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ORDINARY MEETING, MAY 10, 1869.

THE REV. W. MITCHELL, M.A., VICE-PRESIDENT, IN THE
CHAIR.

The Minutes of last Meeting were read and confirmed, and the following Election was announced :—

MEMBER :—Rev. Payne Smith, D.D., Regius Professor of Divinity, and Canon of Christ Church, Oxford.

The presentation of the following works to the Library was also announced :—

“ Discoveries in Science by the Medical Philosopher.” By Sir G. Duncan Gibb, Bart., M.D. *From the Author.*

“ Review of Dr. Candlish on Revelation.” By P. McFarlane, Esq., M.V.I. *From the Author.*

The Rev. G. HENSLOW then read the following paper :—

*ON CERTAIN ANALOGIES BETWEEN THE METHODS
OF DEITY IN NATURE AND IN REVELATION.
By the Rev. G. HENSLOW, M.A., F.L.S. ; Mem. Vict. Inst.*

PART I.

THAT Evolution, or Creation by Law, as it has been termed in the endeavour to account for the present existence and condition of Things, is by far the more probable method of Divine working than that expressed by the so-called “ Special-Creative ” hypothesis, few men of science will now deny.

That the doctrine has been suspected and ridiculed is no more than might be anticipated ; for all startling and new theories pass through the three stages of ridicule, examination, and acceptance, if found reconcilable with truth ; and evolution is now being rapidly transferred from the second to the third stage.

It will be out of place to enter into the many arguments

which conspire to support the probability of evolution ;* but it will be needful to allude to certain features only which bear upon the subject of this paper.

In the first place, then, I would lay down this proposition, which I think will be found of universal application,—that there is in all probability no such thing in this world as absolute perfection.

In stating this, I would observe that our ideas of perfection can only be relative. As we say, in speaking of intellectual and moral attributes, that perfection resides in the Deity alone, which may therefore represent the limit to which we are continually endeavouring to approach, but can never reach ; so in the works of nature our conception of the perfect is never realized. Here and there individuals may appear to far outshine their like in beauty, symmetry, adaptations, &c., and to represent as nearly as may be possible our notion of perfection. But an observer cannot but admit such cases are comparatively few ; and even these, when subjected to a rigid examination externally and internally, *i. e.* anatomically, are usually, if not always, found only relatively perfect. For, *e. g.*, when we examine into the structures of animals and plants, we find what affords one of the strongest arguments of evolution, namely, an abundance of rudimentary and useless organs.

The word “useless” is, of course, open to the usual charge that we have no right to call anything useless, for it may hereafter be shown to have some purpose of which at present we are ignorant. Now this, to be sure, appears a just objection ; but, in reply, I would observe that the word useless, like perfection, is relative only ; and in thus describing nature as never being absolutely perfect no irreverence is admitted, as I believe it to be the indirect result of God’s will. In support of this view is the fact that these rudimentary organs are sometimes capable of development, and so of rendering active service, as in the case of the mammæ of the male sex ; and the explanation of their existence is that they either represent organs once necessary, *i. e.* in their ancestors, but which organs are now superseded by new and equally admirable contrivances, as is shown in the homologous organs of the vertebrata ; or they have been produced through the laws of evolution, in

* A belief in the doctrine of evolution does not necessitate acquiescence in any or all of the *causes* proposed, however probable natural selection or inherent principle of development, or any other or all combined, may be, and however much such provisional hypotheses may assist in understanding it.

accordance with the principle of the retention of type, and it is believed have never had a use until accidentally called into action, as in the above-mentioned example. And, lastly, I would say that the conviction of their being ordinarily of no use, is only arrived at by a considerable acquaintance with them, and the causes which produce them.

One or two examples may assist in clearing away this difficulty from a sceptical mind. No one will deny the purpose of teeth; but what can be their "use" in the rudimentary form in which they appear in the young whale before it is supplied with "whalebone"? Again, the pappus or "down" of thistles and other genera of the *Compositæ*, &c., is justly regarded as a means for the dispersion of the seed; but why is it retained on those flowers which are neuter, and incapable of producing any? Of what use are the rudimentary pistils in bisexual plants appearing merely as minute papillæ in the centre of the staminate flowers? Might it not rather be assumed an evidence of a wise ordinance that organs no longer required should dwindle away in part or entirely, so that the energy or force demanded for their production is thus preserved and directed into other channels, while they appear capable, should nature require it, of a re-development with functional power?

Analogous arguments may be brought to bear upon this point, which will assist in limiting the ground of objection very considerably. Thus we might ask what is the use of plants producing myriads of seeds which can never possibly grow up to maturity? What is the use of parasites to man and animals, the frequent cause of suffering and even death? But it is not for us to call these facts to account. This is the issue of God's laws.

These brief allusions to the supposed imperfections of nature will be sufficient for my purpose, simply dismissing them with the cautionary remark that it is for want of a better expression that I use the word imperfection as implying relative perfection, without, however, attaching any meaning to the word, which may be thought derogatory to the Deity. But, on the other hand, it would be the height of absurdity not to admit most admirable contrivances and adaptations in nature. Are they evidences of what we call design, mental purpose, or intention? If any of these or kindred expressions can at all adequately represent the fact, I unhesitatingly say it is my firm belief such to be the case. Instead, however, of selecting some particular example, as the eye or hand, and saying such exquisite mechanism is a very witness in itself of being a direct emanation from the Creator, I would say it evidences at least,

what we call design ; but as God's ways are not our ways, so believe it to have been evolved, and not created.

In the last paragraph a new difficulty will have been felt, viz., the inadequacy of language to express ideas of the Divine methods ; so that in thus writing, the charge of misrepresentation, not to say anthropomorphism, can scarcely be avoided. I would therefore here state that in labouring to represent intelligibly notions as to God's methods of operation, I profess to be profoundly ignorant of them. All I would attempt is to show what appear to be analogous methods exhibited both in the works of nature and in revealed religion, although I cannot enter into the divine arcana, and unravel the mysteries of the processes of His acts. Rather than venture on any attempt to explain the divine methods by ordinary terms, I would prefer adopting some general expressions to convey an imagined idea of the causes of existing things, and as less liable to the charge of anthropomorphism.

I purpose, therefore, adopting the general word *force*, and recognizing all issues in nature as the effect produced upon matter by the resultant of component forces. These forces are separable into physical, chemical, biological, &c. ; and, in addition to all those which the chemist and the physicist can eliminate and claim as the objects of their special studies, there still remains a residuum of forces in those organisms endowed with life, and which produce those results which we say are designed, and which it is customary to regard as witnessing to a divine intelligence.

In recognizing these latter forces, I would call them *evolutive*, but as being so far like others that their resultant with them produces relative effects only according as in their continual attempt at equilibration they are more or less counteracted or assisted by other natural forces.

As an illustration I would recognize every special issue of evolution, as, for example, some well-marked variety of animal (say pigeon) or plant (say rose) as the effect of the combination of the usually so-called natural forces in conjunction with the evolutive, as a temporary stable form, so long as environing conditions to which it was subjected remain the same. Hence appears the permanency of some species and races. Subject them, however, to altered conditions, and thus bring an unaccustomed set of forces to bear upon them, *e. g.*, by domestication or cultivation ; the forms once so stable soon "break," the equilibrium is overthrown, and variations once more ensue.

It must be noticed that not merely the evolutive but all forces in nature are equally to be regarded as emanations from

the Divine will ; but just as matter, while undergoing integration, has become differentiated into existing organisms with their organs by evolution, so it would seem probable that force (or motion, as H. Spencer calls it) has become differentiated too. Hence the variety of forces which modern science recognizes as convertible or homologous, as well as the diversity of function obtaining among the varieties of form.

After all, therefore, what I have here called evolutive forces in the organic world may prove to be only particular phases of those which conspire to constitute animal and vegetable life. And just as in the vital force itself it is usual to recognize two such phases, viz., the vegetative and reproductive, so the power of development or continual advance or alteration from an assumed type may ultimately appear as particular forms of life-force issuing in those results which we are accustomed to look upon as designed.

Again, I would urge, how all this is carried out I do not pretend to say. We know that "God's ways are not our ways," and I would only paraphrase that remark by observing that as man is *external* to the works and forces of nature, upon which he operates and produces results which are simply the issue of combinations of nature's forces which are adjusted by his will, and rendered subservient to it ; so God would seem to operate *through* His works. This particular aspect of His will, which is here represented by evolutive forces, appears to be *internal* to them, and may hereafter prove to be differentiations of perhaps one single force originally infused into matter, when "the Spirit of God 'brooded' upon the face of the waters."

In endeavouring to represent under the name of forces nature's execution of the will of God, I confess it must be very inadequate to silence the objection of those naturalists and philosophers who, judging from the apparent immutability of nature, not only deny the existence of design in the physical world, but also the efficacy of prayer in the moral.

With regard to the former difficulty, I think it is aggravated by the general idea of God being like man, an artificer ; so that human relations have clothed the Deity in a somewhat false aspect. For an examination into nature seems to show that this is not the usual way in which God works. All is by "law" ; the use of the imperative mood in the words "Let there be" of Genesis, would seem to be not so much the expression of one who creates, directly and with his own hand, as that which indicates agents external to the Creator, who has

impressed upon nature forces whose province is to execute His will.

But the difficulty of understanding how design can cooperate with immutable laws will always exist. Yet why should that be any reason for denying it? We cannot fail to recognize it in a watch however imperfectly constructed, nor refuse to see it in a flint knife however rudely chipped; why deny it to the Creator, although we may discover in His works too innumerable imperfections, to be accounted for, however, on quite other grounds; and which are regarded (be it remembered) as a witness to evolution.

Is there no intention, then, in man's very existence, even if he had been developed from the quadrumana? Is there no intention in the adaptation of life to envioning circumstances, though it may be brought about by law? Is there no design in the senses by which he can receive external impressions, though myriads of years may have elapsed in arriving at their present condition; and thousands of transitional forms experienced in their development? Is there no design in the mutual adaptations, correspondence, and connection between all his organs? If all these things and ten thousand others are due to *chance* combinations of laws, if the structure of the eye of a vertebrate has been developed from some barely sensitive spot of pigment by repeated chance improvements which have been beneficial to the creature, in conjunction with other changes, in accordance with the principle of the "correlation of growth"; which principle must be based upon chance as well, if not to be allowed as designed; then, it is clear, the chances would be infinity to one, that such variations would arise, and that, having arisen, the different organs would vary together; so that by some long series of chance variations the eye of a man should have been produced from something like the ocellus of an ophiura.

That the one has probably been developed from the other might be admitted, but I *must* recognize in the development—though subjected as it may be to interfering forces—the will and intention of the Deity.

As neither chance nor design admits of strict mathematical proof as to its being the cause of structure; the question seems to rest on the basis of probabilities. And if they appear to exclude the former, reason and faith alike combine to urge the latter.

But however convinced we may feel that design or mental purpose is evidenced by the works of nature, the most casual observer cannot fail to recognize *chance* as an element which enters largely into the condition of things.

All living organisms are subjected to what may be called chance circumstances, or, as we might say, to accidental combinations of forces. These, it is thought, cause or induce variations by influencing the reproductive system; * nevertheless, Mr. Darwin is wise in saying that "our ignorance of the laws of variation is profound."† Yet the fact I wish to see recognized is *the power of the Deity to produce ultimate and designed results, not only by means of the recognized laws of nature, but through the so-called chance circumstances.*

It is when, as I believe, we find undoubted evidence of this being the case, that we are compelled to confess to the greatness of our ignorance, to feel that faith, or the evidence of things not seen, is as much required in the student of nature as it is in the pursuit of Christian duty, and that we can only then fully realize how all things are possible to God alone.

To illustrate this. Would any one, who at least believed in a Creator, deny that the physical constitution of this world was not destined to become relatively suitable for man? Yet it was brought about by a long succession of events, the issues of so-called accidental circumstances. Would any one deny that coal was not destined for man's use? Yet what is more accidental than that vegetable matter should accumulate in a peat bog or swamp; while the difficulties, dangers, and frequent loss of life and property in securing it testify to the relative perfection of God's purposes and works? Was it not designed that vegetable life should require water for growth and development, yet rain depends upon totally distinct causes, and quite irrespective of vegetation? Thus and in an infinity of other cases do we see evident purpose more or less over-ruling natural laws and chance circumstances.

I need hardly say it is quite unprofitable to attempt any explanation of the way by which the Deity can thus act. *But the recognition of the possibility is of the utmost consequence, for it seems to strike at the root of all materialistic and atheistic views.* It appears so utterly irreconcilable to us; although it is quite in accordance—as it is the object of this paper to show—with the Deity's methods in the moral and religious world, that, as is not unfrequently the case, a mind weak in faith gives way at the contemplation of this difficulty, denies design altogether, and reduces everything to blind chance.

* *Origin of Species*, p. 93, 4th edition.

† *Ibid.*, p. 195.

PART II.

In considering, next, the methods of Deity as revealed to us in the Bible, I wish to call attention to some striking analogies which will be found between them and those spoken of as existing in nature. Irrespective of the direct interferences which it is the province of revealed religion more especially to unfold, there is abundant evidence of the *indirect* manner in which God works, or of "Law" as it has been described when speaking of secondary agencies. And in addition, we have many cases recorded where intention or design is executed by means of *accidental circumstances*, often if not always involving the free agency of man, which, however, does not appear to afford any evidence of having been controlled. A few examples of the latter will illustrate this :—

God foretold to Rebekah that her elder son should serve the younger. He did not say how this should be effected, but she had not sufficient faith in God's promise, and so must needs bring it about herself. Hence, when Isaac said of Jacob, "Yea, and he shall be blessed," he was corroborating the will of Jehovah, though it was—we may safely presume to say—not brought about as God wished.

Again, the whole series of events, which issued in Joseph being the lord of Egypt, are such as might and did result from the free actions of his brethren and others; yet we cannot refuse to recognize design throughout, but must believe with Joseph, that such was the case when he said to his brethren,—“Now, therefore, be not grieved, nor angry with yourselves, that ye sold me hither, for God did send me before you to preserve life” (Gen. xlv. 5).

The Book of Judges supplies us with instances where God's judgments on the Israelites were executed by means of the incursions of neighbouring tribes; who, however, we have no reason for believing ever considered themselves as specially called upon by the God of the Hebrews to inflict punishment upon them.

Again, the account given in the 14th chapter of Judges, of Samson's going down to Timnath, is one of a natural sequence of events; but it is said of his father, who raised an objection to his son's taking a wife from among the Philistines, that he “knew not that it was of the Lord, that he sought an occasion against them.”

One illustration from the New Testament will suffice. It was Purpose that brought Jesus Christ into the world as a man, in order that He might die; but how was that purpose executed? It was no other than by a train of causes and effects which we cannot but recognize as "natural," yet they issued in a preordained result. The author of "Ecce Homo" has well explained this; that it was because the Jews could not forgive Him for calling Himself a king, and yet would not assume the attributes of their ideal monarch. Surprise merged into ridicule, ridicule into persecution, persecution into death.

We may here too notice how judgments or punishments were executed upon men and nations by means of natural occurrences. It is expressly stated that such was the case in olden times; but I need hardly add we have no actual warrant that God so acts now. In passing on, however, we may catch the lesson our Lord teaches us in the fall of the tower of Siloam, that though the destruction of life which it involved was—as we say—accidental, yet such are to be taken as warnings that, "unless we repent, we shall all likewise perish."

Lastly, the production of good out of evil, so generally recognized, surely bears witness to a Divine ordinance? Thus, for example, is that in the case of Joseph in Egypt; as also in the total abolishment of idolatry from the Jews by their captivity in Egypt; and, above all, that issuing from the sacrifice and death of our Lord.

It is in all such and other kindred operations of the Deity the difficulty which our finite minds feel so strongly really lies. That which has been so often expressed in the attempt to reconcile God's fore-knowledge with man's free-will becomes relatively far less in comparison with his power to overrule, as it were, but without limiting his free-agency.

This, of course, is no new difficulty, but as we find it represented alike in nature and revelation, they would at least seem to testify mutually to the truth in each.

Now an especial value of the discovery of this truth, which has long been recognized and testified to by such expressions as—"The lot is cast in the lap, but the disposing of it is of the Lord;" and "Man proposes, but God disposes," lies in the fact that it leads to important results, for it seems to throw great light upon the character of Providence.

The general idea of Providence appears to have arisen from the relationship which exists between a father and his family; and the fact that the whole Bible speaks of God under this aspect has of course tended to strengthen man's belief that

such is universally the case. Hence the Deity is commonly said not only to be the great Creator, but also supporter of His works. Every creature is represented as the work of His hands. He is compared to the potter, who has power over the clay, and so forth. This, in the abstract sense, is quite true, and is a witness to God's designs; and no one would deny to him the power of assuming such character at will. But the human method of working, as a rule, does not seem to best illustrate the process of Divine action; though God, in Christ, perhaps testified to that possibility.

With all due reverence, with the cautionary remark that my words must be faulty and unable to convey a clear meaning of what cannot be described, and at the same time invoke no disparagement, I would say that the laws of Providence, like the laws of nature, usually produce but relatively perfect results.

The view of Providence as given by Christ may be assumed to be the best. He says—"Seek ye first the kingdom of God, and all other things shall be added unto you." Yet experience tells us that the temporal reward of obedience to that command is only true in a relative sense. The most godly life is no guarantee for a worldly fortune. Nevertheless, if we live "godly, righteously, and soberly," such is undoubtedly the very best means of ensuring general respect and temporal success; yet, on the other hand, it may fail, from a variety of uncontrollable contingencies, to prove successful after all.

So He also speaks of the sparrows; our Heavenly Father feedeth them, and not one falls to the ground without Him. Yet many a one of God's creatures perishes of cold and starvation in the winter, or from enemies at all times.

Now, in endeavouring to understand the nature of Providence both as regards ourselves and inferior animals, it appears to be much the same, or at least analogous. God has impressed powers upon animals by which they are enabled to procure themselves food,—though such powers, be it remembered, may have been all *evolved*,—yet not so absolutely but that opposing forces may overrule and destroy that providence, and which thus discover its relative character, as is, *e.g.*, manifestly seen between the relationship that obtains between beasts of prey and their victims. Now man has far higher powers; he can exercise his reason more fully, and his judgment so as to provide for contingencies, which they cannot do, except by the force of instinct, whatever that may ultimately prove to be. And unless he do use all his powers, he is not bringing such forces to bear against the overpowering ones of nature as he might, and he must accordingly succumb proportionately. This, of course, is

nothing else than the law that he must get his bread by the sweat of his brow ; but the point brought out prominently by these reflections is that the adjustment of forces producing success is not absolutely in man's power, so that he may be unsuccessful in the end. But then comes the thought that nature and revelation alike testify to the power of God to work out designs irrespective of the chance contingencies by which they are done. Faith comes in to supply the evidence where reason and intelligence fail ; and the true Christian, while not slothful in business, patiently waits upon the Lord, and firmly believes, though he may fail to see it, " that all things work together for the good of those who love the Lord their God."

Instead, therefore, of weakening our belief in Providence and the efficacy of prayer, it appears to me only to call upon a further exercise of our faith, while we remember that " all things are possible with God." I believe, most assuredly, that prayer will be answered relatively, indirectly, and not absolutely, if the conditions furnished by ourselves be satisfactory, *i. e.*, if we perform as best we can our part of the duties involved in it,—that " if we draw nigh to God He will draw nigh to us ;" and although we must not expect a miracle, nor even any immediate or direct answer, yet we may expect the reply to accrue through natural laws.

It is supposed by some that, as man adjusts nature's forces for special purposes, so God will combine and adjust His laws where we cannot, and bring about results, perhaps not as we should anticipate or even wish, but in accordance with perfect justice. But, without denying the possibility of the Deity acting thus or in any other way, I think it better not to attempt to explain how it is done, but believe He can and will do for us whatever He may see fit ; and the illustrations I have drawn from nature and revelation would alike seem to warrant such faith.

Hence does it appear that there are no grounds for questioning the use of prayer, private or public or national, much less to exalt human contrivance as superior to and superseding it. But who can say that the very means adopted by man to exterminate an epidemic were not suggested by Providence through natural laws governing the human mind, or that its removal may not have been a designed issue evolved through a train of fortuitous circumstances ? It is surely consonant with other facts of nature, and with revealed religion, to think so ; and though here, as in accounting for the origin of specific organs, the results may have been acquired through natural laws, it does not at all impugn the statement that " every good gift cometh down from the Father of lights,"

because that Father should see fit to grant such to us only through mediation of His own choosing.

The CHAIRMAN.—I need hardly call upon you to thank Mr. Henslow for this interesting paper, and I now invite discussion upon it.

Rev. C. A. ROW.—There are several things in Mr. Henslow's paper to which I should like to call attention for a moment, especially as one portion of the paper deals with a subject to which I have devoted an enormous amount of thought. But I want first to make an observation on the subject of this evolution theory generally. We are clearly not right in charging this theory with being atheistical, for it is conceivable that the Great Creator should have acted in the way which the supporters of the theory uphold. Still that is not my belief, though I admit that it is conceivably possible. We have the old illustration of Paley's about the watch. We all remember in the Natural Theology, where he points out that if the watchmaker, the artist who made the watch, could impart to that watch the power of generating another watch out of its own substance, that would not lessen the design involved in its production, and would not in the least degree show that the watchmaker was less of an artificer because he was able to produce a watch which should be able to generate another out of its own substance. So far, therefore, I do not think that any theory of evolution should be criticised as necessarily atheistical or even as denying the existence of design in creation. However, we have been promised a paper on this subject, and I hope we shall then have it thoroughly well discussed; for unquestionably it is one of the most important subjects of the present day. There is one difficulty for the ordinary mind in all theories of this kind,—they seem to banish the Creator to such an immense distance, that ordinary minds have a great difficulty in seeing God in a Person so far removed from them. These theories render it difficult to apprehend very distinctly the personality of the Creator, and I need hardly say that all previous systems of philosophy which had place anterior to Christianity, tended in the long run to get rid of the personality of God. The idea is the same: vital force in nature, an *anima mundi*, or something of that kind running through these hypotheses, making them pantheistic, but resolving nature into cause and effect. With such views it was difficult to arrive at a fair conception of the Divine Personality. There is one remark in Mr. Henslow's paper which is worthy of great attention. It is this:—

“In the first place, then, I would lay down this proposition, which I think will be found of universal application,—that there is, in all probability, no such thing in this world as absolute perfection.”

Now, that is a proposition which we should have deeply impressed upon our minds in all our philosophizing. We cannot argue from any abstract principles that the Creator would have made the world in this or that degree of perfection —we can only take the facts of the creation as they stand; and

all mere systems elaborated out of considerations from the Divine attributes, that because those attributes are perfect they must produce what we call perfect results, fall hopelessly to the ground. We have to deal with the great facts of nature, which is no doubt full of imperfections ; and I do not think that any of our ordinary attempts to explain away these facts will hold water. For example, it is a common thing to explain all the imperfections which we see in nature by the doctrine of the Fall. I will not say anything on that, except that it does not explain these things at all ; it only moves the matter a step further away ; and still the real difficulty arises,—why did the Creator so arrange things that man should be capable of falling ? That is one of the valuable things laid down in Butler's *Analogy*, and the more we study that book, the more we shall pay attention to this fact, that we must admit what Mr. Henslow has called imperfections in nature. I do not think "imperfection" is a good word to express this ; but, at the same time, I cannot tell what word we ought to use to fill its place. There are, no doubt, certain imperfections in nature. In my finger, for instance. Did not God make it ? Yes ; and so I might run through creation. Wherever I see signs of physical evil, whatever they may be, I am obliged to think them to be in conformity with the supreme will of the Creator, and any reference to a subordinate cause is out of the question. One expression has been used in this paper which I do not agree with. Mr. Henslow speaks of the passage "God's ways are not our ways." Now, that is true in the sense in which it is used in the Scriptures, but it is not true in the sense in which it is used here. Mr. Henslow seems to suppose that we can measure the Divine ways by something else than our ways. But this is not true ; God's ways are not our ways, and we know nothing of them, because no conception of them can be formed by the human mind. This leads me to refer to another passage, where Mr. Henslow speaks of trying to get rid, more or less, of the language of anthropomorphism. I believe that that is simply impossible, as is shown in Mansel's *Bampton Lectures*. We may abstract, from our conception of the Deity, the more strong anthropomorphic forms, but abstract them as we will, what do we leave behind ? A remnant which is anthropomorphic after all ; or—to use Mansel's words—after we get rid of human feeling, human love, human affection, and so on, we really leave human coldness behind. There are many other points in Mr. Henslow's paper which I should prefer to leave other hands to deal with, and therefore I will pass over them, and turn to the second part of the paper, which I wish the author had elaborated to a much greater degree, because he has touched upon many important points, and I am not prepared to say what are his views upon many of them. At the beginning of the second part Mr. Henslow says :—

"In considering, next, the methods of Deity as revealed to us in the Bible, I wish to call attention to some striking analogies which will be found between them and those spoken of as existing in nature."

Now, this is most important, and would bear to be treated of in a separate paper. I believe myself that God exhibits Himself in nature, in history, and

in revelation ; and now I will just test the theory of development a little by the mode of God's action as manifested in history. I suppose all God's modes of action to be analogous, and therefore He works after a similar manner in creation, in the development of history, and in connection with revelation. That is the view of Butler in his *Analogy* ; and, that being so, we expect to find Almighty God working alike, or, at any rate, with a considerable degree of analogy, in all these instances. I think, therefore, that we may arrive at some conclusion—not demonstrative, not certain, but in some degree probable—as to the mode He would be likely to adopt in working in creation by observing the mode in which He has acted in history. Take the evolutions of man in history ; and there is no doubt that the theory of gradual development is true to a considerable extent. There are no great leaps. One state of civilization slowly evolves itself, stage after stage, out of another ; one system of thought slowly evolves itself out of another ; one system of philosophy arises from another in the same way ; and the more we notice this the more we see that all systems of philosophy are closely related to each other. This is very remarkable ; and I think it can be abundantly proved that there is, at least in the developments of God in history, a considerable amount of what we call development by gradual progression. Having stated that generally, I want now to draw your attention to one place where this result utterly and entirely fails. We may undoubtedly trace, in the course of history, the long, slow, gradual processes by which Almighty God prepared the way for Christianity. It is one of the most remarkable things we can arrive at by the study of history, to see that great set of causes, operating by result after result, by which the human mind was prepared for Christianity, or, to use St. Paul's language, "when the fulness of time was come." I will not go to Eastern nations, but we can easily see the gradual state of preparation for the development of Christianity, and it is marvellous to consider what might have been the result had one single link in the chain of succession been wanting. Here comes in Mr. Henslow's view of accident. I do not think there is such a thing as accident : I think we have a proof of care and intention in the means whereby the world was gradually prepared by an immense succession of causes, for the advent of Christianity. Let us take an example. Every one must know that one of the greatest events in history, in preparing the way for Christianity, was the conquest of Alexander the Great. Now, the whole set of events leading to his expedition into Asia was brought about by an infinite amount of preceding events, and if any one of them had failed, the expedition would not have taken place. What was the result ? The adoption of Christianity throughout the heathen world. Here was one of the greatest instances of moral and religious development in the ancient world entirely in the hands of Providence, and gradually evolved to prepare the way for Christianity in its intellectual and moral developments. Let us take the Roman empire—what took place there ? There were an immense number of preceding causes all culminating in one result, and beneficially preparing the way for Christianity. Having pointed out this much, now let me state that the chain breaks in one point. I have

most carefully examined this point, and half of my life has been occupied in endeavouring to fathom the immense gulf that separates the four Gospels from the whole of the previous thought of the ancient world. Every one must concede to me, that there is an enormous interval separating the four Evangelists from the whole thought of the ancient world. I therefore draw attention to the fact, that although evolution does prevail in human history, yet in revelation it breaks, and, I may say, a new creation takes place.

Mr. REDDIE.—I do not know how Mr. Row reconciles the latter part of his views with what he said at first. He has failed to show that what is called the revelation of God in history is analogous to evolution in creation——

Mr. ROW.—I assume it.

Mr. REDDIE.—To assume this is one thing ; to prove it is another. And I am surprised to find that Mr. Row appears almost on the other side to that he has previously occupied, and now as not advocating free agency. But I deny that we can properly attribute to God what is produced by human agents, and I hold that what constitutes the history of the world has been worked out by the moral agency of free agents——

Mr. ROW.—I hold that God does overrule and does hold in His hands the free agency of man. I hold the doctrine of free agency, but I believe that God holds it in His hands in a way I do not comprehend. (Hear, hear.) No one believes more in human free agency than I do ; but yet there is some mode or other, beyond the reach of mankind to fathom, in which the Great Creator holds it and shapes it for the success of His own purposes.

Mr. REDDIE.—No doubt Mr. Row is in a difficulty, and I will try and help him out of it. He talked of the theories of evolution pushing the Deity to a great distance away from the minds of ordinary men ; and I must say, that he seemed to me, notwithstanding these qualifications of his theory of man's history, to do very much the same thing. Now, I consider that man is a free agent, and that he does a thing because God has given him the liberty and power to do it. A man cannot fly, but he can walk and move within certain limits. He can knock another man down, or leave him alone, there is no doubt about that at all. But, then, God brings good out of evil. For instance, he may cut off one evil doer by death, and allow others to lead long lives, doing works which are most pernicious to their fellow-men ; but all this is overruled for the best, without interfering with individual free agency. At our last meeting we discussed God's absolute determination to sweep away a whole evil race of men by a flood ; and it is in this way that God, Who is not a God afar off, but Who is constantly present among us, overrules the evils of free agency. I do not believe at all in the views of the author of this paper. The tone of the paper I quite agree with ; but I think it a compromise, and a compromise—I do not say it discourteously—unworthy of those who take that view. We must learn to speak of evolution, which really means Darwinism and Pantheism in a straightforward way. There is one passage in this paper

which precisely corresponds with the very worst passage in Darwin's book, where Mr. Henslow speaks of its assumptions perhaps being hereafter proved. The paper is full of hypothetical "ifs"; "if" this and "if" the other, and so on. But this is the passage to which I refer :—

"This particular aspect of His will which is here represented by evolutive forces, appears to be internal to them, and may hereafter prove to be differentiations of perhaps one single force originally infused into matter, when 'the Spirit of God' brooded upon the face of the waters."

Now I do not believe that there is anything consistent with our knowledge of physics or of natural laws, and still less is there anything consistent with our knowledge even of history, which will warrant such a conclusion as that. Thinking as I do, it is only honest for me to say that. The sooner we meet such views as these straightforwardly the better. We should see what they plainly mean, and refute them if we can, and if not, admit that we cannot. In the same paragraph we have the words which Mr. Row has already commented on—that "God's ways are not our ways," and I agree with what Mr. Row has said upon that point. In the first place, the phrase which occurs in one of the prophets—Isaiah, I think—has nothing to do with physics. We have no ways in physics : we cannot create anything. We have nothing to do with the air we breathe, or with the food that feeds us. We can cook and manipulate food, but as to its creation or its mode of existence we have nothing to do with that. I entirely object to texts of Scripture which have nothing to do with physics or science being brought forward and used in this way. I am sure Mr. Henslow will let me say this without feeling any offence, because this is an important matter, and in this Society especially there is some difficulty in knowing well how to draw a safe line. We are most anxious not to go unnecessarily into the exegesis of Scripture, and most anxious to test scientific truths scientifically, as in any other scientific or philosophical society that studies physical science ; and I object to having the Scriptures brought forward in this way. Every logician or man of common sense knows that a text applying to one particular class of things should not be drawn in, as it were by a side wind, and made to apply to totally different things. This, however, occurs more than once in the paper. In one part there is this most extraordinarily illogical sentence :—

"Instead, however, of selecting some particular example, as the eye or hand, and saying such exquisite mechanism is a very witness in itself of being a direct emanation from the Creator, I would say it evidences at least what we call design ; but as God's ways are not our ways, so I believe it to have been evolved, and not created."

An eye evolved and not created ! That is simply Darwinism, and the reverse of design. Our Chairman has already refuted, in this very Society, the irrational notion that an eye could be evolved in the way Darwin puts forward ; and, I regret to add, in the way tacitly put forward in this paper—

Mr. HENSLow.—I do not believe in Darwin's theory ; and I have endeavoured to refute it by showing its utter impossibility.

Mr. REDDIE.—I cannot help there being inconsistencies in the paper. I can but take the sentence as it is, and there can be no doubt about it at all, if the "it" applies to the eye or the hand—

Mr. HENSLow.—In another place I have especially guarded myself against that.

Mr. REDDIE.—Still I have nothing to do with the paper being inconsistent with itself—

Mr. HENSLow.—But that is not inconsistent.

Mr. REDDIE.—Excuse me, but does the "it" refer to the eye or the hand?—

Mr. HENSLow.—Yes.

Mr. REDDIE.—Then we are just where we were before. I say our Chairman has refuted the evolution theory according to Mr. Darwin's idea. If Mr. Henslow has a new way of evolving an eye by accident, it would be interesting to know what it is—

Mr. HENSLow.—Look at the end. It does not imply that.

Mr. REDDIE.—Does it not imply "evolved"?

Mr. HENSLow.—"Evolved" does not necessarily imply by accident.

Mr. REDDIE.—Well, if this is a new Darwinian theory, still the logic is peculiar. The author says, "But as God's ways are not our ways, so I believe it to have been evolved, and not created." That is a form of logic which surprises me. Man cannot create anything. And if we say God does not create, that is making His ways like our ways! I do not know whether Mr. Henslow is an Oxford or a Cambridge man ; but Dr. Thornton told us some time ago that there is no such thing as logic at Oxford, and certainly this is most extraordinary logic. Then there is one passage which Mr. Row commented on, and agreed with, but which I cannot agree with,—namely, that there is no such thing in this world as absolute perfection. Not that I deny that there are many things which are imperfect ; yet Mr. Row did not give us any instances. He spoke about his finger—

Mr. Row.—I could give you hundreds in a moment if you liked.

Mr. REDDIE.—We may cut our fingers, or a man may have a bad constitution and his fingers may be imperfect, but that is merely exceptional, and there are certainly many things which do not come into the category of imperfect. I do not know whether Mr. Henslow is prepared to admit that crystals are perfect, yet he tells us that we have no perfection in nature. I do not know whether he thinks pure water and air are perfect or imperfect ; or whether he can say why, if he thinks them not perfect. I must confess that the more I look at nature the more perfect I find it. We are very ignorant, and on that account we might well say that "God's ways are not our ways," though we are not so ignorant as to be justified in quoting such texts *mal à propos*. Then with reference to anthropomorphism,—I shall speak with some hesitation about that, as I think it should be brought forward in a distinct paper, and treated in a careful manner. We had this

subject before us at one of our meetings, when Mr. Warrington, in a paper which he read to us, spoke about "God's eyes" and "God's ears" and so forth, pointing out that what was said about God's seeing and hearing was not strictly applicable to God, but was an anthropomorphic way of speaking in accommodation to our understanding. But I beg to observe that it is not the eye or the reflection of the image on the retina which sees—you may have that in a dead eye—it is the spirit of the living man which sees through this means. He sees *through* his eyes and hears *through* his ears; and so, what hears and what sees are truly analogous to God's hearing and seeing, only man sees with certain visible instruments, and God can see without them. To confound the sense of seeing with the mere mode or form is a very shallow philosophy; and I think Mr. Row would be one of the first men, when he reconsiders these things, to stand up and refute his own notions—

Mr. ROW.—I think you have misunderstood me.

Mr. REDDIE.—He would be one of the first to admit that it is not the eye that sees, but something beyond the eye; and not the ear that hears, but something beyond the ear—

The CHAIRMAN.—And "He that made the eye, shall He not see?"

Mr. REDDIE.—Quite so; but what I want to point out is, that there is a much greater resemblance between man and God than we conceive when we speak in this way; and that it is much more accurate than some think, to speak of God as seeing and hearing, and as exercising those other attributes which we have in a certain sense also in ourselves, but which He has in perfection. There are two or three minor points in the paper which I intended to speak of; but I do not much like going into minute criticism, especially considering the extraordinary amount of assumption that runs through the whole paper, and the peculiar way in which the author has put everything forward,—as, "I believe so-and-so to be the indirect result of God's will," and "it may be that so-and-so never had a use until accidentally called into action," as in the case of the *mammæ* of the male sex, which Mr. Henslow says he believes to be "capable of rendering active service." I understand from the Chairman that it is recorded that in one case a man was known to give suck, but I must say I do not believe it—

Mr. HENSLow.—It is a well-authenticated case.

Mr. REDDIE.—Well, I do not believe it, and even if it be the case in one instance, remember *exceptio probat regulam*. But I will give you one or two other instances of these assumptions, which I am sorry to see contained in the paper. The author asks this strange question approvingly:—"Is there no intention in man's very existence, even if he had been developed from the *quadrumana*?" Well, if we are to believe that man was created in this low and degraded state, it would alter the whole of our conceptions of God's works. If we believe that man has been developed from one of the *quadrumana*, we shall have to look upon him in a very different light than heretofore. But it has been refuted over and over again that man could ever have emerged from a savage state, if he had been created only so imperfect as that. Further on the author says:—

“Is there no design in the senses by which man can receive external impressions? Is there no design in the mutual adaptations, correspondence, and connection between all his organs? If all these things, and ten thousand others, are due to chance; if the structure of the eye of a vertebrate has been developed from that of a radiate by repeated chance improvements which have been beneficial to the creature, in conjunction with other changes, in accordance with the principle of the ‘correlation of growth,’ which principle must be based upon chance as well, if not to be allowed as designed; then, as every mathematician knows, the chances would be infinity to one that such variations would arise, and that, having arisen, the different organs would vary together; so that by one long series of chance variations the eye of a man should have been produced from the ocellus of an ophiura.”

That is, in my opinion, downright nonsense, utterly unproved and contrary to all we know, and I cannot admit any such arguments based on a mere series of “ifs”——

MR. HENSLAW.—You misunderstand me. I am simply showing that even if we concede to the extreme supporters of Darwin’s theory everything they ask for, my view is still right.

MR. REDDIE.—But I object to conceding such points, and assuming the possibility of these things, when there is not a shadow of proof in their favour——

THE CHAIRMAN.—It is rather an obscure passage, but I do not take Mr. Henslow to mean what you do, but the very contrary, that there is ample proof that such an argument could not have been mathematically sustained even by any of these “ifs.”

MR. REDDIE.—I do not ask for mathematical proofs, but I do say that this is an unfair and unsafe mode of bringing these things forward, especially when Mr. Henslow ends the passage by saying “That the one has probably been developed from the other might be readily admitted.” I say that in this Society, until there is some reason for such admissions, these things should not be brought forward in this way. If there is any proof in their favour, let them be received by all means, but if not, let there be no such concessions made. With regard to variations, I can only say that that part of the theory which is true is not new, and it is only when it goes beyond the bounds of science that the theory has been controverted and shown to be false. As to a development from monkeys into men, there is not a shadow of proof for believing either in its probability or possibility. It is the most absurd thing that was ever put forward in the name of science, and matches the most foolish notions of the darkest ages or the least enlightened of mankind.

REV. J. H. TITCOMB.—After the somewhat severe manner in which Mr. Reddie has dealt with this paper, and expressed his opinions on points with regard to which he differs from the author, it may be interesting to turn to parts of the paper where we have a greater agreement with Mr. Henslow. Whatever our views of evolution and creation may be, I think we shall have but one opinion as to the great value which this paper possesses in the vindication of the possibility of design on the part of God running parallel with

immutable laws. Now that seems to me to be the very gist of the whole paper. I do not go into the question of the evidence or the proof of the thing ; but the object of the paper is of that healthy character to show in its moral bearings a rational and logical basis for believing that it is possible for immutable laws to exist, and yet for God to have a mental purpose subserving them and at the same time governing them to carry out limited designs in full concurrence with those immutable laws. I think the paper states this well, where Mr. Henslow says it is unprofitable to explain the way in which the Deity has brought about the modes in question, but that the recognition of their possibility is very important, and that though it may appear impossible to materialists and atheists, the fact itself may be a logical necessity. Now I fully concur in that, and as philosophers we should strive to show that it is possible to believe in the concurrence of those two things. May I be allowed by way of supplement to this paper, or as an illustration, to give you from mathematics, what has struck me as an interesting piece of evidence on this subject. There is a certain curve called the hyperbola, and a line drawn in a certain direction approaching it is called the asymptote, and the property of that curve is that, when continued indefinitely, it shall always be drawing nearer to the line but yet it shall never touch it. You may say it is impossible, and that the two lines must meet if they are carried far enough, and must intersect each other. Yet the two lines will go on for ever, always approaching each other, but never coming in contact. Now it strikes me that that is an illustration which is exactly to the point. It is conceivable to my mind that there may be an immutable law expressed by the curve, and God's designs expressed by the line, and that they may be going on together almost parallel ; and though you would say "they must intersect each other somewhere," yet each may remain intact. I put this forward merely as an illustration of an interesting point brought out by the paper. In the second part of the paper, Mr. Henslow speaks of accidental or chance circumstances in reference to God's government of the world under physical laws, or where those laws pass into God's moral government of the world. I am willing to allow, and indeed we must all allow, that there may be such things as chance circumstances. If by any chance this tumbler were too near my hand, and fell down and was broken, we should say that that was chance. It would be pushing the doctrine of Providence to an absurdity to say that God ordained everything, down to the smallest and most trivial of occurrences. (Hear, hear.) But while I admit that, I do think that we ought to distinguish between the possibility of it and the universality of it ; there are many things in the history of the world which I believe are not the result of chance or accident, and we must look this fairly in the face in relation to the question of prayer, which forms the subject of the last portion of the paper. As I understand it, the full discovery of the working of God's moral government belongs to a higher sphere of thought—of more recondite and subtle thought—than the working of His physical laws, and it is utterly impossible for the mind of man thoroughly to penetrate it. In his best state, and when he is in possession of the profoundest genius, he must acknowledge that he is but an ignorant

child in these matters. At the same time we may get certain glimpses of the way in which it is possible for the Deity to act without any interference with the free agency of man, and men may operate in accomplishing the works of God without their being treated as if they were mere machines. I have no doubt we have all found ourselves acting on a certain impulse. We know not why, but some particular impulse, or some desire to do something, leads us to perform an action which we have no rational motive for entering into. Then comes the question whether it is conceivable that God, acting upon man, may possibly produce that result without any interference with or limit of his free agency. You must allow this, that it is possible for the Deity to suggest thought to man. I cannot conceive anything unphilosophical or illogical in that idea; and if so, it would certainly not necessarily interfere with free agency, but it would take exactly the same position with regard to our responsibility as the suggestion of an ordinary friend, who says, "Will you not do this or that?" In that there is no getting rid of free agency, or any interference with our moral responsibility. Apply it, for instance, to the case of Joseph. Joseph was sent by his father to look after his brethren, who put him in the pit, and had not the merchants come up at that juncture he would infallibly have been left to die. The whole of the events with which he was afterwards connected in Egypt turned on that fact, that the coming up of the merchants and the visit of Joseph and his brethren to the pit concurred together chronologically. The question is whether it is conceivable or whether it is possible that that should be viewed as an indistinct overruling of an accidental circumstance, or whether, by a more direct agency, God so acted by a species of impulse on Jacob's mind, that at the right moment he said to his son, "Go and look after your brothers." Had it been a few hours earlier or later, Joseph might have died in the pit, but that precise moment having been chosen, all happened rightly, and everything turned out according to the will and promise of God. I conceive that that is the foundation of one view in which God, as the Hearer and Answerer of prayer, may be contemplated as not interfering with the immutable laws of nature or with the free agency of man, while yet He brings about hidden and designed purposes of His own consistently with philosophy, reason, and religion. These remarks vindicate the paper, I think, in some respects; and, though I agree with Mr. Reddie in relation to other parts of the paper, still I think its moral bearings are most important.

The CHAIRMAN.—In speaking of this paper I must commend the exceedingly reverent tone in which the author has discussed the subject, and I should only like to see all such subjects discussed in a similar tone. The view which Mr. Henslow brings forward, however, does not appear to me to be a very original one. It was the first view which was ever brought forward on the subject of the doctrine of evolution; and I was one of the first to point out that the whole doctrine of Darwin was one of a retrograde character. The whole tone and argument of this paper, except that which relates to the attributes and moral government of God, is nothing more or less than

the same view of the doctrine of evolution which created such a sensation in this country when that famous book came out, *The Vestiges of Creation*. So far as I can understand all the arguments of Mr. Darwin, they have been simply an endeavour to eject out of the idea of evolution the personal work of the Deity. His whole endeavour has been to push the Creator farther and farther back out of view. The most laborious part of Darwin's attempt at reasoning—for it is not true reasoning—the most laborious part of his logic and reasoning, is intended to eliminate, as perfectly as any of the atheistical authors have endeavoured to do it, the idea of design. Now, setting revelation aside, the manner in which the unknown author of *The Vestiges of Creation* treated this subject, satisfactorily showed that the doctrine of evolution was not in itself an atheistical doctrine, nor did it deny the existence of design. So far as I could understand and make out, having carefully read the book at the time it came out and afterwards, and having carefully analyzed and compared it and Mr. Darwin's book with each other, so far as I could understand it, the doctrine of the author of *The Vestiges of Creation* was simply, that God created all things, and that when He created matter he impressed on it certain laws; that matter, being evolved according to those laws, should produce beings and organs mutually adapted to one another and to the world; and that every successive development which should be produced was essentially foreseen, foreknown, and predetermined by the Deity. His idea, for instance, of the evolution of an eye from a more simple organ, was that the ultimate eye—man's eye, for instance—was to be a perfect optical instrument, and that its perfection depended on the previous design by the Creator, that at a certain period it should appear in a body quite adapted for its purposes. There is one question—and not the only one, but we must consider it as an important question—whether you can maintain a doctrine of evolution which shall not be atheistical, and which shall admit the great argument of design. That is one thing; but the next thing is, does such a doctrine as that accord either with revelation or with the facts of science? I do not believe that it can be made to agree with what we believe to be the revealed word of God, and I do not believe that it has in the least degree been proved that the doctrine is consistent with sound science; and by that I mean those proved facts, which we can believe in, and have believed in. In fact, I do not believe that it has passed through those three stages which Mr. Henslow mentions when he says:—

“That the doctrine has been suspected and ridiculed is no more than might be anticipated, for all startling and new theories pass through the three stages of ridicule, examination, and acceptance, if found reconcilable with truth; and evolution is now being rapidly transferred from the second to the third stage.”

There I join issue with Mr. Henslow, and say, that from a scientific point of view, I do not think the doctrine of evolution has gained anything like universal acceptance. I think that when you have read *The Vestiges of Creation* and Mr. Darwin's books, and after you have examined the facts

which Mr. Darwin brings forward in aid of his theory, you will come to this conclusion, that the more these facts are analyzed and sifted, the more they are found not to accord with what we know of the whole facts of nature, but the very reverse. And I would adduce as a proof of this, that Mr. Darwin, after all his efforts, finds that his doctrine of evolution will not accord with the facts of nature ; and he has therefore introduced a new hypothesis, which most essentially denies his previous doctrine of evolution altogether. One of the most difficult facts which he had to account for by his system, was the constant tendency, however much man might endeavour to check it by cultivation or by any other means, the constant tendency, on the part of the living being experimented upon, to recur to some peculiarities of its ancestors. He has endeavoured to get over that difficulty, by saying that no new organ whatever can make its appearance, unless it arises from a gemmule which was already in existence in the first progenitor of all those forms. Take the eye, with all its marvellous adaptation. How is that reproduced and transmitted from one individual to another ? Why, according to the new theory of pangenesis, for every portion of that eye, whether we take the vitreous humour, the crystalline lens, or the aqueous humour, or indeed any other part of it, there must have been some hypothetical minute gemmules or particles in the immediate predecessor of the being which possessed that eye ; and none of those parts or organs could be produced of themselves by any means, unless there had been antecedent gemmules having the power to produce them. But carry that back, and take your doctrine of evolution straight from your original monad—that original extraordinary thing in which Mr. Darwin would say life was first apparent—take it in its most simple form ; and according to Darwin's own theory that original monad must have contained in itself all the gemmules of all the creatures that have ever been produced from it. You do not, therefore, go back to a system of evolution, but to the creation, in which that monad was a cosmos in itself, with all the germs of all its successors contained in it ! And that is Darwin's own idea ; because he tells you that the reproducing of an organ, or of some appearance in an organ, which can be traced to an ancestor 50, 100, or 1,000 times removed, is a proof that it comes from gemmules previously existing. He has then to account for undeveloped gemmules passing through successive generations ; but he proves nothing, and he is obliged to supplement his first doctrine by what practically denies the whole doctrine of evolution. Now I do not find that Mr. Henslow has really adduced any facts whatever in support of the theory of evolution, except the appearance of certain rudimentary organs, with the assumption that these rudimentary organs can only be accounted for on the principle of evolution. I take it for granted that,—with the exception of that amount of evolution spoken of by Mr. Reddie,—the whole of this doctrine of evolution is contrary to the plain statement of Scripture. I do not see how you are to take the plain statement of man's creation, and then to go to a theory of evolution which would make man only an improved ape. I do not see how these two doctrines can be at all reconciled. But now we come to another point, and that is, whether this theory of evolution really

accounts for the facts of nature which are brought before us. The great reason on which it seems to rest is, that if you take all the various forms of animal life, whether vegetable or animal, they seem to progress upwards from forms of extreme simplicity, gradually increasing in complexity until they come to the highest forms in the vegetable or in the animal world. When the science of classification was in its infancy, it seemed to be clear to men that they could make such a system as would give them a very philosophical mode of tabulating or classifying or arranging all the forms in nature; but I believe that when that is examined with some degree of accuracy it is not found to fit nature at all. We have not yet arrived at, and I think we are at a great distance from, any really good natural non-artificial system of classifying either plants or animals. On the contrary, we find that, instead of their being capable, as we supposed, of arrangement in one progressive line, ranging up from the simplest to the most complicated, they rather seem to be formed in circles, and not in lines; and some have proposed a circular arrangement into groups; but they have found the greatest difficulty when they have attempted to arrange them according to any law of progression whatever. But suppose you could so arrange them; it is supposed, according to this law of development, that all the more complicated forms have arisen by successive variations from simpler and less complicated forms. But those who maintain this theory have been unable to give us any proof whatever from the history of the beings of this world, or from the conditions under which they are placed, in support of such a theory. We find that all the most ardent supporters of this theory are unable to do so. When Darwin is asked to produce all those variations and changes, and to show when they took place, he confesses that they are not yet found. Even with his geological theories of extensive past ages, he cannot, in any stratum of rocks, find evidence in support of his theory, and therefore he tells us that they must yet be found in unknown and undiscovered strata of the earth! He says the proof will come hereafter, but for the present he does not bring a single atom of proof to show that his theory has been at work. If his theory were a true one, there would be evidence of this progression going on now, and it would have to be shown when, in history or in man's knowledge, the first steps really took place, and the inspiration of life went into inorganic elements. That difficulty was felt, and is still felt, by all the Continental advocates of the theory of evolution. It was felt by the author of *The Vestiges of Creation*, and he endeavoured as well as he could to establish the theory of spontaneous generation. We find that all the men on the Continent who want to set forth this theory are striving as much as they can to produce something like a proof of the possibility of spontaneous generation. But has that theory been proved? The facts on which the author of *The Vestiges of Creation* triumphantly relied have been found to be no facts at all and have been entirely refuted. We sometimes hear that some one in Germany has discovered this or that, but we never have these animated molecules brought before us; and the more we go into the matter, the more a close investigation puts the theory of spontaneous generation further and further out of the

domain of science. There is no natural progression to be shown from the inorganic to the organic world. Take the lowest form of organization you can find that is capable of producing organic substance and of reproducing its own kind; you have not the most remote analogy to that, in the most highly-developed forms of the crystal, or in anything else which belongs to the inorganic world. You have nothing in the formation of crystals which is at all analogous or approaching to the power of the living organism which is capable of producing other beings like itself. But if the doctrine of evolution be true, how is it, unless you add to that doctrine a continued series of successive creations, that inferior beings are now existing along with higher ones? How is it that the lowest and the highest forms exist at the same time with one another. That is a great difficulty which all those who maintain the theory of evolution have to get over. It is not enough to say hypothetically that one creature has been stopped in its development at one stage, another stopped at a more advanced stage, another at a still more advanced stage, and so on; you must show the probability of that. Then comes the question of rudimentary organs; but before I go to that, there is one thing with regard to which I wish to state that I entirely differ from the author of this paper. Mr. Henslow says:—

“Our ideas of perfection can only be relative. As we say, in speaking of intellectual and moral attributes, that perfection resides in the Deity alone, which may therefore represent the limit to which we are continually endeavouring to approach, but can never reach; so in the works of nature our conception of the perfect is never realized.”

Now, the defect of that passage arises in this way:—Mr. Henslow was confining his attention simply to the organic world, and not considering the inorganic. Now, I have not yet understood or seen anything like imperfection in the inorganic world, or in the laws which regulate it. Speaking of these laws and of their results, there is nothing abnormal to be found in the inorganic world. It was fully brought out by Professor Whewell, in his works, that you find nothing of an abnormal nature there. You have nothing like disease in the laws of chemistry, in the laws of crystallization, in the laws of light, or in the laws of gravitation. Dr. Whewell says, you cannot conceive disease in gravitation, or imperfection in the movements of the solar system. At first sight, and on a superficial view, men may suppose that they have found imperfection, as when it was thought that there was something in the laws of gravitation which would lead to the destruction of the solar system in a certain period, but that was found to have depended on a mistake in the integration of an equation, and that the seeming irregularity was in reality a most marvellous and beautiful adaptation of laws, giving us a most wonderful argument for design. I cannot conceive anything like disease or irregularity in the laws of the circulation of the wind or water. All these things have apparent irregularities; but the more we examine and analyze them the more we find that these apparent irregularities are really the objects of design, intended to operate for the benefit of God's creatures on earth. But then

comes this very remarkable thing, that we do get abnormal laws and disease in the animate world, and especially in contact with just that part of creation which we have set before us as containing the most marvellous instances of God's design. Of course, when I say "most marvellous," I mean that which comes home as such most strongly to our minds :—I do not mean that the instances we get in one direction are really more marvellous than those which we get elsewhere. I quite agree with Mr. Henslow and with Mr. Row that every part of animated nature somehow or other sets before you an ideal of perfection ; but that when you attempt to find that ideal, by comparing one creature with another, it is lost. How must we account for this seeming imperfection when we have such great perfection shown everywhere else ? I say emphatically, as a believer in the Bible, that the Bible is the only book that throws light upon that. We have been asked to-night what the Fall has to do with it—

Mr. ROW.—I said that that gave no adequate account of it.

The CHAIRMAN.—Now, the Bible to my mind does give a very adequate account of it. When God made all His works, He pronounced them to be "very good" ; and the Bible tells me that man, the chief of His works, fell from the perfection in which he was created ; and that when he fell from that state, and a curse fell upon him, that curse not only fell upon man, but the earth was cursed for his sake. That curse not only fell upon man, but upon the whole of the living creation, whether vegetable or animal—

Mr. REDDIE.—I hope you do not mean to say that man was cursed, because it is really not the fact ?

The CHAIRMAN.—I say that man fell under the curse of God on account of his disobedience—

Mr. REDDIE.—The Bible does not say that man was cursed. Even after the world was destroyed by the Flood, it is written, "And God blessed Noah and his sons" ; but there is no cursing of man in Scripture.

The CHAIRMAN.—But the Bible does set forth that the curse on creation was on account of man's fall,—that was its effect ; and revelation is the only thing that gives us an explanation of the matter. To my mind it is a most adequate explanation ; and it seems to throw a flood of light on the apparent nature of disease and abnormal forms, and the introduction of imperfection into that which God had pronounced to be very good. With regard to the rudimentary organs, they have been accounted for, by those who maintain what I believe to be the Biblical account, not by the law of evolution, but by the fiat of His will. We have no right to limit God's action, or to say that He must work according to the theory of evolution ; and if the Bible is only opposed by theories of science, we should hold by the Biblical account until science gives us something like an authoritative proof in contradiction. It will be time enough to attempt to make the Bible square with it then, and I certainly doubt the policy of attempting it beforehand. But how may the rudimentary organs be accounted for ? That which men, with imperfect knowledge, have considered to be superfluous and unnecessary, a more advanced knowledge has shown to be essentially necessary to the well-being of the creature.

In a mixed assemblage I cannot go into many instances, to show the great and important effect upon the constitution of men and women of certain organs or parts of their bodies, which might be considered unnecessary at first sight. But, then, there is another reason. Suppose these organs are not highly developed; it does not therefore follow that they are not necessary. It was Hunter, I think, who said that a duck had a foot adapted for swimming or for walking, but that it was not a good instrument for either purpose. But I think it is. It is unquestionably a good paddle; and I only wonder that it has never yet been adopted among our means of naval propulsion——

MR. REDDIE.—It has often been tried and patented.

THE CHAIRMAN.—Yes; but we have never yet succeeded with it satisfactorily. Notice the style of architecture in a foreign country or age, or the style of painting of particular artists. A connoisseur is enabled to determine that a particular picture is the work of Michael Angelo, of Raphael, or of Correggio from certain peculiarities which run through the works of each artist. It may not be irreverent for us to suppose that God has so created all things, and so impressed upon them certain characters, which may appear to us to be wholly useless and unnecessary, in order that His creatures should know that they are the works of one architect, of one designer; and surely, if they serve no other purpose, they accomplish a highly important work in connection with the history of man's knowledge of his Creator. But for these things we might suppose different architects having the power of creating; but for these things we should not have our greatest and strongest argument in favour of all these being the creatures of one author. But that is not the only point which we have to consider: we are gauging these things by our own views of utility. But why was it necessary that man's mind should be able to distinguish all the beautiful and gorgeous colours of nature,—that which adds so much to man's enjoyment, and is the great charm of our paintings? Why was man possessed of that power to perceive such an infinity of beauty, where we cannot trace the slightest necessity or utility for it? Why might not all men have been born colour-blind, and, except for the enjoyment of the beauties of nature, been quite as well adapted to do all the work which God sets man to do here? This is the more striking a question, when we consider the extraordinary fact that men who are born colour-blind go on for years and years without knowing it, until some striking fact communicates to them the knowledge that they do not see the colours that their friends in general do. I have one friend who never discovered that he was colour-blind until he was taught drawing at school. He went through the work of drawing in pencil and in Indian ink quite well; but when a landscape subject was given him to paint, he astonished the master by painting, what should have been an intensely blue sky, a very bright vermilion: he did not know the difference between the two. Another friend of mine was intended to be an artist, but it was discovered that he could not paint. He then went to one of the first oculists of the day, and asked him how far his colour-blindness extended. It was found that he could not distinguish any shades of blue or green from scarlet and pink. I

have seen him stand before a picture of nymphs bathing in a pool surrounded by some very beautiful gradations of foliage. My friend could not distinguish the flesh from a deep vermilion, nor from the colour of the foliage. I only mention this, to show that things which may appear to us, from our ignorance, to be useless or worthless, may have a very important bearing when considered with regard to God's design for the enjoyment, or for some other uses, of His creatures. I must again, before I sit down, thank Mr. Henslow for the exceedingly reverent tone in which he has discussed this subject.

Mr. HENSLOW.—I thank you all very much for your candid criticisms, and I feel that my paper has not been so severely dealt with as I anticipated that it would have been. Mr. Row has said that evolution does not necessarily involve atheism, and with that I quite agree; for I do not see any necessity at all for the one involving the other. Mr. Reddie has found considerable fault with my paper for purposely assuming that evolution was true; and perhaps from some of my statements I have been thought to be a believer in that theory—

Mr. REDDIE.—I objected to the hypothetical argument.

Mr. HENSLOW.—That is perhaps a just objection, but the paper has been written on this plan (and it is too late to alter it now)—on the assumption that the theory was believed in; and my object was to endeavour to admit those views, and yet to show by the analogies I find in the Scriptures, that I do not think Darwin has any grounds for denying design, or another philosopher for denying the use of prayer. With regard to evolution itself, I do not think that it is inconsistent with theistic views. If true, it infinitely exalts rather than diminishes the power of the Deity. Surely it is a far higher conception of the Deity to believe that He has infused into nature some mysterious forces by which all the beings which He has created can be worked out and developed into higher forms. It seems to me infinitely higher to be able to do that, than to create everything at once and in an analogous way. Mr. Row has alluded to the argument of the watch, but I would go a step further than Paley. Paley says that it would still further exalt our ideas of the artificer, if we could suppose that he had created a watch which was capable of producing a similar watch out of itself. But if we follow this line out, we must suppose not only so much, but a watch capable of producing generation after generation of other timepieces, differing slightly from each other, until at last we have developed the whole series of clocks and watches which are to be found in the world—

Mr. REDDIE.—You are assuming that. I want to know how you can reconcile it with the exaltation of the Creator, if you suppose that the watch *He* first made was inferior, but that *it* can produce better watches from itself afterwards?

Mr. HENSLOW.—I will come to that presently. Mr. Reddie has referred to one or two epithets and phrases in the paper to which he takes exception. On this point I am bound to confess that the paper was somewhat hastily drawn up, and I must plead guilty to several inaccuracies to which Mr.

Reddie has called attention. With regard to the expression "God's ways are not our ways," I have quoted that twice; and one or two gentlemen have found fault with me for it. I may have adopted the words and made them applicable to my own purpose, and perhaps that was wrong. As to anthropomorphism, Mr. Reddie rather found fault with me for avoiding anthropomorphic language as far as I could. If we are to attempt at all to speak of the Deity and His ways, we have no other language but the human one; and we cannot help speaking anthropomorphically, as the Bible does throughout. But I especially avoided that. I have done it before, and I have been found fault with for doing it——

Mr. REDDIE.—On that point I was really answering Mr. Row.

Mr. HENSLOW.—With regard to evolution, I did not anticipate the necessity for going deeply into it; but if you take the statistics of scientific men, you will find that a majority of them would be in favour of it. Both Mr. Reddie and the Chairman used the word "proof" a good deal, in regard to matters where there is no proof at all, and which are not capable of it. But are there not some things which can be believed on other grounds? Undoubtedly if you could have demonstration, you ought to have it; but there are such things as probabilities, and there may be every degree of probability from zero up to moral conviction, as Bishop Butler says, where there is no proof at all——

The CHAIRMAN.—I quite admit that probability may be so strong as to amount to proof, but you have not established even probable evidence.

Mr. REDDIE.—That is the only proof I thought of. I did not mean mathematical demonstration, which is out of the question.

Mr. HENSLOW.—Then the question is, what evidence have we got to support the theory which will make it probable? I think that can be arranged under several heads. Take geology. Our Chairman went into that, and argued that geology does not support progression in the animal and vegetable kingdom. But what do we find to be the case? We find that the lower animals are at the bottom of the series in the scale of creation, as shown by geology, and as we come up we find the higher ones coming in one after another——

The CHAIRMAN.—That has been denied by Huxley himself, and it is a point which even Darwin felt he could not stand upon. He feels that the successive creation theory is gone. Year after year geology is going in a contrary direction to that theory.

Mr. HENSLOW.—I do not think Sir Charles Lyell is of that opinion yet; but at any rate I am not very well up upon this subject, and I do not like to speak dogmatically. I have not read Huxley's latest argument; but so far as I understand opinions now, I do not think these theories have been set aside. Take the development in vegetable life. You have the lowest forms coming on before the higher ones, and that gives some ground for an argument founded upon analogy, as is shown by Herbert Spencer in his work *On First Principles*. As to pangenesis, which our Chairman has referred to, I will not say whether I believe in it or not (hear, hear); but

evolution and variation do not depend on pangenesis at all. There may be some other cause at work of which we are ignorant ; and although you were to show that pangenesis is utterly inadequate and unreasonable, that would not prove that evolution must fall to the ground—

The CHAIRMAN.—My argument was that the theory of evolution would not do, unless it were supplemented by pangenesis, which in point of fact, as put forward by Darwin, contradicts his previous theory.

Mr. HENSLOW.—Well, but evolution does not even depend on Darwin. Evolution is not necessarily Darwinism, although the two words are much interchanged. Darwin may have his theory, which generally may be more reasonable than any other, because all the other theorists have given theories to account for other theories, while Darwin has contented himself with facts, of which he does not know the cause. (Hear.) The other theorists got ridiculed and laughed at ; but Darwin merely argues from facts—the facts of natural selection, of development, of cultivation, and so forth. His theory, therefore, does not rest upon any one single fact that you choose to select ; but there is an accumulation of evidence from various quarters, and arguments from analogy. For my own part, I think evolution is the best theory which has yet been propounded ; but I would not go with Darwin and say that the hand of God has not prepared it before. With regard to the Fall, I will not enter upon that question ; but it has always seemed to me most mysterious how nature is affected by that. Take the carnivora : how do you get over the difficulty created by the fact that man was not created till long after they had been in existence ? If geological evidence is trustworthy, they existed long before man lived—

Mr. REDDIE.—That is a question.

Mr. HENSLOW.—You do not think so ?

Mr. REDDIE.—Not at all.

Mr. HENSLOW.—Well, I do. With regard to man himself, I have put in a sentence, “if descended from the quadrumana.” I put that in simply as an hypothesis. The words used are so remarkable that I think they have the stamp of genuineness—that man was called in by a special creative act. But there are rudimentary organs in man ; how do you account for them ? As matters stand, evidently man was formed on the same plan as the quadrumana. Whether man was developed from them with the assistance of a special creative act or not, no one can say ; but man’s immense powers, intellectual and otherwise, place an immense gulf between him and the highest ape, and prove his special creation. (Hear.) How rudimentary organs came about I cannot undertake to say—

The CHAIRMAN.—If you admit that you admit the whole. You admit that these rudimentary organs occur in a special creation.

Mr. HENSLOW.—I say that there was a special creative act when man came in. Those rudimentary organs do, I admit, form a great difficulty. The existence of those rudimentary organs would point to man’s development, and that is the argument I presume that a thorough Darwinian would hold to, but the words of Scripture seem to me to point to some

special interference in the creation of man. (Hear, hear.) Whether he was developed or not, I will not undertake to say. As to the word "perfection," of course that cannot be defined, and each person may have his own particular view of it. Take a crystal. You may suppose a body to be mathematically correct in every angle, and the material and form so arranged as to be perfectly transparent and without a flaw. But how often do you find a crystal which answers to that description?—

The CHAIRMAN.—A crystal may be perfect even though it is quite opaque. Its perfection has nothing to do with its colour. You are going back to the derivation of the word crystal.

Mr. HENSLow.—No. I was merely assuming in my own mind that a crystal ought to be transparent. I simply mean a crystal that should be perfectly transparent. How often do you find a perfectly transparent crystal?

The CHAIRMAN.—You are introducing another element altogether.

Mr. HENSLow.—Well, take one that is not transparent—

The CHAIRMAN.—I do not think you would find imperfect crystals at all.

Mr. HENSLow.—But I should find many that I should call relatively imperfect. It is merely a matter of terms—

The CHAIRMAN.—You may find an imperfect crystal, if you find that it does not give you a mathematical shape, or what you conceive to be a mathematical shape. But even taking that view, I can give you many perfect examples. It would not follow that they would be imperfect. The perfection of a crystal depends upon its structure and the mode in which the particles are arranged.

Mr. HENSLow.—Without any interfering elements combined with it—no specks of minerals interfering, for instance—

The CHAIRMAN.—There is nothing abnormal or at all corresponding to disease in their structure.

Mr. HENSLow.—But you said that there was no imperfection in the mineral world. Mr. Row alluded to an earthquake, and asked whether that would be an imperfection. It may be an imperfection—

The CHAIRMAN.—The word "perfection" is often used erroneously, but it is not always possible to have exact definitions in such a discussion as this. Even mathematical definitions are only perfect so long as you deal with ideal abstractions. A mathematical fluid or a mathematical solid has no representation in nature; and if you were to search for them in nature you would not find them. The same thing applies with regard to perfection. Perfection can only exist as an abstraction or as an attribute of the Deity.

Mr. HENSLow.—I maintain, as you do, that if you take the mathematical idea of perfection, you do not find it either in the mineral, the vegetable, or the animal kingdom. If you say the adjustment of organic life to the material world was ordained by God, then I would say that an earthquake would be a relative imperfection—

The CHAIRMAN.—It is not, unless it is the introduction of something abnormal. Now an earthquake is quite normal.

Mr. REDDIE.—In the paper before us it is not merely said that there is imperfection, but that “nothing is perfect.”

Mr. HENSLow.—A discussion on this subject would carry us on till to-morrow morning. I have to thank Mr. Titcomb for his remarks on the second part of my paper. I do not think that the real object of my paper, as embodied in that second part, has been really controverted, even if my remarks on evolution are not satisfactory. Even assuming that Mr. Darwin's theory of evolution is true, I think that the views of those modern philosophers and materialists, who deny the efficacy of prayer, have no good grounds to stand on. To make out that has been the sole object of my paper, and every gentleman who has spoken has concurred with me upon that point.

The meeting was then adjourned.