: 4)? (11) While my *breath* is in me (Job 27: 3).

(12) The *inspiration* [breath] of the Almighty giveth them understanding (maketh them perceive with their five senses, Job 32: 8). (13) The *breath* of the Almighty hath given me life (Job 33: 4). (14) If He gather unto Himself His spirit [life-principle] and His *breath* (Job 34: 14). (15) By the *breath* of God frost is given (Job 37: 10). (16) At the *blast* [breath] of the breath [air] of Thy nostrils (as in 2 Sam. 22: 16; Ps. 18: 15). (17) Let everything that hath *breath* praise the Lord (Ps. 150: 6). (18) The *spirit* [breath] of man is the candle of the Lord, searching [permeating] all the inward parts of the belly [the life-principle in the air that we breathe permeating our bodies reveals as a candle-light the internals of our bodies to the Lord] (Prov. 20: 27). (19) Man, whose *breath* is in his nostrils (Is. 2: 22). (20) The *breath* of the Lord [God's Truth, which proceeds from His mouth, is here represented as a figurative breath], like a stream of brimstone, doth kindle it [the destruction of the Time of Trouble] (Is. 30: 33). (21) He that giveth *breath* (Is. 42: 5). (22) And the *souls* [literally, breaths, *i.e.*, breathing, living people] that I have made (Is. 57: 16). (23) Neither was there *breath* left in me (Dan. 10: 17). These 24 passages, counting as one of them our text, include every use of the word *neshamah* in the Bible, and they prove that the word means breath, and only breath, though our A.V. has incorrectly in several places rendered it otherwise. In several of them it is called the breath of God, not, of course, in the sense of His inhalation and exhalation, but in the sense that the air that we breathe is God's; for spirits, like God, Christ and angels, do not breathe, since they are spiritual and breath is material. It is very evident that they do not breathe, because, *e.g.*, in their journeys from heaven to earth they travel thousands of trillions of miles through space that has no atmosphere for breathing purposes. Accordingly, the words of v. 7, describing the second feature of

man's creation, tell us that the Lord caused the breath to enter Adam's body—the breath that is common to all animal life on earth—the breath of lives, the vital breath. The language of v. 7 is plain as meaning this.

The next word used in describing the second step of Adam's creation (uniting the life-principle with the body) to engage our study is *naphach,* the Hebrew word translated *breathed* in the text of the A.V. This word means, not to breathe, but to blow. In this passage it evidently does not mean to breathe, because God, a Spirit (John 4: 24), does not breathe; nor is He in any sense dependent on anything to sustain His life. Accordingly, the word here evidently means to blow, as it always means to blow in the Bible:—Ezek. 37: 9, where it should be rendered blow; for the wind does not breathe, it blows; Ezek. 22: 20, 21; Is. 54: 16; Jer. 1: 13 (*seething* pot, *i.e*., a pot *blowing* off steam); Job 41: 20 (the same comment as that just made on Jer. 1: 13); Jer. 15: 9 (literally, she hath blown out her life); Job 20: 26; Hag. 1: 9. With our text, every occurrence of the word *naphach* in the Bible has been cited above; and none of them uses the word to mean *to breathe;* they all use it to mean *to blow.* The thought, therefore, is that God in working out the second feature of Adam's creation caused the air to blow into Adam's nostrils as the vitalizing breath to inflate his lungs, thus to fill his blood with life-principle. This thought is simple enough and is just what was necessary to communicate life to the perfect but lifeless body that lay on the ground. Nor would there likely ever have arisen another thought on the subject, had it not been for Satan's first and triple lie (Gen. 3: 4, 5; John 8: 44), whereby he has deceived almost the whole world into believing that the dead are not dead ("ye shall not surely, really, die") but really live right on, and in death change from humans into spirits ("ye shall be as gods"—angels, good and evil, are about 200 times in the Bible called gods, *e.g.,* Ps. 8: 5

[the word here translated angels is in the Hebrew *elohim,* gods; compare with Heb. 2: 6-9 for St. Paul's inspired comment]; Ps. 97: 7, compare with Paul's inspired comment thereon in Heb. 1: 6) and then go either to bliss or torment eternal ("knowing [experiencing] good [bliss] and evil [torment]").

Desiring to perpetuate these three falsehoods—three in one and one in three, an unholy trinity—Satan has caused the thought to prevail that, as the second feature of Adam's creation, God breathed a part of Himself into Adam's nostrils. This alleged part of God Satan has caused to be understood to be a spirit being that cannot die. But it will be noted that the word spirit is not used in connection with the second feature of Adam's creation. It is the words, breath of lives, the breath common to all earthly living beings. If the language actually used in Gen. 2: 7 as describing the second feature of Adam's creation be taken in its natural and literal sense, it will at once be seen that Satan's thought thereon is a case of eisegesis, without the slightest basis for it in the text itself. And when we remember that Jesus calls Satan a liar for deceiving Eve with his triple falsehood (John 8: 44, compare with 1 Tim. 2: 14), and that Satan imported his thought into Gen. 2: 7 to provide a plausible basis for his triple falsehood in Gen. 3: 4, 5, we are in a good position to recognize the fraudulent and fell character of his eisegesis into the second clause of Gen. 2: 7; for nowhere do the Scriptures teach that there is in man a spirit being that at death leaves man and lives on consciously either in bliss or torment. Such a thought was invented by Satan as the first lie (in three parts) ever told. This we have on the highest authority, the authority of God Himself, uttered through His dear Son, our Lord Jesus Christ (John 8: 44). Satan has sought to make his thought on this subject plausible by causing his mouthpieces in this matter to quote passages that treat of the Spirit that is in each member

of the Church. But it be noted that such expressions are never used of the world of mankind in general, who never are spoken of as having received the Spirit by being begotten again, but only of the Church's members, who as new creatures in Christ are begotten of the Spirit, and thus have the Spirit of begettal, frequently called the Spirit in the Bible. But this is not a spirit being; much less is it a spirit being as an essential part of the human being; but it is the Divine heart, mind and will, the new creature, in God's people alone. Thus St. Paul (Rom. 8: 10) says: "If Christ [the new creature] be in you [God's people, not sinners of the world of mankind], the body is dead because of sin [sacrificially, Rom. 12: 1; not dead for Adam's sin, as mankind in general are dead (Rom. 5: 12), from which death we have been made alive by faith in Christ (Eph. 2: 5)]; but the Spirit [new creature, which only the Church, not the world, has] is life because of righteousness [because begotten of the Spirit it lives and should live righteously and for righteousness]." This new creature is called "this treasure" in 2 Cor. 4: 7—"We [the Church] have this treasure in earthen vessels." The world does not have this treasure at all; nor does the Bible so teach of them. Thus it is by misapplication to the world of mankind in general of Bible statements belonging exclusively to the Church that Satan deceives (2 Cor. 4: 4) the bulk of the world into believing that there is a Biblical basis for his claim that there is in man a spirit being that lives on after death in bliss or torment.

Various meanings in which the Bible uses the word spirit have likewise been manipulated by Satan to darken the meaning of the word spirit in its use in relation to man, by his foisting on it the sense of a spirit being, especially by his gross misuse of the word ghost as applying to God's Spirit and to man's breath. The Hebrew word ordinarily translated in the A.V. by the word spirit is *ruach*, which, like our

English word spirit, has many different meanings. The Greek word ordinarily rendered in the A.V. by the word spirit is *pneuma,* which, like our English word spirit, has many different meanings. That the English word spirit has various meanings can readily be seen by consulting any standard dictionary, like Murray's Oxford, The Century, The Standard, Webster's, the New International, etc. The Hebrew word *ruach* occurs about 370 times in the Old Testament and the Greek word *pneuma* occurs about 400 times in the New Testament; and they have at least 12 distinct meanings in the Bible. It would be needless to quote or even to cite these nearly 800 occurrences of these words in proof of our proposition that they have at least 12 distinct meanings in the Bible, but we will cite enough of them on each of these 12 senses to prove our claim to be true. The root idea that appears in all 12 of these senses is that of invisible power, and it is because of this root idea underlying all 12 of these senses that the one word in the Hebrew and the one word in the Greek are used to express all of them. It is due to this basic thought in these two words that they mean (1) *power*, an invisible thing (Gen. 1: 2; 41: 38; Num. 11: 17, 25, 26, 29; Judg. 3: 10; 1 Kings 18: 12; 2 Kings 2: 9, 15, 16; Job 33: 4; Ps. 76: 12; 139: 7; Is. 4: 4; Ezek. 3: 12, 14, 24; 11: 1, 5 Mic. 2: 7; 3: 8; Matt. 1: 18, 20; 12: 28, 31, 32; Luke 1: 35 [note the parallelism between the expressions, Holy Spirit, (not Ghost, as it is mistranslated in the A.V.) and power of the Most High]; 2: 25-27; John 6: 63; 20: 22; Acts 1: 2; 2: 4; 8: 15, 17-19, 39; 1 Cor. 14: 12 [the word here translated spiritual is *pneumaton*, of spirits, powers, and there is no word in the Greek corresponding to the word gifts in the A.V., as indicated by its being printed in italics in the A.V.], 32; Heb. 2: 4; Rev. 11: 11).

Because of this root idea of invisible power and because it is invisible, (2) *air* is the second meaning that these words *ruach* and *pneuma* have taken on, as

the following citations prove: Gen. 7: 22 [literally, wherein is the breath of lives' *air,* ruach]; 2 Sam. 22: 11 [the word *ruach,* here translated wind, means air; and its figurative wings are the wind, whereby it flies; the A.V. has given the sense of the passage, not a literal translation of it]; Job 15: 2; 16: 3 [*vain* knowledge and *vain* words of these two passages are the translation of the word *ruach* combined with the words for *knowledge* and *words,* the word *ruach* being here applied to them to indicate their vacancy suggested by *air*]; 41: 16; Ps. 18: 15 [air, *ruach,* not breath; for the word blast in this verse is a mistranslation of *neshamah,* breath; thus the phrase should read, at the breath of the air of Thy nostrils]; Prov. 11: 29 [*ruach* here should be rendered not *wind,* but *air,* which more forcibly gives the idea of utter poverty than does wind]; Is. 26: 18 [*air* as the translation for *ruach* fits better than the A.V.'s *wind*]; Jer. 2: 24; 14: 6 [the same remark applies to these two passages]; Jas. 2: 26. Because the wind is air in motion and is an invisible power, *ruach* and *pneuma,* because of their basal meaning have assumed the sense of (3) wind. Wind is Biblically one of the most frequent senses of *ruach,* though it is not one of the most frequent meanings of *pneuma* Biblically. This sense of these words will appear true from the following citations: Ex. 10: 13, 19; 14: 21; Num. 11: 31; 1 Kings 18: 45; 19: 11; Job 6: 26; 8: 2; 21: 18; Ps. 1: 4; 48: 7; 147: 18; 148: 8; Prov. 25: 14, 23; Eccl. 1: 6; Is. 7: 2; Jer. 18: 17; Ezek. 5: 10, 12; 13: 11, 13; 37: 9 [four winds]; Dan. 8: 8; Jonah 1: 4; 4: 8; Zech. 5: 9; John 3: 8.

Because breath is air inhaled and exhaled, and is an invisible power, the words *ruach* and *pneuma* have taken on the sense (4) of breath, as the following passages show: Gen. 6: 17; 7: 15; 2 Sam. 22: 16; Job 15: 30; Jer. 10: 14; 51: 17; Lam. 4: 20; Ezek. 37: 5, 6, 8, 9 [breath in three of the four occurrences

of *ruach* in this verse], 10; Hab. 2: 19; Matt. 27: 50 [not ghost, but breath; Mark 15: 37, 39; Luke 23: 46 are similarly and worse misrendered; for the verb, *expneusen,* from the same root as the noun *pneuma,* has been rendered, "gave up the ghost," whereas it should have been given, breathed out, expired]; John 19: 30 [not ghost, but breath]; Jas. 2: 26 [the word *pneuma* here means air, as shown under (2), and breath]. Because breath is an invisible power, and because the life-principle, an invisible power, was originally derived from the air's oxygen which Adam absorbed from the breath that God caused to enter his breathing system, and because this life-principle is maintained by a continuance of the breathing process, the words *ruach* and *pneuma* have taken on the meaning (5) of life-principle, *i.e.*, the spark of life, as the following passages show: Job 6: 4; 10: 12; Eccl. 3: 19, 21 [twice]; 8: 8 [twice]; 11: 5; Is. 42: 5; 57: 16; Jas. 2: 26 [not only does the word *pneuma* here mean air and breath, but it also means life-principle]; Rev. 13: 15 [*pneuma,* here translated life, means life-principle here]. Since our energy, which is an invisible power, is largely the product of our life-principle, the words *ruach* and *pneuma* have taken on the meaning (6) of vitality, vigor, animation, an invisible power, as the following passages prove: Gen. 45: 27 [the word *ruach,* here rendered spirit, means vigor, animation]; Josh. 2: 11 [the word *ruach,* here translated courage, means vigor, animation]; 5: 1; Judg. 15: 19; 1 Sam. 30: 12; 1 Kings 10: 5; 2 Chro. 9: 4; Acts 17: 16; Rev. 13: 15 [in addition to meaning life-principle here, *pneuma* also here means vitality, vigor, animation].

Because the privilege to live, an invisible power, is closely connected with the life-principle, the words *ruach* and *pneuma* have taken on the meaning (7) of the privilege to live, as the following passages show: Num. 16: 22; 27: 16 [the Lord is in these two passages spoken of as the God of the spirits of all flesh, because

He controls as to every human being his privilege of living]; Eccl. 12: 7; Luke 8: 55; Rev. 13: 15 [the word *pneuma* here not only means life-principle and vitality, but it also means the privilege to live, which the two-horned beast gave the image of the beast].

Because the life-principle is closely connected with the right to live in those who have that right—God, Christ, the good angels and new creatures—the words *ruach* and *pneuma* have taken on the meaning (8) of the right to live. The race of Adam in him lost the right to live, though those of his race who have not yet succumbed fully to the dying process have a temporary privilege to live, without the right to live. Since the death of Christ won the right to give back to the lost race the right to live on certain conditions, and does give it back to those who fulfill those conditions, the right to life was not given any human being in the Old Testament times, seeing that Christ had not then yet died for mankind. This accounts for the fact that the word *ruach* was not in the Old Testament used in the sense of the right to live, except as prophetically of Jesus and the Church. The following passages prove these thoughts: Ps. 31: 5; Luke 23: 46; Acts 7: 59.

Because the disposition—the mind, heart and will—is an invisible power, the words *ruach* and *pneuma* have come to mean (9) disposition, regardless of whether thereby God's, Christ's, angels' or men's dispositions are meant. The following passages use these words in the sense of disposition: Gen. 26: 35; 41: 8; Ex. 6: 9; 28: 3; 35: 21; Num. 5: 14; Deut. 2: 30; Judg. 8: 3; 1 Sam. 1: 15; 16: 14; 1 Kings 21: 5; 1 Chro. 5: 26 [twice]; 2 Chro. 21: 16; 36: 22; Neh. 9: 20; Job 7: 11; 15: 13; 32: 18; 34: 14; Ps. 32: 2; 34: 18; 51: 10-12, 17; 106: 33; 142: 3; Prov. 11: 13; 14: 29;15: 13;16: 2, 18, 19, 32; 17: 27; 18: 14 [twice]; 25: 28; 29: 11, 23; Eccl. 1: 14, 17; 7: 8, 9; Is. 11: 2 [four times]; 19: 3, 14; 54: 6; 57: 15 [twice]; 63: 10; 65: 14; Jer. 51: 11; Ezek. 11: 5, 19; 36: 26; Dan.

2: 1, 3; Hos. 4: 12; Joel 2: 28; Hab. 1: 11; Zech. 12: 1, 10; Mal. 2: 15 [twice], 16; Matt. 4: 1; 5: 3; Mark 8: 12; Luke 1: 17, 47, 80; 2: 40; 4: 14; 9: 55; John 4: 24 [second occurrence]; 11: 33; 13: 21; 14: 17; Acts 2: 4; 6: 10; 20: 28; Rom. 1: 4, 9; 8: 9 [second and third uses], 14, 15 [twice], 16 [second use]; 11: 8; 12: 11; 1 Cor. 2: 10-14 [eight uses]; 3: 16; 4: 21; 5: 3, 4; 6: 17, 19, 20; 7: 34, 40; 12: 3 [twice], 4, 7-11 [seven times], 13 [twice]; 14: 14-16 [three times]; 2 Cor. 2: 13; 4: 13; 7: 1, 13; 11: 4; 12: 18; 13: 14; Gal. 4: 6; Eph. 1: 13, 17; 3: 16; 4: 23, 30; 6: 18; Phil. 1: 19, 27; 3: 3; Col. 2: 5; 1 Thes. 5: 19, 23; 1 Tim. 3: 16; 2 Tim. 1: 7; 4: 22; Phile. 25; Heb. 6: 4; 9: 14; 10: 15; Jas. 4: 5; 1 Pet. 3: 4; 4: 14; I John 3: 24; Jude 20; Rev. 1: 10; 4: 2; 17: 3. The ninth sense, disposition, is one of the most frequently occurring of the twelve Bible senses of the words *ruach* and *pneuma*.

Because the new creature—that which is begotten in the Church, and that which the world in no sense has—is an invisible power and is very closely related to the preceding sense, disposition, as this sense is used of God's, Christ's and the good angels' spirit, the words *ruach* and *pneuma* are used to mean (10) the new creature, often in this sense connected with the word *holy*. And since Jesus was the first to receive it in this sense, and since it was not given to any of Adam's fallen descendants until Pentecost (John 7: 39; Acts 2: 1-4), this sense of the word does not occur in the Old Testament, except in such passages as prophesy it as coming upon Christ and the Church. The following passages will show *ruach* and *pneuma* to mean the new creature: Is. 26: 9; 42: 1; Joel 2: 29; Matt. 3: 11, 16; 10: 20; 26: 41; Mark 1: 8, 10; Luke 11: 13; John 1: 33 [twice]; Acts 1: 8; 2: 33, 38; 5: 32; 10: 38, 44, 45, 47; 15: 8; 19: 2 [twice], 6; Rom. 5: 5; 8: 1, 2, 4, 5, 6 [literally, the mind of the spirit], 9 [first and second uses], 10, 11 [twice], 16, 23, 26 [twice],

27; 1 Cor. 5: 5; 2 Cor. 1: 22; Gal. 3: 2, 3, 14; 4: 29; 5: 16, 17 [twice], 18, 22, 25 [twice]; 6: 8 [twice]; Eph. 2: 18, 22; 4: 3, 4; 5: 9; 6: 17; Phil. 2: 1; Col. 1: 8; 1 Thes. 4: 8; 2 Thes. 2: 13; 2 Tim. 1: 14; Tit. 3: 5; Heb. 12: 9; 1 Pet. 1: 2, 12; 4: 6; 1 John 5: 8; Jude 19. It is this sense and some of the occurrences of the preceding sense that Satan has so grossly misapplied to all of Adam's race, and then perverted their senses to mean that a spirit being is in, and is a part of man.

Because spirit beings are invisible and powerful the words *ruach* and *pneuma* are in the Bible used to mean (11) spirits, *i.e.,* spirit beings. It is in this sense of these words that Satan through almost all religions, denominations and sects has deceived the bulk of mankind to believe that they have spirits within themselves. The following occurrences use these words in this sense; but it will be observed that no passage uses this sense of the word to describe man's *ruach, pneuma*: 1 Kings 22: 21-24 [four uses]; 2 Chro. 18: 20-22 [three uses];Job 4: 15; Ps. 104: 4; Matt. 8: 16; 10: 1; 12: 43, 45; Mark 1: 23, 26, 27; 3: 11, 30; 5: 2, 8, 13; 6: 7; 7: 25; 9: 17, 20, 25 [twice]; Luke 4: 33, 36; 6: 18; 7: 21; 8: 2, 29; 9: 39, 42; 10: 20; 11: 24, 26; 24: 37, 39; John 3: 6 [second use]; 4: 24; Acts 8: 7; 16: 18; 19: 12, 13, 15, 16; 23: 8, 9; 1 Cor. 15: 45; 2 Cor. 3: 17; Eph. 2: 2; Heb. 1: 7, 14; 1 Pet. 3: 18, 19. We have just cited every passage of the Bible in which the word *ruach* and *pneuma* occur in the sense of a spirit being, and in none of them is the word used as referring to man's having a spirit being in him that at death leaves the body and lives on consciously in bliss or torment. The reason for this is that man has no such thing within him.

Because teachings, whether true or false, are invisible powers, the Bible as the last sense of the word uses the words *ruach* and *pneuma* to mean (12) teaching, doctrine, true or false, true ones often being modified by the word *holy*, as the following passages

prove: Gen. 6: 3; Is. 30: 28; 31: 3; 33: 11; 34: 16; Ezek. 13: 3; Hos. 9: 7 [see the margin]; Mic. 2: 11; Zech. 6: 8; 13: 2; Acts 20: 23; Rom. 8: 16 [first use]; 1 Cor. 2: 9; 12: 10; Eph. 3: 5; 2 Thes. 2: 2, 8; 1 Tim. 4: 1 [twice]; Heb. 3: 7; 9: 8; 10: 15; 1 John 4: 1 [twice], 2 [twice], 3, 6 [twice]; 5: 6 [twice]; Rev. 1: 4; 2: 7, 11, 17, 29; 3: 1, 6, 13, 22; 4: 5; 5: 6; 14: 13; 16: 13, 14; 18: 2; 19: 10; 22: 17. Every passage using these words to mean teaching, doctrine is here cited.

Thus we have proved that the Bible uses the words *ruach* and *pneuma* in at least twelve different senses. We have been perhaps too liberal as to certain senses in the number of our citations; for we have cited an abundant sufficiency of the approximately 800 occurrences of these two words to give conclusive proof of the pertinent twelve senses. For about six of these senses we did cite every occurrence of the pertinent passages. In the other senses they were too numerous to cite in their entirety; but in all cases we cited at least enough to prove abundantly our twelve points thereon. In the cases where the citations were not complete we did cite every passage that Satan has used through sectarian errorists in his attempts to palm off as Biblical his false doctrine that there is a spirit being in man that is the real man, and that after death lives on in bliss or torture; and we have in these cases shown the true sense of the words to exclude Satan's error. Some of the more important of these we will explain somewhat more. This is especially true of the misuse that he has made of various passages in which the fifth sense of the word occurs, life-principle, spark of life, and which he has perverted to mean spirit beings, as a proof that there is in man a spirit being. *E.g.*, Eccl. 8: 8 twice uses the word *ruach* in the sense of the life-principle, or the spark of life that we get out of the air taken into our nostrils as breath. This passage teaches that we have no power to retain at will this spark of life. But Satan has induced false

teachers to use the term to mean a spirit being, a thing that no Scripture teaches to be in the natural man. James 2: 26 is another passage so perverted; but in this passage undoubtedly the word spirit means air, breath and life-principle, or spark of life.

We proceed to study other pertinent verses: Ps. 31: 5 and Luke 23: 46, passages that apply to Jesus' last words on the cross, Satan has similarly perverted. Ps. 31: 5 is a prophecy of our Lord, describing how He would yield up in death His human right to life as the ransom-price. That this does not mean Christ's commending an alleged spirit being of His to the Father's care, is evident from the Greek word mistranslated commend in the A.V. of Luke 23: 46. The Greek word is *paratithemai, the middle voice,* and means to deposit for oneself, as, *e.g.,* money is deposited for oneself in a bank. See Thayer, 486, col. 2, under 2, Mid[dle voice]. The following is the translation of the Improved Version: "Father, into Thy hands I deposit for myself [*middle voice*] My right to life." The language here used is that of a business transaction, and is such, because Jesus is here stating the fact that He was depositing with the Father for His future use on behalf of the Church and the world (1 John 2: 2) His right to life, which is the ransom-price, the corresponding price for Adam and the race that died in his loins. Accordingly, these passages have no reference whatever to an alleged spirit being in Jesus which He allegedly at death commended to the Father's care. Eccl. 12: 7 is another passage so misused by Satan, whereas the passage teaches us that in death the body returns to the dust whence it was taken (Gen. 2: 7) and the privilege of living, the *ruach* of this verse, to which the death sentenced race has no right, since Adam by sin forfeited the right to life for himself and his race, reverts to God, its Giver (Gen. 2: 7). Thus in this passage death is shown to undo what God did when He created

man, reducing man to what he was before his creation (Gen. 2: 7)—God takes away his privilege to live and makes his body dissolve into its native elements. There is nothing in this passage to imply that there is a spirit being in man that at death leaves the body and lives on either in bliss or in torment.

That this is not the writer's thought can be seen in Eccl. 3: 19, where he directly states that both man and beast have the same *ruach,* incorrectly here translated breath, the connection (Eccl. 3: 19-21) showing that it means life-principle, the spark of life. Here evidently the idea of spirit being does not fit; for it would imply that beasts have such. But please note that in v. 21 he argues against the idea that man's spirit [spark of life] ascends to heaven, and the beast's spirit [spark of life] descends to the earth. The A.V. very incorrectly translates v. 21; for the right translation we quote that of the A.R.V.—"Who knoweth the spirit of man, whether it goeth upward, and the spirit of the beast, whether it goeth downward to the earth?" The Israelites did not believe that there was any difference between the *ruach* of man, as the spark of life, and that of beast, as Solomon shows in v. 19; but the heathen, deceived by Satan's first lie, believed that man's *ruach,* pneuma, was a spirit being, and that the beast's was not. Hence Solomon challenges their doctrine in v. 21, as well as denies it, which being done by Divine inspiration, proves the erroneousness of the heathen, and the veracity of the Israelitish doctrine on the subject. The doctrine that each man has a spirit being in himself that after death lives on consciously, in bliss or in torture, is without any real Biblical foundation. Some of its proponents claim that their alleged human spirit being descends from the parents as a part of the act of human begettal, others that God at the birth of each one intervenes and puts a part of His own substance into each babe as a spirit being. Both doctrines grossly violate God's character

and the Bible teachings on man's nature. On the contrary, as we showed above, Gen. 2: 7 teaches that the first creative process produced a perfect human body and that the second creative process caused the vitalized air to enter Adam's nostrils. In the following pages we will point out the third creative process—the production of man as a human soul.

It must be said that nowhere in the Bible, except in Satan's first falsehood (Gen. 3: 4, 5; John 8: 44), is it taught that a human being on dying becomes a spirit being, *i.e.,* becomes like the gods, the angels, who are spirits (Ps. 8: 5; 97: 7; Heb. 2: 7; 1: 6, 7, 14.). This doctrine is one of the thoughts of the first series of errors ever taught, and its author being Satan is the guarantee that it is an error. According to this doctrine man is a mixture of natures, one an animal, the other a spirit, and man's death is the separation of these; while according to the Bible man is a soul, who springs into being by a union of his body and life-principle, and who ceases to exist, *i.e*., dies, by a separation of the body and the life-principle. The following questions rightly answered will disprove Satan's error and prove God's Truth on this subject: If death is the separation of the body and soul, how could putting one under water a half hour drive a spirit being out of his body any more than putting him under the same water in a properly equipped diving suit or submarine would drive the same spirit out of him? But if death is the separation of the body and the life-principle, which we derive from the air, we at once see how the former experience does, but the latter experience does not, produce death; for the former, but not the latter, experience separates the life-principle from the body.

If death is a separation of body and soul—a spirit—why should putting one in a vacuum for a half hour cause the spirit to leave the body any more than putting one in a well-ventilated room should drive a spirit out of the body? But if death is the separation of the body

and the life-principle, derived from the air, we at once see why the former experience does, and why the latter experience does not, produce death. If death is the separation of the body and soul—a spirit—why does squeezing a person's throat tightly for a half hour drive a spirit out of his body any more than squeezing a finger tip a half hour should drive the same spirit out of his body? But if death is the separation of the body and the life-principle, derived from the air, we can readily see how the former experience, by severing one from the air from which he sustains his life, should produce death, while the latter experience will not so do. Again, if death is the separation of body and soul—a spirit—why should putting one in an airtight box drive a spirit out of him any more than putting him in a spacious, well-ventilated room? But if death is the separation of the body and life-principle, derived from the air, we readily see why the former experience does, and why the latter experience does not, produce death. If death is the separation of body and soul—a spirit—why should burying one alive in due time drive a spirit out of one's body any more than one's going into a spacious cave? But if death is the separation of the body and life-principle, derived from the air, we can readily see why the former experience does, and why the latter experience does not, produce death. If death is the separation of the body and soul—a spirit—why should the simultaneous closing of the nostrils and mouth by one's hands for a half hour drive a spirit out of one's body any more than the simultaneous closing of one's eyes and stopping of one's ears by one's hands for a half hour? But if death is a separation of the body and life-principle, derived from the air, we can readily see how the former experience does, and the latter does not, produce death.

If death is the separation of body and soul—a spirit—why should one's being in a room full of gas drive a spirit out of his body any more than his being

in a well-ventilated room? But if death is a separation of the body and life-principle, derived from air, we can readily see why the former experience does, and why the latter experience does not, produce death. If death is the separation of the body and soul—a spirit—why does the opening of an artery, resulting in the loss of an immense amount of blood, produce death any more than the opening of one's mouth and expectorating? But if death is the separation of the body and life-principle, between which two the blood, as the absorber of life-principle from the air and as its carrier to every part of the body is the connecting link, we can readily see how, the absorber of the life-principle from the air, its carrier to every part of the body and the connecting link between the body and life-principle being removed, *i.e.,* the separation between the body and life-principle having set in, the opening of a mouth does not, while the opening of an artery does, cause death. In every case given above, and others could be cited, we see that death is the separation, not of the *soul*, but of the *life* from the body. These facts are perfectly in harmony with the Scriptures, which teach that death is a separation of the body and the life-principle, resulting in the extinction of the soul, until the awakening of the dead, as can clearly be seen in Ps. 146: 4: "His *breath goeth forth,* he returneth to his earth; in that very day his thoughts perish," *i.e*., he becomes unconscious in death.

So far in describing man's creation we have treated (1) of God's forming man's body and (2) of His blowing into man's nostrils the breath of lives, the life-principle. As the result of the latter act there occurred a union of the body and the life-principle. How did this occur? By means of the blood, whose red corpuscles, having an affinity for the life-principle, absorbed it, as a sponge, having affinity for water, absorbs it. In creating the blood God, among other things, imparted to its red corpuscles this affinity and absorbing

propensity toward life-principle, as in creating the bodily organs He imparted to them the capacity and adaptability to perform their several functions, if life-principle from the blood would pervade them. In describing the circulation of the blood we pointed out how the heart, by its right auricle and ventricle, through the pulmonary artery, pumps the blood to the lungs, where the blood discharges some of its carbon dioxide and absorbs the life-principle-laden oxygen from the air in the lungs, and then described how the blood returns to the heart, *i.e.*, to its left auricle and ventricle, by which it is pumped through the aorta into the arteries, which carry it throughout the body, whence it returns through the veins to the heart's right auricle and ventricle to be again pumped to the lungs, which entire process is repeated as long as one lives. Thus we have two kinds of circulation: the pulmonary and the systemic. Both of these must be understood, if the way the body and life-principle become united is to be understood. Of course, there was no circulation going on in Adam's body before the life-principle entered it. We may assume that while there was some blood distributed throughout that body, a goodly amount of it was especially in its organs belonging to the pulmonary system of circulation, particularly in the part touching the lungs themselves. Again, in describing the breathing process we pointed out how the oxygen in the air reaches the lungs and the blood in it through the nares, glottis, windpipe, bronchi, bronchial tubes and air cells. It is in the air cells that the air is brought into contact with the lungs and the blood.

The breath of lives—the air as breath, instinct with life-principle, blown by God into Adam's nose—found its way, through the respiratory organs just mentioned, to the blood which was in contact with Adam's lungs. This blood through its red corpuscles absorbed this life-principle, which by the contact of corpuscle with corpuscle traveled from one to the other very quickly

and was by each one in turn passed on to others, even as electricity is passed on quickly through a wire or another conductor from atom to atom. In so penetrating and permeating the corpuscles the life-principle imparted motion to the blood, which as a result began to travel toward and into the left side of the heart, filling its auricle, then its ventricle, which, when fully distended, according to its nature contracted and thereby pumped the blood out of the heart, through the aorta, into the arteries, whence it went to every part of Adam's body; and as it came into contact with each organ it energized it to perform its function. As a result "man [that which lay on the ground as a perfect, but lifeless organism before energized by the life-principle, and called man (Gen. 2: 7) or Adam (1 Cor. 15: 45) in view of what it would become when so energized] became a living soul."

Thus such vitalized blood, making the heart pump the blood throughout the body, also made the arteries, veins and capillaries become the avenues of the blood's circulation, made the stomach and the small and large intestines act digestively as to food and drink, made the excretory organs operate, and made the liver, pancreas, spleen, gall bladder, etc., act their separate parts in the digestive works, and the breathing organs to contribute each its part in the breathing process. Likewise the lungs were made to contact the life-principle with the blood and to throw off carbon dioxide, the nose made to smell, the tongue to taste and speak, the ears to hear, the eyes to see and the skin to feel. The energized blood made each of the 10,000 nerves perform its function, wherever in the body it was located. Indeed, the nerves are avenues by which the life-principle acts throughout the body. Thus, according to each organ's function, the life-laden blood, which, because of its being the vehicle of the life-principle, is in the Bible called the life (Lev. 17: 11, 14), caused the organs to perform their work

in Adam. Its most marvelous effect was in the brain. It gave Adam's brain the power to exercise its various functions. Thus, the life-principle enabled the brain in its intellectual faculties to perceive, to remember and to reason. It gave the brain in its religious sensibilities the ability to exercise faith, hope, self-control, patience, piety, neighbor love and disinterested love. It enabled the brain in its selfish faculties to exercise itself in love of a good opinion of self, others' good opinion, rest, life, safety, self-defense, aggression, concealment of injurious things, gaining, retaining, food, drink, the opposite sex, spouse, children, parents, brethren, friends, home and native land. It also empowered the brain to exercise humility, modesty, industry, self-sacrificingness, long-suffering, forbearance, forgiveness, liberality, contentment, moderation, chastity and impartiality, as well as to exercise zeal, meekness, gentleness, magnanimity, joy, obedience and faithfulness. In the will it gave the brain the power of exercising the ability to choose or reject, as inclined by the disposition—the personal bent.

In a word, the life-energized blood enabled all the faculties of the body, mind and heart to exercise their functions as the constituents of a person. Hence, that perfect body, which lay on the ground as a lifeless organism, through being energized by its union with the life-principle in the blood, became a living soul, a living being. Mark well that the words of Gen. 2: 7 do not read, "and man received a living soul," as the creeds, darkened by Satan, teach. Mark well that the words of Gen. 2: 7 do not read, "and God breathed into man's nostrils a spirit and thus man got a living soul," as the creeds, following Satan's first falsehood, teach. The language is very explicit, very plain—"God blew into Adam's nostrils the breath of lives; and man [that lifeless but perfect organism that lay on the ground] became a living soul," *i.e.*, a living being. God's description of the creation of the soul, the being,

the person, Adam, is so plain, so simple and so explicit that human ingenuity cannot in so terse a use of language improve upon the description of man's creative process and its resultant product. In the preceding paragraph we have given the main features that constituted man a soul; but everything that we there said is included in the expression, "Man became a living soul." Accordingly, we see that the Bible description of what a soul is differs radically from the Satan-invented theory on the nature of a soul, with which he first blinded Mother Eve, then the heathen and then, during the Dark Ages, the apostate church.

According to this false theory a soul is not any sentient being, but is an immaterial spirit being that lives in one's body, either given at birth by God directly to everyone or transmitted to everyone by the parents at the begettal, the proponents of the theory cannot decide which, and that at death leaves the body and lives solely as a spirit being in conscious bliss or torment. Perhaps no other doctrine has served to blind people to the plan of God more than this one, which the Bible plainly shows is one of the elements of Satan's monumental lie. By this lie he deceived Mother Eve, inveigled Father Adam into sin, and thus murdered the whole human family (Gen. 3: 4, 5; John 8: 44). It is not our design here to give arguments directly refutative of this doctrine. This we will do in detail when we come to deal with the penalty of sin. All that need here be said on it is that the Bible, except in giving the record of Satan's lie, is utterly silent on the soul of man as being a spirit being, that it teaches a different view of the human soul's nature, and that this doctrine was invented by Satan as a part of his first lie. Rather it is our purpose here to unfold constructively the Bible view of the nature of a soul. Hence, here we will discuss the question of what a soul is, particularly with reference to a human soul. In giving a definition of a soul we know no better one

to give than the following: A soul is a sentient being, a being possessed of intelligence, feeling and will. We believe this definition will fit every use of the word soul, when properly so translated, found in the Bible. Indeed, those who believe that the soul is a spirit being accept and use this definition, which is the regular dictionary definition of the term, but forsake it when applied to other earthly sentient beings than human. But a definition to be correct must include everything coming under it, and exclude everything not coming under it. And it is because the definition of the soul as a spirit being excludes many things that the Bible calls souls that we reject it, and because the definition of a soul as a sentient being, *i.e.*, a being endowed with intellect, feelings and will, covers every use of the word soul, when rightly translated, found in the Bible, that we hold it to be the proper definition of the word.

A soul, then, is any sentient being. As such these may be spirit beings, like God (Heb. 10: 38); human beings, like Adam (Gen. 2: 7), or beasts, like cattle, sheep, asses (Num. 31: 28). Why are all these souls? Because they are sentient beings, beings possessed of intelligence, feeling and will. Of course, they do not possess intelligence, feeling and will in equal degree. This difference, however, does not unmake any of these as souls; for if one should say that the lower animals are not souls because, *e.g.,* they have less intelligence than man, we might reply that the difference between man's and their intelligence is decidedly less than the difference between God's and man's intelligence, yet God and man are souls. It is sufficient that the lower animals are souls for them, among other things to have enough intelligence for their plane of being; but since they are undoubtedly sentient beings they are souls. The following passages call lower animals souls in the Hebrew (*nephesh*) (though the A. V. does not usually translate this word *nephesh* "soul" in connection with the

lower animals, which has served to darken the subject); hence they must be souls: Gen. 1: 20, 21, 24, 30; 2: 19; Lev. 11: 46 [in these passages the word *nephesh,* soul, is translated *creature that hath life or living creature*]; 24: 18 [in the first use literally, the soul of a beast, and in the second and third uses translated "beast for beast," but should be "soul for soul"]; Num. 31: 28; Prov. 12: 10 [literally, soul of his beast]; Is. 19: 10 [*nephesh,* soul, is here translated *fish,* but should have been given as *souls*]. Thus 15 times the word *nephesh* is used of beasts, but in only one of these does the A. V. render it properly by *souls*, forced thereto by the connection (Num. 31: 28), which by the expression *souls* covers people and beasts. Thus its translators' preconceived, erroneous opinions on the nature of the soul moved them to hide the use of the word *nephesh* when applied in the sense of soul to lower animals, except in the one case where they were forced by the connection to render it soul, since it is there used of people, as well as of beasts.

When used of human beings the Hebrew and Greek words for soul (*nephesh* and *psyche*) are interchangeable with the personal or indefinite pronouns, the latter when the word is used indefinitely, or with the word *person.* Due to the error under which its translators unconsciously labored, the A. V. has rendered the word *nephesh* by 35 different words and the word *psyche* by 5 different words. Biblically, the word *nephesh* occurs 743 times and *psyche* 103 times. Properly they have but three meanings: (1) life, by which the A. V. renders them 163 times (*nephesh* 123 and *psyche* 40 times), (2) soul*, i.e.,* sentient being, or person, by which the A. V. renders them 486 times (*nephesh* 428 and *psyche* 58 times) and (3) disposition, *i.e*., mind and heart. The A. V. renders them by *heart* 16 times (*nephesh* 15 times and *psyche* once) and by *mind* 18 times (*nephesh* 15 times and *psyche* 3 times). We believe that the three definitions that we

have just given will respectively cover every use of the Hebrew word *nephesh* and the Greek word *psyche.* It would be superfluous to cite every one of the 743 occurrences of *nephesh* and the 103 occurrences of *psyche,* distributed under the three definitions of these words. But we will cite a sufficiency of the occurrences of both words to prove our thought to be true. First we will cite passages that prove these words to mean life: Gen. 9: 4, 5 (3 times); 19: 17, 19; Ex. 4: 19; Lev. 17: 11 (4 times); Num. 35: 31; 2 Sam. 1: 9; 14: 7; 1 Kings 3: 11; 17: 21, 22; 19: 2, 3, 4 (4 times); 2 Kings 7: 7; Esther 7: 3, 7; 9: 16; Job 2: 4, 6; 11: 20; Ps. 38: 12; 40: 14; Prov. 1: 18, 19; Is. 15: 4; Jer. 4: 30; 11: 21; 15: 9; 48: 6; Ezek. 32: 10; Matt. 6: 25 (twice); Mark 3: 4; Luke 6: 9; Acts 20: 10; 27: 10, 22; Rev. 8: 9; 12: 11. An attentive study of these verses will prove that *nephesh* and *psyche* in them mean life, and not a spirit being.

It is because life is essential for, and the basis of the existence of a soul, that the words *nephesh* and *psyche* came to mean (2) soul, sentient being, which, if it refers to a human soul, means a person. We will now cite some passages that use the words *nephesh* and *psyche* to mean soul as just defined: Gen. 17: 14; 46: 18, 22, 25, 26 (twice), 27 (twice); Lev. 4: 2; 5: 1, 2, 4, 15, 17; 7: 18, 20 (twice); 11: 10; 17: 10-12 (five times); Num. 15: 27, 30, 31 (four times); 19: 18, 20, 22; 31: 19, 35, 40 (twice), 46; 35: 11, 15 (twice); Deut. 10: 22; 27: 25; Josh. 10: 28, 30, 32, 35, 37 (twice), 39; 11: 11; 20: 3, 9; 2 Sam. 14: 14; Ps. 94: 21; Prov. 11: 17, 25, 30; 14: 25; 19: 2, 15; 25: 25; 27: 7 (twice); 28: 17; 58: 10; Jer. 52: 29, 30 (twice); Lam. 3: 25; Ezek. 13: 18 (thrice), 19, 20 (thrice); 17: 17; 18: 4 (4 times), 27; 22: 25, 27; 27: 13; 33: 6; Matt. 10: 28 (twice); Acts 2: 41, 43; 3: 23; 7: 14; 27: 37; Rom. 2: 9; 13: 1; 1 Cor. 15: 45; Jas. 5: 20; Rev. 6: 9; 16: 3; 18: 13. Every one of these Old Testament passages uses *nephesh* and every one of

these New Testament passages uses *psyche,* correctly translated *soul*, to mean a sentient being; and in every case it means person; and in not a few of these passages, which are a selection from among many, they are in the A.V. translated *person.*

That the words *nephesh* and *psyche* when used in the sense of soul, *i.e.,* a sentient being, mean a person, is further evident from the fact that they can be supplanted by the equivalent of a person, *i.e.,* by the personal pronouns, or in case of an indefinite person, by the indefinite pronouns, and the exact sense of the passage is thus kept. In the following passages please substitute for the word *soul* the personal pronouns, first, second or third person, singular or plural, as the case may require, or in the case of indefinite persons, the pertinent indefinite pronoun, and the sense of the passage will be correctly given, which proves that the word *soul* in these passages means *person,* which is always its meaning when referring to human souls: Gen. 19: 20; 27: 4, 19, 31; Ex. 30: 15, 16; 30: 12, 15, 16; Lev. 11: 43, 44; 16: 29, 31; 17: 11 (twice); 20: 25; Num. 11: 6; 16: 38; 23: 10; 30: 2, 4 (twice), 5, 6, 7, 8, 9, 11, 12; Deut. 4: 15, 29; 6: 5;13: 6; 19: 6, 11; Josh. 23: 11; Judg. 10: 16; 16: 16, 30; 1 Sam. 2: 16; 17: 55; 18: 1 (third use), 3; 20: 3, 4, 17; 24: 11; 25: 26, 29 (first use); 26: 21; 2 Sam. 4: 9; 11: 11; 1 Kings 19: 4; 20: 32; Esther 4: 13; Job 9: 21; 10: 1 (twice); 16: 4 (twice); 18: 4; 19: 2; 27: 8; 30: 16, 25; 32: 2; 33: 18, 20, 22, 28, 30; 36: 14. In the 139 occurrences of *nephesh* in the Psalms exactly 99 of them are capable of this substitution, 37 of them are used in the third sense of the word, disposition, *i.e.,* heart and mind (and as we will later show are also capable of this substitution), and 3 of them in the sense of life. In the books of the Old Testament following the Psalms, there are 106 occurrences of this word *nephesh* wherein the pronouns can be substituted. Having given already a great sufficiency in

proof of this point, we will cite no more of these 205 occurrences. But we may further remark that so apparent is this matter of substitution that the A. V. has used it in exactly 50 occurrences of the word *nephesh.*

We will now cite some of the occurrences of *psyche* in the sense of a soul, a sentient being, and in the case of a human soul, meaning a person, in which use such substitution can be made, and thereby the sense of the passage be preserved: Matt. 11: 29; 12: 18 (here God as a soul is referred to); 16: 25 (twice), 26 (twice); 20: 28; 26: 38; Luke 1: 46; 2: 35; 21: 19; John 10: 11, 15, 17, 24; 12: 27; 13: 37, 38; 15: 13; Acts 2: 27, 31; 15: 26; 20: 24; Rom. 16: 4; 2 Cor. 1: 23; 12: 15; Phil. 2: 30; 1 Thes. 2: 8; Heb. 6: 19; 10: 38 (God's soul), 39; 13: 17; Jas. 1: 21; 1 Pet. 1: 9, 22; 2: 25; 4: 19; 1 John 3: 16 (twice); 3 John 2; Rev. 18: 14; 20: 4. In some of these passages the A. V. directly translates the word *psyche* by the personal pronouns, thus itself making the substitution of the pronouns for the word *psyche,* in the sense of *soul*. We will give a few examples of how such substitutions can be made, whereby the reader may be able to make the rest for himself. First we will give some where the substitution is made in the first person of the pronoun: *My soul* is exceeding sorrowful; even unto death—*I* am exceeding sorrowful, even unto death (Matt. 26: 38; Mark 14: 34). *My soul* doth magnify the Lord—*I* do magnify the Lord (Luke 1: 46). Now is *my soul* troubled—now am *I* troubled (John 12: 27). Mine Elect, in whom *my* [*God's*] *soul* is well pleased—Mine Elect, in whom *I* am well pleased (Matt. 12: 18; Is. 42: 1). *My soul* shall have no pleasure in him—*I* will have no pleasure in him (Heb. 10: 38). John 10: 24 and 2 Cor. 12: 15 are cases where the A.V. has made the substitution. Now a few cases of the second person of the pronoun, combined in one sentence: I will say to *my soul*, *Soul*, thou hast much goods … this night *thy soul* shall be required—I will say to *myself, As for thee,* thou hast

much goods … this night *thou* shalt be required (Luke 12: 19, 20). In your patience possess [preserve] ye *your souls* … possess [preserve] ye *yourselves* (Luke 21: 19). A few examples of such substitution of the third person of the pronoun for *psyche* used in the sense that is now being discussed, a sentient being, a person: What shall it profit a man if he gain the whole world and lose *his own soul*, or what shall a man give in exchange for *his soul* … and lose *himself*, or … in exchange for *himself* (Matt. 16: 26). To give *His soul* a ransom for many—to give *Himself* a ransom for many; compare with 1 Tim. 2: 6 (Matt. 20: 28). *His soul* was not left in hell—*He* was not left in hell (Acts 2: 31). Lev. 4: 27; Num. 35: 11, 15, 30; Deut. 24: 7 and 1 Sam. 22: 2 are cases where the indefinite pronoun is substituted. We suggest that our readers look up all the passages in these two paragraphs, making their own substitutions.

Because a soul, a sentient being, referring as it does to a person, has personal qualities, the words *nephesh* and *psyche* mean (3) disposition, *i.e.,* the heart and mind in their personal qualities, since the disposition is the sum total of character attributes. In this, the third sense of *nephesh* and *psyche*, they may also be substituted with the personal pronouns, and that because they are used to refer to personal qualities. We will give examples of this meaning of both of these words, remarking that *nephesh* is so used 131 times and *psyche* 12 times: Gen. 23: 8; 34: 3, 8; 42: 21; 49: 6; Ex. 15: 9; Lev. 26: 11, 15, 16, 30, 43; Num. 21: 4, 5; Deut. 4: 9; 12: 15, 20 (twice), 21; 14: 26 (twice); 18: 6; 24: 15; 28: 65; 1 Sam. 1: 10, 15; 2: 33, 35; 2 Sam. 3: 21; 17: 8; 2 Kings 9: 15; Job 3: 20; 7: 11; 14: 22; 19: 2; 30: 25; Ps. 10: 3; 13: 2; 35: 12; 42: 4, 5, 6; 44: 25; 63: 8; 69: 1, 10; 77: 2; 84: 2; 86: 2, 4; 94: 19; 103: 1, 2, 22; 106: 15; 107: 5, 9 (twice), 18, 26; 119: 167; 123: 4; 138: 3; 143: 6, 8. This will be abundantly sufficient. We request the reader to make the substitution

of the personal pronouns; and he will find the sense preserved. Now for the New Testament examples of *psyche* in the sense of disposition, *i.e.,* heart and mind: Acts 4: 32; 14: 2, 22; 15: 24; Eph. 6: 6; Phil. 1: 27; Col. 3: 23; Heb. 12: 3; 1 Pet. 1: 22; 2: 11; 2 Pet. 2: 8, 14. In these twelve cases the reader may substitute the pertinent personal pronouns. Thus our investigation has proven abundantly that *nephesh* and *psyche* mean: (1) life, (2) soul, in the sense of sentient being, and when a human being is meant, a person, and (3) disposition. There is no inspired Scripture using it to mean a spirit being in man.

Under one or another of the three definitions that we have given the words *nephesh* and *psyche,* every use of these words in the Bible is covered. We are citing just 418 of the 846 occurrences of these words (surely an abundant sufficiency), as many samples of these three meanings, and as examples of all the senses of these words in their Biblical occurrences. According to the second of these definitions, *i.e.,* the soul is a sentient being, we cannot properly use the expression, We have souls; for according to this definition we are souls. But according to the first and third definitions, which refer to parts of ourselves, one can say, I have life, I have a disposition—heart and mind. But some may be disposed to think that according to Gen. 2: 7 the body and the soul are the same. That they are not the same is evident from Is. 10: 18; Mic. 6: 7; Matt. 10: 28, where they are clearly contrasted. It will be noted that Gen. 2: 7 does not call the lifeless body the soul, though in view of what it was to become it is called man—"God made *man* [the body] of the dust of the ground; and blew into his nostrils the breath of live*s*, and man became a living soul." Here the two constituent parts of man are set forth: (1) body and (2) life-principle; and by the union of these *two,* a *third* thing came into existence—a living soul. Before the body was united with the life

principle it was not a soul; it was simply a lifeless organism which never had life. Nor was it a dead soul, which the Bible frequently calls one's body after he has lived and died, though this thought is usually hidden under the veil of mistranslation (Lev. 19: 28; 21: 1, 11; 22: 4; Num. 5: 2; 6: 6, 11; 9: 6, 7, 10; 19: 13, etc.). Nor is the life-principle the soul; for it is a substance that is derived from the air. The soul first springs into existence by the union of the body and life-principle, as we explained above. So, then, we are to recognize the soul as the person himself, who as such—as a soul—has two parts: body and life-principle, neither of which has a spirit being.

We will offer several illustrations that we trust will clarify the soul as distinct from the body and life-principle, and as coming into existence as a result of the union of the latter two. *E.g*., a lump of coal is not heat, nor is the fire that sets it ablaze; but as a result of their union heat springs into existence from that coal, which by its carbon contents has the capacity of making heat when set aflame by fire. A piece of wood and fire uniting and likewise producing heat, will also serve to illustrate the relation between body, life-principle and soul. In these illustrations the coal and wood correspond to the body, the fire to life-principle and the heat to the soul, the carbon in the coal and wood corresponding to the faculties for soul existence. A still better illustration is that of an electric lamp, the electricity and light—the union of the lamp and the electricity produce a third thing distinct from the first and second, *viz.,* light. This illustration may well serve to picture forth Adam's creation: the lamp was first made with capacities needful to exercise light-receiving powers, as the body of Adam had capacities needful to exercise soul-receiving powers; the electricity before reaching the button of the lamp corresponds to the life-principle before it entered Adam's nostrils; the turning on of the button corresponds to God's

blowing the breath of lives into Adam's nostrils; and the electricity energizing the filament of the lamp represents the life-principle energizing the blood and by it every organ of the body; and the light that results from the union of the lamp and electricity corresponds to the soul—the person. Thus as the heat is distinct from the coal and wood and the fire that lights them, and as the light is distinct from the lamp and electricity, so the soul, the person, is distinct from the body and life-principle. A candle or almost any machine run by electricity or radio also illustrates it.

A final consideration that proves that one's soul is himself, a person, *i.e.,* the soul and person are identical, is the Scriptural teaching that a person's death is a soul's death, that to kill a person is to kill a soul, that a dead person is a dead soul, and to keep a soul alive is to keep a person alive. These Scriptures prove that a dead person is a dead soul; for in these passages the word *nephesh,* soul, is in the A.V. rendered, *the dead, dead body, dead person,* etc.: Lev. 19: 28; 21: 1, 11; 22: 4; Num. 5: 2; 6: 6, 11; 9: 6, 7, 10; 19: 13; Hag. 2: 13. The following Scriptures, which are but a very few examples among many, prove that to kill a person is to kill a soul, hence the person is the soul, the word *nephesh* being translated *person,* or *man,* or *him* in most of them: Lev. 24: 17; Num. 31: 19; 35: 11, 15, 30; Deut. 19: 6, 11; 22: 26; 27: 25; Josh. 10: 28, 30, 32, 35, 37, 39; 11: 11; 20: 3, 9; Ezek. 13: 19 (twice); 17: 17; 18: 4, 20; 22: 25; Matt. 26: 38; Acts 3: 23. We could have cited an immense number of passages belonging among the foregoing passages that speak of the killing of a person as the cutting off of a soul, *i.e.,* passages like Ex. 12: 19 and Lev. 7: 20, 21. The following passages, which also are but a few examples among many, prove that a person's death is a soul's death and that to keep a person alive is to keep a soul alive, the word *nephesh* being in them sometimes translated *person* or by personal

pronouns: Num. 23: 10; Josh. 2: 13; Judg. 16: 16, 30; 1 Sam. 22: 22; Job 31: 39 (margin); 33: 22; 36: 14; Ps. 22: 20; 22: 29; 33: 19; 49: 15; 66: 9; 78: 50; 89: 48; 116: 8; Jas. 5: 20. Hence the four lines of thought in this paragraph, each proved by many Scriptures, demonstrate that a human soul is a person.

Above we have proved that the words *nephesh* and *psyche* have three meanings: (1) life, (2) soul and (3) disposition, and by seven lines of Scriptural evidence we have proved that these words when used to mean the soul mean a sentient being, and as such are Scripturally used of God, of man and of the lower animals and that the human soul is a human being, a person. Hence when Gen. 2: 7 teaches that the body of the prospective Adam, which is called *man* in view of what he would become, when it was vivified by its union with life-principle; underwent such a change as resulted in the production of a living [energetic] soul, which means that this soul was a living person. This, then, shows what the soul is, what Adam and Eve were as they came from God's creative hand. And with this we end our discussion of man's creation, who as a human soul was the crown of all God's works of creation on earth and on earth alone.

Now Heaven in all her glory shone, and roll'd
Her motions, as the great first Mover's hand
First wheel'd their course: Earth in her rich attire
Consummate lovely smil'd; air, water, earth,
By fowl, fish, beast, was flown, was swum, was walk'd
Frequent; and of the sixth day yet remain'd:

There wanted yet the master-work, the end
Of all yet done; a creature, who, not prone
And brute as other creatures, but endued
With sanctity of reason, might, erect
His stature, and upright with front serene
Govern the rest, self-knowing; and from thence
Magnanimous to correspond with Heaven,
But grateful to acknowledge whence his good
Descends, thither with heart, and voice, and eyes
Directed in devotion, to adore
And worship God Supreme, who made him chief
Of all earth's works: therefore The Omnipotent,
Eternal Father (for where is not he
Present?), thus to his Son audibly spake.
"Let us make now Man in our image, Man
In our similitude, and let them rule
Over the fish and fowl of sea and air,
Beast of the field, and over all the Earth,
And every creeping thing that creeps the ground."
This said, he form'd thee, Adam, thee, O man,
Dust of the ground, and in thy nostrils blew
The breath of life; in his own image he
Created thee, in the image of God
Express; and thou becam'st a living soul.
Male he created thee; but thy consort
Female, for race; then bless'd mankind, and said,
"Be fruitful, multiply, and fill the Earth;
Subdue it, and throughout dominion hold
Over fish of the sea, and fowl of th' air,
And every living thing that moves on th' Earth."
Wherever thus created, for no place
Is yet distinct by name, thence, as thou know'st,
He brought thee into this delicious grove,
This garden, planted with the trees of God,
Delectable both to behold and taste;
And freely all their pleasant fruit for food
Gave thee; all sorts are here that all the Earth yields,
Variety without end; but of the tree,
Which, tasted, works knowledge of good and evil,
Thou may'st not; in the day thou eat'st, thou diest;
Death is the penalty imposed; beware,
And govern well thy appetite; lest Sin
Surprise thee, and her black attendant Death.

CHAPTER XIV.

EVOLUTION NOT THE CREATIVE METHOD.

FIVE KINDS OF EVOLUTIONISTS. THE VOICE OF MATHEMATICS ON THE AGE AND POPULATION OF MAN. THE UNITY OF THE RACE, OF THE MAIN RELIGIOUS SENTIMENTS, OF MAN'S ORIGINAL HOME, OF MAN'S ANCIENT CIVILIZATION. MENDELISM AND BIOMETRY. NO NEW SPECIES EVOLVED DURING RECORDED HISTORY. MATHEMATICAL PROBABILITY. NUMEROUS FACTS CONTRADICT EVOLUTION. AGE OF THE SUN AND THE EARTH. HISTORY AND GEOLOGY. DISTRIBUTION OF PLANT AND ANIMAL LIFE. DESIGN IN CREATION. EIGHT GULFS IMPASSABLE BY EVOLUTION. SOME UNANSWERABLE QUESTIONS. HYBRIDS. HONEY BEES AND ANTS MORE INTELLIGENT THAN APES. THE MOSAIC CREATION ACCOUNT INSPIRED. EVOLUTIONISTS' ADMISSIONS. ANTI-EVOLUTION TESTIMONIES OF ABLEST SCIENTISTS. EVOLUTION FOUNDED UPON EXTRAVAGANT AND INHARMONIOUS GUESSES. EVOLUTION'S PUERILE ARGUMENTS. ALLEGED MISSING LINES. ANIMALS PAINTED IN CAVERNS. VESTIGIAL ORGANS. BLOOD TESTS. RECAPITULATION THEORY. INCREASE OF KNOWLEDGE AND INVENTIONS. EVOLUTION CONTRARY TO GOD'S WORD. EVOLUTION'S INDICTMENT.

WE WILL devote the last chapter of our book to a consideration of evolution, which is falsely, we believe, held by an ever decreasing number of scientists to be the method of creation. There are various schools of evolution: (1) atheistically materialistic evolutionists, who teach that the universe and its plant and animal life produced themselves by a series of transmutations from one form into another; (2) spontaneous-generation evolutionists, who, having no further use of a Supreme Being than that of making Him the Creator of matter and its forces, claim that out of such matter and forces the universe and its plant and animal life developed themselves by a series of changes from lower to higher forms; (3) Darwinian evolutionists, who hold that God not only created matter and its forces, but also the first form or, less preferably, the first few forms of plant and animal life, which thenceforth developed themselves into ever higher forms, culminating in man; (4) a class of evolutionists who hold with Darwinian

evolutionists up to the highest form of beasts, refusing, however, to believe that man is a creature of evolution; and (5) those evolutionists who believe that God created, not only the universe, but also every species of plant and animal and that each of these developed or deteriorated into many varieties in each species, *e.g.*, God created man; but man deteriorated into various races, like the Semitic, Japhetic and Hamitic, or into the red, black, brown, yellow and white races. This latter view of evolution or rather devolution is undoubtedly Scriptural and we observe its enactment in various forms of plant and animal life about us, especially under human manipulation. It is especially against the views of the first three of the above classes of evolutionists that we will write in this chapter.

Even among these three classes of evolutionists, who are called monophylitic evolutionists, *i.e.*, those who believe that all plants and animals evolved from but one primeval form, and oligophylitic, *i.e.,* those who believe that these evolved from but a few original forms, there are great differences as to the age of plant life, beast life and human life, *e.g.*, the lowest figure that any of these evolutionists has given for the age of man is 100,000 years, while some set it as high as 2,000,000 years. By mathematics we can clearly prove that the lowest figure—100,000 years—is an absurdity; for it is altogether too short a time for such a method as evolution to bring from apes a being like man into existence and into his present condition. Mathematics also shows that the highest figure—2,000,000 years—is unthinkable. The following is the proof: The 1922 Berlin statistics (latest of such available to us) for the world's population credits the race with a population of 1,804,187,000 in 1922. To reach this population the human race must have doubled itself 30.75 times; for if we raise the number 2 to its thirtieth power, the result is 1,073,741,824; and to its thirty-first power, the result is 2,147,483,648. Hence to have the

present population of the earth, the race must have doubled itself between 30 and 31 times. Logarithms prove it to be 30.75. According to the Bible chronology, from the flood, which began in the Fall of 2473 B.C., to the Spring of 1922 were 4,393.5 years. Shem (compare Gen. 11: 10; 5: 32; 7: 6) was begotten a few months less than 100 years before the flood; hence about 4,493.5 years before 1922 there was but one human couple whose descendants came this side of the flood to populate the earth anew. Hence in the 4,493.5 years before the Spring of 1922, the race doubled itself 30.75 times. This would make an average of 146.13 years for a doubling of population, since it is the result of dividing 4,493.5 by 30.75.

That this figure of the race doubling itself every 146.13 years is a reasonable one, we can see from two related facts. First, according to the Jewish year book for 1922, there were then 15,393,815 Jews in the world. According to Biblical chronology, from the death of Jacob until the Spring of 1922 there were 3,734 years. Seventeen years before his death Jacob was 130 years old (Gen. 47: 9, 28) and Joseph was 40 years old (Gen. 41 : 46; Jacob coming to Egypt in the famine's third year). Hence Jacob was 90 years old at Joseph's birth, and his marriage occurred seven years before (Gen. 31: 41; 30: 25). Accordingly, 3,734 + 17 + 40 + 7 = 3,798, the number of years from Jacob's marriage to 1922. Raising 2 to its 23.8758th power, we get 15,393,815—the Jewish population in 1922. Dividing 3,798 by 23.8758, we get 159.07, which would be the average number of years for Jacob's descendants to double themselves so as to become from Jacob's marriage until 1922 a population of 15,393,815. Second, Abraham's descendants through Ishmael—the Arabs, not only in Arabia, but in the rest of Asia and in Africa—number approximately 25,000,000. According to the Bible chronology, Abraham entered Canaan when 75 years of age (Gen. 12: 4),

in the Spring of 2045 B. C.; hence 3,966 years before the Spring of 1922. Ishmael was born when Abraham was 86 years old (Gen. 16: 16), hence 3,955 years before the Spring of 1922. Hence the Spring before, Abraham and Hagar were a childless couple, which was 3,956 years before the Spring of 1922. But 25,000,000 is the 24.4901th [24.5754] power of 2. Hence, Abraham and Hagar doubled themselves in their descendants every 161.53 [160.9740] years, which is the result of 3,956 divided by 24.4901 [24.5754]. The above investigations show that the whole race doubled itself since Noah and his wife were childless every 146.13 years, the Jews doubled themselves every 159.07 years and the Arabs doubled themselves every 161.53 [160.9740] years. Doubtless the reason why the entire race kept doubling itself on an average of about 15 years sooner than the Jews and the Arabs, is due to the fact that it is written both of typical and antitypical Ishmaelites that their hand would be against every man and every man's hand would be against them (Gen. 16: 12), with the result that more of them on the average met with untimely deaths and propagating hindrances than the average of the rest of the race, like the starving conditions of Asiatic and African deserts and constant wars and feuds for the Arabs, and among others, the Assyrian, Babylonian and Roman conquests and Gospel-Age persecutions for the Jews. But, *with these limitations,* that the figures for all three should be practically alike proves that the principle on which they have been obtained is on the average reliable.

But what does this do with the ages of man that the guesses of evolutionists give us, *e.g.,* that our race is 2,000,000 years old? There is no reason for believing that the race would double itself less frequently than the Arabs, the slowest to double itself of the three given above; but let us liberally grant that it doubled itself 10 times less frequently, which would be once each 1,611.53 [1,609.74] years. This would make it

Please note:

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double itself 1,240.3 [1,242.4] times in 2,000,000 years. Suppose we drop the .3 [.4] of a time and use 1,240 [1,242] as the times of doubling and then 2 to its 1,240th [1,242] power. The result would be 18,932,139,737,991 [75,727,673,499,673] followed by 360 figures, a set of figures that would reach around a large room. Such multitudes are inconceivable by man's mind. There would be no room for them on earth and they would, if placed on the land surface of the earth, stand on one another's heads miles high. Of course, these considerations completely disprove the claim of those evolutionists who allege that the race has been on this earth 2,000,000 years.

Now, let us take the shortest age of man suggested by any evolutionist—100,000 years, a time far too short for evolution so to work as to produce man in his present condition from one step removed from the ape. Let us suppose that the population doubled one tenth as rapidly as the Arabs, *i.e.,* once each 1,161.53 [1,609.74] years. In 100,000 years the population, accordingly, would have doubled itself 86.1 [62.12] times. Ignoring the fraction, 2 raised to its 86th [62nd] power is 4,660,210,253,138,204,300, [4,611,686,018,427,387,900] or 2,527,570,733 [2,556,102,010] times as many people as are now on earth! This consideration destroys even the mildest form of evolution on man's age on earth. If man had lived 10,000 years on earth and there had been no flood, the race, doubling itself at the Arab rate (the lowest of the three examples above), would be 2,000,000,000 [2,556,102,010] times as numerous as it now is, *i.e.,* 3,608,374,000,000,000,000. [4,611,686,018,427,387,900] If there had been no flood in Noah's day, based upon the race's rate of doubling, *i.e.*, once in 146.13 years, since Noah begat Shem, there would be since the 6,060 years from Adam and Eve's creation 41.35 [41.4699] doublings; and 2 raised to its 41.35th [41.4699] power is 2,583,852,323,274 [3,045,676,814,314], which would be the earth's present population had there been no flood in Noah's day. This is about 2,500 [1,688] times its present population. Hence, we see that mathematics proves the Bible age for man to be correct and requires the

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flood at Noah's time to destroy all except one pair and their direct offspring and the latters' wives. Therefore, mathematics completely demolishes evolution and proves the Bible account of man's age to be true.

All the above calculations are based on the ground that the race sprang from one pair. But, necessarily, according to many evolutionists, many more than one pair of humans evolved from apes. Hence, the figures above based on the age of man as being 2,000,000 or 100,000 or any number of intervening years, would enormously increase to degrees most baffling—especially to evolutionists! Another consideration corroborates their above refutation. If the human race were 2,000,000 years old and had to double itself 30.75 times to reach its present population, it would double itself once in 65,040 years; for 2,000,000 ÷ 30.75 = 65,040. This would mean that there would now be less than 4 Arabs and less than 4 Jews in the world; for they would have to live over 61,000 years yet before the first double would have taken place! These figures prove that man could not have been evoluted from the brute creation. He must be a direct creation from the hand of God and within the time and conditions set forth in the Bible, whose pertinent claims are sound.

A second argument that tells conclusively against certain forms of evolution is the unity of the human family. The Bible puts the argument like this: God "hath made of one blood all the nations of men for to dwell upon the face of the earth." The following facts prove this unity. All races of men interbreed and their offspring are fertile offspring, whereas if evolution were true they could not interbreed and have fertile offspring, even as different species like the horse and ass cannot interbreed and have fertile offspring. If certain forms of evolution were true, there would be many heads of the human family descendent from various species and thus incapable of producing fruitful offspring. Hence, the fertility of descendants of all

interbred races of men proves the unity of the human race and disproves evolution. Again, the unity of human speech proves the unity of the human race and thus disproves evolution. Prof. Max Miller and other very great students of comparative philology claim that all languages are derived from one basic language, proven by the similarity of their chief roots, words, grammatical constructions and the letters of their alphabets, as well as the order of these letters. Words like *father* and *mother* are very similar in many languages of the five groups of human language, which proves the early origin of home and civilization. If certain forms of evolution were true, our present languages could not be reduced to five linguistic groups and these five in turn be reduced to one original language; but they would have to be traced to thousands of non-related languages, such as the thousands of evoluted species of mankind would have invented, had there been such evoluted species of mankind.

The unity of the main religious sentiments of mankind likewise bespeaks the unity of the human race and contradicts evolution, which, if true, would not in its chaotic species of men have developed unity in the basal religious ideas, and doubtless would have developed at least some atheistic races, which races do not exist. Thus all races hold the following religious ideas: a Supreme God surrounded by subordinate gods, *i.e.,* angels; an original state of, and fall from sinlessness; an original golden age; a sense of sin, which in evolution would be impossible, since man would always be bettering himself; sacrifice in propitiation of sin; longing for fellowship with the Supreme Being and a hope for a hereafter. These are basal religious ideas prevalent in all religions and they prove that there was an original Divine revelation made to the head of the race and by him transmitted to his descendants, however much the original Divine revelation may have been corrupted in its long period of transmission. If certain

forms of evolution were true, such a basal unity in religious ideas would be impossible, for ape-men in their alleged thousands of species would not have arrived at such a unity, the idea of religion being utterly wanting in the highest order of the beast creation. Rather, we would expect completely disharmonious contrarieties—nearly as many as there would be different human species evolved on the earth.

The unity of man's original home also proves mankind's unity. History, archeology and philology, alike, testify to Mesopotamia, a small strip of country between the Euphrates and the Tigris rivers, as man's original home, from which, after the one speech of man became divided, first into three, then into five, then into more, the race, dividing into various nations, began to spread itself abroad over the face of the earth. This strip of country is about 100 miles wide and 125 miles long—12,500 square miles, *i.e.,* 1/4005 of the land surface of the earth. If Moses was not inspired, he guessed this territory as the cradle of the race—one chance in 4,005 of being right. The improbability of such a guess disfavors its truth and favors the truth that Moses was inspired. But the facts of history, archeology and philology prove this territory to have been the original home of the race; while, if certain forms of evolution were true, the thousands of direct offshoots from apes would have been spread out almost everywhere over the surface of the ancient earth.

Ancient civilizations disprove evolution and favor the unity of the race, sprung from a highly gifted parentage. Archeology has uncovered several very ancient civilizations in which great literatures, arts and sciences flourished very fruitfully. Witness this in the finds in Egypt, Babylonia, pre-Judaeic Palestine, etc. The code of Hammurabi, the Amraphel of Gen. 14: 1, pre-dated the Mosaic laws by nearly 500 years and it shows very great ability in legislation. Well organized

governments, social orders and highly educated and gifted people are brought to our attention and show man then to have been a highly developed being. The most ancient traces of man find him well civilized and well developed, giving him more capacity; for the average skull is now 2 inches less in circumference than the average skulls recovered from Pompeii. That man was not so far progressed in some matters as now is not due to evolution, but to the day of preparation in which we have been in the last 140 years; for the great progress of these years cannot be due to evolution, since the progress has been very sudden and terrifically rapid since 1799, when God's day of preparation for the Millennium began. But if evolution were true, the progress would have been gradual from the very beginning. The history of civilization disproves evolution in this respect; for it proves that each nation is like a human being; it goes through a period of childhood, youth, manhood, prime, age, decline and decay, *e.g.,* Egypt, Assyria, Babylonia, Persia, Greece, Rome, Turkey, Spain, etc.; while, if evolution were true, it would be progress throughout, and not decline and decay toward the end. Ancient civilizations, therefore, disprove evolution and prove the unity of the human family, which fact overthrows certain forms of evolution, since they make the race not a unity, but a many-headed medley of unrelated beings.

Several of the recent sciences, *e.g.,* Mendelism and Biometry, disfavor evolution. Mendel, by a vast series of experiments in plant and animal life, has proved several natural laws of heredity. One of these is that the first offspring of a positive (dominant) and a negative (recessive) plant or animal takes after the dominant parent. In the second generation, the dominant one predominates, but the negative one appears. In the third or fourth generation both appear about equally in the descendants. *E.g.,* if a giant variety of peas is crossed with a dwarf variety, the offspring are

all tall; in the second generation both appear, but the giant variety in the proportion of 3 to 1. In the third or fourth generation they are on the average equal in number; but when these dwarfs are self-fertilized all the successive offspring are dwarfs. Experiments with flowers, rabbits, cats, rats, dogs, etc., etc., etc., proved the same thing. This law applied to man and apes should make the ape appear in some generations among men. So, too, we ought to find some men turn to apes—in the negative characters. But nothing of the kind happens, which shows that there is no taint of the ape in man. Biometry [measure of life] is the science of the statistical study of variation and heredity. It proves that the common ancestor of the English race cannot have lived earlier than 30 generations ago, and that most people are nearer related than that. So, also, other nations have been traced and, as Prof. Conklin of Princeton University, an expert in Biometry, speaking of these, says: "As a matter of fact, most persons of the same race are more closely related than this [30 generations apart] and certainly we need not go back to Adam, nor even to Shem, Ham or Japheth, to find our common ancestor." This science, then, is in line with Noah being the common ancestor of the present race of men. We have not come from the brute creation, but from Noah and Adam. Biometry also teaches that it is a law of nature to eliminate extremes and peculiarities and that throughout nature there is a tendency to the normal and away from the abnormal, which is against evolution; for it implies a constant tendency to the abnormal. Thus, on the average, the extreme peculiarities of parents are toned down in children. Most rarely do parents of genius have children of genius, as the great names in the arts, sciences, inventions, history of nations, etc., abundantly prove. All this is against evolution; and Biometry proves all this to be demonstrable.

A most telling point against evolution is that there are no new species forming now, nor have there been in the past, so far as records indicate. If evolution were the law of plant and animal existence, then would we see examples of it on all sides. But what is the fact? No one demonstrably has seen one species change into another. There is no record of such an event in the whole past history of the world. There is no present example of such a thing. Evolutionists tell us that there are 3,000,000 species of plant and animal life. According to them these have developed from the first germ some 60,000,000 years ago. At this rate how many species would have arisen in the last 6,000 years? According to the method of figuring given above, again with liberal concessions to the evolutionists, 2,097 species must have arisen in the last 6,000 years, or an average of about one new species each three years. As a matter of fact, it is not proven that even one has arisen in these 6,000 years, which fact evolutionists are forced to admit. Dr. Warren, of the University of California, said in refutation of evolution: "If the theory of evolution be true, then during the many thousands of years covered in whole or in part by present human knowledge, there would certainly be known at least a few instances of evolution of one species from another. *No such instance is known."* Prof. W. Bateson, of Cambridge University (England), who is generally recognized as the world's greatest biologist, and who at a scientific congress held several years ago at Toronto, Canada, gave its evolutionist members a severe jolt in his arguments against evolution, said: "It is impossible for scientists longer to agree with Darwin's theory of the origin of species. No explanation whatever has been offered to account for the fact that after forty [now seventy] years [of diligent and world-wide search], no evidence has been discovered to verify his genesis of species." This hits the nail on the head.

Mathematical probability is unanswerably opposed to evolution as most evolutionists hold it, *i.e.,* that only one pair evoluted from each lower to each higher species. They claim that there are 3,000,000 species of plant and animal life. Is it at all probable that one species could by two of its members evolve into the next higher? Is it at all probable that these two should be male and female, that they were evolved at the same time and at the same place, that they were mutually attractive and thus interbred? The chances against this happening in each species is a matter of compound probability, produced by multiplying the number of males by the number of females in one species, by the number of places where they possibly could have lived and these products by the number of generations in the average species. There would be one chance for this happening in one average species, against untold decillions that it would not happen. Then the probability of its happening from the lowest form of life to man would be the product of the compound probability in the first species multiplied in turn by the compound probability of these things happening in all the other of the 2,999,999 species. This would give us a set of figures represented by about 1,000 digits against its happening to one that it would happen. Such an improbability amounts to a certainty of evolution's falsity. Mathematical probability, therefore, completely refutes evolution.

If evolution were true as a law of nature, why have not all lower species passed out of existence through evolving into higher species until by this time there would be but one species—man, and he on the way of evoluting to some higher species? Why have some species become so large, like the ancient saurians, and our modern elephants and alleged later species than these, *e.g.*, monkeys, become so small, if evolution is true? Why do we not find many beings nearly equal or similar to man, if evolution is true? Why did

Romanes, while yet an evolutionist, find that the collective intelligence of all species lower than man equals the intelligence of the average child of 15 months, if evolution is true? Why should all males but one and all females but one die as members of the 3,000,000 species, and the two not die as such, but as members of the next higher species? Would not this be as unlikely as if untold decillions of dollars being tossed into the air, should all fall heads down except two? If as Huxley, a leading evolutionist, said, "There is an enormous gulf, a divergence practically infinite, between the lowest man and the highest beast," then why are there not between man and ape many other species in existence, if evolution is true? Surely Huxley's gulf between them is evident when we consider man's immense superiority to the ape in physical and mental respects, letting out of consideration entirely the moral and religious respects, of the latter of which the ape is entirely destitute. Why are the senses of seeing, hearing and smelling on the wane in man, why are people now more nervous than formerly, why do more people now become bald than formerly and why are diseases, physical, mental and moral, increasing, if evolution is the law of existence? Surely such and other like considerations refute evolution as a law of existence. Degeneration is the trend, not evolution.

The earth is not old enough to allow for the millions of years that the evolution theory requires for the development of plant and animal life. Their guesses as to its age differ from 16,000,000 to 8,000,000,000 years, and that because they must allow for millions of years after the earth cooled off before their evolution could begin to work on the first life germ and then have sufficient time to produce their 3,000,000 species. The more able of them claim 60,000,000 years for the development from the first germ of life to man. But the earth is not old enough for this, as can be proved by a number of considerations. The ablest scientists,

like Helmholtz, Kelvin, Young, Todd, etc., claim for the sun on an average an age of 18,000,000 years. It was from gases thrown off from our universe's spiral that the sun and our solar system was formed. The sun is not a lump of coal, else it would have burned to a cinder within a few thousand years. Helmholtz and scientists generally hold that its light and heat are caused by its contracting. They have demonstrated that this contraction, causing a shrinkage of about 300 feet annually in the sun's diameter, would be sufficient to keep up light and heat at their present quantity. Prof. Young in his Astronomy says, "The shrinkage of the sun to its present dimensions from a diameter larger than the orbit of Neptune, the remotest of the [then known] planets would generate *about* 18,000,000 *times as much heat as the sun now radiates in a year.* Hence, if the sun's heat has been and still is due to the contraction of its mass, it cannot have been radiating heat at the present rate, on the shrinking hypothesis, for more than 18,000,000 years." This proves that it is not even 18,000,000 years since the gas that was developed into the earth and its sun left their common spiral. This disproves evolution, not allowing it sufficient time to develop its 3,000,000 species.

Millions of years were required before the molten mass that formed the earth cooled off enough to form an adequate crust to permit plant and animal life to be formed and live upon it, which disproves evolution. Lord Kelvin, who calculated the sun's age at 18,000,000 years, calculated the earth's age as 8,302,210 years. If we subtract from these years the immense time necessary for the earth to cool off sufficiently and to form an adequately thick crust to sustain plant and animal life, enough time is not left to allow for the evolution of 3,000,000 species; for several millions of years must have lapsed in this cooling process and in the formation of a crust averaging 25 miles deep over the fiery mass within the earth. So, too, the surface

of the earth indicates that it was in comparatively recent ages that the earth's surface was water-covered (Gen. 1: 2, 9, 10). Geologists claim that the Niagara Falls receded from Lake Ontario within the last 7,000 years, that the Mississippi was 8,000 years in excavating its channel and that man made his appearance on earth within the last 8,010 years, the Bible putting this as a little over 6,000 years. These facts certainly do not allow a sufficiency of time for evolution to have produced 3,000,000 species and, therefore, completely disprove it as a theory.

We have already shown that history contains not one hint of the transmutation of one species into another. We now add that, like history, geology confounds the evolutionist by not furnishing even one fossil showing anything in process of change from one into another species. We have many fossils of plants and animals, but they entirely lack an example of an animal fossil showing a transition from one to another species. If evolution were true, we should have millions of these on earth's strata.

The distribution of plant life and certain animal life disproves evolution. If all plants came evolvedly from an original germ, how came they to be distributed in continents separated by oceans, and that before man appeared on earth, as many fossils of them prove? So, too, we find certain animals whose power of locomotion is but very slight scattered widely. The oyster is found in Europe, Africa, Asia, Australia and North and South America. How could they have crossed oceans? Again, if all plant life originated in a single germ, how did it happen that some plants are scattered among all continents, and others when found by civilized man were limited to but one, like Indian corn, tobacco, potatoes, etc.? If these once existed in the eastern hemisphere, as evolution requires, why were they found only in America? Certainly we must accept the conclusion of Agassiz, one of the greatest

scientists of all times, to the effect that evolution "is a scientific mistake, untrue in its facts, unscientific in its methods and mischievous in its tendencies."

The arguments against evolution so far presented are aimed against one, or two, or three of the first three kinds of evolution, *i.e.*, (1) atheistic materialistic evolution, (2) spontaneous-generational evolution, and (3) Darwinian evolution. The fifth form of evolution, *i.e.*, changes (upward or downward) limited to each species, is not unbiblical, and our arguments against Darwinian evolution, except those against man's descent from beasts, hold against the fourth form, which is Darwinian evolution with the exception of this: that it denies man's descent from beasts. Hence we are without details passing by in this discussion the fourth and fifth forms of evolution. We will now proceed with our arguments against its first three forms as given above.

Evolution denies design in creation, which is the corollary of a wise purposeful Creator, and must fall back on chance as the line along which the universe and its life manifestations came into being and move. The universe and plant and animal life literally overflow with the expressions of design, which imply a designer. Almost infinite in number are these design expressions. We will set forth but a few: The human body is packed to overflowing with evidence of design and adaptation. The most intricate machine, like the Hoe printing press, shows design decidedly much less markedly than the human body. How multifold is design manifest in the nervous system, with its relations to thought, affection, will, the five senses, our blood and its channels and vital organs! How wonderfully designful are our blood and its channels, our muscles, glands, skin, brain, vital organs, hands, fingers, joints, arms, feet, toes, legs, eyes, ears, nose, tongue, teeth, excretory organs, reproductive organs, etc.! Their locations, their protectors, etc., as well as

their nature and functions, also evidence design. It would be a million fold more foolish to say that man came by chance than to say that a Hoe printing press came by chance! Marvelously formed is our body. The principles underlying its activities are followed by inventors of dynamos, steam engines, etc., and yet how greatly inferior are such inventions to the human body! Nevertheless, evolutionists would attribute its origin to chance, while denying the possibility of a steam engine coming by chance! Mr. W. J. Bryan pointedly expressed himself on the folly of this chance theory as follows: "According to evolutionists, there was a time when animals had no legs and so legs came by accident. How? Well, the guess is that a little animal was wiggling along on its belly one day, when it discovered a wart—it just happened so—and it was in the right place to be used to aid it in locomotion; so it came to depend on the wart, and use finally developed it into a leg. And then another wart, and another leg at the proper time—by accident—and accidentally in the proper place. Is it not astonishing that any person, intelligent enough to teach school, would talk such tommyrot to students and look serious while doing so?" Nature is a proof that design marked man's coming. Earth's coal, gas, petroleum and electrical power, that no being but man uses, and that are so necessary for him, were stored up in the earth for him long before he came. The metals, so useful to man and useless to all other animals, were on deposit in the bank of the earth for man to check on as needed. Fruits, vegetables, grains and flesh having the chemical elements needed to replace waste tissue in man were prepared for him. The resources of nature needful for man's protection from inclement nature were made abundant for him. Everything in the earth shows design, and that for the most part in anticipation of man's arrival on earth; and in this only a less loud voice in him,

with the harmonious chorus of the universe and its living creatures, cries out *design,* as against *chance,* which the evolutionist, discordantly with the universe, the earth and plant and animal life, with their associated supplies, shouts is the course of nature. Chance, the course of nature in the face of the laws of nature!

Above we showed the almost infinite improbability of the transmutation of species from the lowest of them in plant life through all successive species of plant life into the lowest form of animal life and then through all the successive species of animal life up to man, *i.e.*, through evolution's 3,000,000 species. We now offer an argument against evolution based upon the genera of life as forming eight impassable gulfs, all of which evolution would have to prove to have been passed, if it were to be proven true, and not even one of which has been proven to have been passed by evolution. These eight impassable gulfs separating the genera of being are the following: (1) from the non-living to the living; (2) from the vegetable to the animal kingdom in the lowest form of invertebrates; (3) from the invertebrates to the vertebrates; (4) from marine beings to amphibians; (5) from amphibians to reptiles; (6) from reptiles to birds; (7) from birds or reptiles to mammals; and (8) from mammals to humans. In the above genera, separated by eight gulfs, we have ignored the multitudes of species in each genus, simply giving the classification according to eight genera. We treated previously of the 3,000,000 species that come under these eight genera. But how does evolution fare in its efforts to prove that each one of these gulfs was passed? The atheistically materialistic evolutionist and the spontaneous-generation evolutionist are forced to make the first gulf be passed by the lowest form of plant life after the manner of the Topsy of Uncle Tom's Cabin, who, when asked when she was born, answered that she was not born at all, but just grew!

For spontaneous generation is a senseless guess that experiments under the most favorable experimental conditions have failed to achieve, these having broken down in complete non-success. Neither of these kinds of evolutionists know how to get life from the non-life; for if anything is scientifically true, the proposition is true that what is in the effect must have been in the cause; hence, non-life could not have produced life. Hence, the first two kinds of evolutionists have found an impassable gulf between the non-living and the living, on the assumption which they make—that a living being did not cause the first form of life.

The hopelessness of the task of getting life from the non-living without the agency of a living being, *i.e.*, passing the first gulf without a creative act of God, forced Mr. Darwin and all Darwinian evolutionists to assume that God created at least one, at most a few, forms of the lowest plant life. Therefore they had to have a God to pass the first gulf; and thereafter, as it were, they mummified Him for all future times. But little good did that do them; for they are equally helpless in bridging the next gulf, *i.e.,* that which lies between the highest form of plant life and the lowest form of animal life, endowed with consciousness and locomotion. How could they overcome this gulf? To this question they have no real answer. The next gulf to cross is that which lies between the highest form of invertebrates to vertebrates. Here again, so far as a real answer is concerned, they are "dumb dogs that cannot bark," though their guttural growls are more or less audible. The next gulf for them to pass is between the highest form of marine vertebrates to amphibians. But here they are as helpless as on the previous points; for they cannot tell how fish, which do their breathing with water, could have been changed to do it with air as well as with water. Another impassable gulf faces them when they meet the question as to how amphibians developed into reptiles. The

same is true as to the abyss between reptiles and birds and that between reptiles or birds (they do not know which) and mammals. The most unyielding of all these eight gulfs for them to bridge by evolution is that between the highest mammal and man, between which Huxley, as already quoted, admitted that there was a gulf to pass whose passage he could not explain, calling it almost infinite. To pass these eight gulfs separating the eight above genera is impossible of solution by evolution. Only on the basis of an intelligent and purposeful Creator can they be passed; and the impossibility of explaining by evolution the passage of these eight gulfs is a complete refutation of evolution, proving that it is a theory that does not prove and cannot prove what it was invented and invoked to prove.

At the beginning of each one of these genera there are so very many differences to account for that cannot be accounted for on evolutionary grounds, that it should discourage the boldest of evolutionists. *E.g.,* some evolutionists say that mammals are descended from some (unknown) reptiles, and birds from other (unknown) reptiles. But how did the first mammal get breasts, a four-chambered heart instead of the three-chambered heart of the reptile, hair, or fur, or wool and a womb for developing young, all of which reptiles lack? How was the reptile's blood temperature raised from 40° and in the extremest cases from 60° to nearly 100° in mammals? In the transition of reptiles to birds, how was the blood temperature raised from between 40° and 60° to 107°? How were wings and feathers developed? By itches in a serpent's back making him scratch himself and thus cause the itches to grow into feathers and wings? (!) Evolutionists offer for this gulf two fossils of what they call the archaeopteryx, which are nothing but birds with abnormal tails and bills. Of real evidence they have not even one link, whereas millions would be required to fill up

each of the above-mentioned eight gulfs. These eight genera, to say nothing of their 3,000,000 species, say at each of their separating gulfs with indisputable power to evolution: "Thus far and no farther."

Some of the involved questions in evolution cannot be solved by this theory. How, for example, according to their theory, did sex in plant and animal life originate? Starting with but one or a few germs reproduction must, for awhile, have been by division. If the germ that became the head of a plant life reproduced by division, how and when did it begin to produce seeds and thus reproduce itself by seeds? How could it have stopped the former and adopted the latter mode of reproduction? In animal life the origin of sex life is still more impossible to account for on evolutionary principles. How could the highest form of plant life produce a male and a female in the lowest form of animal life? How could it at the same time produce the power of consciousness and locomotion in these? Even the ablest scientists cannot produce these things from the highest form of plant life. How, then, could blind, non-intelligent plant life *create* greater things than these scientists? Again, if man descended from the hairy ape, how did he get rid of his hair? Darwin says that it happened by the females refusing to mate with the more hairy males, and by mating with the less hairy ones, and that thus finally their taking such mates resulted gradually in offspring becoming hairless and the hairy ones becoming extinct. But, we ask, how does he know that it so happened? We now see no such thing going on among the entire simian family. Again, we know that as a rule females inherit the traits of their fathers and that males inherit those of their mothers. Hence, on the basis of Darwin's explanations, the females should have become hairless and the males hairy. But aside from this how can evolutionists, on the basis of their theory, account for humans having hair on their heads and on other parts

of their bodies? Why do men have beards and (apart from abnormalities) women and children have none? If the hair left on the body is the remnant of our alleged ape ancestors, why do we have none left on our backs, where it is most abundant on our supposed ancestors? If we came from monkies, how came we to lose the ancestral tail? Surely evolution has "monkied" with monkies enough to arouse the suspicion that by their monkey-shines they have made monkey-doodles with their monkeyfied theories.

Though we have incidentally alluded previously to hybrids, as an argument against evolution, we desire to do so now in more detail. If evolution were true, hybrids would be indispensable for its functioning. But all hybrids are notoriously sterile, which flatly contradicts evolution. God's law that each should reproduce "after its kind" is proven to be the rule of reproduction by the sterility of hybrids. Thus nature itself destroys evolution by its only possible avenue of operation—preservation of evoluted powers by propagation with other, but kindred species. Species do not change nor unite with others to produce new permanent species. Dogs and cats do not interbreed in producing a new species. A few nearly related species are so much alike that we scarcely know whether they are of different species or varieties of the same species, like the jackass and mare. These frequently interbreed, but their offspring is sterile. The same is true of the zebulon, the offspring of a zebra and a mare. The same is true of all other closely-related species. A human and an ape cannot produce offspring, which proves that they are not even nearly related species. But if evolution were true, we would have much and similar interbreeding with the production of fruitful offspring. Even plant hybrids, according to Darwin's own testimony, are not permanent. All this goes to prove God's law that each kind will bring forth no other species except its own. But even if species

could interbreed and thus form permanent new species, a thing utterly lacking in proof, genera could not do so by the wildest stretch of imagination. Yet evolution must assume this impossibility. Surely it is a hopeless and helpless theory.

Against evolution the fact tells that some insects have more knowledge and practical ability than apes. We instance the honey-bee and the ant. These have a social organization far superior to the ape and certainly surpass it in constructive ability, government and social life. They have armies, sentinels, police, courts (which decree penalties) and executioners of such penalties. They have a highly organized society with kings, queens, nobles, plebeians, higher and lower slaves, etc. The bee forms a honey cell laid out geometrically along the lines of a hexagonal prism, which the mathematical science, Calculus, proves is the most economical space and material saver known to science. Each of these cells is perfect in itself and is perfectly adjusted to its neighboring cells. A crowd of bees build these, even in the dark, of such exquisite skill that a most efficient mechanic cannot equal their product. If evolution is true, why were these qualities in ever increasing development not transmitted to their alleged descendants in later developed species? The ape cannot in his social life and in his activities approach the degree of excellence attained by the bee and the ant. Yet if evolution were true, the ape, allegedly, being a so very much later evoluted species than the bee and the ant, should be at least as much more highly developed than these, as man is more highly developed than the ape. Further, the bees' and ants' intelligence as to work, etc., does not come from their parents by heredity; for the female workers and the male workers are all sterile. The drones are their fathers and the queens, which do not work, are their mothers. Here, then, is a fact of development which is entirely apart from evolution and for which evolution

can offer no explanation. Creation is the only solution of this matter, God gifting the bees and ants with intelligence that even the highest of the lower animals lack and that does not appear in the intervening species; whereas if evolution were true all alleged later species would increasingly excel the bee and the ant, which, except man, they do not do.

Evolution denies the special creation of genera and species. The Bible affirms both. But the Bible account of creation comes to us with such evidence as proves its Divine inspiration, which being true proves the truth of the special creation of the genera and species and thus disproves evolution. On eleven points—all the essential ones involved in the subject—the Mosaic account of creation as recorded in Gen. 1 is in perfect harmony with the latest findings of proven science. Admittedly no human being was a witness of the eleven essential points of creation as given in Gen. 1. Scientific knowledge of them is but of recent origin. Hence the record of them in Gen. 1, if true, as we believe it is, must have been inspired. These eleven points in the order of their origin are: (1) chaos everywhere, (2) darkness over the deep, (3) light appears, (4) an atmosphere (expanse, firmament) forms, (5) elevation of land and formation of seas, (6) vegetation appears, (7) sun, moon and stars appear, (8) marine animals appear, (9) fowl appear, (10) land animals appear and (11) man appears. The latest science and Moses agree on the order of the appearance of these eleven main stages of creation. If Moses was not inspired on these matters or did not get his knowledge from some inspired source, he must, when as yet science on these subjects was non-existent, have guessed this order; for, as said before, no human being was a witness of these eleven steps of creation. Though the first man was the object of the last of these steps, yet in the nature of the case he could not be a witness even of it. How comes it that Moses gives

the exact order of these steps as the latest findings of proven science give them? If he guessed them in exact order it means that, according to the law of permutations, there was only one chance of his guessing aright in 39,916,800 chances. This disposes of the guessing theory and proves his inspiration. Apart from inspiration how could he, under the circumstances that no human witnessed these eleven steps of creation, have written on matters pertaining to the following sciences without contradicting them: geology, astronomy, zoology, biology, physics, chemistry, archeology, philology, ethnology, anatomy, geography, anthropology, religion, history, phrenology, psychology and ethics. His agreement with the proven truths of these is a proof of his inspiration. Hence his account of creation, asserting special creation of the species as well as of the genera, must have been of Divine inspiration and, therefore, true and, therefore, a proof of evolution's falsity on its very face.

Even evolutionists admit that there are objections to their theory that they cannot answer. They enumerate twenty of these, of which we will give eleven. We will present the main ones that they themselves admit incapable of reasonably answering: (1) innumerable, undiscoverable, transitional forms between each of the species; (2) intelligence in animals and insects, like the honey bee and the ant; (3) sterility of hybrids; (4) non-hereditability of changes resulting from use or non-use; (5) chance as against design; (6) non-universality of imperceptible changes connected with the time element—a bar to their transmittance; (7) non-usability of the first slight changes; (8) non-explanation of the arrival of the fittest; (9) inadequacy of natural selection as a proof; (10) variations within species no proof, since these variations did not change the species (a giant of ten feet is still human); and (11) the worthlessness of the supporting theory of sexual selection. These are just one

over one-half of the objections to their theory that evolutionists admit they cannot answer. Why, then, do they contend for its truth? If it were true, no facts would contradict it. When facts contradict a theory, so much the worse for that theory. It is thus proven to be wrong. In human logic and science whenever a theory is proven to be out of harmony with facts, that theory is considered disproven. Why is it, then, that evolutionists insist on their theory, when they admit that facts contradict it? Must this not be due to perversity either of head or heart or of both? Nay, rather, is this not certain proof that Satan is evolution's author and stubbornly seeks to keep it in men's minds for evil?

Evolutionists never tire of boasting that all scientists endorse it; hence it must be true. This boast is certainly contrary to facts, as we now present the point against evolution that all along the ablest scientists have rejected it, and that for thirty years increasingly the scientific world is rejecting it as "a windy hypothesis," as Vircow, one of the greatest, if not the very greatest scientist of all times, called it. We have collected a number of testimonies of the greatest scientists in their several departments and herewith present them, repeating three of them already given in the preceding part of this treatise: Dr. Ethelridge, of the British Museum, greatest fossilologist, said: "Ninetenths of the talk of evolutionists is sheer nonsense, not founded on observation and wholly unsupported by facts. This Museum [the British] is full of proofs of the utter falsity of their views. In all this Museum there is not a particle of evidence for the transmutation of species." Prof. Owen said, "No instance of the change of one species into another has ever been recorded by man." Dr. J. B. Warren, of the University of California, declares that, "If the theory of evolution is true, then during many thousands of years covered in whole or in part by present human knowledge, there

would certainly be known at least a few instances of the evolution of one species from another. No such instance is known." Dr. H. C. Morton said, "Darwinism is dead and soon will be buried without hope of resurrection. But without Darwinism evolution is the mere empty shell of a venerable speculation." Dr. W. H. Thompson, former president of the N. Y. Academy of Medicine, declared, "The Darwinian theory is rejected by the majority of biologists as absurdly inadequate. It is absurd to rank man among the animals. His [Darwin's] so-called fellow animals, the primates—the gorilla, orangutan and chimpanzee—can do nothing truly human. … Evolution was never the cause of anything." Prof. Bateson, greatest of living biologists, affirmed, "It is impossible for scientists longer to agree with Darwin's theory of the origin of species. No explanation whatever has been offered to account for the fact that, after forty [seventy] years, no evidence has been discovered to verify his genesis of species." Lord Kelvin, greatest of British scientists, a rejector of evolution, said in an address to the British Association of Science, "I marvel at the undue haste with which teachers in our universities and preachers in our pulpits are restating truth in terms of evolution, while evolution remains an unproven, hypothesis." Prof. Beale, of King's College, who with Lord Kelvin stood at the head of British scientists, declared, "The idea of any relation having been established between the non-living and living by a gradual advance from lifeless matter to the lowest forms of life and so onward to the higher and more complex, has not the slightest evidence from facts of any section of living nature of which anything is known … There is no evidence that man has descended from, or is, or was, in any way specially related to, any other organism in nature, through evolution or by any other process … In support of

all naturalistic conjectures concerning man's origin, there is not a shadow of evidence."

Prof. Vircow, generally regarded as the world's greatest scientist and physiologist, wrote, "The attempt to find the transition from the animal to man has ended in total failure. The middle link has not been found and never will. Evolution is all nonsense. It cannot be proven by science that man descended from the ape or from any other animal. Since the announcement of the theory, all real scientific knowledge has proceeded in the opposite direction." Sir Charles Bell, of the University College of London, says, "Everything declares the species to have their origin in a distinct creation, not in a gradual variation from some original type." Prof. F. M. Balfour, Cambridge biologist, writes, "All scientific facts contradict the crude ideas of so-called naturalists who state that one species can be transmuted into another in the course of generations." Thomas Carlyle, one of the leading thinkers of the nineteenth century, wrote, "I saw the naturalist [Darwin] not many months ago, and told him I had read his 'Origin of Species' and other books; that he had by no means satisfied me that we were descended from monkeys; but had gone far to persuade me that he and his so-called scientific brethren had brought the present generation very near to monkeys." Prof. Fleischmann, Professor of Zoology in the Erlangen University, first an exponent, and after mature study an opponent of Darwinism, remarked: "The Darwinian theory of descent has in the realm of nature not a single fact to conform it. It is not the result of scientific research, but purely the product of the imagination." Prof. N. S. Shaler, Harvard geologist, says: "It begins to be evident to naturalists that the Darwinian hypothesis is still essentially unverified … It is not yet proven that a single species of the two or three millions now inhabiting the earth had been established solely or mainly by the operation of natural selection."

Prof. Huxley, one of the three ablest disciples of Darwin, said that evolution is "not proven and not provable." Prof. Agassiz, recognizably one of the greatest scientists of all times, wrote of evolution: "The theory is a scientific mistake, untrue to facts, unscientific in its methods and mischievous in its tendency … There is not a fact known to science tending to show that a single kind has ever been transmuted into any other."

The Standard Dictionary in the article on Hybridism states: "Hybridism is one of the greatest obstacles to the general acceptance of the principle of evolution." Sir William Dawson, one of the greatest geologists, said: "The record of the rocks is decidedly against evolution, especially in the abrupt appearance of new forms under specific types, and without apparent predecessors … Paleontology furnishes no evidence as to the actual transformation of one species into another. No such case is certainly known. Nothing is known of the origin of man except what is told in Scripture." Prof. Le Conte, of the University of California, writes the following: "The evidence of Geology today is that species seem to come into existence suddenly and in full perfection, remain substantially unchanged during the term of their existence and pass away in full perfection. Other species take their place, apparently by substitution, not by transmutation." Prof. Haeckel, perhaps the ablest of all evolutionists, but later a devolutionist, concedes that "most modern investigators of science have come to the conclusion that the doctrine of evolution, and particularly Darwinism, is an error and cannot be maintained." Dr. St. George Mivart, late Professor of Biology in the University College of Kensington, ranking in the biological world next to Prof. Bateson, called Darwinism "a puerile hypothesis." Prof. James Orr, of Edinburgh University, says, "The greatest scientists … of Europe are now pronouncing Darwinism

to be absolutely dead." The famous paleontologist, Dr. Traas, asserts: "The idea that mankind is descended from any simian species whatever is certainly the most foolish ever put forth by a man writing on the history of man." Certainly these are weighty testimonies.

Many evolutionists, especially the more shallow of them, boast that "all scholars accept evolution." But the above quotations are from scientists and scholars of the first rank and show that all of these reject evolution. There is not even one of the outstanding scientists of Great Britain that endorses it, as the following statement made after careful investigation by Dr. D. S. Gregory, managing editor of the Standard Dictionary, shows: "It is a strange fact that no great scientific authority in Great Britain in exact science, science that reduces its conclusions to mathematical formulas, has endorsed evolution." After Darwin, the three chief English exponents of evolution, Spencer, Huxley and Romanes, after deeper investigation repudiated this doctrine. The German professor, Haeckel, who out-Darwined Darwin himself, became dissatisfied with it and was forced by his observation of degeneration as the trend of all nature, to repudiate evolution as the law of existence. Prof. Townsend, in his book, The Collapse Of Evolution, makes the following remark on the claim of superficial evolutionists that "all scholars accept evolution": "The saying that the scholarship of the world is arrayed on the side of evolution we do not hesitate to brand as a falsehood, whether spoken by a canon, professor or clergyman. Some of the world's ablest scientists are now assailants of evolution [beside others of them who reject it without entering into controversy over it)." In addition to the continental, English and American scientists named and quoted above, who are confessedly in the front ranks of scientists, we cite the following list of the ablest continental European scientists who rejected evolution wholly or in its essential parts:

M. de Quatrefrages, Pasteur, Blanchard, Wigand, Wolff, Driesch, Plate, Hertwig, Heer, Von Hartmann, Schilde, Du Bois-Raymond, Mendel, Nageli, Schaafhausen, Fechner, Jacob, Diebolder, Huber, Joseph Ranke, Von Bauer, etc., etc. Ever since 1908, a date Biblically assigned to this turn of opinion on this subject, evolution has been suffering increasingly an eclipse, scientific men increasingly turning against it as, to use Vircow's characterization of it, *"a windy hypothesis, in defense of which no fact in nature can be adduced."* Before long evolution will be defenderless.

We are not of those who believe that great names as advocates or opponents constitute proof or disproof of a proposition. Nor did we quote and cite the above as a disproof of evolution, but to show the falsity of the claim that "all scholars accept evolution," and to prove that evolution has failed to offer a single real case of the transmutation of species convincing to the ablest scientists that have ever lived. In the exact sciences, like astronomy, physiology, mathematics, physics, etc., completely convincing facts exist and convince all scientists who study them of the truth of the pertinent sciences, *e.g.,* the Copernican system in astronomy. The fact that evolution fails to give even one fact in proof of the transmutation of even one species acceptable to some of the ablest scientists, proves this much, however, of it—that it is a hypothesis destitute of factual proof. So much we can fairly conclude from the quotations and names above given.

Evolution is built on the most extravagant *guesses,* which are proven to be unreliable by the fact that there is the utmost diversity in evolutionists' guesses necessary for the theory. Some of them guess that the human race has existed 2,000,000 years; others guess it as 100,000 years; and there are almost endless variations between these two figures. Scarcely any two of them agree on these guesses. Some of them guess the age of the earth to be 50,000,000 years and

others 4,000,000,000 years. Between these extremes the bulk of them fix its age, again scarcely any two of them agreeing therein. Some of them assign the age of plant life 3,000,000,000 years and others about 40,000,000 years, with all sorts of variations on the part of others between these two extremes. Some of them claim that their own manufactured and patented *Pithecanthropos* (ape-man) lived 750,000 years ago; others claim that this figment of their imagination lived 375,000 years ago. On almost everything connected with the time element they widely and wildly disagree with one another. Of course reasoning people, in distinction from fanciful people, at once see that on these matters they are long on guessing and short on truth, else they would be in reasonable harmony on such essential matters. Mr. Darwin in his two principle works on evolution, in making his inductions, uses terms expressive of guessage 800 times—terms like "we suppose," "if we may assume," "perhaps," "it may have been," etc., *i.e.,* he built his theory on 800 interdependent guesses. Applying the rule of compound probability to this theory so constructed, and very liberally allowing an even chance to his 800 guesses being right, *i.e.,* out of one chance there is a half chance in each case that he was right, the chances that the theory is right is one as against the number of chances that it is wrong represented by 241 digits, the product of two squared 800 times, a set of figures which, allowing for twelve to an inch, would require over 20 inches of line space the size of the type in which this chapter is written, *i.e.,* over 6 of our lines! A theory so extremely improbable should never be taught as science—true knowledge. Rather it should long ago have been assigned to the *hades* of oblivion as much too improbable to be entertained by sober minds.

The theory of the brute descent of man is an impossible one when submitted to the test of mathematics. Striking an average of the age of animal life

on earth, as variously claimed by evolutionists, we must put that average at 60,000,000 years. They further claim that the child of their imagination (Pithecanthropos) had two-thirds of the brain capacity now found in the average man. They further assume that it was a normal example of the assumed contemporaneously existing race of ape-man. What does this imply? This—that from Pithecanthropos' time, variously put at 750,000 to 375,000 years ago, one-third of the amount of man's average brain capacity was developed in 750,000 or in 375,000 years, whereas, according to the average age of life on earth according to evolutionists, it took over 59,000,000 years to develop the other two-thirds of the average man's brain capacity—the two-thirds that Pithecanthropos supposedly inherited from his evolutionizing ancestors! This means that the development of brain capacity by evolution was 39.5 times more rapid since Pithecanthropos than before! But if we should take life on earth as having begun 500,000,000 years ago, as many evolutionists claim, and Pithecanthropos as living 750,000 years ago, this rate would increase to 333 times as rapidly as in the preceding 499,250,000 years; while if we took the lowest figure for Pithecanthropos' age—375,000, it would be increased to 660 times as rapidly as in the preceding 499,625,000 years. This increased rapidity of brain development would be enormously enlarged if we should take the extremest figures of evolutionists for the age of life on earth—3,000,000,000 years.

But actually the higher development of the brain would require a longer time than its lower development, if we reason from analogy; for the more involved and intricate a thing is, the longer does it take to make it, as a thousand examples in the manufacturing world prove. But waiving this and, as a liberal concession to evolutionists, assuming that the last third of the human brain developed as rapidly as the first two-thirds, and taking evolution's average age for life

on earth—60,000,000 years, Pithecanthropos could not have lived later than 20,000,000 years ago, the time it would have required to develop the last third of man's average brain capacity on the assumption that its first two-thirds began to develop 60,000,000 years ago. But if we should take the extremest figure of evolution on the age of earthly life—3,000,000,000 years, this would mean that Pithecanthropos lived not later than 1,000,000,000 years ago. What would have been left of Pithecanthropos' alleged three teeth, part of top skull, part of a jaw, and thigh bone, none being petrified, had they existed even 20,000,000 or even 750,000 years ago? Again, assuming that Pithecanthropos lived 750,000 years ago and 60,000,000 years is the age of earthly life, then since 750,000 years is 1.25% of 60,000,000, its brain should have been 98.75% of that of the average man now, which is a higher rate than the present rate of many nations and races. This proportion would be increased accordingly as we would increase the age of earthly life—according to the more extreme evolutionists, *e.g.*, it would be 99.85% normal, if earthly life began 500,000,000 years ago. If such a brain capacity had been in existence so long ago, why do we not have some monuments of its inventions and achievements, like the Great Pyramid, etc? This same mathematical principle applied to the so-called Neanderthal, Piltdown and Heidelberg men of evolutionists' imagination would crush their guesses on these as it does their guesses on Pithecanthropos. So will it also do with their other guesses out of harmony with the Bible.

Evolution offers certain things as alleged evidence of its truth. These evidences reveal the poverty-stricken condition of its "proofs." One of these—given by Romanes—is that an instantaneous photograph revealed an "infant three weeks old supporting its own weight for over two minutes." He claims that this proves man's descent from an ape-like ancestor.

We know of an infant just a week old, whose mother lifted him up by her hands placed under his arms, and then almost unsupported he stood erect, leading his mother to exclaim, "What kind of a prodigy have I here?" Such cases cannot be connected logically with evolution, but if they have any bearing on this question, are more in harmony with the thought that their first ancestor was a man who immediately after his creation stood erect. The picture of the former infant and that of another show these infants holding their feet in the same position as a monkey holds his when climbing a tree; and this is supposed to prove that man is descendent from monkeys! These are among the best arguments of evolutionists; but how poverty-stricken they are of real argument! The Philadelphia *Bulletin* gives the following excerpt of a Darwinian professor's lecture: "Evidence that early man climbed trees with his feet *lies* [! italics ours] in the way we wear the heels of our shoes—more at the outside. A baby can wiggle its big toe without wiggling its other toes—an indication that it once used its big toe in climbing trees [but monkeys use their other toes also in climbing trees, which proves that we are here dealing with a 'wiggling' argument]. We often dream of falling. Those who fell out of the trees some 50,000 years ago and were killed, of course, had no descendants. So those who fell and were not hurt, of course, lived [How does he know that they had offspring?] and so we are never hurt in our dreams of falling." What brilliant examples of inductive reasoning! What freak ideas! Those using slang would call it *piffle!* Some professors professing themselves to be wise have become fools! Imagine the laws of chemistry, astronomy, physics, etc., depending for proof on such nonsense as this professor offers in the above quotation. Yet some think him scientific.

Evolutionists have moved heaven and earth in search of the missing links, but have never found an

undoubted one. Some of them offer us four alleged missing links between man and the ape—Pithecathropos, the Heidelberg man, the Piltdown man and the Neanderthal man. But these will not bear investigation and most scientists laugh them to scorn. *E.g*., Dr. Dubois, an ardent evolutionist, in 1892 found in some sand in Java a part of the top of a skull, part of a jaw, and two teeth three feet away from the others; *and fifty feet away* in some more sand he found another tooth and a thigh bone. He claimed that these belonged to the same animal—"the missing link!" Shortly after their discovery twenty-four of the leading European scientists examined these five fragments. Ten of these said that all of them belonged to an ape; seven said they belonged to a man and seven (evolutionists) said they were the missing link. Prof. Vircow said: "There is no evidence at all that these bones are parts of the same creature." But what did evolutionists do with these two teeth, one thigh bone and very small part of a skull top? They had a "reconstructor" *draw on his imagination* and construct an entire image of what they thought was the missing link and called this dull figure *Pithecanthropos! i.e.,* ape-man. A very few bones of a creature were found at Piltdown, England, and the same near Heidelberg and Neanderthal, Germany. The bones of all three of these finds combined would not fill a bushel basket, let alone fill up a complete skeleton. Another "reconstructor" formed, *out of his imagination,* three figures from these few bones. All four of these "reconstructions" are on exhibit in the New York Museum of Natural History. These figures are exact images of evolution—imaginations. They are indeed monuments of infamy to evolution, the laughing stock of biologists; yet, "as per plan," they inoculate immature children and poor-thinking adults with the idea of evolution and of man's descent from brutes. As to the Piltdown, Heidelberg and

Neanderthal men, their few remaining bones exhibit less abnormalities than can be found in many now living humans, let alone bones of dead humans disfigured by the chemical action of the earth and other effects of nature on undoubted human skeletons, even as many able scientists from the first have claimed that these were bones of abnormal humans, among others not a few evolutionists so holding. Yet partly on such flimsy humbugs shallow-thinking evolutionists claim man's descent from apes as a matter scientifically proven!

Some testimonies of evolutionists, disapproving the claims alleged on these four fakes, will be in place here; and we will, therefore, quote them: Prof. Wassman says: "These are numerous fossils of apes, the remains of which are buried in the various strata from the lower Eocene to the close of the alluvial epoch, but not one connection has been found between their hypothetical ancestral forms and man at the present time. *The whole hypothetical pedigree of man is not supported by a single fossil genus or a single fossil species* [italics ours]." Darwin says: "When we descend to details, *we cannot prove that one species has changed* [italics ours]." H. G. Wells, a most fanciful evolutionist, in his history, p. 69, admits: "We cannot say that Pithecanthropos is a direct human ancestor." On p. 116 he gives a diagram showing that none of these four fakes could have been an ancestor of the human race, being the last of his species, hence had no descendants. Dr. Kuth, an English evolutionist, says, that the Piltdown man was not an ancestor of our race, much less a link between the Heidelberg and Neanderthal men. Dr. Osborn, another eminent evolutionist, says that the Heidelberg man "shows no trace of being intermediate between man and the anthropoid ape." Again, speaking of the teeth of the Neanderthals, he says: "This special feature alone would exclude the Neanderthals from the ancestry of the human race." Prof. Cope, a great anatomist, says

"The thigh bone [of Pithecanthropos] is that of a man; it is in no sense a connecting link." Dr. Orchard declares: "The remains bearing on this issue (these four fakes) which have been found are very few; and their significance is hotly disputed by scientists themselves—both their age and whether they are human or animal or mere [human] abnormalities." Prof. Bronco, of the Geological and Paleontological Institute of Berlin University, affirms: "Man appears suddenly in the Quaternary period. Paleontology tells us nothing on the subject—it knows nothing of the ancestors of man." With these remarks we leave these four fakes to the credulity of those who like to be fooled, while posing as wise—in their own conceits.

Another poverty-stricken argument they offer is this: In certain deep, dark caverns, notably in Altamira, Spain, there are paintings and frescoes of various animals, some of them now not existing. They claim that these pictures are 25,000 to 50,000 years old. But on their own admission, at those times of their ape-men, fire, torches, wicks, etc., were unknown. Then these paintings must have been made in the dark. But who could have done any painting that would reproduce good likenesses of animals in such darkness? Certainly not ape-men! How would apemen have known enough to mix the paints so as to produce the brown, red, black, yellow and white that appears in these paintings? How could ape-men have produced ladders and scaffolding needed for those paintings? How could these colors have remained so clear in those damp caverns for from 25,000 to 50,000 years? Do not these objections overthrow the theory of ape-men doing such painting and point to some modern artist who, using modern equipment, and drawing on his imagination, a thing allowable in art, but not in science, did it? How short of real proof must a theory be that will resort to such non-probative points!

They resort to the alleged vestigial organs—organs in the human body that they allege have no use—as proofs that they were inherited from non-human ancestors. Their favorite vestigial organ is the appendix. This, they assert, proves that man descended from some animal that had some use for it; but, they claim, it is useless for man (except to the evolutionist who needs it to prove (?) his descent from ancestors that needed it). But as medical science and surgery have advanced; they have found a use for the appendix. Observing that those who have lost their appendix suffer from constipation, eminent medical and surgical authorities, after exhaustive investigation, have concluded that the appendix has its place at the beginning of the large colon in order to assist elimination and thus it serves to prevent constipation. Here, certainly, a very interesting use for this so-called "vestigial organ" has been found, and that to the unhappiness of evolutionists, who are ever anxious to prove their kinship to beasts—at least they have shown their mental relationship to the ass on this point. This argument on the appendix, if it had merit at all, would favor our descent from the rat, rather than from the monkey, for the former has proportionately a larger appendix. Again, our having unused muscles would, if the present argument had force, prove that the horse was our direct ancestor, since he has by far larger and more unused muscles than the ape. Formerly, the thyroid, thymus and pineal glands were by evolution called vestigial organs, and thus proofs of man's descent from the lower animals; but latterly their fine uses, to the heart's grief of distracted evolutionists grasping, like a drowning man, at straws for arguments, have been found, and of course the argument has lost force, if it ever had any. In due time there will be no more "vestigial organs" claimed to be in man, when a use with advancing knowledge will be found for the alleged very few remaining ones. The claim that hair

is vestigial falls to the ground partly for the reason that there is none on the human back where it is most abundant on the ape, and partly for the reason that it is both an adornment and a protection. Vestigial organs as an argument, therefore, give evolutionists comfort of the kind that a naked man has outside of doors in zero weather—cold comfort indeed!

Blood tests are another argument that evolutionists allege for their doctrine. They put the argument like this: Dog's blood injected into a horse kills the horse; but man's blood injected into an ape does it very little harm. Hence, they reason, the dog and horse are not nearly related, while man is nearly related to the ape. In reply we say: "Dog's blood is poisonous to most animals; while the blood and blood serum of the sheep, goat and horse are not poisonous to other animals and man. Hence serums are usually made from these animals, especially from the horse. But no serums for man have been made from apes, because they do not help man. These facts would prove man more nearly related to the sheep, goat and horse than to the ape, if any weight should be attached to blood tests for the point at issue. If the principle underlying this argument were logical, we would be more nearly related to the mare and milch ass than to our mothers, for their milk nourishes a child more than human milk! Again, the thyroid gland of the sheep better serves man, when it replaces his, than that of the ape, as operations have proved. This also spoils the argument under review. Vaccine matter is taken from cows rather than from apes—another fact against the argument under review. How little reliance can be placed on this blood test argument is evident from the fact that it would prove that the ostrich and the parrot are more nearly related than the wolf and the hyena. The Abrams' Dynamizer, the most accurate of blood testing instruments, proves that the blood reactions of the sheep, goat and horse are nearer that of human

blood than is that of apes. This disproves the argument under examination. We conclude, therefore, that blood tests do not prove man's descent from apes.

Evolution has invented a theory called the recapitulation theory, according to which evolutionists claim that the human embryo passes, during the first few weeks of its existence, through all the stages of the lower species, *i.e*., the whole history of evolution is allegedly repeated in the first few weeks of human embryonic life. We ask, How could the alleged changes of the hundreds of thousands of animal species be crowded into a few weeks? It would be physically impossible to make hundreds of thousands of such changes in a few weeks. But if they are made, why should not the alleged changes of all the plant species be reproduced in the few weeks' time alleged for the recapitulation of the species' evolution? Again, changes alleged by evolution as due to environment would have to have that same environment present to make them—a thing impossible in an embryo's environment. Whatever resemblance there is in a human embryo to those of other animals is due to the fact that a wise Creator has in all mammals used the same basal structure which *as such* must appear in the early stages of all embryonic life, the variations due to differences in such species must come in later, *i.e.*, after the basal mammal structure has been developed. Certainly an inventor would make the basal parts of similar inventions very much alike. So with God. This fact is as far from proving evolution from the standpoint of the similarity of the early stages of the human embryo to other mammalian embryos as the east is from the west. This variation amid similarity we find on all hands—no two leaves, however similar, are exactly alike; nor are two human faces, two mountains, two trees, nor two of any other thing exactly alike. Like evolution, the recapitulatory theory, once widely accepted, is now seriously questioned by the ablest scientists

and is rejected by not a few of them. The above points certainly show that evolution cannot prove itself by the alleged recapitulation of all animal species in the early weeks of embryonic life.

Finally evolutionists point to the wonderful inventions and increased knowledge of our day as a proof of evolution as working in man, ever lifting him to higher planes of being. To a superficial thinker this seems to be a strong proof in favor of evolution. But under analysis this "proof" falls to the ground. In the first place a very remarkably few individuals are real inventors. So, too, a remarkably few people are real inventors of thought, however widespread knowledge is. If evolution were true, the generality of the race would be such great inventors and thinkers. The greatest works of painting, sculpture, architecture, poetry, music, oratory, statesmanship, philosophy, history and religion, do not belong to our day. We, therefore, deny that humans have greater capacity now than in former times. This "brain age" has not in architecture and exact science produced anything that can compare with the Great Pyramid, produced 4,000 years ago. In oratory it has produced no Demosthenes or Cicero; in painting and sculpture no Praxiteles, Phidias, Raphael or Michael Angelo. In poetry it has evolved no Homer, Sophocles, Shakespeare or Milton. In music it has produced no Bach, Beethoven or Schubert. In statesmanship it has produced no Moses, Caesar, Alfred, Cecil, Elizabeth or Burleigh. In philosophy it has produced no Socrates, Plato or Aristotle. None in our times have equaled these in *capacity,* though they have had wider scope for the use of their smaller capacities. And what shall we say as to their claims on the increase of knowledge and inventions, as a proof of evolution? We reply that these, through their suddenness and rapidity, so contrary to slow-going evolutions' alleged ways, must be due to extraordinary light that God since 1799 has been

giving to mankind as a preparation for two things: (1) the overthrow of Satan's empire and (2) the needs of God's kingdom soon to be established. The special knowledge of our time was in part designed to expose the rotten foundations of Satan's empire in order to dispose mankind to overthrow its present earthly status. Furthermore, for the purpose of furnishing men with the instruments that will encompass this destruction have in part many special inventions of our time come into existence. The constructive inventions of our time are also Divinely intended to prepare conditions among men for Millennial needs and progress. It is for these reasons that we have such great increase of knowledge and inventions peculiarly marking our times above all others in these respects. Previous knowledge, of course, became the basis of our present knowledge; for previous generations hand on their knowledge to succeeding ones. Thus we stand upon the shoulders of previous generations in our basal knowledge. The special knowledge and inventions of our time did not come in the way that evolutionists claim evolution works, slowly and gradually, but very suddenly and rapidly, compared with those previous to 1799. It is since then, beginning with the first steamboat, that inventions have rapidly gone forward and knowledge has been increased. These facts prove that not man's capacity has increased, but opportunities to use his capacities have greatly, rapidly and suddenly increased since 1799. These facts, therefore, disprove evolution and prove Divine providence since 1799 (according to the Bible—Dan. 12: 4) to be working special opportunities to increase knowledge and multiply inventions, as preparations for the destruction of Satan's empire and for the need of God's Kingdom. Hence, not increased capacities, but increased opportunities to use one's capacities, mark our day, which, of course, disproves evolution, which implies enlarged capacity.

In our discussion of evolution we have used against it arguments drawn from mathematics, science, nature, reason, facts and history, as well as shown the monumental weakness of the reasons alleged in its proof. We will now point out what to a Christian is the strongest argument against it: It is antagonistic to almost everything in our holy religion, which must make it most objectionable to us as Bible believers. In its materialistic form it is entirely atheistic, which proves its folly as well as the folly of those who espouse it (Ps. 14: 1; 53: 1). In its spontaneous generation form it denies all God's activities subsequent to the creation of matter and its forces. In its Darwinian form, apart from His giving life to one, or at most a few forms, it denies all His later activities. It, therefore, is blasphemously disrespectful toward God in His works of creation; and it denies altogether His works of providence toward the works of His hands. It, therefore, belittles and degrades God, blasphemously ascribing His works to blind nature. It denies our Lord's office work as God's Agent in creation and providence and incidentally casts doubt on, or entirely denies the existence of the spirit beings, whom the Bible calls angels. Accordingly, it belittles and blasphemes our Lord, in its very few representatives who acknowledge His pre-human existence, and it wickedly denies His pre-human existence and hence creative activity in the bulk of its exponents. Of necessity this moves them to deny almost all of the Holy Spirit's work as the expression of God's creative mind and power in the earth. Furthermore, it denies that man originally was created in God's image and likeness, perfect in all his faculties, physical, mental, moral and religious. This denial, of course, brings with it the denial of man's trial for life in a perfect condition and his fall from that perfection into sin and death along physical, mental, moral and religious lines. How could they but deny these Biblical teachings (Rom. 5: 12-20; 8: 18-21;

1 Cor. 15: 21, 22), since they express their belief on the subject in this way: "If man fell, he fell upwards"? The impossibility of falling *upward* shows the folly of such a fall and is revelatory of the unclear thinking in the evolutionists who propound such a thought.

Denying man's fall from perfection into sin and death, of necessity they must deny the Bible's antidote for man's fall—the ransom and its effect, restitution. Of course, if the first man was one step removed from the monkey, how could a perfect man—Jesus—be required as a ransom (a corresponding price) for him? Even the most degraded of our race, since its supposed evolution from the ape, would be more than a corresponding price for evolution's first man. Moreover, such a degraded being could not with justice have been put on trial for life. Hence, no ransom in justice could have been required for him. So, too, restitution would be an unspeakable curse to the race; for it means a return to the original estate—the condition of the ape-man *a la* evolution; whereas the Bible holds out restitution as the hope for the race, *i.e.*, a return to human perfection. Of course, evolution could have no place for the change of the Church from human to Divine nature. To it the sacrificial spirit of Jesus and the Church, leading them to non-resisting sufferings and death, is a proof of their not being of "the fittest" and, therefore, being doomed to extinction as "unfit to survive." The spirit of faith and communion with God is to it also an evidence of the unfitness of their possessors to survive. And as for the Bible, instead of its being an inspired revelation, it is to the evolutionist the product of men not far removed from the ape-man, and is far from being able to meet the evoluted needs of this "brain age." Evolutionists, of course, look upon their literary products as religiously far above the Bible. Instead of the Divine plan of the Ages, evolution becomes to them the planless accident of nature,

and Mr. Darwin's books' become their Bible, even as he recognized this, proven by his following reminiscent words: "I was a young man with unformed ideas. I threw out queries and suggestions, wondering all the time over everything; and to my astonishment the ideas took like wildfire [yes, they were indeed figurative wildfire]. *People made a religion of them.*" Here, then, we have the actual result. It rejected the religion of the Bible and itself became a substitute for it with the evolutionist. Hence, no real believer in the Bible can be an evolutionist of the first three classes of these; and no real evolutionist of these first three classes can be a Bible believer. This—its rejection of the Bible, its plan and its Author—is the greatest argument against evolution for the Christian, who in consistency must reject it.

We feel that we should not close our discussion of evolution as a false view of the creative method without a solemn inditement of it. It has had its vogue among "the intelligentsia," though now among the leaders of science it is dead and is undergoing preparation for burial; but among the superficially educated and the shallow thinking it has worked, and will continue to work the direst of evils. It has made atheists, agnostics and infidels of many. It is demoralizing our youth, who by it are made to believe in their superiority to their elders and their kinship to brutes; hence, their growing disrespect for law and order in the home, state, society and church, and their increased indulgence in the lower elements of their nature. From the thought of no God, no responsibility to law, no higher authority, no hereafter and a brute descent, it becomes but a natural step to youthful disrespect of religion and government, disobedience toward parents, immorality as to sex, drunkenness as to intoxicants and a materialistic outlook on and practice in life. A generation of evolutionist professors and teachers has produced the moral, social and religious havoc that we

behold in so many of our youth. The pessimism and brute instincts inculcated by evolution have in large part produced the collapse everywhere manifest in church and state and contributed largely to producing the World War, as it is also doing a large share in the work of leading the nations to Armageddon and World Anarchy. And when these shall have wrought their unexampled havoc on mankind, it will in great resentment arise and repudiate forever every feature of unbelieving evolution.

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With the conclusion of our discussion of evolution as a false method of creation, we bring this volume to a close. We have traversed a vast field of thought in our study of the main features of creation. We trust that the mental journey on which the reader and the author embarked at the outstart of this study has proven profitable to head and heart. Certainly, the scenery viewed during this trip has been varied, beautiful and sublime. And we trust that, as we have reached the end of this pilgrimage, our knowledge and appreciation of God as Creator have been greatly enlarged by our views of the marvelous scenery with which He adorned the route traversed. May it have been a memorable trip, and may its acquirements and its memories long remain in blessing with the dear voyagers, to whom throughout life's further pilgrimage the author wishes a hearty *Bon Voyage.*

By the word of Omnipotence, the earth brought forth
The fish, and the beast, and the bird;
And they played in the waters, and browsed on the earth,
And the air by their carol was stirred;
And man, in the image and likeness of God,
Erected his person majestic and tall;
And though, like a worm, he was formed of the clod,
Yet, the favorite of Heaven, he conspicuously trod
The earth, the lord and possessor of all.