

or of Christianity. A supernatural and a miraculous Christianity is the only rational Christianity. The central truth of the Gospel is "The Word was made flesh." It will be wise for us in presence of this deep mystery to imitate Mary, the meek and submissive Virgin mother, by keeping all these things and pondering them in our hearts.

WILLIAM INCE.

THE "CURSING OF THE GROUND," AND THE
"REVEALING OF THE SONS OF GOD," IN
RELATION TO NATURAL FACTS.

THE subject treated in the following pages cannot claim the charm of novelty. It is one of the oldest topics of theological discussion, it is more or less noticed in every commentary on Genesis, and in some of those on the Epistle to the Romans and on the Book of Revelation, and it has been a subject of special treatises, some of them of great value, as, for example, McDonald's *Creation and the Fall*, and Ellicott's sermons on the *Destiny of the Creature*. It has also been treated of by several writers on the relations of religion and science, and recently it has been ably discussed by Dr. Phillips in the *Expository Times*,¹ and in one of its aspects by Dr. Agar Beet in the *EXPOSITOR*.² It might seem, therefore, to require no further treatment. It appears, however, to the writer that many misconceptions still exist as to the relations between the teaching of the Bible and the natural phenomena open to our observation; and it is from this point of view or "in relation to natural facts," as at present known to us, that I would venture to present it to your readers. In doing so I shall take the liberty of assuming as a working hypothesis

¹ April, June and August, 1894.

² December, 1894.

that in nature and revelation we are dealing with sources of information having one author, though reaching us in different ways, and that the early chapters of Genesis relating to Eden and the Fall record actual history of events witnessed, it is true, by few persons, but transmitted by them to their successors truthfully as they understood them, and communicated to us through men qualified and commissioned to that end by the Spirit of God. Taking thus the legitimate results of science as accurate representations of nature, and the Bible as the authoritative history of man in his relation to God, we shall divest the subject of many complexities, and shall be able to test our hypothesis by the facts as they develop themselves.

The terms of our title may thus be held to cover the questions of a physical kind that arise respecting the story of the fall of man and its immediate results, and respecting the predicted reversal of these penal consequences in the later days of human history. These questions may be stated to be principally the following:—

(1) What were the conditions and environment of man before the Fall?

(2) What must have been the consequences of the Fall in relation to these conditions and environment?

(3) What changes in relation to these consequences may have occurred in the course of human history?

(4) What are the prospects and character of the final restoration predicted in the Bible?

We may not be able to keep strictly to this order, but may sometimes have occasion, for the sake of clearness, to anticipate details coming more properly under subsequent heads. If, however, we can clearly comprehend the conditions required under the first head, these will clear the way for less lengthy discussion of the remaining topics.

I. MAN BEFORE THE FALL.

The problem of absolute creation is at present insoluble, and may always remain so. Lotze well suggests that in some sense this must be the case under any imaginable conditions. If we suppose a naturalist, whether agnostic or theistic, to have actually witnessed the first emergence into being of low forms of life in the primeval waters, we cannot suppose that he would see any manipulation, or hear any command. He might perceive the appearance of living animals where there were none previously, but by what means inorganic atoms had been induced to arrange themselves in protoplasmic molecules, how they were enabled to shape themselves into organs, and how these became endowed with life, would be as inscrutable to the actual spectator and as much a matter of inference as they can be to us. If an agnostic, the witness of the fact might at once say, "This is an example of purely spontaneous generation of an accidental or fortuitous character." If a theist, he might say, "This is the finger of God"; but the evidence for one view or the other would be exactly what it is to-day. Even if we were to suppose a biologist to be a witness of the origination of man from the dust of the ground or from inorganic molecules, or if, on the other hand, he were to witness the production of a human child, however imperfect, from an anthropoid mother of however advanced type, he would have no clue to any merely material or physical explanation of the phenomenon, and it would not make any essential difference whether the process was sudden or gradual. In either case he could not see the manner of the divine action nor account for the results by mere necessity or chance. In point of fact, whatever forms of words we may invent to conceal our ignorance, we are no nearer the solution of this great problem than was the writer of the Epistle to the Hebrews when he said, "By faith we perceive

that the ages were constituted by the Word of God, so that things seen (*τὰ βλεπόμενα*), were not made out of physical appearances (*ἐκ φαινομένων*).¹ In accordance with this, the late Sir Richard Owen, when pressed by a friend to state his views as to the introduction of life, wrote, "As I do not know the secondary cause by which it may have pleased the Creator to introduce organised species into this planet, I have never expressed orally or in print any opinion on the subject."²

But though the actual fact of creation may thus be as much unknowable as the essence of God Himself, the laws and conditions of such an occurrence are not unknown, and in the case of man we may ascertain certain of these conditions which have been fulfilled in his appearance on the earth. These may be stated here shortly, and as received results of scientific inquiry, without any elaborate proof or illustration, except when this may seem to be required.

(1) Man is not known among the earliest of animals in point of time, but appears only after, for vastly extended periods, living things of lower types had existed, and after the continents of the earth, with their mountains, plains, rivers and climatal conditions, had been brought by long and complex physical processes very nearly into their present condition.

(2) Man thus appeared at a time when the earth was already stocked with plants of the highest rank and with the highest grades of merely animal life. Nay, there is good geological reason to believe that at the time of his first appearance the land was more richly peopled with plants and animals than it is at the present day, for there has certainly been extinction of many important species since the beginning of the human period, without a corresponding introduction of new forms in their place.

¹ Chap. xi. v. 3.

² Biography, vol. i., chap. x. p. 309.

(3) More especially we may affirm that at the time of man's introduction the organic world had attained to completeness in regard to those vegetable productions which are useful and beautiful. The ancient floras of the older geological periods were not so suited to human needs, and they had passed away and had been replaced by flowering and fruit-bearing plants pleasant to the eye and good for food.

(4) In the animal kingdom the great and ferocious reptilian monsters of the Mesozoic or age of reptiles had disappeared, and the low and brutal mammals of the earlier Tertiary; and though there still remained great and dangerous beasts of prey, all the forms of higher mammalian life which have proved most useful and congenial to man had been introduced.

(5) In these preparations nothing was done for man beyond what, with due allowance for the lower needs of humbler creatures, had been done for previous forms of life; for it is an established law that the physical and vital developments of the world have gone on *pari passu* from the dawn of life, and that new types of animals have not appeared until the conditions were favourable to them; and as a rule the occurrence of such favourable conditions did not long continue till appropriate forms of life were introduced. This as a law is altogether independent of any opinions which may be entertained with reference to the development of animals or the possible causal relations of the environment to changes in organic beings.

(6) It is also a law of the succession of life that lower and older forms of living beings are removed to make way for those that are newer and higher. For example the more varied and complex vegetation of the middle and later Tertiary could not have occupied the world without the previous removal on a great scale of the more monotonous and lower vegetation of earlier periods, nor could

the mammals of the Tertiary have co-existed with the enormous development of reptilian life in the previous period. This again is independent of the question whether we regard the succession as a result of repeated extinctions and creations or of any process of slow and gradual development.

It follows from these statements that death and physical suffering must have existed from the introduction of animal life. The individual must die. Even the species is ultimately mortal. This is, in so far as we can understand, inseparable from the multiplication and succession of animal forms, and is indeed essential to their continued and happy existence. Let it be observed, however, that in lower animals the way is prepared for dissolution of the organism with a minimum amount of pain and without any of those aggravations which in man arise from a conscious and spiritual nature. It is most unreasonable to read into past states of the world conditions which spring from the peculiarities of man, and from his special relation to the world around him and to a future life. This is particularly unfair on the part of those who would practically deny an ethical and spiritual element in man himself. It is also to be observed here that it is the conscious individuality and the progressive rational and spiritual nature of man that alone warrant the idea stated in the Bible that man was to have been exempted from the law of mortality. This however is a subject to be discussed in the sequel.

The stress laid on the doctrines of natural selection and struggle for existence has of late thrown into the background another principle which, because of this and of its vital importance, requires a more full illustration than those previously noticed. This is the paramount influence of facility for expansion in the introduction of new forms of life. In point of fact, it seems to have been this more

than any other condition of the environment that has been potent in the introduction of new species of living beings in geological time, not as the primary cause, but as furnishing the combinations of circumstances in which alone such introductions are possible. The continents of the earth, or those portions of its surface which project above the general ocean covering, have in the main continued from the first in the same positions. Their foundations, once laid, have been those which continued to be built upon. They have however experienced many vicissitudes in the matter of elevation and depression. At certain periods their lower levels have been submerged and then re-elevated, and this has occurred again and again. These pulsations of the earth's crust have synchronised with the great changes of fauna and flora marking geological periods, and it is in consequence of them that so very great a proportion of the stratified deposits of the continents are proved, by the fossil remains which they contain, to have been deposited under the sea. An example taken from the American Continent may make this plain. The great triangular internal plateau of North America between the Apalachians and the Rocky Mountains has preserved very continuous records of these earth-movements. At different periods of geological time, indicated by successive beds of fossiliferous limestone, it has been a vast Mediterranean Sea extending from the Gulf of Mexico almost to the Arctic Ocean. In these times of submergence any land animals or plants which inhabited it have been destroyed or have had to take refuge on the island heights remaining above water, while the new inland sea has become the theatre of the development of swarms of marine creatures not known in previous periods, and coming in to occupy the new and favourable habitats provided for them. At one of these periods of submergence marked by the "Corniferous" limestone of the Devonian Period, nearly two hundred

species of corals, most of them not previously known, sprang into existence to take advantage of the facilities offered them. When the land rose again into the plains and swamps of the Carboniferous age, a crowd of strange and previously unknown plants, insects, land-snails and batrachian reptiles appeared to take up the vacant ground. The testimony of geology thus is that while compression and struggle depauperate and finally kill, elbow-room and freedom for expansion are connected with multiplication and improvement. The great physical changes of submergence and elevation of the continents thus constitute veritable epochs in the succession of life. Each new marine fauna is the product of a time of extensive submergence. Each land fauna and flora belongs to a time of continental elevation. The times of submergence are those of great extinction of land-life whether animal or vegetable, and the times of elevation are marked by similar fatality to marine creatures. The whole may be stated under the two great laws: first, that living creatures are introduced or perish in accordance with great physical changes in their environment; secondly, that new forms of life are produced in the times and places favourable to their comfortable subsistence, multiplication, and extension. Such views as those above stated may seem to some to tend toward the exploded idea of cataclysmal extinction and renovation. Of cataclysms involving universal destruction of living creatures, it is true, we have no evidence; but, on the other hand, it is perfectly certain that wide-spread physical changes, more especially of subsidence and elevation, have been connected with the outgoing and incoming of successive faunas and floras in geological time.

These considerations enable us to form some idea of the conditions under which man would most probably be introduced on the earth. It would surely be fair to suppose that this last and crowning type of the animal creation

would be as well provided for as the swarming lower animals that had preceded him. We might go farther than this, and suppose that since man is a creature not endowed with instincts adapting him unfailingly to his environment, but requiring to work out for himself by reason, imagination, and habitude even the means of comfortable subsistence, and needing time to attain to this, he would be even more bountifully provided for. This would be only analogous to the remarkable fact of the long infancy and childhood of the individual man. The species must also have its protected childhood to acquire the knowledge and the capacity needful to enable it to exist and assert its place at the head of creation; because deficient in those natural instincts and powers, whether of locomotion, attack, or defence, which enable the lower animals each to play its part in nature without any special training.

More than all this, man constituted a new departure in the progress of the organic world, the introduction of a higher rational and moral nature; and this new departure is marked out not merely in his physical frame and his large brain and erect position, but by those very deficiencies in swiftness and power and natural weapons, to which reference has already been made, and which mark him as the ruler and friend, not the enemy, of the lower creatures.

We should therefore *a priori* expect man to appear in some favoured region affording supplies of vegetable food throughout the year, and not requiring protection either from excessive cold or heat, and exempt from the attacks of the more formidable predaceous animals. At the same time there should be facilities for extending his range as his numbers increased, and it might be expected that older forms of life belonging to previous periods and unsuitable for the new anthropic age would be removed out of his way. This would only be in accordance with the arrangements which existed in all previous cases of a similar

kind, as we now know on the best geological evidence. I may quote here a saying of the late Hugh Falconer, one of the ablest of English palæontologists, and who made so wonderful discoveries in the Tertiary mammals of India: "Here (in the newer Miocene era) was clear evidence physical and organic that the present order of things had set in from a very remote period in India. Every condition was suited to the requirements of man, the lower animals which approach him nearest in physical structure were already numerous; and the wild stocks from which he trains races to bear his yoke in domesticity were established; why then, in the light of a natural inquiry, might not the human race have made its appearance at that time in the same region." Here Falconer recognises what we may call the Edenic conditions for the appearance of man, though they may perhaps not have been realized quite so early in geological time as he supposes.¹

Man would thus appropriately appear not in a period of submergence but of continental elevation, in an age when a mild climate existed over large portions of the world, and when plant and animal life had been developed in a high state of perfection. The Bible idea of an Edenic plain, watered by large rivers, and therefore a part of a great continent, in a temperate latitude, stocked with trees and plants pleasant to the sight and good for food, and free from the more formidable wild beasts, comes as near as possible to what may be termed the natural requirements of the

¹ *Quarterly Journal Geological Society*, vol. xxi., 1865, p. 386. The occurrence of flints, supposed to be worked, in upper Miocene or Lower Pliocene beds in Burma has been reported by Dr. Noetling (Rupert Jones, *Natural Science*, Nov., 1894). The skull and femur more recently found by Dr. Dubois in river alluvium in Java belong to a much more modern period, and do not warrant the conclusions based on them as to a species intermediate between men and apes. Should farther discoveries show that they really represent a primitive race of men, their characters would not be surprising, as we cannot suppose the earliest men to have been equal in brain development to the antediluvian giants of some of the cavern deposits, who were probably a hybrid race, and of exceptional physical power. (See *Nature*, Feb. 28, 1895.)

case, as we find them exemplified in the introduction of the lower animals which approach most nearly to man.

But man, as we know, is not limited by unchanging instincts. He has the capacity to provide himself with many appliances, and to make up for his inferiority in natural tools by the devices of his inventive mind. Therefore, if we forecast his history, we must make some allowances for these peculiarities. The climatal conditions of our continents have also differed in different periods. In some a warm climate has extended nearly to the poles. In others cold conditions have prevailed far toward the equator. Man may have been introduced in a period of exceptional warmth, or of temperate climate tending to further improvement. On the other hand, his advent may have occurred in a time of temperate climate tending perhaps toward refrigeration. In the latter case his possible habitat would be limited. In the former he would have wide scope for extension without increasing his artificial appliances. If he had to migrate, as population increased, into more severe climates, or into regions tenanted by formidable beasts, if he had to destroy or to tame animals and to enter on laborious cultivation, he must invent weapons and implements, provide clothing and shelter, obtain the aid of fire, and in many other ways change his condition. If, on the other hand, he was to have had his way prepared for him, as it had been for his predecessors, he might have been spared all this trouble, though the work of ameliorating the world and extending his Eden might have been slow and gradual, involving perhaps physical changes and the extinction of some animals, with the increase and migration of others, suitable to the companionship and service of man. Even in this case, however, his knowledge and capacities must have greatly increased in process of time. He must have become acquainted with many new and interesting, as well as useful, natural

facts. He might, even if exempt from the practice of arts necessary to subsistence, have exercised his inventive powers and manual dexterity in a variety of pleasing ways conducive to his greater happiness. The increase of men would have produced a variety of new social and political relations, as well as need for facilities of communication, transmission of intelligence, preservation of records, determinations of time, distance, and direction; and hence inquiry into the laws of nature and scientific, literary and æsthetic culture. What all this might have become in an unbroken golden age of primitive innocence, though we may infer somewhat from the principles already laid down, it would require the imagination of a poet to conceive fully. We may, however, readily fancy that it would have been something very different from the actual history of humanity.

That such extension and improvement of man in his primitive state of innocence is implied in the Bible we learn from the statement that he was not only to serve and to care for his garden, but also to increase and multiply and replenish the earth, and to subdue or bring it into subjection; as well as from the mention of gold, pearls and stones for implements or ornaments (gold, bedolach and shoham stone) in connection with one of the rivers of Eden.

If we ask in what precise geological period the conditions necessary to the advent of man actually occurred in any part of the world, geology informs us that this could not have been till the later part of the Miocene Tertiary, and in the warm temperate zone, as suggested in the above extract from Falconer. Possibly this time is too early, for all the known species of Miocene mammals are now extinct, so that if man, or any similar being existed then, we might suppose the species to have perished and to have been replaced by another. Further, the succeeding Pliocene, though a time of continental elevation, was also one of

vast aqueous erosion and of gigantic volcanic eruptions and earth-movements, which could not fail to have been injurious or locally destructive to men had they been numerous at that time. The next age also, that of the Pleistocene, was one of unusually frigid climate, and also of great local vicissitudes, a glacial age in short, most unfavourable to human interests. Thus the earliest time in which the required conditions can be certainly assumed would be the post-glacial continental period, which is that in which we actually find the earliest certain remains of men, and the date of which does not conflict with the ordinarily received ideas of human chronology.

It now remains for us to inquire whether anything occurred to interrupt the normal development of the human species in accordance with the principles above stated, and what testimony we have in Bible history or in nature of such an occurrence as the "fall of man." This we may take up in our next paper, in the first place from the Biblical or historical standpoint, and then in the light of our knowledge of early man from his actual remains.

J. WILLIAM DAWSON.