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554TH ORDINARY GENERAL MEETING,

HELD (BY KIND PERMISSION) IN THE ROOMS OF THE ROYAL SOCIETY OF ARTS, ON MONDAY, APRIL 6TH, 1914, AT 4.30 P.M.

MR. DAVID HOWARD, V.P., TOOK THE CHAIR.

The Minutes of the preceding Meeting were read and confirmed.

The SECRETARY announced that Mr. Martin H. F. Sutton and Mr. Charles Barnard Wigg had been elected Associates of the Institute.

The CHAIRMAN then called upon Mr. E. Walter Maunder to read his paper.

THE FIRST CHAPTER OF GENESIS. By E. WALTER MAUNDER, F.R.A.S., late Superintendent of the Solar Department, Royal Observatory, Greenwich.

OUR subject this afternoon is the First Chapter of Genesis.*

I take it that all here are agreed upon two points :—

First :—We believe that God is.

Next :—We believe that He made the world ; that is the entire material universe.

There is a third proposition which we must also accept absolutely, if we are to discuss our chosen subject to any profit. That third proposition is :—God is Himself the Author of this chapter which tells us how He made the world.

I.—GENESIS I IS A REVELATION FROM GOD.

For there are only two possible sources for the chapter: God Himself, the Creator, Who knew the mode and order of creation, or man, who did not know, but imagined it.

It is manifest that the act of creation cannot have come under human observation ; it predated man, it escaped his experience entirely. Nor could he learn of it by tradition ; there was no

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* In the first chapter of Genesis I desire to include the first three verses of the second chapter, which in the division of the Bible have obviously been detached from their proper connection.

one to hand down any account of it to him. Nor could he infer it from any study of what we term the processes of nature. For the act of creation* is not one of the processes of nature: it preceded them all as assuredly as it preceded man himself.

So tradition, history, science are all helpless to give man any knowledge as to the act of creation. All our knowledge of nature and of the processes of nature, arises out of, and is based upon, our observation of nature. If this first chapter of Genesis is the invention of some man, or of some school or succession of men, or the outcome, it may be, of the speculations and inventions of many men, slowly developing through long ages; if, in short, its origin is human, not Divine, then it is worthless. It supplies us with fiction only, not with fact; it preserves to us no testimony of any witness, no record of any observer; and it would not be worth your while to listen to me as I discuss it; it would not be worth my while to ask for your attention.

That which men can observe and experience and have recorded is of value to all whom the record reaches, but if the record rests upon no experience, upon no observation, if it deals with facts that lie outside all human experience and observation, and is built up merely of suppositions, then it has no value: it is the baseless fabric of a dream. This first chapter of Genesis is only valuable if it comes to us from knowledge.

We are thus brought face to face with the fundamental question of the actuality of Revelation, for whatever may have been the process by which this first chapter of Genesis was given to man, the chapter is either a revelation which came from God, or it tells us nothing. If we are reasonable, truth-loving men, we must reject it altogether, as void of worth and significance, unless we accept it as a revelation given by God Himself to man: a "primitive revelation" in the most precise sense of the term.

II.—Genesis I is a Revelation of the Creator rather than of the things created.

Most men are content to accept the universe just as they find it, without enquiry as to how it came into existence or speculation as to its beginning. But there are also those in

* We use the word "creation" in two connected but distinguishable senses: to designate either the act of creation or the totality of things created. I purpose to use it in this paper only in the first sense, and to employ the terms "nature" or "the creature" to express the second.

whom the sight of the order and beauty of the universe raises deep thoughts and questions. "Whence and how did this mighty frame of things arise? What was its beginning?"

The Beginning. Had the universe a beginning? Some have thought not. It is now, it was yesterday; why not for yesterdays without end? May it not have existed always?

This is the doctrine of the eternity of matter, a doctrine that appears under several different forms and names. Pure Materialism recognizes matter as the only existence; Pantheism professes to recognize the existence of God, but only as inseparable from the material universe; Monism asserts their complete identity.

But most thinkers are clear that these are unintelligent ways of evading the very question which is raised by the presence of the visible universe. Why should matter have had no beginning? Human life, the highest product of the changes through which the universe has passed, certainly had a beginning; organic life in general had a beginning; why not the complete structure out of which they arose?

We may put back the beginning for millions of ages, and these we may multiply by millions again, but still thought enquires "What came first of all?" And even if we predicate the eternity of matter, we have silenced, but not answered, the question that is still insistent, "Whence came that eternal matter?"

Another attempt to answer the question "What was the beginning?" likewise evades the question without answering it. This attempt affirms that the universe is without beginning; not because it always existed, but because it never did so. The universe is declared to be "the great illusion"; we have indeed a conception of it, but outside that conception it does not exist; the conception has no correspondence in reality. Here again the ordinary experience of men leads them to reject this evasion, as it leads them to reject the evasion of materialism. If we reason at all about the ordinary experiences of life, we know well that we reason differently, and order our intellectual operations according to different rules from those adopted by the philosophers who assert, either that the universe has always existed, or that its present existence is a mere phantasm.

To most men who have thought on this subject, probably to all in this room, it seems self-evident both that the universe does exist, and that it had a beginning.

We desire then to know how the universe came into existence. Many who put this question desire, and indeed

expect, that the answer should be expressed in the terms of natural science. They have so ill-defined a conception of the character and scope of science that they suppose that the answer falls within its powers.

But science has its limitations as well as its powers. As an example of one of the sciences, and as type of all the rest, let us look at astronomy: the oldest, the widest, and the most advanced of all the physical sciences.

It began with the observation made by men that there were two great lights in the heavens above us; the greater that gave light by day, the lesser that gave light by night, and there were the stars also. Then men noted that these two great lights, by their movements, furnished divisions and measures of time. Next came the observation that there was a correlation between the changes of vegetation on the earth, and certain apparent changes in the heavens; in the path of the sun across the sky by day, and in the groups of stars visible by night. Later on, some of the stars were perceived to move freely amongst the rest, and, after long-continued watching, those movements, which at first had seemed irregular and lawless, were so completely reduced to system that the positions of these wandering stars could be predicted for times far in the future, and now the prediction of the movements of the heavenly bodies has become the pre-eminent example of man's achievements in exact science. Step by step men have proceeded from the first mere recognition that there were lights above us, to the knowledge of their distances, dimensions, weights, chemical constitution, and changes of surface and condition. Nay more; the scrutiny of bodies removed from us by distances which it is not possible for us to realize, has taught us the existence of chemical elements before we have recognized them upon the earth, and has even instructed us concerning their molecular constitution.

But astronomy has its limitations: inevitable limitations that apply not to it only, but to all the sciences. It deals only with relations: its observations, its deductions, are only relative. The movements of the sun were noted, first, because they were movements relative to the earth; the movements of the planets were relative to the stars, and so on; of absolute motion we know nothing.

Now in every case, we ourselves, we men, furnish the primal relation. Astronomy—and every science—is in its origin, practice and expression, essentially anthropomorphic; not because the heavenly bodies are themselves human, but because

man is the percipient. The original unit, in terms of which we measure the distance of the sun, is the average human pace, and in like manner our appreciation of the angular movement of a planet is derived from the muscular effort which it costs us to move the head, or turn round upon the heel. What in mathematics we speak of as "polar co-ordinates" were, in their origin, simply walking forward and turning round.

Further, the discoveries of science give us no final explanations; for, when an explanation is discovered for some mystery, the explanation itself consists in the bringing to light of something, perhaps of many things, that are themselves unexplained, and for the time inexplicable.

Again astronomy knows nothing of the ultimate. In its most modern form, it ranges from the interior structure of an atom to the farthest extremity of space which a telescope can pierce, and indeed, inferentially far beyond. But, however far we go in any direction, whether in time or space, the enquiry of science will still be, "What is beyond?" And, if it were possible to give the decisive answer "There is nothing beyond," then science would find that it had passed the limit of its powers; it would have no further ability to deal with the situation. In order that science may deal with an event, that event must have both an antecedent and a consequent; in whichever direction we follow the chain of reasoning, science can never bring us either to "the first thing," or to "the last thing;" it has no protology and no eschatology.

The progress of science has been marvellous, and we may expect that its future will be much more wonderful than its past. But the very fact that it is progressive carries with it a necessary drawback. Science has no finality; we can never rest and be thankful that there is no more to learn. The hypotheses, which men accept to-day in science, may be rejected to-morrow, and will certainly be modified. It is with things that change that science concerns itself, and with their changes, and it is the changing thought of men concerning them.

From each and all of these considerations we see that the limitations of science preclude it from giving us any message on that which is avowedly the subject of the first chapter of Genesis—the Beginning.

And the first chapter of Genesis does not give us the message of science. One example is sufficient. Astronomy is the oldest of all the sciences, but there is not a hint of even its earliest discoveries, not a single astronomical technicality is introduced;

even the sun and moon are not named; we are told nothing except what an intelligent child might perceive for himself; namely, that there are in the heavens a greater light, a lesser light, and the stars also. There is nothing contrary to science told us, but neither is there any scientific revelation. Herein the chapter stands in striking contrast to all other accounts of Creation. These, without exception, either give us false and unscientific explanations of the heavenly bodies, or the results of long-continued scientific observation. Thus the Babylonian story mentions the planets, the poles of the heavens, and the artificial divisions of the ecliptic.

If Genesis I had been a revelation of Nature to man, that is to say, if it had given him instruction in natural science, it would have been worse than useless. The highest benefit which any science confers upon man is not the increase of his information, but the development, training and increase of his natural powers. Astronomy has been a utilitarian science from the beginning. From his observation of the heavenly bodies, man has learnt to divide, that is to measure, his time; next, to find his direction over land or sea; third, to determine his position, that is his longitude or latitude. But all these, though of high importance, form a very small part of astronomy to-day. From a directly utilitarian point of view, Ruskin's contemptuous remark that he did not care to know what gas Sirius smelt of, is justified; but though it is no service to us to have found out that hydrogen exists in Sirius, yet the process of finding out, with its consequent development of observation and thought, has been of untold service. But if it had been revealed to us in the first chapter of Genesis that Sirius contains hydrogen, the statement would have been unintelligible until man had found it out for himself, and the revelation might well have retarded man's mental development, and delayed the discovery.

The Rev. T. H. Darlow told us in his paper, read on March 2nd, "On the Character of the Bible," that "the Bible is not such a book as man would have made if he could, or could have made if he would." The accounts of Creation which have come down to us well illustrate the truth of this statement, for all of them,—except that of Genesis,—whether they proceed from savage or from cultured nations, attempt to explain the origin of the universe by supposing it to have been built up out of similar materials. Thus, in the Babylonian story, Marduk builds the heavens and the earth from the body and bones of Tiamat and the sons of Bör, in the prose Edda, use the flesh and blood of Ymir, the frost giant, for the same purpose, so that the

heavens and earth are composed of substances which are assumed to be as material as themselves. Similarly, Haeckel and the school of which he is a representative, build the heavens and the earth from the primordial atom, but less logical than the pagans of old, they deny the existence of any person or force outside the universe thus self-constructed.

It is not possible to explain in terms of itself that which needs explanation. But the answer of the first chapter of Genesis is of another kind :—"In the beginning, God." Here the origin of the universe is found, not in itself, but elsewhere. It is true that, if God be also unknown, we learn nothing; but, if God can be known, then His bringing the world into existence is no longer unexplained, though it may transcend our understanding. The method of His working may escape us, yet if we can know God Himself, we can learn something of His purpose, and therefore the significance of what He has wrought. The true explanation of created things is found in the Creator.

III.—We know God by Revelation only.

How can God be known? The analogy of science may help us. That which men have learnt concerning sun, moon, and stars, they have learnt in one way and in one way only: it is from the sun, moon, and stars themselves that men have derived their knowledge of them; the sole foundation of astronomy is Observation. As the science has developed, and become more complex, there has been division of labour; and now some men are observers, others are computers, and others again subject the results of computation to further discussion and analysis; but actual observation comes first and last and in between; the whole structure of the science is built upon it.

So with the other sciences; as geology, biology and the rest. We have learned of the rocks from the rocks; of life from life. If we would learn of God, our knowledge of Him must come from Himself: there is no other source possible. Some scientific men have argued as if, since they have learnt of nature from nature, by observation of nature, and through their natural powers, they could also learn of God from nature, by observation of nature, and through their natural powers, without God having aught to do with their learning of Him.

Astronomers are sometimes asked, "But can you photograph the stars?" The answer is "Yes." "When do you do it?" "At night." "But how can you possibly photograph them at

night, when it is dark? You must have a very powerful light in your observatory to take a photograph at night."

It is obvious what is the line of argument in the mind of such an inquirer. He knows that if he wishes for a photograph of himself, he must either go to the photographer by day when the light is bright, or if he goes at night, the photographer will be obliged to use an artificial light to illuminate him, and he supposes that the heavenly bodies need to be illuminated in just the same way.

It is not so. We photograph the sun by the light which proceeds from him, the moon by the light which proceeds from her (though that light is not inherent in her), and the stars by the light which proceeds from them: there is no need to try to add to their radiance by any light thrown upon them from an earthly source; indeed the one thing which the astronomical photographer is specially anxious to guard against is the entrance of any kind of terrestrial illumination. The heavenly luminary needs no earth-light to assist it: this can only "fog the plate," and dim or hide the impression that it is desired to secure.

So God is the only source of light concerning Himself. We know of Him that which He has told us; we can learn nothing more: He is our only possible source of knowledge in this field; it is only in His light that we can see light.

And if He gives us light concerning Himself, no matter by what method, then that light is Revelation. "No man has seen God at any time"; He is not perceptible to our senses; so that Observation, the source of our knowledge of material things, is not possible here. And speculation is worthless. It is quite true that not a few men believe that speculation is a source of knowledge with respect to external nature, and scientific men often receive accounts of "discoveries" which the ignorant have evolved out of their inner consciousness. The progress of science has been marked by the ruthless extermination of such "discoveries"; it has destroyed many; it will destroy more; it knows no toleration for anything of the kind. It is upon facts that have been definitely recognized, not upon unsubstantiated speculations, that the structure of science has been founded.

And what is true of science, is true also of theology. As we know nothing of nature from guesses, so we know nothing of God from guesses. Our knowledge of Him must rest upon established facts; that is to say it must come from Him alone. Our knowledge of Him must have been His gift to us, or we have no knowledge of Him at all.

Here then is the importance of the first chapter of Genesis.

It is no record of events that came within human experience; it is no inference from human speculation; it is the word of God Himself to man; what is the message which He desires us to hear?

IV.—Genesis I reveals seven truths concerning God.

There are seven great truths, which, I believe, are taught in this chapter:—

1. That God is.
2. That He Himself created all things.
3. That He created all things, not in one act, but in several.
4. That He made man in His own image.
5. That He gave man dominion over all the Earth.
6. That He rested from creation on the seventh day.
7. That He hallowed the seventh day.

The first two of these truths are, I believe, accepted by all in this room; at least the Victoria Institute proclaims its "faith in the existence of one Eternal God, Who in His Wisdom created all things very good."

But it is worth noting how these truths are taught and the opposing errors condemned. Here it is that the third truth becomes of importance,—that God created all things, not in one act, but in several. There is no enunciation of a series of dogmatic propositions, positive or negative; we are presented instead with the record of a succession of facts; facts of "history," if we may extend the term "history" to include events before the advent of man, events of which God Himself was the only Narrator.

But the bearing of these facts on theology and religion is of transcendent weight. Mankind has worshipped the objects of nature and the powers of nature, such as the broad expanse of sky, the solid earth and restless sea, trees and plants and the powers of vegetation, sun, moon and stars, and the varied forms of animal life, or the spiritual essences that are supposed to indwell them, but this polytheism receives its condemnation in the first chapter of Genesis. Here we are told that all these are not gods, but things; "creatures of His hand," called into existence by the word of His power.

Not less definite is the condemnation of dualism; the doctrine of two opposing principles in creation, one good, the other evil. There is but one God, and He has created all things very good.

Still more striking, if possible, is the condemnation of pantheism. We are often told that the progress of religion has been from fetishism to animism, thence to polytheism, and finally to monotheism. But this last step is not in the order of evolution ; the natural heir and successor of polytheism is not monotheism, but pantheism. Nature worship is still nature worship, even though the worshipper no longer discriminates between the deities of air and earth, of mountain and plain, but in order to satisfy an intellectual syncretism, prefers to integrate the whole.

Monism is a late form of pantheism ; like it, yet to be distinguished from it. Pantheism seeks to be philosophical, monism to be scientific ; with the result that pantheism is unscientific monism, and monism is unphilosophic pantheism, both being integrated forms of paganism ; the first from the more spiritual side, the second from the more material.

No such thought can be reconciled with the first chapter of Genesis. If God made light first, saw it and pronounced it good, and proceeded to make the firmament and so through a succession of distinct acts, the pantheistic or monistic position is impossible. God is Light, it is true, but light is not God : He transcends it.

The fourth truth revealed in this chapter is that God made man in His own image. Were it not for this, there could be no revelation of God to man. We have seen that man's science is essentially anthropomorphic, not because nature is human, but because man is the percipient. So man's knowledge of God is also necessarily anthropomorphic, not because God is human, but because man is the recipient of God's Revelation of Himself. Just as we arrive at some dim apprehension of the distance of the stars from knowing the length of our stride, so if man is to know God, there must be something in man that answers to God, and can therefore respond to Revelation, and lead man to an apprehension of what is in God.

The fifth truth is that God gave man dominion over all the earth. Here we have the charter of science : the right to that freedom of research which the man of science demands. Whether man exercises this dominion wisely and rightly or not, is not the question we are debating now ; suffice it to say that in nothing is man's dominion over the earth more clearly shown than in the progress which he has made in the various departments of science.

Sixthly, God rested from creation on the seventh day. The significance of this fact from the scientific point of view is

this:—From the time that man came, there has been no discontinuity in the natural order; no new energy has been introduced; no new order founded. Here we find the theological basis of that which is the primary assumption of science; the unbroken continuity of nature. Let it not be forgotten that this assumption of continuity, "which may be called the law of causality, cannot be proved but must be believed; in the same way as we believe the fundamental assumptions of religion with which it is closely and intimately connected."* But we must also remember that for science it is a necessary assumption; it is only within the limits of this assumption that scientific reasoning can take place.

Lastly, God sanctified the seventh day. The full significance of this expression is not brought out in Scripture until we meet it again as a quotation in the fourth of the "Ten Words" of Sinai; but from its context there, it is clear that the sanctification of the seventh day meant that man was differentiated from the lower animals. Six days only was he to labour for his food; the seventh day was not his, but God's; a day on which he should worship God and enter into communion with Him.

These seven great truths present us with the true relations of man to God, his Creator, and to nature, his fellow-creature. Above man is God, the infinite and eternal Creator; below man is the great and glorious universe which God has called into being; between the two stands man; in himself, small, feeble and insignificant, but by virtue of God's patent, conferred upon him, endowed with power to have communion with God, and dominion over nature,—to follow Religion, and develop Science.

To bring out these seven truths from the chapter before us is no triumph of forced and ingenious exegesis: they lie upon its surface, plain to every man. If the chapter be read to a child or to an unlearned peasant of ordinary intelligence, both would draw from it the same conclusions that I have done; indeed in almost every case I have used the very words of the chapter itself. And these seven truths are fundamental: the teachings of this chapter are necessary, necessary for all men. They furnish the great safeguard against idolatry and polytheism and all the unspeakable degradations of body, mind and spirit to which these lead. This chapter declares to man from the

* T. N. Thiele, Director of the Copenhagen Observatory, *Theory of Observations*, p. 1, published by Charles and Edwin Layton, 56, Farringdon Street, London, 1903.

outset his true position in the universe, and enables him to take his first step in the knowledge of God, which is Religion, and his first step in the knowledge of nature, which is Science.*

V.—"God said."

The basis of all the science of to-day is found in the principle of continuity; the principle that like causes produce like effects, or, to use less debateable terms, that like antecedents are followed by like consequents, and that the phenomena perceived to-day follow necessarily and continuously from the phenomena of yesterday.

The first chapter of Genesis is not concerned with such continuity. Six times it is recorded "And God said"; and in answer to that Word, a change in the condition of nature followed immediately. Two different words are used in connection with that change,—"God created," and "God made,"—and some commentators have laid great stress upon the distinction between these two terms. It lies outside my province and present purpose to debate this distinction. In one thing they agree: they indicate a change in the course of nature, which, but for the command of God, would not have taken place. If the word had never gone forth, "Let there be light," then the darkness that was on the face of the deep would never have been dispelled. The creation of light on the first day was good and complete in itself, but contained no germ or potentiality of the creation of the second day. The command "Let there be a firmament" was as necessary in its turn as the command "Let there be light" had been before it; but again the condition produced had no germ or potency of the creation of the third day. So in like manner if the command of the third day "Let the waters under the heaven be gathered together into one place and let the dry land appear," had not been issued, our continents and islands would never have risen above the waters to bring forth grass, herb, and tree.

So with the remaining days. The meaning of the chapter is missed if the work of the sixth day is regarded as the necessary

* There is a misleading phrase—"The Conflict between Religion and Science"—which, unfortunately has become almost proverbial. But because it is so familiar I wish, throughout this paper, to use the two terms, Religion and Science, in the senses in which they occur in this phrase, Religion as meaning that knowledge of God which is founded on Revelation, and Science that knowledge of Nature which is founded on Observation.

evolution and development of the fifth, and that of the fifth day, as arising in like manner continuously from that of the fourth, and so backward from the beginning. The fiat of the Almighty, repeated six times over, implies the introduction of a new principle on each occasion, and the commencement of a new continuity, which held from that time forward and raised the Creature in each case to a higher plane. We often speak of Creation as a single act, and there is a sense in which that holds good. But this first chapter of Genesis declares the truth that God accomplished Creation, not in a single act, but in several; —there were several creations.

This was not because the first creation broke down or was a failure. The creation of the first day was good and complete in itself; it has never been superseded; light is with us to-day in all its beauty and worth; it was created good, it remains good. And so with the other creations, each in their turn.

But because these separate fiats were creations, they escape the research of science. Science deals only with relations, the relations between created things; it can only consider secondary causes, and it is limited by the continuity of their operation. That which precedes the continuity of nature is creation; that which follows creation is continuity. Hence the two terms are mutually exclusive; any event or phenomenon that falls within the range of continuity is not creation, and the act of creation is no incident of continuity.

In considering most of the discussions that have been held over this chapter, discussions which have had for their purpose to ascertain the bearing of science upon it, whether to confirm or to contradict its record, it will, I think, be recognized that generally the real question raised has been whether the order of events as given in Genesis is the same as the order of development as suggested by evolution.

Surely this is a fundamental mistake. We must believe that if God had thought fit, He could have spoken the word "Let the world be" and it would have straightway followed that "the world was"; and it would have been potentially, if not in outward form and appearance, all that we behold of it to-day. This is, in effect, the assumption made by both the contending schools,—equally by those who hold that the course of evolution confirms the narrative in Genesis, as by those who claim that it is contradicted thereby. It was not once only, but six times, that God spake and it was done; and that statement implies not six stages in a single continuous evolution, but six distinct exertions of creative power.

VI.—"IN SIX DAYS THE LORD MADE HEAVEN AND EARTH."

What was the nature of these days of creation? What was their length? And where are we to place them in the course of time? Many different opinions have been formed upon these questions, which may be summarized as follows:—

(*a*) "At one time the chapter was interpreted to mean that the entire universe was called into existence about 6,000 years ago in six days of 24 hours each.

(*b*) "Later it was recognized that both geology and astronomy seemed to indicate the existence of matter for untold millions of years instead of some 6,000. It was then pointed out that, so far as the narrative was concerned, there might have been a period of almost unlimited duration between its first verse and its third; and it was suggested that the six days of Creation were six days of 24 hours each, in which, after some great cataclysm, 6,000 years ago, the face of the earth was renewed and replenished for the habitation of man, the preceding geological ages being left entirely unnoticed.

(*c*) "Some writers have confined the cataclysm and renewal to a small portion of the earth's surface—to 'Eden' and its neighbourhood.

(*d*) "Other commentators have laid stress on the truth revealed in Scripture that 'one day is with the Lord as a thousand years, and a thousand years as one day,' and have urged the argument that the six days of Creation were really vast periods of time, during which the earth's geological changes and the evolution of its varied forms of life were running their course.

(*e*) "Others again have urged that the six days of Creation were six literal days, but instead of being consecutive, were separated by long ages.

(*f*) "And yet, again, as no man was present during the Creation period, it has been suggested that the Divine revelation of it was given to Moses or some other inspired prophet in six successive visions or dreams, which constituted the 'six days' in which the chief facts of Creation were set forth." (*Astronomy of the Bible*, pp. 20–21.)

It does not lie within my province to discuss the bearing upon these interpretations of the meaning of the Hebrew word

yōm, here translated "day"—that is for Oriental scholars. But the question appeals to me as an astronomer from a different point of view, one that has received little or no consideration. An astronomical day, or rather let us put it, "a day of man," involves four things:—(1) an earth that has obtained definite form; that (2) has begun to turn on its axis; (3) a sun that shines; and (4) a man upon the earth to see. In order that "evening" and "morning" may indicate definite points of time, a fifth condition is necessary:—a selected locality upon the turning earth, from which the sun may be seen to set and to rise.

The chapter before us gives us no hint that, at the moment when the word of command of the first day was spoken, the earth had received any definite form. There is no hint of its rotation, nor of any choice of a special locality. It was not until the fourth day that the sun was set in the firmament to give light upon the earth; nor until the sixth day that there was a man to perceive the succession of evenings and mornings. Surely then the seven days of Creation are not seven days of man, but seven days of God. But this must give them a stronger, not a weaker, claim to be rightly called days. If God regards them as days, then days they were in the fullest sense; no matter how difficult, nay perhaps impossible, it may be for us to define them in our vernacular. Yet, since man was made in the image of God, it may well be that the days of man are faint types or images of the days of God; the six days of man's labour, of God's six days of creative work; the seventh day of man's rest, of the day which God blessed and sanctified.

VII.—"THE EVENING AND THE MORNING."

But if it is impossible for us to define the days of God in the terms of our human experience of time, is it impossible that God should translate them for us? We find that the record of each day's work is concluded by the same formula—"and there was evening, and there was morning." This expression is both unusual and striking, particularly in the case of the first day "And there was evening and there was morning, day one."

The suggestion to my own mind is that each "day" was bounded by its evening and by its morning. The natural objection to this view is, that the interval between evening and morning is not "day" but "night;" but the objection itself recalls the interpretation (*f*) given above, of the seven days of Creation as

seven successive dreams given to some prophet of old. This is the suggestion once put forth by Hugh Miller, and adopted by the late Rev. Prof. Charles Pritchard, in his work, *Nature and Revelation*; and it deserves careful attention.

If Genesis I is a revelation from God, it must have been made originally to some man; it is through some man that we have received it. We have instances in Scripture of many types and kinds of revelation. Sometimes the prophet has heard an audible voice; sometimes the Divine message has been impressed inwardly in his spirit; sometimes his own organs of speech have been moved by the Divine power; sometimes he has fallen into a trance and seen a vision; sometimes the revelation has come to him in the dreams of sleep.

Now the language of this first chapter of Genesis deserves special attention; it is unlike all other Scripture. No man was present; God was the Actor and the only Historian; yet we have nowhere the prophetic formula: "Thus saith the Lord." God is always spoken of in the third person; yet, though no man could have been present, the record reads as if it were that of an eye-witness, who saw the whole succession of events passing before his sight, though he took no part in them and no word was addressed to him. If we think of the chapter as the record of some seer to whom the whole was revealed in a week of nights, the dream of one creative day each night, the expression, "and there was evening and there was morning, day one" comes with the simplicity and graphicness of a personal narrative by the prophet. The sun went down and darkness fell upon the landscape: then, as with Eliphaz the Temanite, "a thing was secretly brought to him, and his ear received a little thereof. In thought from the visions of the night, when deep sleep falleth upon men" (Job iv, 12–13). Between the evening and the morning the vision came to him, the vision of the first day of Creation—"ther $_{W}$as evening and there was morning, day one."

VIII.—"God saw."

But this was a vision, a dream. Visions have their place and purpose, but as scientific men we crave for the actual, as religious men for the real. If the vision was true, there must have been a reality which it represented and expressed.

Five times over in the chapter we read "God saw.' How often have these words been read as if they ran, "man saw"? It is not the same thing, for "the Lord seeth not as

man seeth, for man looketh on the outward appearance." (1 Samuel xvi, 7.) Man sees the outward appearance, the effect, the phenomenon; God sees the inward substance, the causes, the reality; that which lies at the basis of nature, as well as that which is at the basis of character.

This thought is strikingly expressed in the 139th Psalm :—

"My substance was not hid from Thee,
When I was made in secret,
And curiously wrought in the lowest parts of the earth.
Thine eyes did see my substance yet being unperfect;
And in Thy book all my members were written,
Which in continuance were fashioned,
When as yet there was none of them."

And these words are as applicable to the weaving of the wondrous fabric of the Cosmos as to that great mystery, the formation and growth of the yet unborn child.

"Which in continuance were fashioned." The continuity of nature is the dominant note of science to-day, the thought that nature as it now is, has been "fashioned in continuance" from its condition in the past. It is a new thought in these, our times; it has hardly found general recognition for three generations of men; yet it is clearly intimated here and elsewhere in the Scriptures in documents that were written nearly 3,000 years ago.

We have seen that creation precedes continuity, and is not an item in its course, but when did creation take place? The answer to that question is not so obvious as some have been ready to suppose.

The existence of man as recognized by God Almighty, did not begin with man's own consciousness of it, but with the beginning of that continuity of nature which eventually resulted in man's coming into living, conscious existence. He existed to God long before he existed to himself. This truth is set forth with great distinctness in the address of Wisdom, in the book of Proverbs, where the work of creation is especially referred to.

"The Lord possessed Me in the beginning of His way,
Before His works of old.
I was set up from everlasting from the beginning,
Or ever the earth was.

* * * * *

When He gave to the sea His decree,
That the waters should not pass His commandment:

When He appointed the foundations of the earth.
Then I was by Him, as One brought up with Him:
And I was daily His delight,
Rejoicing always before Him;
Rejoicing in the habitable part of His earth;
And My delights were with the sons of men." (Proverbs viii, 22–31.)

Six times God uttered the creative word; six times that word was followed by the instant coming into existence of that which had been commanded. But when God beheld that which He had made and saw that it was good, does it follow that, could a man have been there to look on, there was anything present which would have been apparent to his sight; anything, that is to say, that he could have recognized as an accomplishment of the command? Turn back to the text which I have already quoted: "Thine eyes did see my substance yet being unperfect, and in Thy book all my members were written, which in continuance were fashioned when as yet there was none of them." Is not the Psalmist here enunciating a truth that concerns much more than his own bodily existence? If this earth of ours had consciousness and spirit, as well as mass, might it not repeat the very words of the Psalmist? Might not sun and moon and all the heavenly host join in the same ascription and so with all the forms of life and energy?

And this, not only because God is all-knowing, foreseeing the end from the beginning, and beholding the thing that is afar off as if it were near; but because He can perceive and gauge the outcome of the hidden forces now secretly in operation. To Him the far-off results are present, both because He is not subject, as the creature is, to the limitations of time, and because He sees the causes that are working towards the final effect. When God spoke it was done, and God saw it, and saw that it was good, for He had then put forth the power that would accomplish His entire purpose. "So shall My word be that goeth forth out of My mouth: it shall not return unto Me void, but it shall accomplish that which I please, and it shall prosper in the thing whereto I sent it." (Isaiah lv, 11.)

IX.—The Work of the Seven Days of Creation.

The detailed examination of the work of the separate days of creation is far too large a subject to be dealt with at the conclusion of a paper, already inordinately long, yet I would like to make a few brief suggestions—

THE FIRST DAY.—The third verse of the chapter tells us "And God said Let there be light, and there was light." But light is a form of energy; therefore the creation of light involves the creation of energy. Further, though we conceive of matter as being distinct from energy, yet we cannot conceive of them apart the one from the other; that therefore which is hinted at here, is the creation both of matter and of energy as we know them: the material of the Cosmos.

Did anything exist before the Cosmos, before matter and energy? This appears to be hinted at, both in verse 2, and in Hebrews xi, 3: "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear."

But we cannot conceive of any such state, for our conceptions are limited by our experiences, and these are confined to the Cosmos. Any description of the pro-Cosmos, if such there were, must be cosmomorphic;—*i.e.*, expressed in terms of the Cosmos —such as the "waste and empty" of verse 2, and the suggestion of an infinite ocean in absolute darkness: a plenum of emptyness, if the paradox may be allowed.

The creation of light, that is of matter and energy, involves also the creation of Time; for Time enters in as an essential element of light. Hence we read "There was evening there was morning, day one."

"Day one."—The "one" here is absolute, not relative. This first day was the original and type of all later days; Time now began to be.

How far light extended at the moment of its creation, we cannot say. No hint is given as to whether the new-born energy permeated at once to the utmost extent of space, or whether it developed, as if from some small germ—if the figure may be permitted—until the whole of the pro-cosmic darkness was leavened. Neither are we told how long, according to human reckoning, that first day lasted; whether it was but a mere instant, or an extended æon, or whether perchance it was equal in length to one of our own human days. We are told only that "light was"—it came into existence; and its creation came between the evening and the morning of a day of God. Thus the work of the first day was not only the beginning of creation, it was the prototype of the work of each of the days that followed. God spake and it was done. There was evening, there was morning; darkness gave place to light; non-entity to entity.

I am not inclined to follow those who connect the work of

the first day, directly or indirectly, with any form of that which is known as "the Nebular Hypothesis." And this, for three reasons: (1) I can trace no reference to the hypothesis in the chapter. (2) The nebular hypothesis is concerned with the continuity of nature; that is to say, with the continuousness of its evolution, not at all with its creation. And (3) there is no form of that hypothesis, at present recognised, which does not offer serious scientific difficulties.

A SECOND DAY.—The significance of the Divine command on this day is, as it appears to me, that God then set in action the forces which should finally result in the separation of the Earth—that is to say, the globe on which we live—from the rest of the Cosmos. If this be so, the omission of the verdict, "it was good," is natural; nothing new was called into existence this day; it was the selection of a portion of the universe to be the scene of the great Divine drama. From this time forth, the narrative is essentially concerned with the Earth.

A THIRD DAY.—Here the point which I wish to make is this: We know that the creation of light and the separation of the material of a planet from the rest of the universe do not necessarily involve that that planet shall ever present a surface, partly of land and partly of water, or shall ever become the home of plant life. If we accept the doctrine of evolution, even in its fullest range, that carries with it no necessity that the course of development on a given planet must be analogous to that which has taken place upon our Earth; or that it should ever attain there the same results that it has done here. For example, so far as we can ascertain anything concerning other worlds, we may feel confident that none of the planetoids, such as Eros, ever has been, or ever will be, the home of any form of organic life. That our Earth has "habitable parts" involves, therefore, that a definite provision to that end was made by the Creator.

A FOURTH DAY.—Here let it be noted that, though our system has a single sun, this is far from being the only type among stellar systems and, therefore, is not an inevitable result of stellar evolution. Similarly, though every planet in our system is lighted by the sun, yet our Earth alone possesses a moon in the true sense of that term. Several other planets possess satellites, but these are all negligible in mass as compared with their primaries, and negligible, too, in the light which they afford. That our Earth has a greater light-giver to rule the day, and a lesser light-giver to rule the night, involves, therefore, that a definite provision to that end was made by the Creator.

This was but the fourth day, and man had not yet been created. Yet the Wisdom of God already was rejoicing in the habitable part of His Earth, and His delights were with the sons of men. For the greater light and the lesser light were not only for signs and for days and years, they were also for "seasons"; that is to say, for the solemn assemblies for the worship of God.

A FIFTH DAY.—"And God said Let the waters bring forth abundantly, the moving creature that hath life." This would seem to imply, not the creation of new material, but rather the raising of existing material to a higher plane of activity; in other words, life was brought forth from non-living matter. We have, as yet, no scientific experience of any change of this kind, and we may well say concerning it, "This is the finger of God"; it is peculiarly His operation. But should such experience be ours in the future, it is well that we should remember that such a change is already chronicled here as having taken place in the past.

THE SIXTH DAY.—"And God said Let Us make man in Our image, and after Our likeness, and let them have dominion." This was the word of God; He spake and it was done; He did not create new material, but He called into existence then and there the powers and conditions which shall lead up to this glorious consummation. But it was not within a period of twenty-four hours from the time of the speaking of that word, nor yet for thousands of years to come after, that the image of God was fully seen in a Man, Who was God manifest in the flesh. And we still wait for the "dominion" in its fulness; "we see not yet all things put under Him."

THE SEVENTH DAY.—"And God blessed the seventh day and sanctified it." I would only note here that, to the senses of man, there is no difference observable between the seventh day and the other six; the distinction between them does not lie in the region of phenomena. Yet God has distinguished between them, and He calls upon man to do the same, and man is able to fulfil that command; so that though one day is in itself like the next, yet man can consecrate and keep holy the seventh day, and make an essential difference between that and the rest. And in so doing, man thus far fulfils the purpose of his being, for he shows forth the image of God, "Who rested on the seventh day from all the work which He had made, and blessed the seventh day and sanctified it."

X.—"In the Image of God."

In the foregoing paper I have tried to bring out the thoughts which this first chapter of Genesis have impressed upon me.

I think it tells us of the Beginning; that God created all things; that He created all things in seven days of God. By creation I do not understand the bringing of all things into their final manifestations, but the bringing into operation of the essential powers and principles, which should lead to those manifestations in the fulness of time.

I do not know when the Beginning took place; I do not think the slightest hint is afforded to us. I do not think that we can determine how long in human measure were those seven days of God. The suggestion pleases me, I must admit, that they were revealed to man in symbol and in vision, in seven consecutive nights; that between the evening and the morning, the seer, whoever he was, saw in dream the work of the successive days of God's Week. It may be, but we cannot tell, that God, in His acts of creation, may have consented to limit Himself by the very limitations of time which hereafter would be the necessary limitations of His predestined creature, man, and that the Week of God may have been, in absolute duration, exactly equal to a week of man; it may be, but unless God tells us so in so many words, we cannot know, and I do not see that it matters to us.

So far, for the chapter itself. One word further on the alleged conflict between Religion and Science, for, when that supposed conflict is mentioned, it is this chapter that is generally in the speaker's mind.

The Astronomer Royal, in the admirable speech which he made to us on the occasion of our last meeting here, said that astronomy was descriptive only; and that which is true of astronomy is true of all sciences: they seek to describe things as they are.

Astronomy, geology, biology;—these are especially the three sciences which are supposed to contradict (or to confirm, for some writers take an opposite view) the chapter before us. Wherein can the contradiction (or confirmation) lie? There is no allusion whatever to geology; no hint as to the respective ages of carboniferous and cretaceous strata, or even as to the existence of strata at all; and the allusions to objects that come within the domains of astronomy and biology go no farther than the merest mention of less than a dozen of the most obvious

natural objects. I must confess that the attempts which have been so frequently made to discuss this chapter as if it dealt with the results of scientific investigations, astonish me with their unreasonableness, and fill me with admiration at their far-fetched ingenuity.

The first chapter of Genesis is no handbook of science, no epitome of the course of evolution. It is the revelation of God:—"God said"; "God saw"; "God created"; "God called"; "God made"; "God appointed"; "God divided"; "God ended"; "God rested"; "God blessed and sanctified."

If I am right, it is through missing this essential thought that the idea has arisen that there is some conflict, some opposition between the teaching of this chapter and the discoveries of science.

But if any still allege that such a conflict exists, let me point out that they have two positions to make good. First, they must prove that the discovery that they adduce is one, the significance of which in this relation cannot possibly be altered by any discovery which the future may bring to light: a position no truly scientific man would adopt. Next, they must show that this chapter contains a contravention of it: a position impossible to anyone who has read the chapter with attention.

Science deals only with the relation of created thing to thing within the continuity of nature, and can, in no direction, extend its researches to its origin and beginning, its creation.

This chapter does not deal with the relations of thing to thing, but reveals God the Creator, the Origin and Beginning of all things. Our powers of observation and reflection were given to us by God in order that we might acquire the knowledge of external nature for ourselves. But the Creator Himself is here revealed to us, because our natural powers of observation and reflection are incompetent to make Him known to us.

And this revelation is for the purpose of teaching man his true relation both to God and to nature. He is made in the image of God, after His likeness. Here is the high dignity of man, his solemn responsibility; the duty is laid upon him of showing forth to his fellow-men and to his lower fellow-creatures, the love and mercy, the truth and justice, the wisdom and patience of Almighty God, the God Whose image he was created to bear, and to make manifest.

Here lies his right to dominion over nature; not in his own essential worth, but in the fact that he is God's chosen representative. Independent power and authority he has none; as the son of God, made in His image and likeness, deriving all

his life and power and authority from Him, God "hath put all things under His feet."

Here has arisen the conflict between Religion and Irreligion—there is none between Religion and Science. "Religion" means "the binding of man to God"; a binding which, if he is to manifest God's image, and to rule as God's representative, is essential. Irreligion means the dissolution, the denial, or at least the neglect of this relation. Hence there are many who are ready to admit in words that there is a "Great First Cause," but in practice they ignore Him; He is to them merely "a negligible factor."

The brute beasts know not God, and cannot hold intercourse and communion with Him; they follow their natural propensities and passions, for they are not capable of anything higher.

But if man, by creation the son of God, made in the image of God and to manifest His likeness, holds himself separate from and independent of God, the beauty and perfection of created nature is destroyed, and man, the highest of created things, becomes most out of harmony with the purpose of his being.

Every man, indeed, perceives in his neighbour and must recognise in himself, that the image of God which he presents is, at best, blurred, broken, imperfect and defaced; but if, instead of striving after the Divine likeness, he is content to manifest only the likeness of the beast, whether it be in the indulgence of its passions, or in its ignorance of God, then there is seen in him, not only sin against God, but sin against his own essential Manhood. For Manhood consists in this, that Man show forth God's image and make manifest His likeness.

Discussion.

The Chairman expressed his special satisfaction in presiding on that occasion as it was the first opportunity he had had of welcoming Mr. Maunder as their Secretary. He thought that in the paper that had just been read, Mr. Maunder had handled a very difficult subject on the lines which the Victoria Institute had laid down for itself in dealing with such questions. The object of the Institute was the frank and full discussion of questions in relation to religion and science, but in a reverent spirit. They did not ask all to conform to strict orthodoxy; they did not ask that everyone should

think exactly alike, but they did ask that all should discuss the important problems, which were always springing up, in the same spirit of reverent desire to arrive at the truth.

He was bound to say, that after a very long experience, having heard this first chapter of Genesis fought over ever since he was a small boy, he knew of no better answer to the questions on both sides than the paper to which they had just listened. Their first duty was to take the words of the chapter as they found them and not the words as they might wish to make them.

Mr. M. L. ROUSE had listened with delight to this admirable paper, with its concise logic and rhythmical and harmonious language, and had been struck by several thoughts contained in it, which appeared to be wholly new.

The theory to which the author inclined, that the six days of creation were six nights of vision, in each of which a distinct operation of God was revealed, appeared consistent with the fact that each day seemed to be limited by "an evening" and "a morning." Yet it would have been difficult to have phrased the sentence otherwise, if it had been intended to express a full day of 24 hours, and he thought "evening" and "morning" might have been used, rather than "night" and "day," simply to avoid the ambiguity between the two meanings of the word "day," which might signify either the period of daylight, or the whole 24 hours. The older nations such as the Arabs and the Phœnicians put the evening before the morning, beginning their day at sunset, but that ordinary days of 24 hours were here meant appeared probable from the fact that the seventh day was of this kind, being one that Adam enjoyed in communion with his Creator, while the Ten Commandments put the six days in the same class as the seventh.

He was a believer in the theory marked (*b*) on page 132 of the paper. In Hebrew where the verb "to be" would simply be the copula, it was usually omitted, but it was expressed where it meant "became," or "came to be," as in verse 3. Now the word "was" was expressed in the first clause of verse 2, but not in the second, so it might be inferred that the first clause meant that the earth had become "waste" (*tohu*), "and void," in harmony with Isaiah xlv, 18, —"I created not the world a waste (*tohu*) I made it to be inhabited." Geology taught that, just before the appearance of man, the earth had passed through the cataclysm that brought on the glacial epoch.

Lest anyone should declare that the second chapter of Genesis gave an account of creation conflicting with that found in the first, he would point out that in this case the account in the second chapter would be a very strange one, for neither fishes nor creeping things were mentioned as created at all. Genesis ii, 4,—iv, 26, was one of ten sections into which, after the Divine preface, the whole book was divided, each of the ten beginning with the phrase "These are the generations," and each starting with the summary of the chief subject treated of in the preceding section.

Mr. Maunder had said that there was no difference in signification between "God created" and "God made." He thought that there was. *Bara*, rendered "created" each time that it occurred in the chapter, was the only word that the Hebrew had for created, whereas *asah*, rendered "made," usually signified manufactured out of existing tangible material, so if the light-holders (verse 14) were said to have been "made," whereas man was said to have been "created," the meaning might simply be that after a longer obscuration the light-holders then again became visible.

The DEAN OF CANTERBURY said that he had read Mr. Maunder's paper with very great interest, and joined in offering hearty thanks to him for it. It was one, however, which he thought they could not adequately judge upon a first hearing. It gave a great deal of material for thought, and he should not like to express an opinion about all its suggestions without much more consideration than had yet been possible. He was particularly grateful to Mr. Maunder for the emphasis he had laid on the fact that this chapter was really more a revelation of God, and of God's relation to man, than an historical or scientific account of the creation of the world. He also dwelt on another point of profound importance: that it was a chapter which could not have been derived from any mere human source. It could not have been derived from experience, or even by inference. The scientific facts which pointed to that gradual development of the earth which it described were not known to man at the time. To his mind, despite all the difficulties which surrounded it, this first chapter of Genesis afforded conclusive proof of direct Divine revelation. They had listened to a discussion on the words "evening" and "morning," and "created" and "made." He remembered, however, a remark once made to him when some small point was being raised respecting a newspaper article. A great

master of public writing said to him, "Never mind that; you have to do scene painting." He did not think it was sufficiently realized that whoever wrote this account of creation in 25 verses had to do scene painting. It was impossible to be minutely complete and accurate on every particular point. In scene painting a general effect was produced; and he took it that that was what had been done here. He had sometimes been bold enough to ask himself whether if some great master of science were put into a room with a sheet of paper, and told to produce a general account of the creation of the world within the limits of that sheet of paper, he would produce anything very different from that first chapter of Genesis. That was not a mere suggestion of his own, for a great master of science in his day, Sir William Dawson, definitely stated in one of his books that he did not think a more effectively true account of the development of the earth could have been written, in the same space, than that contained in the first chapter of Genesis. Whether Sir William Dawson was absolutely right in that statement or not, to his mind the amazing thing was that such an observation should be possible with any approach to truth about a chapter of a book written many thousands of years ago. In connection with that, he should like to say one other word. It had been the fashion for some time to talk of these accounts of creation as having come from Babylon. For what reason? Merely because there was some distant resemblance in them to things contained in the Babylonian tablets. That did not prove that the Babylonian records were prior to these. It was equally possible, and more probable, that this was the original revelation, and that the other accounts were corrupted from it. There was another thing about this chapter, and the second chapter also, which ought to take us far above the vulgar dispute between religion and science; namely, that it undoubtedly contained, apart from theological questions, the most profound revelation of man's position on earth, and of man's nature and relation to God. It was a very striking thing that the germinal idea of Bacon's philosophy was derived from this chapter, namely, that the function of man was to have dominion over nature, so that it might to a certain extent be regarded as the original starting point of the great ideas of modern science. One read a great many philosophies, at least one did when one was young, but in all philosophy, so far as he was acquainted with it, he never heard

it said that the business of man was to increase and multiply, and to replenish the earth and subdue it. That was the revelation of the function of man upon earth made in this chapter, and nowhere else; and he was proud to think there was one nation in the world which had to a great extent lived up to it, and that was the Anglo-Saxon race. It was because the Anglo-Saxon race had been increasing and multiplying and replenishing the earth and subduing it, that it had obtained the predominance it enjoyed. He only hoped it would go on fulfilling that commandment in all respects. He was bold enough to make another suggestion about the second chapter of Genesis. There was a passage which very much puzzled a good many people. It said Adam was entrusted with the naming of the creatures. It seemed to some people a curious function to be assigned to Adam, and they were puzzled to know how he carried it out. He ventured to suggest that that description of Adam naming the creatures was an Oriental suggestion of the function of man as a scientific creature. The function of all science might to a large extent be described as that of naming things which involved distinguishing, and classifying them. He ventured to think that we were very prosaic people, in comparison with those who wrote these books. He would suggest they were both poetry and history—history couched in an Oriental, semi-allegorical style, which it was very difficult for us to comprehend. He was sure that many of our difficulties in the Bible, and even in the New Testament, came from our taking in the cold blood of modern prose expressions spoken, and meant to be understood, with the large meaning conveyed in this Oriental language. At all events, apart from all the details, the marvel of it was that we should have in our hands a chapter which dated back beyond the dawn of literature, yet which nevertheless contained the great central truths of man's nature and of his relation to God and to the world. Looking at it from that point of view, it affords conclusive testimony, at the very outset of the Holy Scriptures, that they came from the hand of God.

Mr. W. Woods Smyth considered that Mr. Maunder had treated his subject in a new and original way. And his opening words rang out clearly the foundation truth, namely, that "there are only two possible sources for the chapter, God, Himself, the Creator, who knew the mode and order of creation, or man, who did not know, but imagined it."

But the English version, which Mr. Maunder had generally followed, as much misrepresented, as represented, what God had written for our learning. There was much truth in the contention of the Jews that the Hebrew Bible was the only inspired Word of God.

Mr. Maunder spoke of a Divine fiat on each day—not so the Hebrew. The imperative was never used. Again, the word "create" in Hebrew was used about eighteen times outside the chapter, but never to denote a special Divine act, always to indicate the production of things by a natural process. The one apparent exception, Numbers xvi, 30, really supported this rule. The Targum found in this Hebrew word the idea of selection.

The continuity which the English version led Mr. Maunder to believe to be absent from the chapter, on the contrary, was everywhere present. The so-called tenses of the Hebrew verbs were almost entirely in the imperfect, and signify, according to Gesenius, "the incoming," "the continuous," and according to the late Canon Driver, "the progressive continuance or development of the past," or to Ewald, "the relatively progressive." Even the perfect tense indicated "that which has been in the past, and is still going on," while the expression "the generations of the heaven and the earth in their being created" signified organic succession and completed the proof of continuity. The first chapter of Genesis was, therefore, as even Professor Haeckel perceived, an evolutionary document. The intellectual Fathers of the Church saw this fact from the Greek version, and St. Augustine said, "the animals were created by a process of growth, from imperfect to perfect forms, which the after time brought forth." The tenses for each day's production are also in the Hebrew causative voice, Hiphil, thus recognising all that modern science tells us of the influence of environment.

In relationship to the so-called creation of light, Mr. Maunder says, "therefore the creation of light involves the creation of energy . . . that, therefore, which is hinted at here, is the creation both of matter and energy," etc. Even the English Bible showed this to be a mistake. The first verse of the chapter spoke of "the heaven and the earth," that is the universe. The second came down to the earth itself, and said, "the earth" (not the earth and the heaven) was *tohu va bohu*, "waste and empty" "and darkness was on the face of the deep," that is on the ocean deep—literally

the *raging deep*—and at that era it was so. "And the spirit of God brooded on the face of the waters. And God said, let there be light." Where? In some place in the universe? No. The subject was not now the heaven and the earth, but the earth only. The light, therefore, was shown where the darkness had been, namely on the face of the deep. Before the solidity of earth permitted of land standing out of the waters, the water covered the whole earth to the depth of about two miles. The translation "in the beginning" was misleading; there was no article in the Hebrew here, although very plentifully used in this chapter. It was not, therefore, the beginning of all things, as of energy and matter, etc., that was intended, but a beginning relating mainly to this poor one-mooned world.

When we considered the facts that the time ratios of Genesis and of our leading geologists agreed; that the order and distribution of life, beginning first in the waters, also agreed with those stated by Sir Archibald Geikie; that the day divisions in Genesis agreed with the divisions of Professor Haeckel; that the days were called æons in the Epistle to the Hebrews, and were so understood by all the Greek fathers; then we dared not doubt the reality of Divine revelation and the truth of the Bible.

Dr. A. T. SCHOFIELD thought the beauty of Mr. Maunder's paper consisted in what it contained, and that a good deal of its wisdom consisted in what was left out. He thought Mr. Maunder's remark that the words "Let there be light" implied the creation of energy might be open to question, but he would ask whether it was quite certain that the words "Let there be light" necessarily implied the original creation of light in the universe. He would like to allude to Dean Wace's wonderful words about the breadth and scope of the magnificent painting in this chapter; he ventured to suggest that, being painted by the Divine Artist, its accuracy in respect to the minutest word used was as conspicuous as the majestic breadth of the painting. Now one speaker had already pointed out that the word "was" occurred twice in the second verse but was only expressed once. "Darkness upon the face of the deep"; the "was" not expressed; but "the earth was without form and void," the word "was" expressed; the Hebrew usage suggesting that the first statement simply expressed that the darkness was there, and the second that the earth had become without form and void

from its previous condition. If we further bear in mind that these last words never occurred in Scripture except in connection with sin and some judgment of God, we might perhaps get a fuller light upon that second verse. Then on page 133, Mr. Maunder said that each working day was bounded by the evening and the morning; it would be well to bear in mind the fact that on the seventh day, when God rested, there is no mention either of evening or of morning.

The CHAIRMAN pointed out that unfortunately very few of them there were accurate Hebrew scholars, and he was convinced that no one but an actual Hebraist ought to discuss the minute verbal details of this chapter. The marvel was that books of such infinite difficulty for minute analysis conveyed such a splendid and distinct impression on the average man; it was one of the evidences of the Divine truth of the Holy Scriptures.

Professor H. LANGHORNE ORCHARD was sure that the very hearty thanks of that large meeting would be given to the author of the paper to which they had been listening,—a paper which, for originality and vigour of thought, linked with vivacity of style and diction, took rank among the best of the many valuable contributions in religion, philosophy, and science, with which their Society had been favoured.

The paper was adorned by many gems of truth. Genesis i is a revelation of God by Himself,—"God is the only source of light concerning himself" (page 126). The creation work on any one of the six days "was good and complete in itself" but "contained no germ or potentiality" of the work of a future day (page 130); before the work comes the fiat; man is made in the image, and after the likeness, of God (page 141).

But though we concur with the author that the primary object of this revelation is religious and designed to teach men the seven great truths he brings forward on page 127, yet it may be pointed out that this is not a complete account of the matter. Genesis i contains also other truths. God has been pleased to put the spiritual jewel in an historical and scientific setting—a setting which, since He is the God of Truth, must (if the revelation be from Him) itself be true. The Divine Author of the chapter tells men several science-truths, unknown to science when the chapter was written and for centuries afterwards, *e.g.*, the firmament in which the sun

and the moon are placed, is not a solid vault but is an "expanse" similar to that in which birds fly; grass (or sproutage) and herb yielding seed after his kind, etc., were earlier than the great whales (or sea monsters), which in their turn preceded cattle, succeeded by man. The fact that these and all other science statements are in complete accord with modern science goes to attest the Divine Authorship of the narrative.

The Rev. JAMES THOMAS expressed the earnest hope that the Council of the Victoria Institute would arrange for the special publication in separate form of this most important paper.

The LECTURER thanked the Meeting for the great attention with which they had listened to him, and for the very kind reception they had given him. He would not attempt, at that late hour, to reply to the different criticisms that had been offered on his paper; except to point out to Mr. Rouse, who had represented him as saying that there was no difference between "God created" and "God made," that he had really said that he would not debate the difference; not quite the same thing. And to Dr. Woods Smyth he would reply that, however the words of the chapter were translated, it yet remained clear, that when God said "Let this, or that be," something happened which would not have happened if that word had not been spoken.

The Meeting adjourned at 6.15 p.m.

SUBSEQUENT COMMUNICATIONS.

Mr. J. SCHWARTZ, Junr.: I agree with the two fundamental propositions of our lecturer, but I fear that he will consider me quite unqualified to discuss this subject to any profit, as I cannot accept absolutely the third proposition that God is Himself the Author of this chapter.

There is no more evidence of this assertion than for the similar claims of priests and the like all the world over for their own traditions. The vast majority of men of liberal education, including a number of the clergy, accept to-day his alternative that it was written by men who did not know but imagined it. I admit that it seems self-evident both that the universe does exist, and that it had a beginning, and that we desire to know how it began. Our author has put exceedingly well the relativity and limitations of our knowledge, from which it follows that such wish is never likely to be

realised, as we can never hope to get final explanations, or ultimate knowledge.

Much of the Bible that is taken literally by the orthodox appears to many of us to be meant figuratively, but this story of the Creation, which from the richness of the details clearly refers to the manufacture of the Universe, including our World, and all therein in six literal days, is taken figuratively. Geology, anthropology, and astronomy have demonstrated that this literal account is quite inconsistent with the established truths of evolution. It would be a strange form of revelation that caused Christians for seventeen centuries to accept this plain tale of Creation about 6,000 years ago, and to resist the growth of natural knowledge which has ultimately disproved it and established modern civilization. This new knowledge is being spread broadcast, and our author, by linking these obsolete traditions with the ethical inspiration of the Bible, is ensuring the rejection of both, or, as the German proverb puts it, is "throwing away the baby with the bath."

The Rev. J. IVERACH MUNRO, M.A.: The value of this paper, showing as it does the impossibility of true Science coming into collision with the religious aspect of the universe revealed in Genesis, chapter i, is very great. The aspect pertaining to Physical Science must be left to men of Science, but with regard to Biblical Science, and in connection with the sublime reticence of the narrative, and the lofty conception of God, as alone the Author of all, attention may be drawn to a single point, viz., there is room in the narrative for the creation and rebellion of angels prior to the creation of mankind, and for their destructive influence.

Contrary to the usual opinion, the Hebrew narrative actually appears to go out of its way to make room for this doctrine, which, developed in the Old Testament, culminates in the teaching of our Lord and His Apostles in the New.

In the second verse the usual Hebrew construction to express continuous development would have been, as all Hebraists are aware, the imperfect with vav conversive, *i.e.*, וַתְּהִי הָאָרֶץ *wat-t^{e}hî hā-'ā-rets*, which would be correctly translated "and the earth was," etc. The fact, however, is that the narrative goes out of the usual order to say וְהָאָרֶץ הָיְתָה *w^{e}hā-'ā-rets hā-y^{e}thāh*, the vav being separated from its verb, the usual way in Hebrew of expressing the pluperfect. The earth was not created a waste and a void, it had

become so. Translate "now' (*cf.* Genesis iii, 1), "the earth had become," etc.

When we turn to the third chapter of Genesis, verse 1, we find the same peculiarity in the narrative. The "Serpent," used as the embodiment of the power of evil, is spoken of thus: וְהַנָּחָשׁ הָיָה *W^ehan-nā-hāsh hā-yāh.* "Now the Serpent had become," etc., not *was* as in our translation. Hence the hypothesis (*b*), mentioned by Mr. Maunder on page 132, has a distinct basis in the Hebrew, and is consonant with the development of the teaching of both the Old Testament and the New concerning "principalities and powers, the rulers of the darkness of this world, and spiritual wickedness in high places," which wrought desolation in this created order of things, and tempted man to his destruction, but have now been conquered by the God-Man Who is to be manifested in all them that believe.

Dr. HEYWOOD SMITH, M.A., M.D.: I accept all three of Mr. Maunder's propositions wherewith he opens his paper.

I believe there is nothing in the Bible contrary to Science when we read them both aright, for they both have the same Author. Take, *e.g.*, the circular theory of storms, a discovery of comparatively recent origin,—it is clearly set forth in Ecclesiastes i, 6,—or Job xxvi, 7, "He hangeth the earth upon nothing."

Starting on these premises, I hold that Genesis i, 1, stands unique, as a comprehensive statement of fact: that then millions of ages rolled by, giving time for the deposits of coal and other strata, the crystallization of gems, possibly by electricity, etc., and then (verse 2) for some cause (hidden from us) the earth *became* "anyhow and nohow," a water-covered dark sphere, and it needed the "brooding over" of the Holy Spirit to usher in what we may call the second stage of creation. Then God said "Let light be, and light was." Remark that light was not created: light is the result of energy, possibly electrical (see Ezekiel i, describing the electrical (amber) manifestations round the throne)—or the sun, being its source, yet hidden by the dense mist rising from the hot water-covered earth, gave a sort of day and night to the already rotating earth.

And here I may state that I see no reason, if we are to believe in an Omnipotent Creator, why this fitting of the earth for the pre-Adamic race should not have been accomplished in *six days* as we have them now.

On the fourth day the power of the sun was allowed to pierce and dissipate the mists, and the sun and moon were established as a means whereby man should be able to mark time.

Verse 27. When man was created God made them "male and female" and said "*re*plenish" the earth—as if it had been peopled before.

Then after ii, 3, there was apparently another great cataclysm. Probably here Satan, who had been appointed ruler of the earth, lifted up because of all his splendour (Ezekiel xxviii, 11–19), rebelled against God Who had given dominion to a new order of beings. Satan was overthrown, the angels that had sided with him became his ministrant demons in his crusade against mankind until he is for ever put under the all-conquering feet of the Son of Man.

This cataclysm might have been brought about by a slight "wobble" or tilting of the earth's axis of rotation, whereby the glacial area was brought low enough to destroy most of the inhabitants except those on the equatorial belt.

Then we have an account (ii, 4–25) of a *forming*, not *creating*, a "moulding" out of red earth by God of a man He called Adam, as if He would try again to establish a race that, with the gift of free will, would yet do His will.

Note the order of the development of things in this chapter is the reverse of that in the "Creation" chapter—in a district, already called Eden, God planted a garden, and gave it to Adam as a restricted dwelling place: its rivers are spoken of as already named. Then after some appreciable time, after animals had been formed, a female was granted to man as a helpmeet. Satan then immediately set to work to try and mar this special work of God, man whom He had formed for His glory.

> "Lo these are but the outskirts of His ways
> And how little a portion is heard of Him."
>
> Job xxvi, 14.

Lieut.-Col. M. A. ALVES, R.E: It was shown some years ago, by the late Mr. George Pember, that the interpretation of Genesis i had suffered much from Gnostic influence. In the face of verse 1, the eternity of matter in a state of chaos could not be maintained; but verse 2 was interpreted as meaning that its original creation was chaotic. As Mr. Rouse has pointed out, Isaiah xlv, 18, refutes this

view. In that case, verses 3 to end of chapter must refer in their leading interpretation to restoration and not to original creation.

It may, however, be the case that the six days' work contains also a revelation of the chief order of events in the original creation, before the catastrophe of verse 2 happened, and that only those events common to both—prior to the creation of man—are mentioned. There may also have been a pre-Adamic race of men, whose wickedness caused the catastrophe, and whose disembodied spirits are the demons, as distinguished from the devil's angels.

I incline to the view that the days of Genesis i are short days, unless—what is not mentioned in the chapter—the higher grade plants were brought into existence on the fifth day when there was insect life to fertilize them.

As to the mystic meaning attached to the Hebrew tenses, I have heard the same sort of thing with reference to other languages; and I may say that I do not believe a word of it. The Bible was not a message confined to the learned few who alone could understand it.

Regarding the fifth—sixth day creation, did I not know how "the world is given to lying," I should wonder why the nineteenth century revisers kept out of the text the "living souls" of the lower animals, in verses 20, 21, 24, and 30, and also in ii, 19, though they are in the text of the Hebrew, Greek, and Latin.

Referring to the Dean of Canterbury's remark on verse 28—"Be fruitful and multiply, and replenish the earth and subdue it," I would observe that those alone have a right to the privilege of the former part, who observe the duties of the second. "What therefore God hath joined together, let not man put asunder" (Matthew xix, 6). The God of nature does not encourage the survival of the unfittest.

The Rev. A. IRVING, D.Sc., B.A.: So far as I have been able to study this paper, I do not see that the author has done much for the further elucidation of such a difficult subject, even if he does not "set back the hands of the clock." He seems to me to be not entirely emancipated from that "slavish literalism" which Sir Gabriel Stokes used to deprecate strongly at the Victoria Institute. This comes out, I think, in his excessive reliance upon the Authorised Version. I would specially notice the fallacy of reasoning from the statement "God rested" on the seventh day.

It is surely inconceivable that "Creative and Directive Power" (Kelvin) should cease acting, or should "faint and be weary." It smacks too much of the "carpenter" notion of creation; and the late Professor Driver long ago assured us that the sense of the Hebrew is not "rested" but *desisted*, as I have pointed out elsewhere. "God said," "God saw," cannot be taken literally as implying use of lingual or optical organs, in a Being without body, parts, or passions; and I feel much more confidence in the phrase I have used for some years past in my papers in the *Trans. Victoria Institute*, in my correspondence in the *Guardian*, in my British Association Sermons, and elsewhere. The tense of the verb in the original is the imperfect, and denotes fact or action in progress ("was saying," "was seeing"). In all and through all it was surely nought else than "Creative Will and Thought realising Itself in matter and life and form," to make up the totality of the Cosmos. Hebraists of the first rank tell us that "God was saying" implies no actual use of speech, but is a *façon de parler* to denote the absence of effort on the part of the Creator.

The author seems to me to narrow the idea of inspiration too much. The quest we should be pursuing is, as to how the inspiration (which we all recognise in the chapter) wrought itself into the human mind. He inclines to the view of "visions of the night" (favoured by "an evening and a morning"); but let us not forget that He Who, presumably, gave the visions is also the Author of the human mind—the instrument of transmission of the thoughts—under the special illumination of the Spirit, which seems so strangely to be lost sight of. The author looks apparently with scant favour on "Evolution" (even after the able papers of Professor Sims-Woodhead and Professor Henslow); but he cannot get away from it, for the idea of evolution, coupled with directivity—in other words, "Creative Evolution" (Bergson)—bristles out in the essay from beginning to end.

The author looks at the question, on the scientific side, from the point of view chiefly of the astronomer, who perforce thinks mainly in quantitative terms of thought. I have approached it along lines of study and research, mainly on geological and biological lines, with the theological idea always present in the mental background. Our two perspectives, therefore, cannot be quite the same, though they must overlap; but I am glad to find that he, as

astronomer, has so little to offer by way of hostile criticism. I am afraid I cannot accept his ruling-out of the nebulæ from consideration; I had rather hoped that he would have had something to say upon my query as to whether they are luminous or illuminated.

There is so much in the paper with which I thoroughly agree and, indeed, have to a large extent anticipated, that I can, as a student of theology, thank the author for it as a most valuable contribution to an important chapter of Natural Theology, in which I still stand for the "dual revelation" through the Spirit of God working (*a*) directly upon the human spirit; (*b*) in the minds of capable men, as interpreters of His works. ("There is a book who runs may read.") Rightly looked at, the whole of phenomenal Nature may be regarded as a continuous "parable in action," teaching the contemplative mind something of "the everlasting power and divinity" of the Godhead, as Saul of Tarsus has taught us, and psalmist and prophet before him.

Sir R. ANDERSON, K.C.B.: If my having written upon the first chapter of Genesis entitles me to a hearing, I should like to express my keen and cordial appreciation of Mr. Maunder's Paper, and my earnest hope that it will obtain a far wider circulation than our annual volume can give it. My purpose is not to criticise it, but merely to offer a few words that may possibly increase interest in its subject.

The order of Creation, as recorded in Genesis, has been "so affirmed in our time by natural science that it may be taken as a demonstrated conclusion and established fact." This was Mr. Gladstone's thesis in his *Dawn of Creation and Worship*. This was challenged by Professor Huxley on the ground that the testimony of the rocks was conclusive that reptiles existed before birds, whereas, according to Genesis (he argued), birds were created on the fifth day and "creeping things" on the sixth day—"creeping things" being defined by Scripture itself to include lizards (Leviticus xi). "The merest Sunday-school exegesis," therefore, he contemptuously remarked, refuted Mr. Gladstone's contention. I had the privilege and honour of calling Mr. Gladstone's attention to the fact that the Hebrew word rendered "creeping things" in Leviticus xi, 29, 31, was wholly different from that so translated in Genesis i, 24, 26, and that the Leviticus word, *sheretz*, is the word

translated "moving creature" in Genesis i, 20, which records the first appearance of animal life on our planet. Huxley was thus "hoist with his own petard"! Instead of trampling on his challenger, Mr. Gladstone's "old world courtesy" led him to suggest a reference to some authority that both could recognise. Mr. Huxley expressed his readiness to appeal to "his eminent friend, Professor Dana"; and Professor Dana's decision was: "I agree in all essential points with Mr. Gladstone, and believe that the first chapter of Genesis and science are in accord."

But the matter did not rest there. This was in 1886, and in December, 1891, I brought up the question again in a letter to *The Times*, and put Mr. Huxley on his defence. He tried to shirk the question, but the late Duke of Argyll intervened to hold him to it; and after a correspondence, to which each of us contributed several letters, Huxley retired discomfited and left the field to his opponents.

I need not emphasise the bearing of all this on Mr. Maunder's paper. The tournament between Gladstone and Huxley in the *Nineteenth Century* appealed to the scientists of the world; and as the result, Gladstone's thesis stands: It is "a demonstrated conclusion and established fact" that Genesis and science are in accord. And the fact is wholly unaffected by the refusal of the so-called "Higher Criticism" to accept it. For with the dull tenacity of unreasoning unbelief, the "critics" ignore everything that conflicts with their "assured results."

The following sentence from one of Mr. Gladstone's letters to me in the first of Genesis controversy is worth reproducing here: "As to the chapter itself, I do not regard it merely as a defensible point in a circle of fortifications, but as a great foundation of the entire fabric of the Holy Scriptures."

The Rev. JOHN TUCKWELL, M.R.A.S.: I much regret my inability to be present at the reading of this excellent paper. I should like to have expressed more adequately my high appreciation of it than I can do in writing. The facts so frankly recognised are of great importance and as the facts of revelation rightly understood can never be contrary to the facts of nature rightly understood, there can be no contradiction of the one by the other. In the following Table I have expressed very briefly the results of many years' study of this wonderful chapter:—

"In the beginning God created the heaven and the earth"—an assertion of the universal Creatorship of the Almighty Elohim. The verse is disconnected from the next by the fact that the two Hebrew verbs in the two verses are in the same tense.

I. (*a*) "And the earth was without form and void." The word "was" is the Hebrew substantive verb and is so treated in the LXX, where it is translated by the verb εἰμί, "to be," and not by γίνομαι, "to become."

The Hebrew word for "without form" is *tohu*, translated by the LXX ἀόρατος, "invisible." It is here an adjective qualifying "earth." In Isaiah xlv, 18 and 19, it is an adverb and is therefore translated "in vain"—The phrase fittingly describes the Gaseous or Nebulous Period.

(*b*) "And darkness was upon the face of the deep." The Hebrew word for "deep" is *tehōm*. Lord Kelvin, in Vol. xxxi of the *Transactions*, tells us "that the material of our present solid earth all round its surface was at one time a white hot liquid." Above such a mass of molten minerals there would be many other minerals still in a vaporous condition. This was the Igneous Period of our world's history.

(*c*) "And the Spirit of God moved upon the face of the waters." The Hebrew word for "waters" is *mayim*, indicating a different condition from that described by *tehōm*. This would describe the Aqueous Period.

(*d*) "And God said, Let there be light." A different form of the Hebrew word from that used in verse 14 for "lights."

II. "And God said, Let there be a firmament" (or expanse). A condensation of aqueous vapours creating a separation between clouds and seas. This would be a continuation of the Aqueous Period.

III. (*a*) "And God said, Let the dry land appear." The first formation of continental lands—the Huronian and Laurentian Continents.

(*b*) "And God said . . . Let the earth bring forth grass." In the Hebrew a general term for sprouting things. Two kinds are then named herbs and trees.

The Palæozoic Period, the age of gigantic plants: i. Cryptogams and ii. Phanerogams. The period during which most of our coal was formed.

IV. "Let there be lights" (not "light" as in verse 3). Astronomical changes producing no observable geological effects but overlapping III and V.

V. "And God created the great [sea] monsters . . . . and every winged fowl" (or creature). Hebrew *tanninim*, meaning long creatures —Mesozoic Period. Huge aquatic and terrestrial saurians and great flying reptiles. Also first appearance of true birds.

VI. (*a*) "And God made the beast of the earth"—Kainozoic Period. Period of mastodon, mammoth, and other gigantic mammals and man.

(*b*) "And God said, Let us make man"—Kainozoic Period also. God's last creative act.

VII. "And God . . . . rested on the seventh day." In what is known as "Recent" Geological Deposits, no evidence of any new creation is found.

Thus it seems to me that the chapter contains a true history of the creation of our world from its primeval condition to that which fitted it for the abode of man.

Of course it does not tell us everything, but selects some great creative act or acts distinctive of each Period, and then after the creation of man no new creature appears.

Rev. Chancellor LIAS: As a very old member of the Institute I cannot withhold a word of very high commendation from this excellent paper. The truth is, as the writer contends, there can be no collision whatever between the first chapter of Genesis and scientific research. The former deals simply with the original cause; the latter deals simply with effects and their secondary causes. Even a tyro in Hebrew knows that the "days" in Genesis i are not necessarily in chronological order, and people altogether unacquainted with Hebrew can infer from Genesis ii, 4, that the word "day," with the Hebrew historian, may mean a period of time of indefinite duration. Observe, I do not *deny* that the account of creation is in chronological order, and I only say that the word "day" *may* be an indefinite period of time. We have had, I think, too much dogmatism on points such as these. Mr. Maunder, in his enunciation of the "seven great truths" contained in Genesis i, takes care to avoid it (page 127). All I desire to contend for is that we have no right to read into the narrative of the creation anything that is not plainly and distinctly stated there.

The inferences we may choose to draw from the language are not in the same plane with the language itself.

I am much struck by the writer's caution displayed in page 123. Most of us are inclined to say that space is infinite because we are unable to conceive of it otherwise. True scientific principles forbid us to dogmatise on points into which we are unable to investigate. We ought to be thankful to him for reminding us that "science has no finality." It would be well if this principle were borne in mind in *all* branches of scientific investigation. We should be saved a good deal of pretentious nonsense about the "final and irrevocable results of modern scientific investigation."

I am inclined to agree with the writer that *all* true science must rest on observation (page 125). With regard to the seventh day rest, I may venture to contend that it implies the continuance of the earth in the condition in which it was when man was placed upon it. There have been since that time none of the organic changes which the history of the earth's crust displays before man's appearance on it.

I should be inclined to put another interpretation on the "evening and the morning" (page 133). But as the writer simply states his own impressions, controversy would be out of place.

I may conclude with the remark that I read Mr. F. H. Capron's *Conflict of Truth* some years ago with great satisfaction. It is an attempt to show that Genesis i does not conflict, on any point, with Mr. Herbert Spencer's *Synthetic Philosophy*. I am glad to find that the work has gone through several editions. It would be quite as easy to show that Genesis i was reconcilable with any other genuinely scientific treatise which may in the future supersede Mr. Spencer's. And for this reason: that Genesis i cannot conflict with any scientific conclusions, since it deals with matters anterior to, and beyond, all scientific conclusions whatsoever. I may add that Mr. Capron has recently published a new work called the *Anatomy of Science*. If it is as good as his former work it will be well worth reading.

Mr. JOSEPH GRAHAM: If we agree to the statement that "the creation of light, that is of matter and energy, involves the creation of Time; for Time enters in as an essential element of light," it seems to me the hint of verse 2, alluded to on the same page, becomes of more importance than the lecturer implies. "In the

beginning God created the heaven and the earth." If this is an inclusive statement, then the initial act of creation was light—the first manifestation of the Creator's power was light. If there were no matter upon which light could act, then the creative word should have been, "Let there be light and substance." It seems to me, therefore, that what is hinted at in verse 2 is clearly the existence of what light was created to act upon: "The earth was without form and void." This idea is in no way opposed to Mr. Maunder's exposition of the six acts of creative power, by which the order and development of the universe were, so to speak, regulated; in his own words, "the bringing into operation of the essential powers and principles which should lead to [their final] manifestations in the fulness of time." But the point I want to emphasise is this, that God is eternal, and though, as we have been shown, creation (in one phase) and time exist together, because God is eternal there must be an eternal aspect of His Almighty power. This, I think, we find in the first verse, "In the beginning God created." It does not contradict the idea hinted at by the lecturer of six further creative acts, by which the Creator predetermined to reveal Himself to His creature man. Given the relationship between matter and energy, it seems to me that the act done on the first day implies that matter was created in the mass, so to speak, and that energy and the other developments are the revelation of the Divine plan to make of the earth, until then without form and void, a habitation for that creature whom God made that he might be the recipient of the manifestation of Divine love. Take an example that perhaps comes nearest to the grasp of the untutored human mind, the mist that God caused so that the plants and herbs of the field should grow while as yet there was no man to till the ground. The key to the whole matter, it seems to me, lies in the purpose for which man was created. Not only this earth, on which man dwells, but the firmament and the other worlds, insomuch as they contribute influences to man's welfare, were created by God, that He might be revealed. As the lecturer suggests, each stage of the creation brings its effect to bear upon this ultimate result. With regard to man, we might apply the quotation from the cxxxix Psalm here also. For the only begotten Son of God, Who by His Incarnation came for ever into the limitations of creaturehood, is Head of creation—Head, if you like, of a continuous process by which the human race is brought the

perfection seen in Jesus Christ, the Man, perfect in His being through His resurrection from the dead.

Mr. T. B. BISHOP: Mr. Maunder's paper appears to me to be one of the most valuable that has ever been laid before the Institute. Certainly as many as fifty modern writers, many of them eminent men, and writing from an Evangelical standpoint, have included in their books some opinions on the Creation Story in the first chapter of Genesis, but Mr. Maunder strikes out an entirely new line of thought, and, what is more, raises the discussion of the question altogether to a higher level. He shows us that the Creation narrative cannot be criticised by Science because it relates to things before Science could possibly begin its work. In view of modern speculations, his testimony to the fact that the Creation narrative is utterly valueless unless it comes direct from God is of the highest importance. I trust that this paper will be published in a permanent form.

One or two remarks I should like to be allowed to make.

On page 131 Mr. Maunder speaks of six creative acts on the six days. Were there not eight creative acts, two on the third day, and two on the sixth day? Each is introduced by the words "God said." If it is held that in the third day's work the plant life could be considered as the result of the appearance of the "dry land," yet we can hardly look on the sixth day's work in the same way. The solemn manner in which the creation of man is introduced separates it entirely from the creation of cattle and other living creatures on the same day.

In speaking of the second day's work on page 138, Mr. Maunder draws attention to the omission of the verdict "It was good." I may mention that the Septuagint version supplies the words omitted, and the verse there reads "God called the firmament Heaven, and God saw that it was good."

According to Mr. Maunder's interpretation of the work of the second day, all the verses before verse 6 refer to the Cosmos and not to our own globe. This was the view of Professor Guyot and Professor Dana, but the late Canon Driver in his *Genesis* says that this view gives an altogether impossible meaning to the words "earth" and "waters" in verse 2, which speaks of the earth as being "without form and void." I am anxious for information as to whether it is not possible to read the second verse as applying to our own earth alone.

On page 134 Mr. Maunder speaks of the chapter as the record of some seer to whom the whole was revealed. But in whatever way the revelation was given, must it not have been given to Adam? The institution of marriage was necessary to man from the beginning; so also was the institution of the Sabbath; and the allusions to reckoning by sevens, as in the cases of Lamech and Noah, and the mention of the Sabbath in the Babylonian inscriptions, are surely proofs of its antiquity.

The paper does not mention what is known as the second narrative of Creation. I believe that if we look upon that as having been written by Adam himself from his own point of view—of course, under Divine guidance—it will clear up many difficulties.

I am not sure that I understand the reference on page 135 to the address of Wisdom in the eighth chapter of Proverbs, but by the use of capital letters the Messianic character of the passage is apparently recognised.

Let me say that if we could clear up all the problems connected with the Creation narrative we should be creating a Scripture difficulty instead of solving one. For it is by *faith* that we are to understand that the worlds were framed by the word of God.

It is very remarkable that this verse comes in the portrait gallery of the Heroes of Faith—the saints of old who endured every kind of trial and suffering as a test of their faith. We are in no danger in these days of being stoned, or sawn asunder, or even of suffering bonds and imprisonment. And yet there is a trial of faith for every young Christian who stands up for the truth of God to-day. And is there any part of Scripture that has been so much attacked as the Creation Story?

Author's Reply.

I fear that Mr. Schwartz has not quite grasped the point that I wished to make in the first section of my paper. I had no intention of asserting that those who thought that the source of the chapter was in "man who did not know, but imagined it," were thereby disqualified from discussing it; but simply that, to be consistent, they must regard all such discussion as meaningless. "This first chapter of Genesis is only valuable if it comes to us from knowledge."

Dr. Irving infers that I have not made up my mind about Evolution. I had quite made up my mind that it would be foreign to my purpose to discuss it here. The chapter before us deals with Creation, and Creation is not a phase of Evolution. I should like to distinguish between two things which seem to me very different, namely, the past physical history of the world, and the account of its being brought into existence. For Scripture distinguishes clearly between two different modes of the Divine action, and we ought to do the same. There is that action which Scripture speaks of as "upholding all things by the word of His power"; or which we express by the "continuity of nature," or "the operation of the law of causality." It is within this field, and this field only, that Science can work, for "if the law of causality is acknowledged to be an assumption which always holds good, then every observation gives us a revelation, which, when correctly appraised and compared with others, teaches us the laws by which God rules the world."* But there is also that other Divine action: "by Him were all things created"; that is, He called them into being.

There should be no difficulty in distinguishing between the two thoughts. For example, let us assume that man has come, by descent, that is to say by successive generation, from a lower animal; say a lemur of Madagascar; his modifications having been brought about by natural and sexual selection, by the struggle for existence, and the force of environment. If this be so, it affords us an example of Evolution, but no instance of Creation; and we must search into the ancestry of the lemur before we reach the Creation of Man. However far we can trace back man's unbroken descent—provided always that there has been no special Divine interposition, no new material, conditions or powers introduced—we are dealing simply with Evolution, and not at all with Creation.

If I read this chapter rightly, we are herein told expressly that the past history of the world has not been a single evolution; but that *eight* times—as Mr. Bishop well points out—the Creator has introduced new powers or new conditions, which did not arise necessarily and continuously out of those previously existing. In other words, it gives us no statement for, or against, the *descent* of man from a lower form, but it tells us expressly that he was not

* *Theory of Observations*, Thiele, page 1.

evolved from a lower form. The distinction is important. The question of man's actual descent is one of scientific evidence; but, if he be so descended, then we know by the revelation of this chapter that that living form which stood to him in the relation of ancestor, had in itself no power or potentiality of ever producing a man, no matter what the influence upon it of selection or environment. That which rendered the evolution of man possible was the creative word of God, "Let us make man." Whether man was, or was not, formed of new material, unrelated by descent to any other form of life, is unessential; that which is essential is, that all that makes him man, and not brute, was by the new creation of God.

But if it be the case that man is descended from the brute, and has become man by creation, what evidence can Science offer us as to the Creation? It can only testify as to the descent.

I do not wish to call in question the parallelism which many (page 132, section *d*) have traced between the succession of events recorded in this chapter, and the history of the earth as Science presents it. But it seems to me, that, if used as an argument for the inspiration of Holy Scripture, it is not free from the charge of circularity. From the scientific point of view there is the further objection that it would appear to stereotype scientific conclusions: in other words, to put an end to scientific development. But there is one thing upon which the man of science will always insist:—that is, his perfect freedom to change any scientific conclusion, however firmly held to-day, if fresh evidence should be forthcoming to-morrow.

There is also a serious religious objection, as Mr. Bishop has very wisely reminded us. A complete scientific demonstration of this chapter would remove it from the sphere of faith, and it is "through faith we understand that the worlds were framed by the word of God." I have heard faith defined as "the assent of the intellect to a demonstrated proposition." This is exactly what faith is not, and if we could make this chapter a demonstrated proposition, Hebrews xi, 3, would be made of no effect. If we have faith in our fellow-man it is not because our intellect assents to some proposition that has been demonstrated concerning him, but because we know, or think we know, his character. So faith in God means that we know Him: that is, we in some measure apprehend His character; not that we agree to some logical proposition respecting Him. I think we are sometimes tempted to forget this.

The interpretation of this chapter, which I have lettered *b*, on page 132, turns on some minute and questionable refinements of Hebrew grammar. But I do not wish to argue that, as a partial interpretation, it may not have some validity.

May I turn back to the seven truths which I believe the chapter was intended to teach us? I am no Hebrew scholar, but before writing my paper, I read carefully and in detail the translations and comments of many of the best Hebrew scholars, and I came to the conclusion that no one of these truths was in the least affected by any permissible variation in the rendering. Hence I followed generally the Authorized Version. I feel assured that these seven truths must appear on the surface of every translation of this chapter that has ever been issued from the Bible House; no matter what the tongue into which they were rendered, or how unskilful the translator. They are truths which are perfectly consistent with Science, but they are not deductions from it, nor do they enter within the range of its possible challenge. And they are fundamental for men: for all men; for us to-day, as in the dawn of the world's history. As the Rev. T. H. Darlow told us in the paper to which I have already referred, "The Word of God in the Bible is not of a nature to be affected by verbal changes such as can be made by time or accident." "In every version the Book retains its power to pierce the thoughts of the heart; it still remains sharper than a two-edged sword; it still divides joint and marrow."

NOTE.—The Rev. J. Iverach Munro points out that the part of the word "*re*-plenish" in Genesis i, 28, which Dr. Heywood Smith emphasises (page 153, line 5), is not represented in the Hebrew. It is the simple verb *male*, "to fill." It may be added that *replere* in Latin, and *replenish* in English, both often carry the meaning of "to fill thoroughly," and not necessarily that of "to fill again."