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The Cosmology of Scripture

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THE COSMOLOGY OF SCRIPTURE

**A Thesis Presented to
The Faculty of Concordia Seminary
Department of Systematic Theology**

**In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Divinity**

**by
Leander M. Waechter**

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Chapter I

Introduction

Cosmology, says Webster, is "that brand of metaphysics which treats of the character of the universe as an orderly system, or cosmos, especially, that which treats of the processes of nature and the relation of its parts, as distinguished from ontology which treats of the ultimate nature of the real; also a particular theory or body of doctrine relating to the natural order."¹ Again, Cosmology is "the general science of the cosmos or universe, in all its parts, laws, and operations, so far as these can be known by observation and scientific inquiry and may be regarded as constituting a cosmos."² These definitions, however, are inadequate for our purpose. They describe cosmology in the modern scientific sense of the term. As such it comprises all the natural sciences, viz., physics, astronomy, chemistry, geology, etc. We might, then, describe it more simply as the sum total of natural philosophy. But Scripture has little to say about an orderly system of the cosmos, of the processes of nature, or of the interrelation of its parts. This the omnipotent Creator left for man to decipher when he gave him the command: "Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living

1. Webster New International Dictionary, 2nd edition.

2. Funk and Wagnalls New Standard Dictionary, 1921.

thing that moveth upon the earth."³ But Scripture very definitely does have something to say about the origin of the world and of Him that created it and who still rules and preserves it. It tells of the omniscient goodness of the Creator in forming the various parts of the universe and it speaks of the functions and purposes of these parts in their role of service to man. For this reason we prefer the wider, philosophical definition of the term "Cosmology." "Cosmology in this sense, embraces the theories of cosmogony, of cosmology proper, of the systems of nature and the supernatural, and of teleology." ⁴

In these days of scientific consciousness a study of the cosmological teachings of Scripture should be of interest and value to the Bible student. For the average man of the twentieth century has a new measure by which he computes the value of all things, material, philosophical, or spiritual. Being taught from early childhood to think largely in the terms of science, it is inevitable that the modern man should reply to every problem which challenges his interest, "What does science say on the subject?"

Science has solved many of the problems of our daily lives. It provides us with the modern conveniences of the home. It heals us when we are sick. It teaches us to harness the forces of nature and gives us power. There is hardly a phase of our existence which it has not touched in some way

3. Gen. 1:28.

4. Funk and Wagnalls New Standard Dictionary.

or other. For these things we are grateful. But too often this gratitude is carried too far. Our generation has raised the fetish of science, to which men bow down and worship with a blind faith. The judgment of science is sought even upon the basic premises of our religious philosophy. From the ranks of these blind worshippers of the new god "Science" come the most scurrilous attacks upon Christianity and the Bible. Worse still, Biblical scholars, self-styled "Higher Critics," ally themselves with the calumniators and are determined to undermine the very foundations of Scripture.

We often find that Christians, cowed by these attacks, apologetically murmur: "The Bible is not a text book of science." Surely, it is not. But "the Bible frequently touches on the various realms of scientific inquiry. The assertion that the Bible is 'only a book of religion,' is wrong. The proper statement is that its chief purpose is religious, but since its religion is a practical religion, intended for this world as well as the next, it goes hand in hand with historical and scientific development."⁵

We would therefore hasten to add that we do not in the least disparage true science. Science in the strict sense of the term is the collection of facts and their classification. Whatever goes beyond this is mere speculation. We need never fear the advance and progress of science. Rather we should laud it as the fulfillment of the divine command to "subdue

5. Leander S. Keyser, A System of Christian Evidence, p. 133.

the earth." In this sense, the Christian may and should take an interest in science. "It is proper to reject 'Science falsely so called,' but it is never right to scoff at science per se. Does not true science seek to 'think God's thoughts after Him'? Is not the whole Cosmos God's handiwork? What could be more inspiring than to study it with such a thought in mind? No man ought to be more interested in Science than the Christian; for he believes that God made everything, and made it good. Science is knowledge validated and classified. Can any scholar object to such research?" ⁶

Further, nature too is God's revelation. From it we learn of God's goodness, of His wisdom, and power. Paul recognized this fact when he wrote: "For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead." ⁷ The eminent scientist Compton expressed a similar thought when he said that "science is the glimpse of God's purpose in nature, and the very existence of the amazing world of the atom and radiation points to a purposeful creation, to the idea that there is a God and an intelligent purpose back of everything." ⁸

It is impossible, therefore that these two revelations should ever be at variance. Both have one Author, the all-wise, unchangeable God. It is the peculiar function of science to reinforce and substantiate what is revealed in Scripture. Lord Bacon expressed this thought in his Novum

6. Keyser, op. cit., p. 182.

7. Rom. 1:20.

8. Bernard Jaffe, "Outposts of Science," p. 405.

Organum: "Anyone who properly considers the subject will find natural philosophy to be after the Word of God, the surest remedy against superstition and the most approved support of faith. She is therefore rightly bestowed upon religion as a most faithful attendant, for the one exhibits the will and the other the power of God. Nor was He wrong who observed, 'Ye do err, not knowing the Scriptures and the power of God,' thus writing in one bond the revelation of His will and the contemplation of His power." 9

Again we repeat, Christians have nothing to fear from the advance of science. True, great scientists seldom are scoffers. They are too humbled before God's mighty revelation. The trend of the leaders of science, generally speaking, is taking a swing back again to the Scriptural conceptions of nature. But it is the second and third rate scientists, men who worship science as their idol instead of being its master, who level the fiercest attacks against Christianity and against the Bible. These are the men who instruct our Christian youth and sow the seeds of doubt in their minds. The young people will come to their pastors and they will be asking questions. The pastor must know what Scripture has to say about nature. He must be able to refute error and establish the truth. He must "be ready always to give an answer." 10 For this reason we propose to study the "Cosmology of Scripture."

9. Quoted by L. S. Keyser, op. cit. p. 184
 10. 1 Pet. 3:15...

Chapter II Origin of the World

A. Mythological Cosmogonies

Perhaps the first question which comes to the mind of a person as he contemplates the world is, "Whence?" The problem of origins is the "riddle of the universe." Technically, the study of this problem is known as cosmogony. "Cosmogony is any theory which professes to account for the way in which the world arrived at its present state of organization." ¹¹ Every nation and civilization has had some theory or account of the origin of the world. The most primitive are mythological in nature. Perhaps the most interesting of all the mythological cosmogonies is the Babylonian Creation Story. It is interesting to us chiefly for two reasons: first, because of its extreme antiquity it forms the basis for the more garbled mythology of later nations; second, because of this very fact it is alleged by higher critics that it is the source of the Genesis creation account. Let us examine it briefly.

In 1872 a young Englishman, George Smith, curator of the Assyrian-Babylonian section of the British Museum in London, found fragments of a cuneiform tablet in the British Museum which contained references to the Babylonian story of

¹¹. McWilliams, Cosmology, p. 32.

Creation. In 1876 he published his "Chaldean Genesis" which transliterated and translated these fragments. These fragments originally came from the library of Ashurbanipal (King of Assyria, 668-626 B.C.) but the originals, of which the fragments were copies, certainly date back much earlier than this.

Since then other fragments have been discovered. Apparently the whole narrative consisted of seven tablets. The epic has been restored almost in its entirety, the only tablet of which a large portion is still wanting is Tablet V.

Briefly, the account runs like this: "In the beginning nothing existed except an inert mass of watery vapor, of boundless extent, called Apsu. After a long and indefinite period, the heaven and the earth were established as separate entities. The gods who had meanwhile arisen, established a disposition of things which was displeasing to Apsu; who is thus personified. He therefore took counsel with a monster she-devil, named Tiamat, to overthrow this order, known as 'the way of the gods.' Tiamat was the personification of chaos, darkness, and every kind of evil. The gods appointed Marduk to be their champion; a god whose star was Jupiter, and who was represented by the rising sun; and who became the chief god of Babylon. He was commanded to go and slay Tiamat. There was arming in preparation; with spells, incantations and counter-spells. The Lightning and the Four Winds were brought to help. Marduk, in spite of curses and spells, crushed the skull of Tiamat with his club, and split her body into two parts. The vault of heaven he made out of the hide of one

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part, and the underworld out of the hide of the other part. He then established three abodes; for Anu, god of the heavens; for Bel, god of the earth; and for Ea, god of the underworld."¹²

On the basis of this legend it is claimed that the Biblical creation narrative derived its conception of the Creation from Babylon and that there is a decided similarity between the Biblical record and the Babylonian legend. These points of similarity, as emphasized, for example, by Skinner, Barton, and others, are the following: 1) The arrangement of sevens in both records: the Babylonian seven tablets, the Hebrew seven days. But this is an absurd and childish comparison. It is merely a coincidence, and it is rather foolish to force a connection. 2) The Babylonian Tiamat is said to be re-echoed in the Hebrew tehom.¹³ The Hebrew, however, is entirely free from such mythological absurdities. If anything, the personification is the corruption of the original. The philological argument is also invalid. To derive tehom from Tiamat is grammatically impossible, because the former has a masculine, the latter a feminine, ending. Moreover, it should have no h, unless it had been derived from a Babylonian form Tihamat. (Heidel, Babylonian Genesis, p. 85.) 3) "The two accounts agree that the heavens and the earth were created by the division of the primeval ocean, by a firmament (The Babylonian calls it a covering) which held up a part of the waters, so that the earth could be formed beneath. They accordingly agree in the conception that there is a super-celestial ocean, i.e., 'the

12. W. Bell Dawson, The Bible Confirmed by Science, pp. 28-29.

13. Barton, Archaeology and the Bible, p. 295.

14. Barton, loc. cit.

waters which are above the firmament' (Gen. 1,7)."¹⁴ But the heavens and the earth were created before the firmament.

4) "The Babylonian series culminates in the praise of Marduk by all the gods, the Hebrew in the institution of the Sabbath."¹⁵ But this is hardly a similarity. The chief aim of the Babylonian epic is to justify Marduk's claim to supremacy among the Babylonian gods. The culminating point of the Biblical narrative is the creation of man. 5) "The two series agree in connecting the heavens with the fourth epoch of Creation, and the Creation of man with the sixth."¹⁶ But it is an arbitrary procedure to draw a parallel between the tablets of the Babylonian poem and the creative days of Genesis. Tablets II, III, and most of I and IV do not deal with any part of the creation. (Heidel, op. cit., p. 105.)

Thus the claims of the Pan-Babylonialists are entirely unfounded. In opposition to their claims we assert that there are wide and fundamental differences between the two accounts. All these alleged similarities fade into insignificance when the fundamental and unbridgeable differences that exist between the Biblical narrative and the Babylonian cosmogony are seen. Of these differences we may note a few: 1) The Babylonian epic is polytheistic. The Biblical record is intensely monotheistic. 2) The Babylonian record is mythological and sometimes childish. The inspired record, however, is noble, exalted, scientific. 3) The order of creation in the two records is different. 4) The Babylonian account omits many aspects of the Biblical creation. The supposedly dependent account certainly would not add fundamental features omitted

15. Barton, op. cit., p. 296.

16. Barton, loc. cit.

in the original. 5) The Babylonian record is vague and diffuse. The Hebrew is terse, direct, and distinct.

In spite of the claims of the Pan-Babylonialists and the claims of religious evolutionists and of most critical commentators, we hold that the Biblical record is not, and cannot be, based on, or derived from the Babylonian epic. We must uphold the testimony of Scriptures to their own truth. If we grant the Babylonian basis for Genesis 1, we surrender every doctrine of Bibliology; and when inspiration is denied, the fundamental articles of the Christian faith are brought into doubt and disrepute. Further, by all laws of evidence, the noble, monotheistic, exalted, pure, never evolves from the debased, polytheistic, brutal, and mythological. If there is any connection between the Babylonian creation epic and the first chapter of Genesis, then the cuneiform poem must be the demoralized, degenerate, vague, and mythological re-echoing of the revealed truth of the Bible.

In passing, we may take note of cosmogonies of several other nations. "According to the Hindu Rig-Veda, the universe was originally a confused chaotic darkness, which the great originator or god first dispelled and then created water with its seed of light. Out of this seed he developed a golden egg, in which Brahma sat a year in meditation; and breaking it, he made heaven and earth out of its two halves."¹⁷ A Phoenician account of the origin of the world predicates

17. Gruber, L. Franklin, Creation Ex Nihilo, p. 15.

the pre-existence of a dark, slimy chaos and tells of a weird sequence of events. Among the early inhabitants of the Nile Valley the belief was entertained that the germs of all things slept for ages within the dark flood which is personified as Nu ve Nun. There are various, divergent accounts as to how these germs were drawn forth and formed. We may note, further, the legends of North American Indians, the Mexicans, the Peruvians, and the Polynesians.¹⁸ Almost every nation of antiquity and also the primitive tribes of today have some sort of a mythological cosmogony.

All these legends are highly Polytheistic. Scholars, however, maintain that in their earliest forms they show traces of a primitive monotheism. Thus "the history and literature of India show us in the earliest period a close approximation to Monotheism; and this is followed by Pantheism, and then by Polytheism. The Chinese race invariably characterizes the earliest period of their history as pre-eminent above all others for its theoretical and practical religion. The ancient classics of China, like those of India, point out a Monotheistic period antecedent to Pantheism and Polytheism... Some also assert that the earliest Vedic hymns were Monotheistic in their expressions."¹⁹ "The Egyptians were perhaps the most idolatrous nation of antiquity; yet the Egyptian papyri, published by the Trustees of the British Museum (in 1923),

18. Cf. Catholic Encyclopedia, sub. "Cosmogony."

19. The Biblical Recorder, July 1, 1930; Sydney, Aust., quoted by W. Bell Dawson, "The Bible Confirmed by Science," p.19f.

show that there existed very distinctly an early or occasional Monotheism in Egypt." 20

Thus we maintain that these primitive cosmogonies, with their highly polytheistic and mythological nature, are corruptions of an earlier monotheistic account. They are, so to speak, a vague racial memory of the primeval creation, handed down by word of mouth through milleniums, highly colored and distorted by the imaginative vagaries of primitive peoples, until finally, they became the distorted, mutilated accounts which we have today. We hold, then, that instead of discrediting Scripture, they establish the veracity of the Biblical creation account.

B. Philosophical.

After these crude mythological attempts to explain the origin of the world, followed many philosophical systems. But all these philosophical systems must necessarily fail, for in dealing with the problem of origins, the mind, unaided by Revelation, is out of its sphere. "When the mind in its conditioned nature attempts with certainty to solve the problem of the primal origination of the existing universe, then it attempts what does not belong to its proper sphere, and what therefore lies beyond the range of its every function. All its data for reasoning are limited to what already exists, however it came to be. Here, then, the conclusions of unenlightened reason cannot be trusted. It is, therefore, absurd for the human mind to stand in judgment on the problem

20. Avery H. Forbes: The Bible League Quarterly, July-Sept., 1920 -- Dawson, loc. cit.

of creation." ²¹ That this is the case, we shall see from the erroneous philosophies which follow, all of them antagonistic to the Scriptural idea of creation.

Foremost of these philosophies is Atheism. Perhaps it is wrong to call it a philosophy, for it is merely a negative quantity. It simply denies the existence of God. It is antagonistic to the creation account in Genesis, for there it is definitely stated that there is a God, and that God made the earth. Atheism willfully closes its eyes to the testimony of God in nature; it shuts its ears against the inner voice of the natural knowledge of God. We leave it with the judgment of Scripture: "The fool hath said in his heart, There is no God. They are corrupt, they have done abominable works, there is none that doeth good." ²²

Next, and closely allied with atheism, is materialism. "Atheism is the negative pole, Materialism the positive. Atheism simply denies God's existence and makes no further assertions: Materialism also denies the divine existence and, in addition, asserts positively that material substance is the only substance that exists; it rejects all ideas of spiritual or psychical entities." ²³

Materialism is hardly a modern innovation, though it is widely prevalent today. It originated with the atomic theory of Democritus. Later it was taken up by the Epi-

21. Gruber, op. cit., p. 21.

22. Ps. 14,1.

23. Keyser, op. cit., p. 198.

cureans in their philosophy. In their system it took the following form: "The original constituents of the universe, of which no account could be given, were atoms, the void, and motion. By a fixed law or fate, the atoms moved through the void, so as to form the world as we know it. The same uniform necessity maintains and determines the abiding condition of all that exists. Epicurus modified this system so far as to admit an initial freedom to the atoms, which enabled them to divert slightly from their uniform straight course as they fell like rain through space, and so to impinge, combine and set up rotary motions by which the worlds, and all that is in them, came into being. He did not follow the idea of freedom in Nature and man beyond the exigencies of his theory, and the thoroughly materialistic nature of his universe precluded him from deducing a moral realm." 24

From the time of Democritus, Materialism has come down to our present day, and persists in a form only slightly altered. Since the advent of the modern scientific age, it has received renewed impetus, though in more recent years science itself has discredited it. Materialism comes into conflict with Genesis in that it states that matter is eternal and infinite; it is the ultimate in nature. Matter was neither created, nor can it be destroyed. But Scripture declares that matter as well as form takes its origin from God. In opposition to such vagaries of the human mind it grandly

24. Wallace, Epicureanism, by International Standard Bible Dictionary, p. 965, p. 209.

states: "In the beginning God created the heaven and the earth." And, again, "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made from things which do appear." 24

Not only is Materialism intrinsically antagonistic to the Biblical account of creation, but science itself has deserted it. Recent researches in atomic physics have completely discredited it, and today it is a waning philosophy. A modern scientific philosopher has consigned it to its grave with the epitaph: "It is not at all clear just what the positive outlines of the new philosophy of nature will be, but of one thing we can be certain: another fossil of human intellectual evolution, the naive materialism which modern physical science inherited from classical atomism, will soon take its place in the cultural museum of deceased scientific doctrines." 26

Pantheism (pan + theos) teaches that all is God, and God is all and in all. It emphasizes the immanence of God to the exclusion of His transcendence over the world. Thus the creature is identified with the Creator. It was held by the Stoics in ancient times and is still widely prevalent today. The Stoics believed that "what the soul is to the body, God is to the world. He is the great world-soul, the movement of matter, the fire which warms and animates it,

25. Gen. 1, 1; Heb. 11, 3.

26. Rusir, Philosophy and the Concepts of Modern Science, p. 67.

the Logos or reason, of which our reason is a part. Since all the seeds of life and development are present within the Logos it is called the 'spermatic Logos'....When viewed thus, God is the absolute mechanical necessity, the destiny, the fate which determines everything." 27

In opposition to Pantheism Scripture affirms the distinction of God from His world, His transcendence over it as well as His immanence in it, His free action in creation. Genesis 1,1 clearly implies that God is previous and immeasurably superior to the world, and plainly shows that the created objects, therefore, cannot be God. It states conclusively that there is "One God and Father of all, who is above all, and through all, and in you all." 28

Dualism is the error that proclaims the parallel existence of the principles of good and evil. It was held by both Gnostics and Stoics. "Gnosticism derived its dualism from the Syrian systems which had been shaped under Parsee influences. Persian dualism was physical and consisted of two antagonistic principles - light and darkness. In Gnosticism this physical dualism of light and darkness became a metaphysical dualism of spirit and matter. Here the world of matter (Hyle), which is under the governance of the evil principle, is from all eternity in violent opposition to the world of spirit (πνεύματα) which is ruled by the good God

27. Neve, History of Christian Thought, p. 23.

28. Eph. 4,6.

In the conflict some of the spiritual elements became imprisoned in the world of matter. Such was the beginning of the world and man, and likewise of sin and misery." 29

Dualism comes in conflict with Genesis because verse 1 implies that in the beginning there was only God and, by deduction, that God being good, He could procure only good. There is no room for an evil principle whether you call it darkness or matter. Almost as if in direct answer to such vagaries, God proclaims: "I form the light, and create darkness: I make peace and create evil: I the Lord do all these things." 30 Thus in opposition to Dualism we must maintain with Paul that to us there is but one God, the Father, of whom are all things and we in him." 31

The Hellenic systems of Gnosticism (Basilides and Valentinus of Alexandria) followed Plato in his Emanational Theory. "This theory which was held especially by the Alexandrians and was extensively developed by them, served to explain how the world and man came into existence. The system of Valentinus in particular had a highly fantastic and speculative process of cosmogony and theogony. From the hidden God there emanated a long series of divine essences (aeons) whose inherent divine power diminished inversely with the distance of removal from the original divine source. This process of depotentialization continued until a point was reached where the spiritual element came into contact with matter and was

29. Neve, op. cit., p. 54.

30. Is. 45, 7.

31. 1 Cor. 8, 6.

imprisoned in a material body. Thus man and the world were created." 32

The Emanational Theory denies that creation was a free, determined act of God. It makes of the creation an overflowing of the fulness of Divine life in "aeons," and it makes of a personal God an abstraction, a vague "Absolute," who is too far removed from the world either to have created it or to govern and preserve it. The Genesis account, however, asserts that God was actively engaged in creation without the use of intermediary "aeons." The rest of Scripture maintains that He is intensely interested in and personally rules and preserves the world. Calov in this connection remarks: "Creation does not consist in emanation from the essence of God, nor in generation, nor in motion, or natural change,...but in outward action, by which through infinite power things are produced from nothing." 33

A more recent philosophy, at least in its formal development, is Pessimism. "Pessimism is the doctrine 'that the world is a misfortune or a lapse, and, therefore, an economy of evil and sorrow.'" 34 It could be no more ably illustrated than in the words of its outstanding exponent, Schopenhauer: "Well for those who have no conscious existence. The life of the animal is more to be envied than that of man; the life of the plant is better than that of the fish in the water,

32. Neve, op. cit., p. 54.

33. Calov, II, 899 - p. 179, Mueller, J. T., op. cit.

34. Keyser, op. cit., p. 219.

or even of the oyster on the rock. Non-being is better than being, and unconsciousness is the blessedness of what does exist. The best would be if all existence were annihilated."³⁵

This was hardly God's verdict. When He had finished His work of creation, He, so to speak, stood back and viewed His handiwork, and He pronounced it "very good." Further, Scripture tells us that among God's children there is moral good, and joy and happiness in the world, for "He loveth righteousness and judgment: the earth is full of the goodness of the Lord." Pessimism exaggerates the evil and overlooks the good in the world.

Most important of all the philosophic systems which are diametrically opposed to the Genesis creation account is evolution. This is the system which is prevalent today. It masquerades under the guise of science, which makes it all the more insidious in this science-conscious age. It is being taught in many of our public schools to our Christian youth, instilling doubt into their minds and undermining their faith and morals. For this reason we shall consider it at greater length.

We have classified evolution as a philosophy purposely. For evolution is "a philosophy, not a science; a system of speculation, not verified knowledge."³⁶ As we stated before, science is the collection of facts and their classification. Anything which deviates from this is speculation. Thus

35. Keyser, loc. cit.

36. Keyser, L. S., A System of Christian Evidence, p. 206.

science by its very nature is unable to reach the problem of origins. "The more thoughtful scientists see this need of some initial basis and they do not therefore attempt to account for the origin of space or time, matter or force, light or other radiation....The origin of life is equally unaccounted for; and Darwin took life for granted in his theories, without seeking to explain how it began. The position of science in this matter was made clear by Sir William Dawson, when he was questioned as to man's origin; 'I know nothing about the origin of man except what I am told in Scripture -- that God created him. I do not know anything more than that, and I do not know anybody who does. I would say with Lord Kelvin that there is nothing in science that reaches the origin of anything at all.'" ³⁷

Evolution, briefly defined, is "that theory which holds that all things have been brought to their present status by a series of progressive changes according to certain fixed laws, and by means of resident forces." ³⁸ This, however, is a general definition of evolution. In this treatise we are particularly interested in that branch of evolution known as cosmic evolution. Cosmic evolution concerns itself with the formation of the solar system and the heavenly bodies. We shall consider two of these theories in particular, the Nebular Hypothesis and the Tidal Theory.

The Nebular Hypothesis was already advanced by Kant in

37. W. Bell Dawson, The Bible Confirmed by Science, p. 146, -- italics my own.
 38. Keyser, op. cit., p. 206.

in 1755, but especially later by LaPlace, whose name is usually associated with it. According to this theory the origin of the planetary system of the universe, in which our earth is viewed as an incidental part, is traced to a vast primeval nebula which filled all the space at present embodied by the planets. "This gas was supposed to be rotating. Such a mass of gas would contract under the mutual gravitation of its particles, and, when the attraction had gone a certain way, an outer ring of gas would be separated from the main body. Further contraction would separate off a second ring, and then a third ring, and so on. The theory then supposes that each of these rings condensed into a compact mass. Each of these masses became a planet. The central mass which was left after all the rings had been thrown off condensed to form the sun."³⁹

The Nebular Hypothesis, in the first place, is in obvious opposition to the Biblical account. In Genesis the creation is a free, determined act of God; in the Nebular Hypothesis it is the accidental result of physical and chemical action. Further, the hypothesis assumes the pre-existence of matter; Genesis denies it. Finally the Bible places the origin of the solar system as subsequent to the creation of the world proper; the Nebular Hypothesis reverses this process.

In the second place, true science is opposed to the theories involved in the Nebular Hypothesis. The satellites

39. Sullivan, J. W. W., "Science, a New Record," p. 21.

of the various planets sometimes move in directions opposite to that suggested by the hypothesis. The discovery of this fact has been the chief factor in discrediting the theory. The argument, explained by Sir Robert Ball, runs as follows: "The solar system consists of some thousands of different bodies; these bodies move in orbits of most varied degree of eccentricity; they have no common direction; their planes are situated in all conceivable positions save only that each of these planes must pass through the sun. Stated in this way, the present condition of the solar system is surely no argument for the nebular theory. It might rather be said that it is inconceivable on the nebular theory how a system of this form could be constructed at all. Nine-tenths of the bodies in the solar system do not exhibit movements which would suggest that they were produced from a nebula."³⁹

Turning from the discredited Nebular Hypothesis to the favorite modern theory for the origin of the world, we have the so-called Tidal Hypothesis. In the words of one of its advocates we are told: "This theory attributes the formation of the solar system to an accident. We are to suppose that, some thousands of millions of years ago, a wandering star passed close by the sun. The effect of such a close approach would be to raise enormous tides on the sun. Indeed, if the approach were close enough, a huge filament of matter would

³⁹. Sir Robert Ball, In the High Heavens, p. 224. Quoted by Gruber, op. cit., p. 30.

be torn from the sun. This filament, it can be calculated, would be cigar-shaped structure. At various points along it, condensations would occur, these condensations being most massive where the cigar was thickest, that is, about the middle. Gradually these condensations would form more distinct masses, and the cigar-shaped filament would be replaced by a number of separate bodies. Thus the planets would be born." 40

This theory, however, is open to all the Scriptural objections raised before against the Nebular Hypothesis. It attributes the origin of the solar system to a fortuitous concurrence of circumstance, thus denying the Biblical creation by a personal God. It places the origin of the solar system before that of the earth, while the Scriptural account asserts that the earth was first formed, then the heavenly bodies. It assumes the pre-existence of matter, while Scripture teaches a creation ex nihilo. Furthermore, it is contradicted by some of the facts involved. The planet Mars, for instance, though farther removed from the sun than the earth, is smaller. According to the theory, since it is more toward the center of the cigar-shaped filament, it should be larger.

There have been other evolutionistic cosmogonies, and all of them are largely open to the same Scriptural objections. All of them try to explain the origin of the world without

40. Sullivan, J. J. N., op. cit., p. 22.

the agency of God. They rule out a divine providence which planned and intended the world and all that is in it for the service of man and to the glory of God. They deny God's immediate rule and preservation of the world. In place of God evolution substitutes the physical and chemical laws and forces said to be resident in matter - too near-sighted to see that where there is law, there must also be a Lawgiver. Further, it is impossible to compromise with it in a theistic form of evolution. Evolution asks no quarter and gives none. Such attempts are disavowed by consistent evolutionists, for it is contrary to the whole end and aim of their materialistic philosophy. Nor can Christians consistently accept such a compromise, for it rules out an active, complete creation ex nihilo.

Not only is evolution contrary to the Genesis account of creation, but it denies other fundamental articles of faith. Evolution stems from materialism, which denies all spiritual reality. Proceeding from a denial of God, it denies the reality of sin, which is the transgression of the will of God. It is antagonistic to the personal union of God and man in Christ Jesus, and to His vicarious atonement. It follows, too, that it denies the existence of the human soul, the freedom of the will, and human "personality." Finally, it is opposed to the resurrection from the dead and the life hereafter. Thus hardly a fundamental doctrine of

the Christian religion is unaffected. This antagonism is admitted, yes, even extolled by the exponents of evolution. Professor Ernst Haeckel of Germany averred that "God, freedom and immortality" are "the three great buttresses of superstition" which it is the business of science to destroy.⁴¹ And Dr. Huxley makes the statement: "The doctrine of evolution is directly antagonistic to that of creation. Evolution, if consistently accepted makes it impossible to believe the Bible."⁴²

Fortunately, evolution, like the materialistic philosophy out of which it grew, is declining. No longer can it claim the unconditional support of science. The same scientific trends which led to the downfall of materialism, must eventually spell the doom of evolution. But it is certainly not yet dead. It is still being taught in many of our schools, not as a theory, but as scientific fact. Christians must be on their guard against it and hope for the day when it too will be relegated to the museum of deceased fossils of the human intellect together with such out-moded theories like the spontaneous generation of insects.

C. The Biblical Creation

In contrast with these conflicting, and often foolish and irrational, theories, the Biblical doctrine of the origin

41. Keyser, op. cit., p. 206.

42. W. Bell Dawson, The Bible Confirmed by Science, p. 59.

of the world stands alone and unique. It is free of mythological tendencies with their personification and deification of natural objects. It is free, moreover, of all rationalistic attempts to explain the origin of the world, which in reality explain the ultimate origin of nothing at all. All rationalistic attempts must fail, for the human mind cannot fathom, cannot even imagine other than that it has already experienced. But here, in the noble, exalted measures of the Creation Hymn we have God's own account. In simple, measured lines, without embellishment; we are told the astounding story of the events which lead to the formation of ordered cosmos as we know it. All who read it are impressed by the grandeur of its conception and by the simplicity of the narrative. Even the critic Skinner must admit: "It is a bold thing to desiderate a treatment more worthy of the theme, or more impressive in effect, than we find in the severely chiselled outlines and stately cadences of the first chapter of Genesis." 43

Though there are few who fail to admire the form of the creation narrative, many deny its veracity. The cosmogony given in Genesis has been the favorite object of attack on the part of infidels. Many laugh at it as childish and unscientific. Perhaps every word has been examined to see whether there is not some point at which this narrative can be put out of accord with the speculations of science. The persistence with which infidels attack the Biblical account,

43. Skinner, Genesis, p. 11.

and the bitterness which they sometimes display, would almost indicate that they do not want to believe in a God who created the universe, who made man in His own image, placed him in the midst of a favorable environment, and cared for him before and after his disobedience. We have often wondered why unbelievers do not prefer to regard the Biblical record as true rather than false.

The antagonism of infidels, however, is understandable. More shocking is the verdict of High^{er} Critics. Many Christians, who otherwise accept the Bible as the inspired Word of God, regard the first chapter of Genesis as a myth or a legend which must be interpreted allegorically. Dr. Driver comments: "It has been shown that while the progress of scientific discovery in modern times has left the theological value of its sublimely-conceived narrative unimpaired, it has made it evident that it possesses no claim to contain a scientific account of the origin of the world....For our knowledge of the stages...by which the existing fabric of the universe has been marvelously built up, we must go to the mathematical and physical sciences, not to the Bible." ⁴⁴ Another commentator writes: "If anyone is in search of accurate information regarding the age of this earth, or its relation to the sun, moon, and stars, or regarding the order in which the planets and animals have appeared upon it, he is referred

44. Driver, S. R., The Book of Genesis, Introduction, p. 31.

to recent text-books in astronomy, geology, and palaeontology. No one for a moment dreams of referring a serious student of these subjects to the Bible as a source of information. It is not the object of the writers of Scripture to impart physical instruction or to enlarge the bounds of scientific knowledge." 45

A literal interpretation of the creation narrative is thus branded as "unscientific." Our contention, however, is that it is positively unscientific to make science a judge, an interpreter of Scripture. Science prides itself on its strict adherence to the inductive method. Due to the very nature of the case, however, there are no data available; no conclusions can be drawn. As one of our dogmaticians writes: "Since the Mosaic creation record is the only authentic report which we have of the miracle of creation (no man was present at the creation, and no one can show from the now existing world how it sprang into existence), we must regard every attempt to correct or supplement the record of Genesis as unscientific pretense." 46

We have seen before that neither science nor philosophy can adequately answer the problem of origins. For an answer to the problem we must look to the revealed account in Genesis. It forms the sole source of our information on this subject. Many scholars try to explain the account away by an allegorical

45. Dods, Marcus, The Book of Genesis, p. 1.

46. Mueller, J. T., Christian Dogmatics, p. 181.

interpretation, but Scripture gives no warrant for such a procedure. We must accept it literally as a true, historical account of the events which actually took place, though written in a simple, non-technical language which could be understood by all peoples of every culture and age.

Creation may be defined as "that free act of the Triune God by which in the beginning, for His own glory, He made, without the use of preexisting materials, the whole visible and invisible universe." ⁴⁷ This doctrine is epitomized and crystalized in the first verse of Genesis: "In the beginning God created the heavens and the earth." From this statement we learn three great truths: " 1) That the universe is not eternal. It began to be. 2) It was not formed out of any preexistence or substance; but was created ex nihilo. 3) That creation was not necessary. It was free to God to create or not to create, to create the universe as it is, or any other order and system of things, according to the good pleasure of his will." ⁴⁸ Let us examine these three fundamental principles briefly.

The first principle is that the world, or creation, is not eternal. Verse 1 explicitly states: "In the beginning God created." There definitely was a beginning of the existing fabric of the universe and of matter in general. This is further implied in the verb "to create," which means the

47. Strong quoted by Mueller, J. T., op. cit., p. 185.

48. Hodge, Charles, Systematic Theology, vol. 1, p. 553.

calling into existence of something out of nothing. Thus there could be no preexistent matter, and the world cannot be eternal. This is in direct opposition to materialism which holds that matter is eternal. The idea of an eternal creation, however, has also been held by Christian theologians. Origen, for example, although he referred the existence of the universe to the will of God, still held that it was eternal. We speak of the divine decrees as free and yet from everlasting. So Origen held that this was not the first world God made; that there never was a first and never will be a last. This idea was also held by Scotus Erigena and the schoolmen who followed him, and finally also by modern theologians influenced by Monistic philosophy. Such a philosophy, however, is even out of harmony with human reason, for "it is evident that physical nature, as a finite and non-absolute entity, cannot be self-existent and can therefore not have eternally existed."⁴⁹ We must reject all such philosophic vagaries and hold to the clear word of Scripture. The common doctrine of the Church has always been, in accordance with the simple teaching of the Bible, that the world began to be.

The second principle is that this creation was truly a creation ex nihilo. It was not formed out of preexistent, eternal matter as we just saw. Nor was it formed out of the substance of God (Emanationism)." The idea...that God fashioned the world out of his own substance, has found advocates, more

49. Gruber, L. F., The Six Creative Days, p. 15.

or less numerous in every age of the church." 50 Many theistic and even evangelical writers have promulgated this philosophy. Sir William Hamilton, for instance, writes: "We are unable, on the one hand, to conceive nothing becoming something; or, on the other, something becoming nothing. When God is said to create out of nothing, we construe this thought by supposing that He evolves existence out of Himself; we view the Creator as the cause of the universe." 51 This, however, is contrary to the plain and simple words of the text: "The narrative makes it clear that the creature is essentially different and distinct from the Creator, and that... it is therefore not simply an emanation from His own being. Each separate event chronicled is represented as having had its supernatural origin external to the Creator, from His omnific fiat." 52 "This doctrine the fathers, and the church generally, strenuously resisted as inconsistent with the nature of God. It supposes that the substance of God admits of partition or division; that the attributes of God can be separated from his substance; or that the divine substance can become degraded and polluted." 53

The third fundamental principle of creation is that it was a free act of God. One of our dogmaticians has ably expressed it: "Creation is a free divine action, because God

50. Hodge, Charles, *op. cit.*, p. 554.

51. Hodge, Charles, *loc. cit.*, italics my own.

52. Gruber, L. F., *op. cit.*, p. 65.

53. Hodge, Charles, *loc. cit.*

framed the universe, not induced thereto by necessity, as though He needed the services of creatures,...but freely, as He was able to create or not, to create and to frame sooner or later, in this or another matter." ⁵⁴ This doctrine was denied already, as we say, by the ancient Gnostics in their Emanational Theory. They find their counterpart in modern theologians like Cousin, who writes: "He cannot but produce; so that creation ceases to be unintelligible; and God is no more without a world than a world without God." ⁵⁵ Others, again, assert that a moral necessity prompted God to create the world: "God, is it said, is love; but it is the nature of love to long to communicate itself. Therefore God's nature impels Him to call into existence creatures in whom and over whom He can rejoice." ⁵⁶ Against such teaching we must maintain with Scripture that God is self-sufficient. He needs nothing out of Himself for his own well-being or happiness. He is in every respect independent of his creatures; and the creation of the universe was the act of the free will of that God of whom the Apostle says, "Of Him, and through Him, and to Him are all things." ⁵⁷

A brief word will be in place about the order of creation. Generally speaking, we adhere to a creation ex nihilo. However, this is true only of the primary act of creation. God did

54. Holaz, Doct. Theol. p. 164 - Mueller, J.T., op. cit., p.179.

55. Hodge, Charles, op. cit., p. 555.

56. Hodge, C. loc. cit.

57. Rom. 11, 36. Cf. Ps. 33,9; Heb. 11,3; Rev. 4,11.

not create all things at once, but gradually, observing an admirable order. We must therefore differentiate between mediate and immediate creation. "The Mosaic account represents the present order of things as the result, not simply of original creation, but also of subsequent arrangement and development. A fashioning of inorganic materials is described, and also a use of these materials in providing the conditions of organized existence." 58 In general the work of creation comprises three steps: a) the creation of the material (Weltstoff) of the universe. This is the primary creation ex nihilo as indicated in verse 1; b) the separation of the elemental matter during the first three days; c) the furnishing and completion of the world in three more days.

There has been much argument as to the length of the creation day. It has frequently been interpreted as representing epochs rather than solar days. These attempts, however, are in the int^erest of harmonizing the account with the evolutionistic geological ages. We maintain that these were ordinary solar days. It is a fundamental rule of hermeneutics that we must interpret literally unless the context shows that the term is to be interpreted figuratively. There is no warrant for that here. Even the critic Skinner remarks: "The interpretation of yom as aeon, a favorite resource of harmonists

58. Strong, A. H., Systematic Theology, p. 192.

of science and revelation, is opposed to the plain sense of the passage and has no warrant in the Hebrew usage." 59

Further, it is definitely stated that the creative day was made up of morning and evening. This description hardly applies to geological epochs. Finally, in Ex. 20,11, where the Sabbath is instituted, it is stated that because God rested on the seventh day, He therefore blessed and hallowed the Sabbath day. Now if God rested for a seventh era, he would have instituted not a Sabbath day, but a Sabbath era. The clear statement of Scripture precludes any other interpretation than that these were simple solar days.

Finally, we note that creation was effected by the Word. Throughout the creation account we note the recurring phrase, "And God said, 'Let there be... and it was so.'" There are several truths implicit in this statement. It implies conscious thought, will, and deliberate purpose in the mind of the Creator. Thought and will, again, imply personality. This truth is directly antagonistic to all pantheistic schemes which deny the personality of the Creator. It is contrary, moreover, to all theories which deny His free will in creation. Driver in this connection remarks: "In the fact that God creates by a word, there are several important truths implicit. It is an indication not only of the ease with which He accomplished His work, of His omnipotence, but also of the fact that He works consciously and deliberately.

59. Leupold, op. cit., p. 57.

Things do not emanate from Him unconsciously, nor are they produced by a mere act of thought, as in some pantheistic systems, but by an act of the will, of which the concrete word is the outward expression. Each stage in His creative work is the realization of a deliberately formed purpose, the "Word" being the mediating principle of creation, the means or agency through which His will takes effect." 60

In the New Testament the mediating principle of the Word is further developed when it is personified in the Logos. John, in opening his Gospel, parallels it closely to the first verse of Genesis: "In the beginning was the Word, and the Word was with God, and the Word was God, the same was in the beginning with God." Thus soaring up into the heavens as if on the wings of an eagle, he reaches the highest limits of human conception as he promulgates one of the profoundest mysteries of the Christian faith..."and the Word was God"! As the word of man reveals and makes manifest his thoughts, so the Logos reveals and makes manifest the Father. He is the mediating agency by which creation was effected. "All things were made by him, and without him was not anything made that was made." 61 In the creation the Word manifested the power of God as "he framed the worlds by the breath of his mouth." In the New Testament, when the Logos becomes incarnate in the person of Christ, He reveals the all-consuming love of God.

60. Driver, *op. cit.*, p. 5.

61. John 1,3. Cf. Col. k.16.17; Heb. 1,2.3.

The Spirit too was active in the creation. It is said of him in the creation account that He "moved upon the face of the waters." ⁶² Also other passages of Scripture clearly attribute the work of creation to Him. ⁶³ Thus we find the three persons of the Godhead active in creation. This is implied in the expression "Let us make," indicating a plurality of persons. We find a hint of it also in the term "Elohim," God, which grammatically is plural, yet is syntactically everywhere treated as a singular. Thus the three Persons of the Trinity, united in one divine essence are active in creation. ch no!

This is the Scriptural doctrine of creation which critics and infidels have attacked, ridiculed, and decried as "unscientific." But, as we have indicated, reason and science cannot sit in judgment on such a transcendental subject. That it is not incompatible with reason and science is seen from the following statement of one of the foremost scientific philosophers of our age: "All this makes it clear that the present matter of the universe cannot have existed forever... Our next step back in time leads us to contemplate a definite event, or series of events, or continuous process, of creation of matter at some time not infinitely remote. In some way matter which had not previously existed, came, or was brought, into being." ⁶⁴ The Scriptural doctrine of creation remains, unshaken, alone and unique, attesting the truth of God's Word.

62. Gen. 1,2.

63. Cf. Job 36,4; Job 26,13; Ps. 104,30.

64. Jeans, James, The Universe Around Us, p. 354.

III. The World or Universe

Turning from the cosmogony of Scripture, let us see what Scripture has to say about the world as it exists. Here we enter the field of cosmology in its proper sense as the term is used in the modern physical sciences. As we stated before, Scripture does not teach a definite cosmological system, though many would assert that it does.

However, it does mention certain of the physical features of the world, and it alludes to their purpose and use. First, let us see what Scripture has to say about the world in its wider sense of the universe.

The Hebrews had no word for "world" in its wider sense. The nearest approach to such a phrase is the expression "the heavens and the earth." ⁶⁵ By this term is included the whole universe as God created it, but no attempt is made to describe it in the modern physical sense of the word. In the New Testament we find that the vocabulary for this concept is somewhat richer. One term frequently used is the word $\alpha\iota\omega\upsilon\rho$. In its proper sense it denotes age or time. "by metonymy of the container for the contained, $\sigma\epsilon\ \alpha\iota\omega\upsilon\rho\epsilon\varsigma$ denotes the worlds, the universe, i.e., the aggregate of things contained in time." ⁶⁶

65. Gen. 1,1; 2,1; 14, 19.22.

66. Thayer, p. 19. Cf. Heb. 1,2; 11,3; I Tim. 1,17; 1 Cr. 6,1.2; 35,3.

Most generally the Greek word used is κόσμος, i.e., the "ordered world." The first meaning of the term in Greek writers from Homer down is an apt and harmonious arrangement or constitution. From this use it was applied to the universe as an ordered system. ⁶⁷ It is often connected with the idea of the creation in such expressions as "from the creation of the world," "from the beginning of the world," "from the founding of the world," etc., thus indicating that the whole created world was included in the concept of the term. ⁶⁸ The wider sense of "all creation," or "universe" is most fully and clearly expressed by such phrases as πάντα, "all things." Thus John clearly means the whole created universe when he writes: "All things were made by him and without him was not anything made that was made." ⁶⁹ A similar term frequently used is πάντα τὰ κτίσις, "the whole creation." There can be no doubt about it when Paul writes: "The whole creation groaneth and travaileth in pain until now." ⁷⁰ We came to the conclusion that Scripture definitely does leave room for the concept of the universe as we know it today through modern physical science.

The idea of the world as described particularly in the Old Testament has often been decried as exceedingly primitive.

67. Cf. Acts 17,24; Rom. 4,13; 1 Cr.3,22; 7,4; Phil. 2,15.

68. Cf. Mt. 13,35; 25,34; Lk. 11,50; Ro. 1,20; Mt. 24,21.

69. Jn. 1,3.

70 Rom. 8,22.

We have seen cosmological systems drawn up and illustrated, allegedly on the basis of Scripture, which make the Scriptural conception simply childish. According to this system the earth is flat and circular. On its surface are mountains, valleys, rivers, plains, and seas. Underneath the surface is a great reservoir of water, from which channels lead up to the seas. In the account of the Deluge, they are called the "fountains of the great deep." ⁷¹ Underneath this reservoir is "sheol," or Hades, the place of the departed. Above the earth stretches a vast vault, the firmament, supported by the "pillars of the earth." ⁷² On the surface of this vault are pinned the sun, moon, and stars, "fixed as nails" from which they may be said to drop off. ⁷³ The firmament is pierced by sluices or floodgates, "the windows of heaven," ⁷⁴ through which the rains pour down from a super-celestial ocean. This whole structure, then, rests on the great primeval ocean, "Tehom," which is identified with the Babylonian Tiamat or Tiamtu. This, it is said, is the Hebrew conception of the world. That this is not an exaggeration is seen from the following statement by Skinner: "The world is a solid expanse of earth, surrounded by and resting on a world-ocean, and surmounted by a rigid vault called the firmament; above which the waters of the heavenly ocean are spread." ⁷⁵

71. Gen. 7,11; 8,2.

72. Job 26,11.

73. Isa. 14, 12.

74. Gen. 7,11; Is. 24, 18.

75. Skinner, op. cit., Gen. 7,11.

There is an obvious reason for such a hyperliteral interpretation of Scripture by scholars who otherwise lean over in the opposite direction. It is a thinly veiled attack on the inspiration of Scripture, the object being to establish the human authorship of Scripture. Their contention is that if God were the Author, He would not have condescended to such human errors. Thus Scripture, they claim, is the product of a people and an age which had very primitive conceptions of nature. Our position must be that God did not condescend to human errors, though He did accommodate Himself to human language and to human conceptions.

Consider for a moment what would have happened if God had described the world in modern technical language. The account would have been completely unintelligible to every age except ours. If God had gone further and described the world in its ultimate reality as only the Creator could have known it, the account never would have been intelligible to the human intellect. One of the outstanding scientists of our age acknowledges that there is "a growing conviction that the ultimate realities of the universe are at present quite beyond the reach of science, and may be - and probably are - for ever beyond the comprehension of the human mind." 76

Thus God in His infinite wisdom and goodness speaks according to the laws of human language and human conceptions and modes of thought. The expressions describing the nature

76. Jeans, The Universe Around Us, p. 356.

of the universe describe it as it appears to man from this globe which he inhabits. "The world is taken as it is, and set in its relation to God its Creator, without consideration of what after-light science may throw on its inner constitution, laws and methods of working. As Calvin, with his usual good sense, in his commentary on Genesis 1 says, 'Moses wrote in popular style, which, without instruction, all ordinary persons endowed with common sense are able to understand....He does not call us up to heaven; but only proposes things that lie open before our eyes.' This of itself disposes of the objection drawn from astronomy, for everywhere heaven and earth are spoken of according to their natural appearances, and not in the language of modern Copernican science." ⁷⁷

In our interpretation of the Biblical expressions concerning the nature of the world we must avoid two errors. First, we must not be too anxious to find in Biblical statements precise anticipations of modern scientific discoveries, as is so frequently done by over-ardent harmonizers of Scripture and science. The view taken of the world by the Biblical writers is not that of modern science, but deals with the world simply as we know it - as it lies spread out to our ordinary view. Things are described in popular language as they appear to sense, not as the telescope, microscope, and other appliances of modern knowledge reveal their nature,

77. International Standard Bible Encyclopedia, p. 3108.

laws and relations to us. The end of the narration or description is religious, not theoretic. On the other hand, we must avoid the other extreme of forcing the language of popular, often metaphorical and poetic, description into the hard-and-fast forms of a cosmogony which the writers did not intend. Keeping these principles in mind, let us turn to the individual expressions of Scripture describing the nature of the world.

The outstanding feature of the world outside of our own earth is the sun. In the Hebrew Old Testament we find particularly three words which are translated by "sun." One word frequently used for the sun is שֶֿׁמֶשׁ or שֶֿׁמֶשׁ. It comes from the verb שֶֿׁמֶשׁ meaning to be or become warm. The term is then applied to the fiery radiance of the glowing sun. In several instances it is used of Baal, the sun god. A second word frequently used is שֶֿׁמֶשׁ. The etymology of this word is uncertain. Perhaps, it comes from a root expressing the idea of astonishment or stupor. "Hence שֶֿׁמֶשׁ the sun, as causing stupor of the eyes, and so dread, terror, in the minds of the rude nations, leading them to pay to the sun divine honors." 78 This is the word most frequently used for the sun. Occasionally we find it used in a designation for places, as, for instance, in Beth-shemesh, "the house of the sun." Four places of this name are mention in the Old

78. Gesenius, op. cit.

Testament: one in Judah; one on the border of Issachar; one in Naphthali, a fenced city; and one in Egypt, in all probability Heliopolis. A third term, rather infrequent and of doubtful origin, is שָׂרָף meaning "blister" or "burning heat," from a root "to scratch" or "be rough." Hitzig offers a rather interesting etymology. He takes it as "denoting the orb or disk of the sun, German, 'die Sonnenscheibe,' from the idea of scraping, forming, making, as German Scheibe from the verb schaben, to scrape." 79 Though interesting, the parallel seems to be rather doubtful and overdrawn. Translations sometimes vary in their rendition of the term.

In the creation narrative we find a fourth expression for the sun. It is called the "greater light" or, rather, "light-giver; (לְיוֹרֵד): "And God made the two great light-givers; the greater light-giver to rule the day, and the lesser light-giver to rule the night: He made the stars also." 80 The term is significant here in the creation narrative. It is in marked contrast to the Babylonian creation poem in which the element of personification and deification is so outstanding. This simple expression "light-giver" speaks against the claims of those scholars who would derive the Biblical creation narrative from the crude mythological conceptions of the Babylonians. The heavenly bodies "are described as

79. Gesenius, op. cit.

80. Gen. 1, 16.

they were first noticed by men, simply as 'light-givers' of different brightness. It is the expression of man's earliest observation of the heavenly bodies, but it is a real observation, free from any taint of savage phantasies; it marks the first step in astronomy. No record, oral or written, has been preserved to us of a character more markedly primitive than this." 87

It is often asserted that the account of the creation of the luminaries is altogether out of harmony with modern Copernican astronomy. In the first place, light is conceived of as existing before the sun. This objection loses its force with recent discoveries in physics. Light should not be identified or confounded with its source. Certain rays have recently been discovered which apparently have no definite source. We feel, however, that we should not be over-anxious to identify cosmic rays as the remnants of the elemental light, as is done by some apologists. Cosmic rays have a very destructive effect. They break up molecules and smash atoms, and, if concentrated enough, would destroy life. We feel that this is hardly in keeping with our concept of light as a life-giving, healing ray. The second objection that the narrative attaches more importance to the earth, since the earth was created on the first and the sun on the fourth day. We have already touched on this problem in the previous chapter. The problem is easily solved if we consider the first verse of Genesis

87. International Standard Bible Encyclopedia, p. 502.

as the creation of the matter of the whole universe, "the heavens and the earth." The sun, moon, and stars certainly are a part of the heavens. Like the earth, they too may have been in a crude, undeveloped state, not yet fulfilling the functions for which they were called into existence. On the fourth day, then, God made them luminaries. Many commentators point out that 'āsāh rather than bārā' is used, indicating a mediate creation. Thus our commentator writes: "The earth is created in the rough, subject to certain deficiencies or incompletenesses which are removed, one by one through the following days; similarly the heavens are created in the rough, heavenly bodies in vast spaces, not yet functioning as they shall later. What still remains to be done in and with them is now completed on the fourth day. The sun, moon and stars were in existence but were not yet doing the work which gets to be theirs in the fourth days work. Light was in existence, but now these heavenly bodies come to be the ones that bear the light in themselves - "light-bearers," "luminaries," me'o-roth." ⁸² If we take this view of creation, the problem is dissolved.

Another objection is that the sun is called the "greater" luminary. Modern astronomy tells us that the sun is not a "greater" luminary in the absolute sense when compared with the stars. In fact, they tell us, the sun is a very ordinary

82. Leupold, op. cit., p. 70-71.

sized star. There are many stars far larger and brighter than our own sun. S Doradus, for example, emits 300,000 times as much light and heat as the sun. And Betelgeaux, it is claimed, is 25,000,000 times the size of the sun. The picture becomes a little more concrete when we realize that the earth's orbit could easily be enclosed within its volume.⁸³ These figures seem to minimize the expression "the greater luminary," not to speak of comparing the moon with these celestial monsters. However, if we keep in mind the Biblical point of view, as we expressed it before, no problem exists. The sun and moon are simply described in their relation to the earth as they appear to man. In this respect they certainly are of primary importance as the chief source of our light, heat, and power. Life here on earth would be impossible without the sun. As one of our commentators remarks on this passage: "They are 'the two great luminaries' in reference to the earth and also in view of how they appear to man. Naturally, a simple account such as this will not attempt to give to man the useless information as to which of the heavenly bodies are the largest in the absolute sense."⁸⁴

Two purposes are assigned to the great heavenly bodies. "And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days and for years: And

83. Jeans, Man and the Stars, p. 22 ff.

84. Leupold, op. cit., p. 76.

let them be for lights in the firmament of heaven to give light upon the earth: and it was so." ⁸⁵ Thus the two great luminaries are to serve the two-fold purpose of giving light to the earth and for measuring time by their movements. "The various functions assigned here to the heavenly bodies have all, it is to be noticed, reference to the earth - and especially to the earth as a habitation for living beings." ⁸⁶ We note, therefore, that the great luminaries are to serve the earth, Copernican astronomy notwithstanding. There is little point to the objection that h'is is a faulty conception because the sun is physically larger than the earth, and therefore it cannot be said to serve the earth. It is logical fallacy to identify "bigger" with "the more important." The earth derives its importance from the fact that it is the habitation of man who is the crowning work of creation, though physically he may be but an atom in the great concourse of celestial bodies. On the other hand we must not go to the other extreme and say that since the sun serves the earth, it is the smaller body. This argument involves a similar fallacy. It would be just as logical to say that since the elephant serves the rider, the elephant must be the smaller.

The second purpose of the luminaries is to provide a measure for time by their movements. This naturally implies that there must be some regularity to their movements, if

85. Gen. 1, 14.15.

86. Driver, op.cit., p. 10

they are to be an accurate gauge. We know that this is the case. Sometimes we still use sundials, thus measuring our time directly by the sun's movement. By it we set our most accurate time-pieces. Navigators, given the time, know exactly in what position the sun is supposed to be and can compute their position accordingly. Though exhibiting this regularity, the sun, however, does not rise and set at the same time or in the same place every morning and evening. From winter onward the places of sunrise and sunset move northward along the horizon until midsummer, when for some days they show no change - a "solstice" is reached. Then from midsummer onward the movement "turns" southward until midwinter when again a "solstice" is reached, after which the places of sunrise and sunset again move northward. This changing place of sunrise is referred to when God asked Job: "Hast thou commanded the morning since thy day: and caused the dayspring to know his place," ⁸⁷ Barnes comments on this passage: "The mention of 'its place' here seems to be an allusion to the fact that it does not always occupy the same position. At one season it appears on the equator, at another north, at another south of it, and is constantly varying its position. Yet it always knows its place. It never fails to appear where by long-observed laws it ought to appear." ⁸⁸ Job is one of the oldest books of the Bible. This regular

87. Job 38, 12.

88. Lange Schaff, op. cit., Job 38, 12.

progression of the sun must, therefore, have been recognized and observed at an early date.

Three words are used in the Old Testament for the other great luminary the moon. The first is $\overline{\text{א}} \overline{\text{ל}} \overline{\text{ב}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$, "white." It is a poetic expression often used in contrast with $\overline{\text{א}} \overline{\text{ל}} \overline{\text{ב}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$, "heat," for the sun. Another term is $\overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$, "new moon," meaning "new," or "fresh." It may be a designation of the actual heavenly body or of the first day of the month. The term is directly or indirectly connected with the calendar. There is some doubt about the etymology of the third word, $\overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$. Some scholars take it from a root meaning "to go about," "to wander."⁸⁹ Another takes it from an obsolete root meaning "to be pale," yellow."⁹⁰ In either case, the designation would be fitting. The designation "pale" would contrast it with the brilliance of the sun. The term "wanderer" would be a very appropriate primitive term for the moon, since "her motion among the stars from night to night is sufficiently rapid to have caught the attention of very early observers. Its use therefore as the proper name for the 'lesser light' indicates the systematic observation of the heavenly bodies had commenced, and that the motion of the moon, relative to the stars, had been recognized."⁹¹

89. ($\overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}} = \overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$) Harkavy, A., Students Heb. and Chaldee Dictionary.

90. ($\overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}} = \overline{\text{ל}} \overline{\text{ל}} \overline{\text{א}} \overline{\text{ל}}$) Gesenius, op. cit.

91. International Standard Bible Encyclopedia, p. 303.

The designation of the moon as a "light-giver" we had mentioned already before. Its function as a luminary is not appreciated as much today as it was in primitive times when artificial lights were few and very ineffective. To the shepherds the moon was of invaluable assistance. Many of the Jews followed the habits of their forefathers and led a shepherd's life long after the settlement of Palestine. When the moon was bright, as only the moon can shine in Palestine, it aided them in guarding their flocks from prowling wild beasts. The return of the moon-lit portion of the month was therefore an occasion for rejoicing and for solemn thanks to God in the festival of the "new moon." On the other hand, one of the judgments threatened against the enemies of God was that the light of the moon should be withheld. Thus one of the threats which Ezekiel spoke against Pharaoh is: "I will cover the sun with a cloud, and the moon shall not give her light."⁹² Again, Isaiah in foretelling the day of the Lord which was to come upon Babylon says: "The sun shall be darkened in its going forth, and the moon shall not cause its light to shine."⁹³ But among the glories of the restoration of Israel it is promised that "the light of the moon shall be as the light of the sun."⁹⁴ People in ancient times appreciated the lesser light-giver.

92. Ezek. 32,7.

93. Is. 13,10.

94. Is. 30,26.

There is no direct mention of the phases of the moon in Scripture. This is rather remarkable since we know that the Jews based their calendar on the actual observation of the movements of the moon. The first visibility after sunset of the crescent moon determined the beginning of each month. Thus the moon also fulfils the function assigned to it on the first day: "Let them be for signs, and for seasons, and for days and for years."⁹⁵ "The Jews used a lunar year. It began for religious purposes, with the new moon next after the spring equinox, and consisted normally of twelve months, of 354 days. The Jewish calendar, however, depended on the course of the sun, since the festivals it appointed were in part agricultural celebrations."⁹⁶ The moon was also appointed for "seasons," that is, for religious assemblies or feasts. They were fixed according to the phases of the moon. Thus we see that the moon played an important role in the lives of the Jews in Palestine. "As light-giver, assisting men in their labors with the flock and in the field and helping them on their journeys; as a time measurer, indicating the progress of the months and the seasons of the four great religious festivals, the moon was to the pious Hebrew an evidence of the goodness and wisdom of God."⁹⁷

The sun and moon are further to be "for signs." This func-

95. Gen. 1, 14b.

96. Catholic Encyclopedia, II, 29.

97. International Standard Bible Encyclopedia, loc. cit.

tion could be no better fulfilled than in their eclipses. Men have always regarded the phenomenon with a certain awe and wonderment. It strikes terror among those who cannot understand it. In ancient times an eclipse was regarded as an omen of disaster and was greatly feared. Thus Jeremiah warns his people: "Learn not the way of the heathen, and be not dismayed at the signs of heaven; for the heathen are dismayed at them." ⁹⁸ To the prophets of the Old Testament, eclipses were "signs" of the power and the authority of God, and they commanded the people not to be alarmed at them.

The phenomena of solar and lunar eclipses, however, are not directly referred to in Scripture. The prophets of the Old Testament frequently mention the occultation of the heavenly bodies, and the phenomenon is several times referred to in prophetic passages of the New Testament. But when we examine these references closely, we come to the conviction that they cannot refer to eclipses in the ordinary sense of the term, though many commentators explain them in this way. Almost all of these expressions are in connection with the pronouncement of God's judgment upon a certain nation or people. The punishment and destruction of a nation is regarded in prophetic vision as a part and also a forshadowing of the final great and terrible Day of Jehovah. The pronouncement of judgment is taken as the occasion for foretelling the final Day of the Lord. Disturbances and occultations of the heavenly

98. Jer. 10,2.

bodies are then mentioned as signs of the impending disaster. Joel, taking the occasion of the locust plague in Israel, foretells the Day of the Lord and mentions as signs: "The sun shall be turned into darkness and the moon into blood, before the great and terrible day of the Lord come." ⁹⁹ Ezekiel, in pronouncing God's judgment against Egypt, writes: "I will cover the sun with a cloud, and the moon shall not give her light." ¹⁰⁰ Isaiah, foretelling the destruction of Babylon, again mentions the phenomenon: "The sun shall be darkened in his going forth, and the moon shall not cause her light to shine." ¹⁰¹ In the New Testament the references to occultations are more clearly and directly referred to the final Day of the Lord. On the day of Pentecost Peter quotes the aforementioned passage of Joel when he lists the signs of the last days. St. John also says that when the sixth seal was opened "the sun became black as sackcloth of hair, and the whole moon became as blood." ¹⁰² We feel that these expressions cannot refer to ordinary eclipses. Eclipses are too regular in occurrence to be a sign of impending disaster. The Lord Himself commanded His people not to be dismayed at the ordinary signs in the heavens. ¹⁰³ Furthermore, occultations of both

99. Joel 2, 31.
 100. Ezek. 32, 7.
 101. Isa. 3, 10.
 102. Rev. 6, 12.
 103. Jer. 11, 2.

sun and moon are always mentioned as occurring together which is impossible under normal circumstances. We must come to the conclusion that these expressions cannot refer to normal eclipses, though the prophets may have derived their imagery from a personal observation of this phenomenon.

Among the signs of the Final Judgment we also find the occultation or the falling of the stars. Thus Isaiah writes: "All their host shall fall down, as the leaf falleth from the vine, and as a falling fig from the fig tree." ¹⁰⁴ St. John uses a similar expression: "The stars of heaven fell unto the earth, as a fig tree casteth her unripe figs when she is shaken of a great wind."¹⁰⁵ St. John further gives a vivid description of the falling of a single star: "There fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters: and the name of the star is called Wormwood." ¹⁰⁶ These expressions are evidently allusions to meteorites, or, as they are more commonly called, "falling stars." "Meteors are not stars at all in the popular sense of the word, but are quite small bodies drawn into our atmosphere, and rendered luminous for a few moments by the friction of their rush through it." ¹⁰⁷ After having seen a meteorite shower we can appreciate the imagery of the sacred writers. But, although these ex-

104. Is. 34,4b.

105. Rev. 6,13.

106. Rev. 8, 10.11.

107. International Standard Bible Encyclopedia, loc.cit.

pressions may be drawn from an observation of this common phenomenon, we feel that here too we must not identify these signs of the last times with meteorite showers.

It is rather difficult to identify the planets referred to in the Old Testament. Venus and Saturn are, perhaps, the only ones expressly mentioned. Isaiah foretells the destruction of Babylon: "How art thou fallen from heaven, O Lucifer, sun of the morning!" ¹⁰⁸ Lucifer is generally conceded to be the planet Venus, the bright morning star, which the Babylonians worshipped. ¹⁰⁹ Another planet evidently referred to in the denouncement of Amos upon the children of Israel: "But ye have borne the tabernacle of your Moloch and Chiun your images, the star of your god, which ye made to yourselves." ¹¹⁰ The difficulty lies here in the interpretation of $\int \int \int$, which the A.V. has simply transliterated. Gesenius comments: "According to this interpretation, the only one which the received vowels will admit, the name of the idol as worshipped by the Israelites is not given; and it can only be inferred from the mention of a star, that some planet is to be understood, which Jerome conjectures to have been Lucifer or Venus." ¹¹¹ Many scholars however feel that Saturn is meant. They point out that the LXX translates Chiun with Remphan, supposed to be the Egyptian word for Saturn. The same word,

108. Is. 14, 12.

109. Catholic Encyclopedia, loc. cit.

110. Amos 5, 26.

111. Gesenius, op. cit.

Kaiānu, interpreted to mean "steadfast," frequently is used in Babylonian inscriptions for the slowest moving planet. The Syrian or Arabic have a similar word for Saturn.¹¹²

The references in the Old Testament to the planets other than Venus and Saturn are not so clear. They are individualized in the Bible only by implication. The worship of the gods connected with them is denounced, but without any apparent intention of referring to the heavenly bodies themselves. Two such deities are apparently referred to by Isaiah.

"But ye are they that forsake the Lord, that fought my holy mountain, that prepare a table for that troop, and that furnish the drink offering unto that number."¹¹³ As the marginal note indicates, the original expressions are Gad and Meni.

It is clear that Gad and Meni are the titles of two closely associated deities, and Gesenius identifies them with Jupiter, and Venus, the Greater and lesser Good Fortunes of the astrologers. Isaiah also mentions another Babylonian deity, Nebe,¹¹⁴ supposed to be the god of the planet Mercury.

Finally, in the book of Kings the Assyrian god, Nergal is mentioned. This in all probability was the deity of the planet Mars.¹¹⁵ Thus indirectly we see from these allusions in Scripture that the planets had been recognized and observed already at a very early date.

112. Catholic Encyclopedia, II, 30.

113. Isa. 65, 11. Italics my own.

114. Is. 46, 1.

115. Catholic Encyclopedia, loc. cit.

The question has often been raised whether the appearance of comets is ever referred to in Scripture. The question arises particularly concerning the interpretation of 1 Chron. 21,16: "And David lifted up his eyes, and saw the angel of the Lord stand between the earth and the heaven, having a drawn sword in his hand stretched out over Jerusalem." It is sometimes asserted that this was a comet. To substantiate the claim they quote the following passage from Josephus in which he speaks of the signs which preceded the destruction of Jerusalem: "Then there was a star resembling a sword which stood over the city, and a comet that continued a whole year." 116 The "star resembling a sword" was doubtless the return of Halley's Comet in 86 A. D. 117 A similar conjecture is made as to the nature of the flaming sword that kept the way of the tree of life. 118 These conjectures, however, are entirely unwarranted and unfounded. It is an obvious but futile attempt to substitute natural for supernatural phenomena.

In the creation narrative the stars receive very little recognition. The account makes mention of them, as it were, only in passing. This, however, should find no objection if we keep in mind the Scriptural point of view. Thus Driver remarks on the passage: "The stars hold a subordinate place,

116. International Standard Bible Encyclopedia, p. 308.

117. International Standard Bible Encyclopedia, loc. cit.

118. Gen. 3, 24.

because, so far as the earth and life upon it are concerned, they are of less importance than the sun or moon." Another commentator makes a similar statement: "Because the definite and very specific use of 'the stars' in reference to the earth is very much inferior to that of the sun and moon, they may well be added as a kind of after-thought, "and also the stars." 119

We find little evidence of systematic observation of the heavenly bodies by the Jews. But there was a reason behind this seeming lack of interest. "Astral worship was rife in Palestine, and they could hardly have attained closely to its objects without yielding to its seductions. Astronomy was, under these circumstances inseparable with astrology, and the anathemas of the prophets were not carelessly uttered. As most glorious works of the Almighty the celestial luminaries were indeed celebrated in the Scriptures in passages thrilling with rapture." 120

The stars are frequently referred to as the "host of heaven," in recognition of their well-nigh infinite number. Thus God told Abraham: "Look now toward heaven, and number the stars, if thou art able to number them."¹²¹ Jeremiah also takes note of their number when he calls the stars "the host of heaven that cannot be numbered." With the naked eye we can distinguish some 2,000 stars. And it is only with the

119. Leupold, *op. cit.*, p. 76.

120. Catholic Encyclopedia, II, 29.

121. Gen. 15:5.

122. Jer. 53:22.

advent of modern astronomy that we can truly appreciate these expressions. Dr. Sears has estimated that our galactic system alone contains some thirty thousand million such stars. However, ours is not the only family of stars in space. Jeans estimates the total number of stars in the whole universe at 2 times 10^{24} .¹²³ This figure, perhaps, means little except to one who habitually deals in astronomical figures. It becomes a little more concrete when Jeans says that "the same number of grains of sand spread over England would make a layer hundreds of yards in depth."¹²³

We must confess today with the Psalmist of old to the infinite powers and knowledge of God who "telleteth the number of the stars; He giveth them all their names."¹²⁴

The distance of the stars or their "height" is also alluded to in Scripture. Thus wise King Solomon stated that the "heaven is far height." The distances of the stars as calculated by modern astronomy, simply stagger the imagination. The diameter of the universe is estimated at something like 30,000 million light years. To illustrate: "Suppose the size of our earth represented by a single atom, whose diameter is about a hundred-millionth part of an inch. Then the range of vision of the biggest telescope is about represented by the whole earth, and the size of the whole universe, according to the theory of relativity, is represented by a stack of a thousand million earths."¹²⁵ Thus the height

123. Jeans, "Man and the Stars", p. 21.

124. Ps. 147, 4.

125. Prov. 25, 3.

126. Jeans, op. cit., p. 18 f.

of the stars gives us a fitting measure of the immensity of God. So Zophar the Naamathite asked, "Canst thou find out the Almighty unto perfection? It is high as heaven; what canst thou do?" And Eliphaz the Temanite reiterated the same thought, "Is not God in the height of heaven, And behold the height of the stars, how high they are!"¹²⁷ The height of the stars, further, is a symbol of God's faithfulness and of His mercy: "Thus saith Jehovah: If heaven above can be measured, and the foundations of the earth searched out beneath, then will I also cast off all the seed of Israel for all that they have done, saith Jehovah."¹²⁸ And the Psalmist sings, "For as the heaven is high above the earth, so great is his mercy toward them that fear him."¹²⁹

The principle achievement in the science of astronomy in Old Testament times was the arrangement and naming of the constellations. The origin of the constellations has been traced back to Chaldia as early as 2700 B. C.¹³⁰ Thus Abraham already must have been acquainted with them when he left his ancestral home at Ur. This arrangement of the constellations was handed down with very little modification by the Greek astronomers. The Old Testament contains some unmistakable references to the constellations, though it is often difficult to identify them. The difficulty lies in the

127. Job 11,7.6; 22,12.

128. Jer. 31, 37.

129. Ps. 103,11.

130. International Standard Bible Encyclopedia, p. 309.

interpretation of the Hebrew words designating them.

One such word is $\text{וְ\text{אֲ\text{רִ\text{י\text{ב}}\text{וֹ}}$. The first meaning of the word is a "serpent." As a constellation most scholars agree that it refers to the Dragon. Gesenius comments: "Put for the constellation of the serpent or dragon in the northern quarter of the heavens." Thus the Authorized version correctly translates: "By his spirit he hath garnished the heavens, his hand hath formed the crooked serpent."¹³¹

$\text{סְ\text{פִ\text{רְ\text{יִ\text{אֲ\text{רִ\text{י\text{ב}}\text{וֹ}}$ is another term denoting a star group. There is an Arabic word, kāma, closely associated, which means "to accumulate." Thus the word signifies a "a heap, cluster, especially of stars, and hence for the constellation of the Pleiades, or the Seven Stars, consisting of seven large stars closely conglomerated with other smaller ones."¹³² Also the LXX, the Talmud, and the Syrian literature translate it thus. Thus one of the questions which God asked Job was "Canst thou bind the sweet influences of the Pleiades?"¹³³ In another case, however, the A.V. rather inconsistently translates the term with "Arcturus," thus following the rendition of the Vulgate.¹³⁴

A rather interesting expression is $\text{לֹ\text{אֲ\text{רִ\text{י\text{ב}}\text{וֹ}}$. "Now kesil signifies in Hebrew "foolish," or "impious," adjectives expressive of the stupid criminality which belongs to the

131. Job. 26, 13.

132. Gesenius, op. cit.

133. Job 30, 31.

134. Job 9, 9.

legendary character of giants; and the stars of Orion irresistibly suggest a huge figure striding across the sky. The Arabs accordingly named the constellation Al-gibbar, "the giant," the Syrians equivalent being Gabbara, "a strong man;" and Kesil is actually translated Gabbara in the Old Syriac version of the Bible known as the Peshitto.¹³⁵

The expression occurs together with that for the Pleides in the passage mentioned above: "Canst thou loose the bands of Orion?"¹³⁶

A final expression, וְיָצֵא, is to be noted. Some scholars assert that the term stands for the Hyades, quoting as their support the Syriac, the LXX, and the Vulgate renditions.¹³⁷ Gesenius takes the term as "the constellation which are called the Great Bear, Ursa Major, the Wain, from the Greeks and Romans. Its sons are the three stars in the tail of the bear." The A.V., however, mistranslates the term with "Arcturus" as in the passage: "Canst thou guide Arcturus with his sons?"¹³⁸ A few other expressions are sometimes identified with star groups but these are rather vague. Thus Mazzaroth, for instance, is sometimes identified with the twelve signs of the Zodiac; others again claim that it signifies the planets. The A.V. usually transliterates the term.

135. Cath. Encyclopedia, II p.30; so also Lange-Schaff, Job 9,9; Gesenius, and Schaff-Herzog, XI, 67.

136. Job 38,31.

137. Schaff-Herzog, XI, 67.

138. Job 38, 32.

Thus Scripture describes the heavenly bodies as inexpressibly glorious, the handiwork of the Creator. We find here no personification and deification, as was so prevalent among the nations of antiquity. Thus freed from the bondage of superstition and the mythological conceptions of their neighbors, the Hebrew people made keen observations of these natural phenomena. They did not, however, theorize about the movements of the heavenly bodies or develop an astronomical system. The sacred writers merely describe them as they saw them, in relation to the earth. They considered the sun, moon, and stars as an indication of the power and majesty of God and of his infinite wisdom. The Scriptural conception is keynoted by David: "When I consider thy heavens, the work of thy fingers, the moon and the stars which thou hast ordained; What is man, that thou art mindful of him? and the son of man that thou visitest him?" 139 And, again: "The heavens declare the glory of God; and the firmament sheweth his handywork." 140 The heavenly bodies are creatures, without power or vitality of their own, declaring the glory of God, and serving man. This is the Scriptural view of the heavens.

139. Ps. 8,3 ff.

140. Ps. 19,1.

CHAPTER IV

THE EARTH

Having studied the Scriptural description of the heavens, let us turn to its expressions concerning the nature of the earth. We find here expressions which have frequently been attacked and ridiculed. Two extremes will be noted in the interpretation of these passages. One group would force poetical and metaphorical expressions until they become ridiculous. Their aim is to discredit Scripture. The other group, over-zealous apologists, frequently try to read into these expressions modern scientific discoveries which they were never intended to convey. Let us see what Scripture itself has to say.

Three words occur in the Old Testament as a designation for the earth. Most important of these is the term אָרֶץ . It is used in several different senses: a) the whole earth, the Latin orbis terrarum; b) land, as opposed to sea; c) a land or country.¹⁴¹ The word is undoubtedly from a most ancient root occurring in many languages, as the English "earth," German Erde, and the Arabic 'ard.¹⁴² It is frequently used in contrast with the heavens, as, "In the

141. Gesenius.

142. International Standard Bible Encyclopedia, p. 887.

beginning God created the heavens and the earth." A rather interesting term is ארצה. It comes from a root meaning "to be red." "In a hilly limestone country like Palestine, the small amount of iron oxide in the rocks tends to be oxidized, and thereby to give a prevailing reddish color to the soil. This is especially the case on relatively barren hills where there is little organic matter present to prevent reddening and give a more blackish tinge."¹⁴³ The first meaning of the term is "ground" or "soil," but it is also frequently used of the earth as a whole. It is interesting to note that from this word is derived the name "Adam," who, it will be recalled, was "formed out of the dust of the ground."¹⁴⁴ The chief word for "world" in the sense of the habitable earth, the abode of man, with its fulness of created life is ארץ.¹⁴⁵ It is a synonym of the New Testament expression, οἰκουμένη. Τῆ is the expression most frequently used in the New Testament for the earth as a whole, the world.

An expression to which some commentators take exception is "the corners of the earth," or "the ends of the earth." The expression is thus used in Isaiah: "He shall...gather the dispersed of Judah from the four corners of the earth."¹⁴⁶ Similarly, we read in Job: "He directeth his lightning... unto the ends of the earth."¹⁴⁷ The word in general means

143. International Standard Bible Encyclopedia, loc. cit.
 So also Gesenius.
 144. Gen. 2,7.
 145. Gesenius
 146. Is. 11,12.
 147. Job 37,3. Cf. Job 38,13 and Ezek. 7,2.

"a covering," or, "a wing," because the wing of a bird is used as a covering for its young. From this meaning it acquires that of the extremity of anything stretched out. It is thus used in Deut.: "Thou shalt make thee fringes upon the four borders of thy vesture, wherewith thou coverest thyself."¹⁴⁸ When used of the earth, the term signifies "a border, corner, end, as the habitable earth is often compared by the ancients to a garment stretched out."¹⁴⁹ The "four corners of the earth," then, are simply the extremities of the land in the four cardinal directions. Furthermore, if Scripture speaks of the "corners of the earth," it also mentions the circle of the earth." We find the expression in Is.: "It is he that sitteth upon the circle of the earth."¹⁵⁰ It is, therefore, unwarranted to foist upon Scripture such a crude conception of the earth.

We find a rather puzzling expression in the following passage from Job: "He shaketh the earth out of her place, and the pillars thereof tremble."¹⁵¹ Now the pillars of the earth can hardly be the supports by which it is held up in space. Lange-Schaff explains that they "are, according to the poetic representation prevalent in the O. T., the subterranean roots of her mountains." Far from teaching that the earth is supported by pillars, Job makes the bold assertion: "He stretcheth out the north over empty space,

148. Dt. 22, 12.

149. Gesenius, op. cit.;

150. Is. 40, 22.

151. Job 9, 6.

and hangeth the earth upon nothing."¹⁵² The phrase denotes "the endless empty space in which the...earth together with the overarching northern heavens, hangs freely. The cosmological conception of the suspension of the earth in the empty space of the universe...does not conflict with the mention of the 'pillars of the earth' in ch. 9,6 for the reason that the 'pillars' are conceived of as the inner roots or bones, the skeleton, as it were, of the body of the earth." ¹⁵³

It is rather interesting to note the geographical extent of the earth as it was known in Old Testament times. The outlook in the West was bounded by the "Great Sea," the Mediterranean. As we read in Ezek.: "And as for the western border, ye shall even have the great sea for a border; this shall be your western border."¹⁵⁴ Its islands also are mentioned in several passages.¹⁵⁵ In Job¹⁵⁶ we find the mention of Tarshish. Tarshish evidently was "a city in Spain with the adjacent country, situated between the two mouths of the River Baetis or Guadalquivir, a flourishing colony and mart of the Phenicians."¹⁵⁷ Apparently the Hebrew knowledge of the earth extended as far westward as the Atlantic Ocean.

Toward the north we find mention of the land of the

152. Job 26,7.

153. Lange-Schaff, Job 26,7.

154. Ez. 47,10. Cf. Num. 34,6.

155. Gen. 10,5; Isa. 11,11.

156. Job 1,3.

157. Gesenius

Mittites.¹⁵⁸ This people came from the Taurus mountains, and at an early date conquered most of Northern Syria. At the height of their power their influence extended over most of Asia Minor.¹⁵⁹ Mesopotamia is also frequently mentioned. It was the northern section of the land "between the rivers," the Tigris and the Euphrates. In the account of the Deluge the ark came to rest on Mt. Ararat. As a land, Ararat is the "country of the river Aras in Armenia."¹⁶⁰ In the extreme reaches of the North, we find mention of "Gomer"¹⁶¹ and "Magog,"¹⁶² two terms rather difficult to define. By "Gomer" "most probably we are to understand the Cimmerians, inhabiting the Chersonesus of Taurica and the adjacent regions as far as the mouths of the Tanais and the Ister." The Arabs called them by a similar name from which we derive the name "Crimea."¹⁶³ Magog was "a region and also a great and powerful people dwelling in the extreme recesses of the north, who are to invade the Holy Land at a future time. Nearly the same people seem to be intended as were comprehended by the Greeks under the name Scythians." The Scythians were inhabitants of Asia Minor.¹⁶⁴

Eastward the prospect included Assyria and Babylon, the lower sections of the region of Mesopotamia.¹⁶⁵ Shinar,¹⁶⁶

158. Josh. 1,4; 1 Kings 10, 29.

159. Concordia Bible Dictionary

160. Ibid.

161. Gen. 10,2; Ezek. 38,6.

162. Gen. 10,2; Ezek. 38,2.

163. Gesenius.

164. Ibid.

165. Gen. 2,14; 10,10.17.

166. Gen. 10,5.

perhaps, is a designation for the same region. It is believed to have been the "Sumer" of the Babylonians, i.e., the southern section of Babylon. Media and Elam are also mentioned.¹⁶⁷ The Medes were "an Aryan or Indo-European people, who inhabited the country to the south-west of the Caspian, whence they extended southward to the Persian Gulf. One of these offshoots was the Persian nation."¹⁶⁸ Elam, also called the "Highlands," was east of Babylonia. Shushan or Susa was its capitol.¹⁶⁹ Toward the extreme reaches of the East we find mention of India,¹⁷⁰ and of a people called the "Sinim."¹⁷¹ "The context implies a remote country situated in the eastern or southern extremity of the earth; probably Sinesis, Chinese, whose country is Sina, China."¹⁷² Toward the East, therefore, the concept of the sacred writers reaches all the way through Asia to the Pacific.

Southward, we naturally find frequent mention of Egypt, the land of bondage. Cush is another land which probably lies in this direction. Perhaps it was the Kas of the Egyptian monuments, Ethiopia, or the Sudan.¹⁷³ A designation for the same region is Pathras,¹⁷⁴ in all probability signifying Upper Egypt.¹⁷⁵ Southward, then, our prospect takes us

167. Gen. 10,2,22.

168. Concordia Bible Dictionary

169. Ibid.

170. Est. 1,1; 8,9.

171. Isa. 49,12.

172. Gesenius.

173. Concordia Bible Dictionary

174. Gen. 10,5.

175. Gesenius

far down into Africa. It is quite evident, therefore, that practically all of the civilized world of ancient time was known to the sacred writers. The concept of Scripture, generally speaking, includes the whole orbis terrarum of the Roman writers stretching farther eastward to include the farthest reaches of the continent of Asia.

We find less mention, however, of the seas in the Old Testament Scriptures. Yet this is quite natural. "The Hebrews were a pastoral and agricultural people, and had no inducements to follow a seafaring life. They were possessed of a considerable seaboard along the Mediterranean, but the character of their coast gave little encouragement to navigation. The coast line of the land of Israel from Caramel southward had no bays and no estuaries or river-mouths to offer shelter from storm or to be havens of ships."¹⁷⁶ The Hebrews had only two seaports, Acco, the later Ptolemais, and Joppa. Acco nominally fell within the bounds assigned to the Israelites, but they were never able to take it. Joppa was a Phenician city. Solomon landed his timber and other materials for the Temple at Joppa, and tradition has handed down what is called "Solomon's harbor" there. The builders of the second temple also got timber from Lebanon and conveyed it to Joppa. However, it was not until the time of Simon Maccabaeus that Joppa became the "first and only harbor of the Jews." The Jews got their knowledge of the sea

176. International Standard Bible Encyclopedia, p. 2774.

from other nations. We can quite readily understand why their knowledge of the sea was less extensive, and why we find it less frequently mentioned.

To the Jews the Mediterranean was the sea, as was natural from their situation. Hence it is frequently called $\overline{\text{דָּרַם}}$, "the sea."¹⁷⁷ Again, it is often called "the great sea"¹⁷⁸ or, because it lay to the West of Palestine, as "the great sea toward the going down of the sun."¹⁷⁹ Since the west is regarded as the "back," in contrast to the east as the "front," we sometimes find the name "the hinder sea," or as the A.V. has it; the "uttermost" or "utmost" sea.¹⁸⁰ From the story of Job, who went down to Joppa to board a ship for Tarshish, and from the frequent mention of the "ships of Tarshish," we infer that the Mediterranean was known, at least vaguely, in its entire extent. In New Testament times the references to the Mediterranean naturally become more intimate and detailed, especially in the account of the missionary travels of St. Paul in Acts.

Among the other references to the seas, we find the Dead Sea frequently mentioned. It was known variously under the names of "the Salt Sea,"¹⁸¹ "the east sea,"¹⁸² and "the sea of Arabah,"¹⁸³ after the depression of which it forms a part.

177. Gen. 49,13; Num. 13,29;34,5.

178. Num. 34,6.7; Josh. 9,1; 15,12.47; et al.

179. Josh. 1,4; 23,4.

180. Dt. 11,24; 34,2; et al.

181. Num. 34,3; Dt. 3,17, Josh. 3,16.

182. Ezk. 47,18; Joel 2,20; Zec. 14,18.

183. Dt. 3,17; Josh. 3,16; 12,3.

In opposition to the "Western Sea," i.e., the Mediterranean, it is called the "Former Sea." The Arabs today call it the "Sea of Lot," because tradition places the site of Sodom and Gomorrha at its southern end.

The Red Sea, of course, would never be forgotten by the children of Israel, since it played such an important role in the flight from Egypt. In the Old Testament it is known literally as "the sea of weeds."¹⁸⁴ It was not until the Greek period in New Testament times that it was known as the "Red Sea," *ἑρυθρὰ θάλασσα*.¹⁸⁵ Isaiah once refers to it as "the Egyptian Sea."¹⁸⁶

Finally, the sea which played the most part in Jewish life was the Sea of Galilee. In the Old Testament it is called "Chinneroth"¹⁸⁷ or "Chimeroth."¹⁸⁸ In several instances the name is preceded by the word *יָם*, thus, "the sea of Chinneroth."¹⁸⁹ In the Greek of the New Testament it goes under the name of "the lake of Gennesaret,"¹⁹⁰ or "the sea of Galilee."¹⁹¹ Still later it was named after the principal city on its coast, "the sea of Tiberias."¹⁹² This forms the extent of the Scriptural references to the seas.

184. Ex. 10,19; Num. 14,25; Dt. 1,1; et al.

185. Acts 7,36; Heb. 11,29.

186. Isa. 11,15.

187. Num. 34,11.

188. 1 Kings 15,20.

189. Num. 34,11; Josh. 12,3.

190. Lk. 5,1.

191. Mt. 4,18; 15,29; et al.

192. Jn. 21,1.

The Biblical concept of tehom, the deep, has been the butt of ridicule by many scholars. Driver writes: "It must be remembered that to the Hebrews the earth was not a large globe, revolving through space around the sun, but a relatively small flat surface, in shape approximately round, supported partly, as it seemed, by the encircling sea out of which it rose, but resting more particularly upon a huge abyss of waters underneath, whence hidden channels were supposed to keep springs and rivers supplied, and also the sea."¹⁹³ All this has been deduced from two vague references in Scripture, one here in the creation narrative, the other in the account of the Deluge. This is a rather flagrant example of eisegesis. Scripture nowhere asserts that there is a boundless reservoir of water underneath the earth's surface and upon which it rests. It is a well-known fact that large quantities of water are stored in the ground, and in the subterranean rivers and springs. When Scripture recounts that the "fountains of the great deep were opened," it is a figurative expression denoting that these subterranean waters were brought to the surface of the earth.

Other scholars go a step farther and identify the Scriptural tehom with Tiamat, the name of the Babylonian she-dragon of Chaos. The resemblance of the words has led some commentators to ascribe a Babylonian origin to the Genesis account. However, "it need hardly be pointed out

193. Driver, op. cit., Gen. 1,9.10.

that if this resemblance proves any connection between the Hebrew and Babylonian accounts of creation, it proves the Hebrew to be the original. The natural object, tehom, the sea, must have preceded the mythological personification of it."¹⁹⁴

The firmament is another Biblical concept which has been attacked. Driver typifies the critic's point of view when he defines it as "the dome or canopy of heaven, which we, of course, know to be nothing but an optical illusion, was supposed by the Hebrews to be a solid vault...supported far off by pillars resting upon the earth. Above this vault there were vast reservoirs of water, which came down in time of rain, through opened sluices...and above these waters Jehovah sat enthroned."¹⁹⁵ Some of our dogmaticians have taken the same view. Dr. Mueller writes: "On the second day, God created the expansion or 'firmament' (רָקִיעַ), by which is meant not the stratum of atmosphere above the earth, but rather the visible vault of the sky (Luther).... The 'firmament' divides the waters above and those below it, so that we must conceive of waters beyond the visible vault of the sky."¹⁹⁶

But "there is no doctrine of the Scriptures to the effect that there were 'ethereal waters,' and though the 'windows of heaven' are referred to,...these purely figurative expressions...

194. International Standard Bible Encyclopedia, p. 316.

195. Driver, op. cit., p. 7. So also Catholic Encyclopedia, p. 30.

196. Op. cit., p. 182.

are such as we can still use with perfect propriety, and yet to impute to us notions of a crude view of supernal waters stored in heavenly reservoirs would be as unjust as it is to impute such opinions to the writers of the Biblical books. The holy writers deserve at least the benefit of the doubt, especially when poetic passages are involved."¹⁹⁷ "This 'firmament' or 'expanse' cannot mean anything hard or solid, for the clouds are above, the rain comes through it; and we read further on that the birds fly in the 'firmament of heaven.' So what is meant by this word is the expanse of clear air below the clouds."¹⁹⁸

If the "firmament" is the atmosphere, it is quite evident, then, that the expression "the windows of heaven," which are said to have been opened in the account of the Flood, can hardly be taken literally. Further, the word וַיִּפְתַּח, "window," means a network, a lattice, or latticed opening. The form, therefore, can never have been ascribed to a literal floodgate. In other passages where the "windows of heaven" are mentioned the expression is obviously metaphorical.²⁰⁰

Furthermore, the critics who press this expression seem to have forgotten that if "windows" of heaven are once or twice mentioned, in many other places there is a quite clear recognition that rain comes from the clouds in the air. Thus

197. Leupold, op. cit., p. 60.

198. Dawson, W. Bell, op. cit., p. 37.

199. Gesenius, op. cit.

200. 2 Kings 7, 2.19.

Isaiah writes: "I will also command the clouds that they rain no rain."²⁰¹ Or, again, in the Song of Deborah, "The clouds dropped water."²⁰² The fantastic idea of solidly built cisterns in the sky furnished with sluices has no warrant in Scripture.

So far from any such crude conception, there is a very clear and complete account of the atmospheric circulation. Elihu describes the process of evaporation, "For he draweth up (A.V. "maketh small" = evaporate) the drops of water, which distil in rain from his vapor, which the skies pour down and drop upon man abundantly."²⁰³ Jeremiah has a similar description: "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 treasuries."²⁰⁴ Amos writes that God "calleteth for the waters of the sea, and poureth them out upon the face of the earth,"²⁰⁵ and the philosophic preacher of Ecclesiastes observes: "All the rivers run into the sea, yet the sea is not full; unto the place whither the rivers go, thither they go again."²⁰⁶ Little room here for the idea that the rains pour down from a supernal ocean through the "windows of heaven."

We see, therefore, that Scripture in its view of the earth has no quarrel with science. Naturally it does not

201. Isa. 5,6.

202. Jgs. 5,4. See also Ps. 77,17; 147,8; Prov. 16,15.

203. Job 36,27,28.

204. Jer. 10,13.

205. Amos 9,6.

206. Eccl. 1,7.

describe the earth in the detailed mathematical formulae of modern geology and geodesy. Such a description would have been completely unintelligible to previous ages. The Bible describes it merely as it would appear to any observer, but it avoids the gross misconceptions of primitive times. The Bible does condescend to human modes of thought and expression, but never to human error. Scripture and science, therefore, are in complete harmony, and, indeed, it could not be otherwise. God's revelation in Scripture and His revelation in nature have but one Author, and both are designed for but one purpose -- to praise the Lord. As the morning stars sang together at creation, as the sun, moon, and stars still praise the Lord, so also "earth with her ten thousand voices" joins in singing praise to God. Surely we must agree with the cherubim, "The whole earth is full of his glory."

CHAPTER V

BIBLICAL COSMOLOGY AND SCIENCE

We have emphasized that Scripture and science are in complete harmony, and they must necessarily be so. But when theologians digress into philosophical speculation, or when scientists, on the other hand, promulgate their theories as scientific fact, a conflict naturally arises. One such conflict, to which we shall give special consideration, has arisen over the relation of the movements of the heavenly bodies to the earth. This conflict has raged in the Christian church since the days of Galileo, when the Roman church damned him as a heretic and forced him to recant.

There have been two main theories as to the relation of the movements of the solar system and of the earth. The first, "the Ptolemaic System, is credited to Ptolemy of Alexandria (ca. 100 to 178 A.D.), who describes the earth as a sphere at the center of the universe, around which the sun and the moon revolve in slightly eccentric circles. The planets revolve in circles called epicycles, the centers of which revolve around the earth in larger, slightly eccentric circles called deferents. The deferents of Mercury and Venus are between those of the moon and the sun, and in order to account for the fact that these two planets are never seen in opposition to the sun, it is necessary to assume that the

centers of their epicycles always lie in the line joining the earth to the sun. This arrangement would obviously make these two planets always appear in the crescent phase and never in the gibbous. Before the invention of the telescope (about the year 1600) this could not be verified. Galileo (1564-1642), who appears to have been the first to use a crude telescope in astronomical observations, makes a cryptic statement in one of his letters which seems to mean that he observed Venus in the gibbous phase. This may be regarded as the first deathblow to the Ptolemaic System."²⁰⁷

"Copernicus (1473-1543) discovered what he called a 'better explanation' by imagining the observer to be seated on the sun. It was his aim to bring all the planetary motions under one unifying principle and thus avoid the extremely complicated mathematics necessary with the Ptolemaic System. He accomplishes this purpose by assuming the earth and the other planets to revolve in slightly eccentric circular orbits about the sun. Thus the same type of motion of the heavenly bodies was accomplished by assuming the earth to rotate about an axis through its center once in twenty-four hours."²⁰⁸ His ideas, however, were not entirely new. "He acknowledge his debt to the Pythagoreans Philolaus and Ecphantus, who taught that the earth moves in an orbit. The

207. Overn, O. B., Some Thoughts on the Ptolemaic and the Copernican System, p. 4.

208. Overn, O. B., op. cit., p. 5.

idea of the rotation of the earth on its axis was inspired by Heraclides of Pontos (4th century B. C.), who taught a similar doctrine. The great achievement of Copernicus consisted in bringing these ideas under one central principle governing the motions of all the planets at once."²⁰⁹

Scientists today prefer the Copernican System for the following reasons:

1. The Copernican description can be expressed with far simpler and less tedious mathematics.
2. The orbital motion of the earth is proved by the annual parallax displacement of the stars due to the aberration of light.

3. The axis rotation of the earth is proved by the following considerations:

- a. The rotation of sun, moon, and planets would seem to indicate by analogy that the earth should exhibit the same general behavior.
- b. Rivers in the Northern Hemisphere cut the right bank more than the left, while in the Southern Hemisphere the opposite is the case.
- c. Long range guns must correct their aim to allow for the rotation of the earth during the time that the projectile is in the air.
- d. The earth has an "equatorial bulge," which is evidently due to the centrifugal force produced by the earth's rotation.

²⁰⁹. Cvern, O. B., op. cit., p. 9.

- e. Objects near the equator weigh less than at higher latitudes due partly to the centrifugal force caused by the earth's rotation.
- f. A long pendulum swinging from a very firm support appears to turn due to the rotation of the earth beneath it. Foucault first performed this experiment in the Pantheon at Paris in 1851.
- g. The most exact experiment proving the rotation of the earth was performed by Michelson. He used the interferometer, a delicate instrument which makes it possible to make the most precise measurements of small distances in terms of a wave length of light. With the help of mirrors he sent two beams of light over the same path in opposite directions. Yet one beam of light traveled farther than the other, corresponding exactly to that calculated on the basis of the rotation of the earth. 210

But what does Scripture have to say about the movements of the heavenly bodies in relation to the earth? Two main passages are the "bone of contention" among commentators. When the armies of Israel were locked in deadly conflict with the Amorites, Joshua suddenly cried: "Sun, stand thou still upon Gibeon: and thou, Moon, in the valley of Ajalon." Immediately the result is described: "And the sun stood still."

210. Overn, C. B., op. cit., pp. 9-11.

and the moon stayed, until the people had avenged themselves upon their enemies."²¹¹ Again, when King Hezekiah had been granted fifteen more years of life, he asked for a sign. As he stood watching the sun dial of Ahaz, behold "the sun returned ten degrees, by which degrees it was gone down!"²¹² How are we to interpret these passages? Are they to be taken literally? Do they describe the absolute motion of the sun? Or are these passages to be interpreted metaphorically, describing only relative motion?

The Roman Catholic Church, since the papal decree which condemned Galileo, has relaxed its view considerably. Evidently, the Pope in this case was not infallible. Some of her greatest theologians have voiced dissenting views, or at least expressed doubt about making dogmatic assertions. Cardinal Bellarmine, the great dogmatician of the Roman Catholic Church, wrote soon afterwards on April 12, 1615: "I wish to say that if ever the Copernican theory be really demonstrated, we must then be more careful in explaining those passages of the Scriptures which appear contrary thereunto. We must then say that we do not understand their meaning; rather than declare a thing false which has been proven to be true. But I do not think that such a demonstration will ever be made."²¹³ Bishop Caramuel of Lyons wrote in 1651: "What would happen if scholars were one day to demon-

211. Joshua 10, 12, 13.

212. Isa. 38, 8.

213. Conway, Bertrand L., The Question Box, p. 180.

strate the Copernican theory?...In that case the cardinals would allow us to interpret the words of Josue X. as metaphorical expressions."²¹⁴ The theologians who condemned Galileo evidently had forgotten that both St. Augustine and St. Thomas held, that in describing the phenomena of nature, the Bible speaks according to appearances.

The Lutheran Church has/never officially taken any position on these theories. Theologians, however, are agreed that the Bible, while it is not a textbook of science, never makes unscientific statements. Dr. Mueller writes: "Over against the astronomical systems of scientists the Christian theologian must maintain: a) Scripture never errs, not even in matters of science. b) Scripture accommodates itself to human reason, but never to human errors, since it is always truth."²¹⁵

Individual theologians within the church, however, have advocated the Ptolemaic system despite the evidence of astronomy, insisting that the statements of the Bible, especially in Joshua 10, are to be taken literally. Prof. Lindemann, for instance, writes: "Es wäre mir völlig einerlei, wer Recht hätte, wenn es sich nur um menschliche Meinungen handelte. Aber der weise and wahrhaftige Gott hat sich über diese Angelegenheit in der Bibel ausgesprochen ! Der Ganzen heiligen Schrift liegt die Anschauung zugrunde, dasz die Erde der

214. Conway, Bertrand L., loc. cit.

215. Mueller, J. T., op. cit., p. 183.

Hauptkörper des Weltalls ist, dasz sie fest steht, und Sonne und Mond ihr nur leuchtend dienen! Was soll ich halten von diesem Zeugnis meines Gottes?"²¹⁶ Other prominent theologians, again, have subscribed to the Copernican system, believing that this theory is not out of harmony with these Scriptural passages.

The Bible does indeed speak from the geocentric viewpoint, but there is no need to apologize for this or to twist and explain away these words. The earth is the preeminent body in the universe, though others may exceed it in physical preponderance. "One may point out that mere size and massiveness are no test of significance. To counteract the force of the suggestion that 'bigger' and 'better' are synonymous, we need only remind ourselves of the view of the idealists that a single human being is worth an entire nebula of insensate electrons and protons."²¹⁷ The earth, therefore, derives its preeminence from the fact that it is the habitation of man, God's crowning work of creation, and it is from his viewpoint that Scripture speaks. We feel, however, that it is forcing these passages to assert dogmatically that they teach the Ptolemaic system. Such a procedure reads into these passages something which they were never intended to convey.

Further, in describing these phenomena as they would

216. Fasche, F. E., Christliche Weltanschauung, p. 233. Sic
 217. Reiser, op. cit., pp. 42-43.

naturally appear to an observer on the earth, Scripture is fully consistent with the laws of human language. Language is phenomenal, not objectively scientific. It describes objects and phenomena in relation to the observer. "We still speak of the sun rising or as setting, though we know that what really happens is the earth rotating on its axis from west to east as the cause of this appearance. We may say that the eye sees, or rather that we see through the eye, that the mind forms a resultant image, and that language is an endeavor to express in words what the mind has imaged. But the words are not the image, much less the thing imaged. They are at best but a representation -- and that, in its last analysis, a pictorial one--growing out of the phenomenon, or appearance to the eye, as imaged in the mind."²¹⁸ To illustrate let us express Joshua's command in the technical language of Copernican astronomy. It would read like this: "Earth, cease thy revolutions !" Such a statement would have been ridiculous and unintelligible.

Nor can the Scriptural viewpoint be labeled as "unscientific," for neither the Ptolemaic nor the Copernican system is true under the old conception that either the earth or the sun is at absolute rest and the motions of the other bodies are absolute. Recent developments in science, particularly by Einstein in his theory of Relativity, indicate that there is no such thing as absolute rest in the universe. "The

218. Gruber, The Six Creative Days, p. 39.

truth, confirmed by an overwhelming accumulation of evidence, is that both sun and stars -- of which our sun is one--are 'on the move,' and indeed that not only the stars but everything from electron to star is in ceaseless motion. Then what about a fixed point from which to determine so-called absolute motion? Even all cosmic motions are relative, and are either slow or fast in this direction or in that, according as they are measured from some other moving body or bodies. And this fact, that all motion throughout the universe is relative, is a fundamental principle underlying the Einstein theory."²¹⁹ If we accept the relativity of motion, then both the geocentric Ptolemaic system and the heliocentric Copernican system are true descriptions of scientifically observable facts. "The Ptolemaic System is a true description of the apparent motion of the heavenly bodies viewed from the earth."²²⁰ "The Copernican System is a description of the apparent motion of the heavenly bodies to an imaginary observer on the sun and is in perfect agreement with the Ptolemaic."²²¹ "These two systems are equivalent descriptions from two points of view and both are equally true. They cannot properly be called theories, because they involve no assumptions beyond those involved in every observation or measurement."²²² Thus Scripture in describing

219. Gruber, L. Franklin, The Einstein Theory, p. 22.

220. Overn, O. B., op. cit., p. 5 - Italics my own.

221. Ibid., p. 7, italics my own.

222. Ibid., p. 11.

the motions of the heavenly bodies relative to the earth is in complete accord with modern science. The age-old controversy of the theologians becomes meaningless, and Scripture emerges victorious, unruffled by the storm which has raged over it.

Mechanism is a scientific philosophy widely prevalent among men of science. Mechanism stems from materialism, refined and systematized by modern science. Mechanism, as the name indicates, maintains that all events are explainable as results of purely mechanical forces. All nature is governed by certain immutable laws. This philosophy is definitely anti-Scriptural. It rules out the ruling and preserving agency of God. If it admits a Creator at all, it pictures Him as having created a mechanical world, like a perpetual-motion machine, and then leaving it to run its own course without any interference from Him. Sad to say, some theologians even have fallen victim to this philosophy.

Not only is mechanism anti-Scriptural, but it is also illogical and unscientific. Lost in a welter of secondary causes, it fails to see the primary Cause. While it operates with the "immutable" laws of nature, it fails to see that they necessarily imply a law-giver. This weakness in the system was admitted by the eminent materialist, Prof. Plate in his Berlin Discussions: "Personally, I always maintain that, if there are laws of nature, it is only logical to admit

that there is a lawgiver."²²³ Further, the whole system flows from an overestimation and a misunderstanding of the laws of nature. The laws of nature are no longer conceived of as the cause of phenomena, but, rather, as a statistical average, a description, of what should happen under normal circumstances. This concept of the laws of nature is called "indeterminism." Yet, although the laws of nature are not the determining factor, nevertheless the world is still a cosmos. Indeterminism, if drawn to its logical conclusion, implies an ultimate Cause which directs the processes of nature from the movements of the stars down to the minute vibrations in the infinitesimal world of the atom and the electron. This concept is directly antagonistic to the idea of a mechanical world and is closely parallel to the Scriptural doctrine of God, who is immanent in the world and yet transcendent over it and who personally rules and governs it.

The latest developments in scientific cosmology, particularly the Einstein theory of relativity, are also antagonistic to the mechanistic world-view. As Dr. Gruber points out: "A physically constituted universe cannot be infinite, and must therefore be relative and dependent as a whole and interdependent in every part from electron to star. Hence the Einstein theory of relativity within the existing universe also unmistakably points to a dependence of that physically finite universe to an infinite Entity wholly different in

223. Gruber, L. Franklin, The Six Creative Days, p. 35.

essence (an independent or absolute spiritual Personality) superior to it, both immanent and transcendent. The theory of physical relativity in the parts thus necessarily implies, and indeed is a piece with, that of spiritual dependence of the whole."²²⁴

For these reasons the mechanistic world-view is falling into disrepute among the leaders in the field of science. One of the outstanding scientific philosophers of our age has written: "Today there is a wide measure of agreement, which on the physical side of science approaches almost to unanimity, that the stream of knowledge is heading towards a non-mechanical reality; the universe begins to look more like a great thought than like a great machine. Mind no longer appears as an accidental intruder into the realm of matter; we are beginning to suspect that we ought rather to hail it as the creator and governor of the realm of matter-- not of course our individual minds, but the mind in which the atoms out of which our minds have grown exists as thoughts."²²⁵

The view of astronomy concerning the size of the universe has frequently been declared as contrary to the Scriptural conception. The radius of curvature of the universe has been estimated at three billion light years.²²⁶ In itself this conception is not contrary to the Scriptural world-view. The tremendous size of the universe, as we have shown, does not necessarily minimize the importance of the earth. Rather,

224. Gruber, L. Franklin, The Einstein Theory, p. 81.

225. Jeans, Sir James, The Mysterious Universe, p. 186.

226. Jaffe, Bernard, Outposts of Science, p. 504.

it is an indication of the power and the glory of the Creator. Sometimes the conclusion is drawn that if the stars are hundreds of millions of light years away, then the universe must at least be that old if we can see them. This, however, does not necessarily follow. "With God nothing is impossible," and it would have been possible for Him to call the sun, moon, and stars into being with their light already shining upon the earth. In fact, this seems to be indicated in the creation narrative when it is related, "And God said, Let there be lights in the firmament of heaven," and immediately the result is given," and it was so."²²⁷ No time interval is indicated. Evidently, the luminaries were immediately visible. It is fallacious reasoning to brand either the Scriptural conception as unscientific or the scientific conception as unscriptural. Further, it must be remembered that this is a mere estimate, and in the very nature of the case undemonstrable. It cannot be called science in the strict sense of the term. Nor were the Scripture passages ever intended to convey any idea of the size of the universe. There is no common meeting ground, and there can be no contradiction.

There have been various estimates of the age of the universe by men in various fields of science. No two fields of science agree on the probable age of the world. The geologists, who are the most dogmatic in their assertions, set it at about

227. Gen. 1, 14.15.

two billion years. The chronology which we have in the Old Testament allows at the most some seven or eight thousand years. How shall we account for this tremendous discrepancy? Some theologians have proposed the Interval Theory which places an interval or gap between the first and second verses of Genesis. However, there is no warrant for this in Scripture, and it is syntactically unnatural. Others, again, stretch out the creative days into geological aeons. As we have indicated in a previous chapter, this, too, is unwarranted and out of harmony with the description of the creative days. Rather than to question the chronology of the Old Testament, let us examine the figures of the scientists. There is a fundamental fallacy in their argument. They assume that the processes of nature have always, through infinite ages, proceeded at the same rate as they do today. Geologists forget that a great world cataclysm as, for instance, the Deluge, could have produced the great changes evidenced in the various strata of rocks. Finally, the great discrepancies in the estimates of the various sciences discredit these figures. The scientific philosopher Reiser comments on this situation: "Geologists use the radioactive clock (based on the relative amounts of helium in the rocks undergoing radio-active transformations) to calculate the age of the earth. The general estimates of the earth's age place it at between a billion and a half and two billion years. But the astronomer's calculations of the age of the expanding

universe indicate that the astrophysical universe is relatively young: in fact, we are told, the universe started to expand after the earth was formed. Thus we are left with the paradox of a universe that is younger than the stars and planets of which it is composed ! In such a situation there is surely room for the suspicion that those who talk about the 'age' of the 'universe as a whole' are talking nonsense."²²⁸ We see, then, that these figures can hardly be called scientific data and that there cannot conceivably be a contradiction here between science and the Bible.

Despite the vagaries of theologians and the speculations of scientists, God's two revelations, nature and the Bible, are in complete harmony, testifying to the glory of God.

228. Reiser, op. cit., p. 110.

CHAPTER VI. CONCLUSION

THE PURPOSE AND END OF THE WORLD

Another question which we may consider is: Why did God create the world? The answer to this question must not be found in any necessity on God's part, by which, as some claim, He was forced to create the world. His creative activity is rather the result of His free and deliberate will. Some assert that God's chief purpose in creating the world was for the service and happiness of man. But "God's supreme end cannot be the happiness of creatures, since many are miserable here and will be miserable forever. God's supreme end cannot be the holiness of creatures, for many are unholy here and will be unholy forever."²²⁹ If man is not the ultimate end of creation, what, then, was God's purpose? Light on this subject can be secured only through the Scriptures which give us the following information: "All things were created by Him and for Him."²³⁰ Again, St. John tells us: "Thou hast created all things and for Thy pleasure they are and were created."²³¹ And the psalmist sings; "The heavens declare the glory of God."²³² From these and similar passages it is evident that all things were created for the glory of the Creator. God is His own end

229. Strong, op. cit., p. 196.

230. Col. 1,16.

231. Rev. 4,2.

232. Ps. 19,1.

in Creation. Dr. Strong summarizes: "God finds his end (a) in himself; (b) in his own will and pleasure; (c) in his own glory; (d) in the making known of his power, his wisdom, and his holy name. All these statements may be combined in the following, namely, that God's supreme end in creation is nothing outside of himself, but is his own glory -- in the revelation, in and through creatures, of the infinite perfection of his own being."²³³

Now is God's purpose in creation selfish vain-glory for it "comprehends and secures, as a subordinate end, every interest of the universe. The interests of the universe are bound up in the interests of God. There is no holiness or happiness for creatures except as God is absolute sovereign, and is recognized as such. It is therefore not selfishness, but benevolence, for God to make his own glory the supreme object of creation. Glory is not vain-glory, and in expressing his ideal, that is, in expressing himself, in his creation, he communicates to his creatures the utmost possible good."²³⁴ Thus also the highest interests of man are involved in the glory of God. The world was also to serve man, and he was to subdue it. Hence our dogmaticians make the glory of God the chief end and purpose (finis ultimus) of the creation, while the interests of men become the secondary purpose (finis intermedius).

233. Strong, op. cit., p. 195f.

234. Ibid., p. 197.

Will the world last forever? In somber tones Scripture warns us that it will not. When the purposes of God have been fulfilled, when the world has served its purpose as a habitation for man, when the last of His elect has been gathered into His kingdom, then shall the end come. Then shall come that great and terrible Day of the Lord so long foretold by the prophets. In that day "the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also and the works that are therein shall be burned up...Nevertheless, we according to the promise, look for a new heaven and a new earth, wherein dwelleth righteousness."²³⁵

SOLI DEO GLORIA !

235. II Pet. 3, 10, 13.

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