

## THE COSMOGONY OF GENESIS.

A WELL-WORN theme! we fancy we hear the reader exclaim to himself. True, the subject is one on which it is difficult to say what has not, in one form or another, been said before; nevertheless it is also a subject which ever engages fresh interest, and the editor of the EXPOSITOR is anxious to know what has been said last upon it.<sup>1</sup> Are we any nearer than we were to a reconciliation of Genesis and science? and, if not, what position is the theologian to assume, and in what light is he to view the familiar and impressive narrative with which the Bible opens?

The cosmogony of Genesis occupies the opening section of the important document of the Pentateuch, which, passing rapidly over the patriarchal period, culminates in the detailed description of the theocratic institutions of ancient Israel, the structure of the Tabernacle, the organization of the priesthood, and the sacrificial system.<sup>2</sup> This opening section, it should be understood, does not terminate with the first chapter, but with the third verse of chap. ii. (where in the Revised Version a new paragraph commences)—or perhaps, more strictly, with the word *created* in ver. 4<sup>3</sup>—the first three verses of the second chapter describing the Divine rest of the Seventh Day, and ver. 4 beginning a new account, by another hand, dealing more particularly with the formation of man, and passing on to describe the Fall. The narrative broken off at ii. 4 is

<sup>1</sup> The present article, it may be stated, was completed, and in the printer's hands, before Professor Huxley's reply to Mr. Gladstone in the *Nineteenth Century* for December last had appeared or even been announced. The materials embodied in it were, in fact, collected some time since for an independent purpose. The writer would not willingly interpose between two such combatants.

<sup>2</sup> Exod. xxv.-xxxii., xxxv.-xl.; Lev. i.-xvi., etc.

<sup>3</sup> If the rendering of R.V. be correct, the construction of the verse must have been modified by the final Redactor of the Pentateuch.

resumed in chap. v., where the attentive reader will notice its characteristic phraseology recurring. The question, however, of the precise point at which the section terminates is immaterial for our present purpose, the details of the work of creation being entirely confined to chap. i. We may proceed, therefore, at once without further preface to the consideration of this.

The past history of our earth is known approximately by evidence which cannot be gainsaid—the evidence engraven in the rocks. Those cliffs which tower out of the sea on our southern coasts have revealed to the microscope the secret of their growth: they are composed of the minute shells of marine organisms, deposited at the rate of a few inches a century at the bottom of the ocean, and afterwards, by some great upheaval of the earth's crust, lifted high above the waves. Our coal measures are the remains of mighty forests which, one after another in slow succession, have come and gone in certain parts of the earth's surface, and have stored up the energy, poured forth during long ages from the sun, for our consumption and enjoyment.<sup>1</sup> The huge boulders resting now upon the soil in many parts of this country, the striated rocks eroded by the slow movement of glaciers, bear witness to the long centuries during which this hemisphere was encrusted in a case of ice. Since Pearson wrote,<sup>2</sup> geology has become a science; and the indications which have been noticed, with countless others, show that the earth was not created, substantially as we know it, some 6000 years ago, but that it reached its present state, and received its rich and wondrous adornment of vegetable and animal life, by a gradual process, extending over untold centuries, and embracing unnumbered generations of living forms. More than this, not only do geology

<sup>1</sup> Comp. two striking passages in the *Hulsean Lectures for 1867*, by Prof. Pritchard, pp. 11 ff., 19 ff.

<sup>2</sup> 1659. See end of Art. I. in ed. 5 (1683) "most certainly within not more than six, or, at farthest, seven thousand years" (fol. 68: comp. fol. 62).

and palæontology trace the history of the earth's crust, and determine the succession of living forms which have peopled it, but astronomy, comparing the system of which this globe forms part with other systems, takes a bolder flight, and rises to the conception of a theory explaining, by the aid of known mechanical and physical principles, the formation of the earth itself. Observing the nature of the sun and of the planets, and other countless small bodies revolving round it; perceiving, by the spectroscope and other means, that the elements of which all are composed are similar, and assured by the nebulæ of the existence in the heavens of huge masses of luminous gas; astronomers following Laplace have supposed that the substance of which the solar system is composed existed once as a diffused gaseous mass, which gradually condensed and became a rotating sphere, from which, in succession, the different planets were flung off, while the remainder was more and more concentrated until it became what we call the sun.<sup>1</sup> One of these planets, our earth—we need affirm nothing respecting the others—in course of time, by reduction of temperature, and otherwise, developed the conditions adequate for the support of life. Certainly, both in structure and mechanism, the different parts and movements of the solar system are so inter-related, that it is difficult not to postulate for them some common physical source; and this theory, which has been accepted, at least provisionally, by many as well astronomers as theologians, provides the unity of origin desiderated; and, while it satisfies the scientific instinct, presents at the same time, on a majestic scale, an example of that

<sup>1</sup> For further particulars reference may be made to almost any modern manual of astronomy. Compare Whewell, *Essay on the Plurality of Worlds* (1853), p. 243: "The planets and the stars are the lumps which have flown from the potter's wheel of the Great Worker;—the shred-coils which, in the working, sprang from His mighty lathe;—the sparks which darted from His awful anvil when the solar system lay incandescent thereon;—the curls of vapour which rose from the great cauldron of creation when its elements were separated."

slow development of a pre-arranged plan, which in a well-known passage is signalled by Butler as one of the most striking characteristics of the Divine action.<sup>1</sup>

Passing by some questions, chiefly connected with exegesis, which though not without interest in themselves have no direct bearing on the present issue, let us proceed at once to compare the process by which, according to the narrative in Genesis, the earth was fitted to become the habitation of man, with that which is disclosed by the investigations of science. In the first place, since the fossil remains embedded in the different strata of the earth's surface show, beyond reach of controversy, that the living forms which preceded man upon this globe were distributed in a definite order over periods of vast duration, we must, if we suppose this order to be described in Genesis, inquire whether it is permissible to understand the term *day* in any but its literal sense. *In the representation of the writer* it seems clear that the term denotes a period of twenty-four hours. The passages which have been adduced to establish the contrary are inconclusive. Certainly the term *day* is sometimes used to mark what may be in reality a longer period by concentrating it, as it were, into a vivid point; but this usage is practically confined to the prophetic descriptions of the arrival of a new epoch, designated as the "day of Jehovah" (Isa. ii. 12, etc.), or to the idiomatic expression *the day of . . . = the time of . . .* (Isa. xi. 16; Jer. vii. 22, xi. 4, xvi. 19, xvii. 17, etc.); and in such phrases the "day," used thus metaphorically, is naturally not subdivided into day and night. Psalm xc. 4 (cf. 2 Pet. iii. 8) is not more conclusive. By the expression, "A thousand years in thy sight are but as yesterday," the Psalmist significantly declares that as a measure of the

<sup>1</sup> *Analogy*, Pt. ii. ch. iv. (last paragraph).

Divine eternity, human standards of time are inapplicable; but where, as here, it is the writer's object not to contrast the eternity of God with the transient life of man, but to mark the stages of the Divine action itself, an adaptation of the Psalmist's poetical phraseology does not appear in place. In the representation of the writer, then, it seems that the term must be held to denote a literal day. At the same time the possibility must be admitted that the writer may have consciously used the term figuratively, fully aware on the one hand that the work of the Creator could not be measured by human standards, but on the other hand desirous of artificially accommodating it to the period of the week. In spite of the phrases *evening* and *morning*, which seem to imply literal days, the supposition that the narrator meant his "days" as the figurative representation of periods should not, as the present writer ventures to think, be ruled as inadmissible.<sup>1</sup>

If, then, at least provisionally, *day* be interpreted as equivalent to *period*, two questions at once arise: Do the days of Genesis correspond with well defined geological periods? and does the order in which different living things are stated to have been created agree with the facts of geology? To both these questions candour compels the answer, No. Here is a table of the succession of life upon the globe, taken (with slight modifications in form) from Sir J. W. Dawson's *Chain of Life in Geological Time*<sup>2</sup>:—

<sup>1</sup> Commentators are much divided in opinion respecting the word. Keil, for instance, maintains that the explanation ("Umdeutung") of the *days* as *periods* cannot be justified exegetically; and Professor Huxley (*American Addresses*, p. 20) declares that "as one who is not a Hebrew scholar, he can only stand by and admire the marvellous flexibility of a language which admits of such diverse interpretations." The question, however, is not so much what the word *means*, as whether or not it may have been applied figuratively by the writer. It seems reasonable to admit that this may have been the case. The "morning" and "evening" will then be part, not of the reality, but of the representation.

<sup>2</sup> Religious Tract Society.

		ANIMAL LIFE.	VEGETABLE LIFE.	
Eozoic	{	1. Laurentian.	<i>Eozoon Canadense</i> . <sup>1</sup>	Indications of plants not determinable.
		2. Huronian.	Age of <i>Protozoa</i> (lowest marine animals).	
	{	3. Cambrian.	Invertebrata: Age of <i>mollusks, corals, and crustaceans</i> .	<i>Marine plants</i> (sea-weeds, etc.).
		4. Silurian.		<i>Earliest land-plants</i> .
Palæozoic	{	5. Devonian.	<i>Fishes</i> abundant (but no modern species). <i>Amphibians</i> (many of large size).	
		6. Carboniferous.	<i>Reptiles</i> begin (chiefly smaller and lower species). <i>Insects</i> (spiders, beetles, cockroaches, etc.).	<i>Coal plants</i> ; chiefly tree-ferns and large mosses (flowerless plants), pines, and cycads.
		7. Permian.		
Mesozoic	{	8. Triassic.	<i>Earliest marsupial mammals</i> .	
		9. Jurassic.	Age of great <i>reptiles and birds</i> .	<i>Earliest modern trees</i> .
		10. Cretaceous.		
Cainozoic	{	11. Tertiary (closing with Glacial Period).	Age of <i>extinct mammals</i> . First living invertebrates.	Age of <i>Angiosperms and palms</i> .
		12. Post-Tertiary.	Age of <i>modern mammals and man</i> .	

The earliest organic forms occur in the remains belonging to the period first named, marked, as its name implies, by the "dawn of life."

In Genesis the order is:—

Third Day.—Grass, herbs (*i.e.* vegetation more generally), trees.

(Fourth Day.—Luminaries.)

Fifth Day.—Aquatic animals, small (שרץ),<sup>2</sup> and great (תניינים),<sup>3</sup> and winged creatures (birds; also probably such insects as usually appear on the wing).<sup>4</sup>

Sixth Day.—Land animals, both herbivora (בהמה) and carnivora (חיתו ארץ),<sup>5</sup> and creeping things (small reptiles; perhaps also creeping insects). Man.

<sup>1</sup> If this be of organic origin, a question on which geologists appear still to be undecided. Comp. Geikie's *Text Book of Geology* (1885), p. 634 f.

<sup>2</sup> Lit. *swarming things* (see Exod. viii. 3), a term applied also to land-creatures (Lev. xi. 20-23, 29-31, 41-43, R.V., where it is rendered *creeping, creep*).

<sup>3</sup> *Sea monsters*: cf. Job vii. 12. Applied specially to the crocodile, regarded as a symbol of Egypt (Isa. li. 9; Ps. lxxiv. 13 [R.V. retains here the old popular rendering inherited from Coverdale, *dragon*]); but also applicable apparently to a land-reptile (Exod. vii. 9, 10, 12).

<sup>4</sup> Cf. Lev. xi. 20-23, R.V.

<sup>5</sup> Or, domesticable and wild. The distinction is true generally, but must not be pressed.

The two series are evidently at variance. (1) The geological record contains no evidence of clearly defined periods, corresponding to the days of Genesis. This, however, may be considered a minor discrepancy. (2) In Genesis vegetation is complete two days before animal life appears: geology shows that they appear simultaneously—even if animal life does not appear first.<sup>1</sup> (3) In Genesis birds appear together with aquatic creatures, and precede all land animals: according to the evidence of geology, birds are unknown till a period much later than that at which aquatic creatures (including fishes and amphibia) abound, and they are preceded by numerous species of land animals—in particular by insects, and other “creeping things.”

The second and third of these discrepancies are formidable. To remove them, harmonists have had recourse to different methods, of which the following are the principal:—

i. It has been supposed that the main description in Genesis does not relate to the geological periods at all, that room is left for these periods between ver. 1 and ver. 2, that the life which then flourished upon the earth was brought to an end by a catastrophe the results of which are alluded to in ver. 2, and that what follows is the description of a *second* creation, immediately preceding the appearance of man. In so far as this theory assumes a destruction of pre-existing life to be alluded to in ver. 2, and its renovation to be described in the verses which follow, it is called the “restitution-hypothesis.” Exegetically the theory must be granted to be in the abstract admissible; the form of ver. 2<sup>2</sup> is that which is frequently used, in introducing a new narrative, to state a fact or

<sup>1</sup> It is admitted that the proof from science of the existence of plants *before* animals, is inferential and *à priori*. (See the work cited, p. 28, note 1, pp. 191–2, 196.)

<sup>2</sup> The copula with a noun followed by the substantive verb. Cf. iii. 1; Num. xxxii. 1; Judg. xi. 1; 2 Kings v. 1; and other instances cited by Dr. Pusey in the Preface to *Lectures on Daniel* (ed. 2), pp. lxxxiii.–lxxxvii.

condition from which it starts, and implies no necessary connexion with ver. 1. At the same time a connexion with ver. 1 is in no respect excluded by the form of the verse; and the assumption of an interval between them wide enough to embrace the whole of geological time is contrary to the general tenor of the opening verses of the narrative. It is a scientific difficulty that the theory assumes the existence of the earth together with the whole flora and fauna of the geological periods, prior to the creation of light and formation of the sun, etc. And, thirdly, the existing species of both plants and animals are so closely related to those of the period shortly preceding the appearance of man, that the assumption of an intervening state of chaos and ruin is in the last degree improbable; not only would it be in direct conflict with the continuity of design which these facts establish, but geologists themselves pronounce it to be untenable.<sup>1</sup> Arbitrary in itself, and receiving no support or countenance from science, the restitution-hypothesis has been generally abandoned by modern apologists.<sup>2</sup>

ii. It has been supposed that the narrative was not meant to describe the actual succession of events, but was the description of a series of *visions* presented prophetically to the narrator's mental eye, and representing not the first

<sup>1</sup> Hugh Miller, *Testimony of the Rocks*, p. 122.

<sup>2</sup> In the present century it has been advocated most notably by J. H. Kurtz, in his *Bibel und Astronomie* (ed. 5, 1864), abridged in the English translation of his *History of the Old Covenant*, vol. i. pp. i.-cxxx., see I. § 6, III. § 12. It was embraced also by one whose name and writings do not yet deserve to be forgotten—Dr. Chalmers. See his *Memoirs*, by Dr. Hanna (1851), vol. i. p. 386 f. (relating to the year 1814), and his *Treatise on Natural Theology* (1836), Pt. II. ch. ii. §§ 1, 24, 26 (in the Glasgow edition of his *Works*, in 25 vols., vol. i. pp. 229, 250 f., 256). But the language of verses 14–18 presents a stumbling-block which both Dr. Chalmers (following Rosenmüller) and Kurtz (I. § 8) in vain endeavour to surmount. (Of course the argument for creative intervention derived from the “immutability of species” would require now to be re-stated.)

This hypothesis is stated by Zöckler to have been first propounded by Episcopi, an Arminian theologian of the 17th century.

appearance of each species of life upon the globe, but its maximum development. The "drama of creation," it is said, is not described as it was enacted historically, but *optically*, as it would present itself to a spectator, in a series of pictures, or tableaux, embodying the most characteristic and conspicuous feature of each period, and, as it were, summarizing in miniature its results. The view that the contents of the narrative were revealed in prophetic vision, was suggested by Kurtz<sup>1</sup> (though he, in accordance with his restitution-theory, interpreted the "days" literally); it was adopted and accommodated, with great eloquence and skill, to the geological periods by Hugh Miller.<sup>2</sup>

The Third Day is identified with the Carboniferous period, the *marine* life of the preceding periods being supposed to be not visible in the tableaux, and, therefore, disregarded. The theory expounded in Hugh Miller's delightful pages will be abandoned by many with regret; but the arguments against it appear to be conclusive. They are enumerated by Delitzsch,<sup>3</sup> the principal ones being, that no indication is contained in the narrative of its being the relation of a vision (which in other cases is regularly noted, *e.g.* Amos vii.-ix.; Isa. vi.; Ezek. i., etc.), that it purports to describe not appearances ("And I saw, and behold . . ."), but facts ("Let the earth. . . . And it was so"), and that to substitute one for the other is to attribute to the narrator what he nowhere expresses or claims. It is a material, and not merely a formal difficulty, that, while marine animals, small as well as great, were not hidden from view in the tableau of the Fifth Day, the fishes and great amphibia of the Devonian period (which precedes the Carboniferous period) are not described; in accordance with the hypothesis itself, these should have been noticed before the vegetation of the Third Day.

<sup>1</sup> *l. c.* I. § 3, § 8.

<sup>2</sup> *Testimony of the Rocks* (1857).

<sup>3</sup> *Commentary on Genesis* (1872), p. 68 f.

iii. Sir J. W. Dawson, one of the ablest and most scholarly writers on the subject,<sup>1</sup> rejecting (p. 193) the hypothesis of Hugh Miller, as Hugh Miller before him had rejected that of Kurtz, adopts another mode of reconciliation, assigning nearly the whole of the Palæozoic and Mesozoic periods (Nos. 4 to 9 in the table) to the Fifth Day, and supposing 2 and 3 to contain such relics as survive of the work of the Third Day. The objections to this scheme are: (i.) it brings together fishes and birds, which nevertheless are in reality widely separated (Nos. 5 and 9); (ii.) Genesis places the appearance of creeping things on the Sixth Day, while in fact they appear in what Sir J. W. Dawson assigns to the Fifth Day (Nos. 5 and 6); (iii.) in Genesis vegetation, including trees, is complete on the Third Day, whereas prior to the Silurian period (No. 4) nothing but the humblest forms of *marine* vegetation is observable. The last difficulty is felt by Sir J. W. Dawson, and he allows that the existence before the Silurian period of vegetation that would satisfy the language of Genesis still awaits proof.<sup>2</sup> He is sanguine himself that in time this proof may be forthcoming; but the fact that vegetable life is admitted to have advanced progressively from lower to higher forms is not favourable to this expectation.<sup>3</sup> A theory which identifies the Third Day not with the period during which an abundant vegetation is known to have flourished, but with one during which, as geologists assure us, "at the utmost we can only speculate upon its presence or condition,"<sup>4</sup> can scarcely be received as satisfactory.

Two discrepancies of a different order remain to be

<sup>1</sup> *Origin of the World according to Revelation and Science* (London, 1877).

<sup>2</sup> Pp. 192, 194, 195.

<sup>3</sup> Dana (*Manual of Geology*, 1880, pp. 157 f.) admits only the lowest form of life as a (possible) explanation of the graphite (carbon) of the Laurentian period.

<sup>4</sup> Phillip's *Manual of Geology*, ed. 2 (1885), by Seeley and Etheridge, vol. ii. pp. 23-5.

noticed. (i.) Upon the assumption of Laplace's theory of the formation of the solar system (which may be said to be tacitly accepted upon both sides), the formation of the sun and moon cannot be placed subsequently to the separate existence of the earth and the appearance upon it of a tolerably complete vegetation ("trees"): it is assigned in Genesis to the Fourth Day. The explanation usually offered is that *made* (הַשָּׁמַיִם) in ver. 16, means not *formed* but *appointed*, appointed, viz. to their office and work (including—or, at least, attended by, cf. ver. 17—the "setting" or "placing them in the heavens").<sup>1</sup> This explanation, however, is quite untenable. (1) In the very few passages in which הַשָּׁמַיִם means *appointed*, either this sense is at once apparent from the context,<sup>2</sup> or the word is followed by a specification of the office or function intended;<sup>3</sup> used absolutely, it can only be a synonym of *formed*.<sup>4</sup> The *office* for which the luminaries are ordained is described in ver. 17 by a different word.<sup>5</sup> The expression in ver. 14 *Let there be luminaries . . .* implies that, in the conception of the writer, luminaries had not previously existed. (2) The hypothesis of the sun and moon being assigned to their places after an abundant vegetation had appeared upon the earth, is opposed to the entire scheme of the solar system, as disclosed by science. The process by which the different bodies composing it acquired their existing dimensions, and their orbits and distances were adjusted to their present mean averages, must have been a gradual

<sup>1</sup> *Origin of the World*, etc., p. 201.

<sup>2</sup> As, "He *made* priests from among all the people" (1 Kings xiii. 31, R.V.); 2 Sam. xv. 1 (where "prepared" is lit. *made*); 1 Kings i. 5; 2 Kings xxi. 6 (R.V. *margin*). The passage 1 Sam. xii. 6, stands alone in the Old Testament.

<sup>3</sup> As Ps. civ. 4; 1 Sam. viii. 16. In both these cases מַשְׁפָּט or מִשְׁפָּט is the word commonly employed (Gen. xlv. 8; Exod. xviii. 21, 25; Deut. xvi. 18; 1 Sam. viii. 12; Ps. civ. 3). In Ps. civ. 19, "He made the moon for—*i.e.* with reference to—stated times (sacred seasons)," *made* retains its proper force.

<sup>4</sup> As ver. 26; chap. v. 1; Amos v. 8; Job ix. 9; Ps. cxv. 15, etc.

<sup>5</sup> מִשְׁפָּט

one; and it is unreasonable to suppose that the *final* stage of this process, such as might have been passed through after the earth was clad with vegetation, could be described by the term "made," or designated as a "setting" in the heavens. This word then must be taken in its natural sense. It is true, now, that *made* does not in itself specify the *mode* of formation employed, and would be perfectly applicable to the concentration of diffused matter (in accordance with Laplace's theory) to form the sun; but this explanation is precluded by the physical inconsistency it which it at once lands us. If the different bodies constituting the solar system were formed by the gradual condensation of diffused matter, it is incredible, and indeed impossible, that one member of the system, viz. the earth, should have consolidated, and have so far cooled as for seas to exist and vegetation to appear, *while the substance of the sun itself was still in at least a partially diffused condition*. The present writer recently, for his own satisfaction, put this question definitely to one of the most eminent of living English astronomers, whose name, were it to be mentioned, would be at once recognised as at the same time that of an eloquent and able apologist. The answer which he received was unmistakeable. "It is not only unscientific, *i.e.* inconsistent with the harmony of known facts, but incomprehensible, to suppose that the earth was clothed in vegetation and 'fruit trees,' while the sun or its atmosphere was in a diffused unconcentrated condition. At such a period of the sun's condition, vegetation could only exist in a cooked state." The 14th to the 17th verses of Gen. i. do not indeed affirm that the luminaries were *created* on the Fourth Day, but they imply that there were no luminaries previously—whether sun or moon, fixed stars, or planets; that these were "made" then—whether from pre-existing matter or not, is immaterial; and "set" (not merely "adjusted") in their places in the heavens,

after the separation of sea and land, and the appearance of vegetation upon the surface of the earth. No reconciliation of this representation with the data of science has yet been found.

These objections, it may be thought, are of force only against the attempt to reconcile the Biblical cosmogony with a particular theory, viz. Laplace's. True, the Creator, so far as we can see, had it pleased Him so to do, could have created the earth, and fitted it for the maintenance of life, prior to the creation of the other heavenly bodies; but that He did this actually is contradicted by the evidence of the solar system itself, which, in its organization and structure, bears marks of being the resultant of a long succession of antecedent changes, effected in accordance with definite laws, and modifying, slowly but simultaneously, and in unbroken continuity, the different bodies of which it consists. The theory of the separate and isolated creation, first of the earth, then of the other heavenly bodies, *does not account for the phenomena of correlation, and unity of origin*, which impress with irresistible cogency every scientific observer. If Laplace's hypothesis, upon whatever grounds, be abandoned, the substitution of another, which will account better for these phenomena, rests not with the theologian, but with the mathematical physicist or astronomer. And the reconciliation of any such new hypothesis with the narrative of Genesis rests likewise with the astronomer. The problem is to find a theory of the origin of the solar system which, while adequate scientifically, and accounting comprehensively for the phenomena of correlation and unity which have been alluded to, shall at the same time be consistent with the existence of the earth and the presence upon it of vegetable life, for an indefinite period before the other bodies composing that system were formed. Laplace's theory, as we have seen, does not satisfy this double condition. The consideration

of the whole question rests with those whose minds are versed in the methods and principles of physical science. But the theologian will do wisely if he declines to commit himself either to any theory of the origin of the solar system, or to any attempt to reconcile such theory with the representation in Genesis, which does not in the judgment of competent scientific authority, satisfy the demands of science.<sup>1</sup>

<sup>1</sup> Keil, adhering in every respect to the literal interpretation of Gen. i., attempts to discredit the conclusions of geology, explaining (apparently) the phenomena of the earth's strata by means of the deluge of Noah! But whatever may be the difference between geologists upon the *causes* of particular phenomena, or upon the *absolute* date of the successive formations, all are agreed upon the main conclusions, viz. that animal and vegetable life appear *together* in the earliest strata, and that these date from a period vastly anterior to the creation of man and *à fortiori* to the Noachian deluge. Keil's entire treatment of the scientific issue is in fact that of a writer belonging to the 18th century (see especially the notes at the end of verses 19, 30). It is not a question of the omnipotence of the Creator; the bodies constituting the visible universe bear the marks of being parts of a vast and wonderfully constituted *system*, the significance of which is entirely destroyed by the supposition that it was created (or completed) literally four days after the earth, in the year 4004 b. c.

A few words may be permitted on a recent work by Dr. Kinns, entitled *Moses and Geology*. This work is a popular explanation of different scientific facts, arranged in the order of the narrative in Genesis; but the space devoted in it to the question of reconciliation is exceedingly small. The correspondence of "fifteen creative events," exhibited in the table pp. 13-15, is inconclusive upon both logical and material grounds. If the description in Genesis be so precise that the grass, herbs, and fruit-trees of ver. 11, can be identified with the flora of the Silurian, Devonian and Carboniferous periods respectively, it is legitimate to expect similar precision in every part of the narrative. But in point of fact, as regards the abundant and varied animal life which marked the same periods, the narrative is altogether silent. To escape this difficulty, Dr. Kinns does violence to the language of ver. 20, by interpreting it not of the dawn of animal life, but of a great increase in the number of the genera of marine and other animals—contrary to the evident intention of the writer. Other items in the list of correspondences are open to similar objections. Does science, for instance, teach that seas ("water," ver. 2) existed, while the substance of the solar system was still diffused? It is mockery to suppose, as is done p. 21 f., free hydrogen and oxygen (!) to be denoted by the term "water." And if (p. 13) the formation of "air and water" be assigned to the Second Day, this is contrary to the express language of ver. 2. The key, it is evident, only fits the fifteen-warded lock *after both have been subjected to arbitrary alteration and adjustment*. Before a valid argument can be based upon the number and minuteness of the correspondences, they must be duly compared with disagreements and omissions, and their relative weight determined. Dr. Kinns deserves

(ii.) From the injunction in ver. 30, it is a legitimate inference that the narrator considered the original condition of animals generally to be one in which they subsisted solely on vegetable food. This is not merely inconsistent with the physical structure of many animals (which is such as to require animal food), but is contradicted by the facts of palæontology, which afford conclusive evidence of animals having been the prey of one another long before the date of man's appearance upon earth.

From all that has been said, however reluctant we may be to make the admission, only one conclusion seems possible. Read without prejudice or bias, the narrative of Genesis i. creates an impression *at variance with the facts revealed by science*: the efforts of reconciliation which have been reviewed are different modes of obliterating its characteristic features, and of reading into it a *view which it does not express*. Every proposed scheme<sup>1</sup> either combines what is separate in one series, or divides what is united in the other; and all presuppose a non-natural interpretation of *made* in ver. 16. While fully bearing in mind the immediate design of the narrator, to describe, viz. how the earth was fitted to become the abode of man, it is impossible not to feel that had he been acquainted with its actual past, he would, while still using language equally simple, equally popular, have expressed himself in different terms.

the credit of having produced an entertaining book on popular science, but his reconciliation is entirely illusory. The scientific authorities, quoted pp. xvii.-xx. (7th ed.), it should be observed, certify the accuracy of the facts stated by Dr. Kinns *in themselves*; but pronounce no opinion whatever upon the *system by which they are accommodated with the narrative of Genesis*.

<sup>1</sup> Including, it must be reluctantly added, the one advocated by an illustrious statesman in the *Nineteenth Century* for November, 1885. Every one who has read the article in question will admire the eloquence, and appreciate the breadth and justness of view, by which in general it is characterised; but its special constructive parts, if examined, will be seen to be open to the same objections which are alluded to in the text. The water-population, for instance, *synchronizes* with the air-population in Genesis, while in actual fact it precedes it by an indefinite interval of time, being accompanied from the beginning by either marine or land vegetation.

Recognising these facts, many theologians of the present day are satisfied with establishing what is termed by Zöckler,<sup>1</sup> an "ideal harmony," *i.e.* a harmony not extending to details, but limited to salient features.<sup>2</sup> No other reconciliation is, under the circumstances, possible. At the same time those who accept this solution do not always appear to perceive that it involves really an abandonment of the position for which the harmonists have throughout contended. Yet this result clearly follows. If the relative priority of plants and animals, or the period at which the sun and moon were formed, are amongst the details on which harmony cannot be established, what other statement can claim acceptance on the ground that it forms part of the narrative of Genesis? Commentators and apologists are justified in directing the reader's mind either to the broader truths of physical fact, or to the permanent truths of theology, which the narrative enunciates; but they ought not, in doing this, to conceal from him the grave discrepancies in detail which it at the same time exhibits.<sup>3</sup>

What then may we suppose to be the source of the cosmogony in Genesis? In answering this question we must bear in mind the position which the Hebrews took among the nations of antiquity. In the possession of aptitudes fitting them in a peculiar measure to become the organ and channel of revelation, the Hebrew nation differed radically from its neighbours; but it was allied to them in language, it shared with them many of the same institu-

<sup>1</sup> In his *Geschichte der Beziehungen zwischen Theologie und Naturwissenschaft* (1877-9), the most elaborate work on the subject which exists. See vol. ii. pp. 538, 540 f.; or (more briefly), in his article *Schöpfung*, in Herzog's *Encyclopädie*, ed. 2, vol. xiii. (1884), p. 648.

<sup>2</sup> Comp. Mr. (now Dean) Perowne, in Smith's *Dictionary of the Bible*, vol. i. (1863), p. 673 b; Delitzsch, *Commentar über die Genesis*, ed. 4 (1872), p. 72.

<sup>3</sup> These, in many commentaries, are not brought into adequate relief. Luthardt, *Lectures on the Fundamental Truths of Christianity*, pp. 102-4, insinuates but does not show, that the conclusions of geology, on the questions here concerned, are uncertain.

tions, the same ideas and habits of thought. Other nations of antiquity made efforts to fill the void in the past which begins where historical reminiscences cease; and framed theories to account for the beginnings of the earth and man, or to solve the problems which the observation of human nature suggests. It is but consonant with analogy to suppose that the Hebrews either did the same for themselves, or borrowed those of their neighbours. Of the theories current in Assyria and Phœnicia, fragments have been preserved, and these exhibit points of resemblance with the Biblical narrative sufficient to warrant the inference that both are derived from the same cycle of tradition. Here are three fragments from the "Creation Tablets," belonging to the library of Assurbanipal (668-626 B.C.), discovered by the late George Smith:—

"When as yet the heavens above had not declared,  
Nor the earth beneath had recorded a name,  
The august ocean was their generator,  
The surging deep was she that bare them all,  
The waters thereof embraced one another and united,  
But darkness was not yet withdrawn, nor had vegetation sprung forth.

"When of the gods none yet had issued forth,  
Or recorded a name, or [fixed] a destiny,  
Then were the [great] gods formed.  
The gods Lachmu and Lachamu proceeded forth.

"He made beautiful the dwellings<sup>1</sup> of the great gods.  
The stars, likewise, he caused . . . come forth:  
He ordained the year, established for it decades,  
Brought forth the twelve months each with three stars.

"When the gods in their assembly formed . . .  
They made beautiful the mighty [trees?],  
And caused living beings to come forth . . . " <sup>2</sup>

<sup>1</sup> Or, stations.

<sup>2</sup> Schrader, *Cuneiform Inscriptions and the O. T.* (Eng. Trans., 1885), on Gen. i. Some of the names here given are confirmed by the testimony of Damascius, who wrote in Greek, and there is a general agreement in outline with the view of the Babylonian cosmogony presented by Berossus (3rd cent. B.C.). See also Sayce's *Fresh Light from the Ancient Monuments*, p. 27.

From a theological point of view, this is different enough from the Biblical record; at the same time, side by side with the difference, there are material resemblances which cannot be mistaken. We have, for instance, the same idea of a surging chaos, reduced gradually to order, the same view of the appointment of years and seasons, and of the formation subsequently of living creatures. Similarly, the Phœnician traditions, which were translated into Greek by Philo of Byblus, and are preserved to us in their Greek form by Eusebius,<sup>1</sup> describe the origin of different institutions and inventions, in a style which at once recalls that of the latter part of the fourth chapter of Genesis. In the light of these facts it is difficult to resist the conclusion that the Biblical narrative is drawn from the same source as these other records. The Biblical historians, it is plain, derived their materials from the best human sources available; the function of inspiration was to guide them in the disposal and arrangement of these materials, and in the use to which they applied them. The materials, which with other nations were combined into the crudest physical theories, or associated with a grotesque polytheism, were vivified and transformed by the inspired genius of the Hebrew historians, and adapted to become the vehicle of profound religious truth. They become *symbolic* pictures of the prehistoric past. By a figurative narrative, based, it is probable, upon materials derived from the far East, the *fact* of the Fall of man is brought home to every one of us.<sup>2</sup>

<sup>1</sup> *Præp. Evang.*, i. 10. Comp. the translation and notes in Lenormant's *Origines de l'histoire* (1880), vol. i. pp. 536 ff.

<sup>2</sup> Compare Lenormant, *ubi. sup.* vol. i. Preface, *passim*, pp. 97-8, 106-8, 260-1; and especially vol. ii. pp. 263-9, where the same view is defended. Thus, "Plus j'étudie les premiers chapitres de la Genèse avec l'attention et le respect qu'ils imposent au chrétien . . . plus je suis convaincu que les récits qu'ils contiennent sont essentiellement allégoriques, et qu'en les prenant au sens directement matériel on s'écarte de la pensée de leurs auteurs." Again, "Maintenant, que ces allégories aient été fournies aux écrivains inspirés par une tradition populaire, qui s'était formée spontanément dans le cours des siècles,

The character of Cain, borrowed from popular tradition, is made a lesson and warning to all time. Behind the first chapter of Genesis lies a history which we may suspect, but cannot demonstrate. As we read it, it is the result of mature theological reflection, operating, as we seemed forced to suppose, upon elements derived from human sources, but breathing into them a new spirit, and not different in character from the reflection which, for instance, is evident in the Epistles of St. Paul. That the cosmogony may display besides flashes of the intuition of the prophet is not to be categorically denied; the remark of Dillmann should not be forgotten, that "amongst all ancient cosmogonies that of the Bible approaches most nearly to the conclusions of science." But that it contains a "revelation," in the sense in which this term is commonly understood, as a direct communication of knowledge undiscoverable by human faculties,<sup>1</sup> whether given to the author, or, as others have supposed, handed down by tradition from primitive man, seems to be a position which cannot be maintained. The discrepancies that have been dwelt upon—and which, so far as can be seen, appear irremovable—seem to constitute an indication that the cosmogony of Genesis is not meant to be an authoritative exposition of the past history of the earth, but that it subserves a different purpose altogether. Its purpose is to teach *religious* truth, not scientific truth. With this object in view, its author sets before us a series of *representative pictures*, remarkably suggestive of the reality, if only they be not treated as a "revelation" of it, and embodying theological teaching of permanent value. It only remains to indicate briefly the nature of this teaching.

et qui était commune à tous les peuples de l'Asie antérieure, aucune raison de foi, aucune définition faisant loi pour le catholique n'empêche de l'admettre." (Vol. ii. pp. 263 f., 268).

<sup>1</sup> On the distinction between "Revelation" and "Inspiration," see Arch deacon Lee's *Inspiration of Holy Scripture* (ed. 1865), pp. 27 f., 149 f.

(1) It shows in opposition to the conceptions prevalent in antiquity, that the world is not self-originated; that it was called into existence, and brought gradually into its present state, at the will of a spiritual Being, prior to it, independent of it, and deliberately planning every stage of its progress. It is this feature which distinguishes it fundamentally from the Babylonian cosmogony, with which, as we have seen, it bears an external resemblance. The Babylonian scheme is essentially polytheistic; chaos is anterior to Deity; the gods are made, or produced—we know not whence or how.<sup>1</sup> In Genesis, the supremacy of the Creator is absolute; as Ewald long ago finely said: “even chaos was not, without the Spirit of God: already there, as to-day, He was accomplishing His work!”<sup>2</sup>

(2) Dividing artificially the entire period into six parts, it

<sup>1</sup> The best explanation of the plural form of the Hebrew word for “God,” *Elohim*, seems still to be the old-fashioned “plural of majesty,” or the plural of intensity, in which case (if the derivation from a root signifying *to fear* be accepted) it will express—to adopt the words of Professor C. A. Briggs, in his instructive volume, *Biblical Study* (New York, 1883)—“The fulness of the idea of God conceived as the one to be revered” (p. 53). Those who adduce it as an anticipation of the doctrine of the Trinity appear to forget that this use of the plural *does not stand alone* in Hebrew; the words אֱלֹהִים and אֱלֹהִים, meaning *lord, master*, are often used in the plural with reference to a single human superior (e.g. Exod. xxi. 4, 6, 8, 29); and Isaiah (xix. 4), describes the conqueror of Egypt as אֱלֹהִים קִשְׁרָה, where the adj. is singular, but the subst. plural. On the other hand, it is possible, though it cannot be demonstrated, that that doctrine is adumbrated in the 1 pl. of ver. 26 (comp. xi. 7; Isa. vi. 8). Even those, however, who question this explanation, still recognise the plural here as suitable and significant—in Dillmann’s words, “not only on account of the solemnity of the moment, in which God speaks in the supreme consciousness of His majesty, but also because His purpose now is to impart to man a share of the Divine powers which are concentrated in Himself.”

<sup>2</sup> *Jahrbücher*, vol. i. (1849), p. 83. The statement in the English translation of Keil (p. 46), that Ewald’s construction of ver. 1-3 “is invented for the simple purpose of getting rid of the doctrine of a *creatio ex nihilo*,” is false. In the article referred to, in which Ewald advocates it, he distinctly states (p. 82) that “the true religion must always maintain the original dependence of matter upon God, and in consequence its creation.” In his *Lehre der Bibel von Gott*, vol. iii. (1874), p. 43, he expresses himself still more strongly to the same effect, adding that the maxim *Ex nihilo nihil fit* is valid only within the limits of human experience. The remark is omitted in Keil’s third (1878) German edition.

notices in order the most prominent cosmical phenomena, and groups the living creatures upon the earth under the great subdivisions which appeal to the eye. By this method it exhibits an *ideal picture* of the successive stages by which the earth was formed and peopled with its living inhabitants; and it insists that each of these stages is no product of chance, or of mere mechanical forces, but is an act of the Divine will,<sup>1</sup> realizes the Divine purpose, and receives the seal of the Divine approval. It is uniformly silent on the secondary causes through which in particular cases or even universally the effects described may have been developed or produced, it leaves these for the investigation of science; it teaches *what science as such cannot discover* (for it is not its province to do so), the relation in which they stand to God. The slow formation of the earth, as taught by geology, the gradual development of species made probable by modern biology, is but the exhibition in detail of those processes which the author of this cosmogony sums up into a single phrase and apparently compresses into a single moment, for the purpose of declaring their dependence on the Divine will.<sup>2</sup>

(3) It insists on the distinctive pre-eminence belonging to man, implied in the remarkable self-deliberation taken in his case by the Creator, and signified expressly in the phrase, "image of God," by which doubtless is meant the

<sup>1</sup> The repeated "And God *said*," should be observed. "It gives clear and exact expression to the truth that the Divine thought is realized in each stage of the work, not through the operation of any principle of necessity, or by a process of unconscious emanation, but by the free determination of the Divine will" (Riehm, *Der Biblische Schöpfungsbericht*, Halle, 1881, p. 22—a lecture pointing out the theological value, at the present day, of the narrative of Genesis).

<sup>2</sup> The appropriateness of the "day," rather than of some protracted period, for the purpose contemplated by the narrator, is well brought out by Dillmann (p. 21). Periods of thousands or millions of years, he remarks, are in their place in a treatise on natural science, because this is essentially concerned with the gradual operation of secondary causes; where the sole object is to exhibit clearly and forcibly the operation of the Divine causality, the shorter period is equally adequate, and more expressive.

possession by man of *self-conscious reason*—an adumbration, we may suppose, however faint, of the supreme mind of God—enabling him to *know*, in a sense in which animals do not know, and involving the capacity of apprehending moral and religious truth.

The conclusions on the scientific issue which have been expressed in the present article, have been arrived at by the writer independently; but they can lay no claim to novelty. More than twenty years ago, to name but a single instance, substantially the same judgment was pronounced, in a well-known work, by an English scholar who is not less distinguished as a theologian than as a Hebraist.<sup>1</sup> More recently Dr. Reusch, Roman Catholic Professor at Bonn, has arrived at similar results.<sup>2</sup> After reviewing with great fairness the different theories of reconciliation, and conceding in favour of each the utmost latitude of interpretation, he is compelled ultimately to admit that they all fail, and holding strongly the opinion that it does not lie within the scope of the Bible to impart secular knowledge, adopts ultimately the view that the six days denote not six successive periods, but “six logically separable ‘moments,’ or phases, of the creative process, six Divine thoughts or ideas realized in creation.” The chronological succession, which, nevertheless, is a material feature in the representation of Genesis, is thus abandoned as untenable. The efforts of the harmonists have been praiseworthy, and well-meaning, but they have resulted only in the construction of artificial schemes, the unreality of which is at once detected by the scientific mind, and creates a prejudice against the entire system with which the cosmogony is connected. The

<sup>1</sup> *Dictionary of the Bible*, vol. i. p. 673 b: “. . . What we ought to maintain is that no reconciliation [of the six days with geological periods] is necessary. It is certain that the author of the first chapter of Genesis, whether Moses or some one else, knew nothing of geology or astronomy . . . It is also certain that the Bible was never intended to reveal to us knowledge of which our faculties rightly used could put us in possession.”

<sup>2</sup> *Bibel und Natur* (ed. 4, 1876), pp. 136 f., 256 f., 260–3.

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cosmogony of Genesis is treated in popular estimation as an integral element of the Christian faith. It cannot be too earnestly represented that this is not the case. A definition of the process by which, after it was created, the world assumed its present condition, forms no element in the Christian creed. The Church has never pronounced with authority upon the interpretation of the narrative of Genesis. It is our duty to eradicate popular illusions, and to teach *both* that the cosmogony of Genesis does not accord with the results established by science, *and* that the recognition of this fact is no invasion of sacred ground, and in no degree imperils the Christian revelation. There are many whose minds are acute enough to discover the truth of the first of these propositions, but who do not with equal clearness perceive the truth of the second. It is a law of psychology that ideas which have been long associated are apt to become actually inseparable. For this very reason our teaching should be the more explicit; we should distinguish between what can, and what cannot, be claimed for the Biblical narrative; we should maintain upon positive grounds, rather than as a concession extorted from us, its true position and value. We should show that it is its office neither to anticipate scientific discovery, nor to define the lines of scientific research. It neither comes into collision with science, nor needs reconciliation with it; its office lies in a different plane altogether; it is to present, under a form impressive to the imagination, adapted to the needs of all time, and containing no feature unworthy of the dignity of its subject,<sup>1</sup> a truthful *representative picture* of the relation of the world to God.

S. R. DRIVER.

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<sup>1</sup> Comp. Dillmann, *Die Genesis erklärt* (1882), p. 10, whose notes on this chapter are remarkably appreciative and just.