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638th ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B,

THE CENTRAL HALL, WESTMINSTER, S.W., on Monday, February 6th, 1922, at 4.30 p.m.

The Rev. J. J. B. COLES, M.A., in the Chair.

The Minutes of the previous Meeting were read, confirmed and signed and the HON. SECRETARY announced the Election of the following as Associates:—Charles Frederick Juritz, Esq., D.Sc., F.I.C., F.R.S., S. Africa, The Rev. W. Magee Douglas, B.A., and Miss Gladys Geary.

The Chairman then introduced Dr. A. T. Schofield and invited him to read his paper on "Some Difficulties of Evolution."

SOME DIFFICULTIES OF EVOLUTION.

BY ALFRED T. SCHOFIELD, ESQ., M.D.

My only claim to speak on a subject of which I know nothing professionally, is that, having studied it a little exoterically for the last 60 years, it may be of some interest to note what difficulties are obvious from the outside of the structure; and I think these can now be stated, apart from the intense heat and bias so common sixty years ago, when Christians were more nervous about the stability of the Scriptures than they are to-day.

1. *The first difficulty that strikes one is that the meaning and the right use of the word Evolution are alike almost impossible to discover.* I see, for instance, that ten years ago Professor Henslow apologised for assuming all the members of the Victoria Institute were evolutionists, while in the very paper he had just read he had radically altered the correct meaning of the word itself.

We are, however, accustomed in science to metaphorical and allegorical terms or figures of speech that are often puzzling. Take the word "Nature," for instance, a venerable goddess known to science, who, as we all know, has no existence whatever; but, nevertheless, is credited with most wonderful and unique powers. "She" can seal up the wound, repair the damage, construct and vary all the forms of life and do so many things at her own sweet will that sometimes we think "Nature" may mean God, sometimes our own unconscious mind, and sometimes nothing at all.

To some extent it seems to me evolution has now replaced this mythical goddess, and is credited with at least as great powers, in equally illusory and incorrect statements. Evolution also, apparently, does what she (?) will with the germ-plasm, from which she fashions every form of life by chance. She indeed does far more, and appears to assume most of the functions of a Creator, but in this paper we have only time to touch on organic evolution amongst plants, animals, and men.

So far, then, we can arrive at no definition whatever of the word. To help us in this we must first settle the greatest of all questions: "Is this ubiquitous 'evolution' merely a process or a directing force, or both?" As a process that may possibly be used in some parts of the creation, few would object to it: although "progression" is far and away a better word, and one wholly free from ambiguities as well as from any suggestions of being a force. But to those who regard evolution as a force, we would suggest that nothing can be evolved which is not in some way involved;* that "every house builded by some man"; that is, that evolution postulates an evolver, and that "natural selection" in no way covers the ground, or in animals is adequate to its task.

Generally speaking, Darwin, Lamarck, Spencer, Hæckel, A. R. Wallace, and the majority of scientists regard evolution as having some inherent force; although Darwin and Wallace do not push this to the denial of a Creator as Hæckel does. This last professor seems almost to have been in Lord Halsbury's mind in 1915, when he said, speaking, as President of the Institute, on Evolution:—

"In court we are expected to give full proof in support of every assertion. A professor, on the other hand, appears to consider himself relieved from any such anxiety. He seems to think that all that he has to do is to say that such and such is the case."

This *ex cathedra* style is cultivated to perfection by Hæckel, who calmly makes a statement without proof, and then argues from it as if it were a demonstrated fact. In his old age, however, Hæckel said that he stood almost alone among scientists in his evolutionary belief. "Most modern investigators have come to the conclusion that the doctrine of evolution . . . is an error." This initial difficulty in evolution is so important that it must be settled before proceeding further.

Evolution is the law in all human work, and its products are always imperfect; and all these imperfect products require an evolver—man; and we are surrounded everywhere by products, of which the successive steps are *not* missing as in geology. But if

*Chamber's Twentieth Century Dictionary says Evolution is "the act of unrolling or unfolding." This evidently postulates a previous unfolding.

evolution be also the law of nature, all its products on the contrary are perfect, no evolver seems needed, and, curious to say, the intermediate imperfect products are nowhere to be found!

As we have seen, in so far as evolution connotes force, so far is God excluded from His works; but God seems dropping out of our thoughts altogether. At a conference on moral education the other day every conceivable force and method was discussed by twenty leading authorities, but the fear or the knowledge of God as a factor was never once mentioned. At Dundee, when the British Association discussed the origin of life, ten professors named every possible theory, but God was not mentioned. In evolution the determined exclusion of an objective evolver is significant. This exclusion leads at times to ridiculous conclusions. We see, for example, a professor gazing at a flint arrowhead he has picked up on the banks of the Somme. He is quick to trace the action of mind, human mind, in the three converging chips on the stone, making a point. It is abundantly clear to him that nothing less than man's mind could impress such purpose on a stone; and yet as an evolutionist he knows that he, the philosopher himself, is the product of blind chance, by natural selection. In short, though nothing but an objective mind can make these three chips on the flint, mere chance can make a philosopher. In face of all this is there not some truth in the bitter French dictum. "God is still believed in in England, save by the city arabs and the higher philosophers"?

Why the absence of a directing external mind which seems to be an inherent necessity in all human evolution should be insisted on in organic evolution alone, is a great mystery to outsiders, when both are so obviously teleological. Modern anatomy, indeed, stimulated by evolution, has given overwhelming proof of minute teleology in every part of the body, of which both natural selection and the force of environment are alike incapable. It is only right to repeat that Darwin allowed that God might have started the process of evolution with one or more original types; and also that A. R. Wallace, who is described as a seceder from the ranks of orthodox Darwinism, wrote the "World of Life, a manifestation of creative power, directive mind, and ultimate purpose." These men were far above most of their disciples.

It must be remembered here that all Darwin's evolution was based on natural selection. Lamarck, on the contrary, founded his evolution on environment, or change effected by surroundings —a far surer ground, but one only touched on by Darwin in his later writings, and in the sixth edition of "The Origin of Species." Now, these two are mutually exclusive. I may recall that in 1876 Darwin wrote to Professor Moritz Wagner that the

greatest error he had committed was not allowing sufficient weight to the direct action of the environment.

When, therefore, we speak of evolution, we must explain what particular meaning we attach to the word. At one end of the scale it may mean nothing more than the general scheme of progression, outlined in Genesis i. as the method of the Creator. At the other it may connote a directive force that has itself fashioned every form of life without any creator at all.

Dr. Etheridge (Brit. Mus.) says of such evolution: "Nine-tenths is . . . wholly unsupported by fact." Professor Bateson, F.R.S., in his address in 1914 as President (British Association), said: "Natural selection cannot have been the chief factor in determining the species of animals and plants. We go to Darwin . . . but to us he speaks no more with philosophical authority." Such voices *from within* seem to justify this paper from an outsider.

Looking now a little closer at human ancestry, we discover (1922), after fifty years of hot debates about primates and monkeys, that none has been found—the ape-descent, so vehemently insisted on, being practically given up.

2. *A second difficulty is to trace the lines of ascent to man in evolution*, for even ontogeny, that impregnable rock of evolution, is now failing us. By ontogeny I mean the reproduction in the embryo of the successive steps in the evolution of the race with which he is credited by phylogeny. Professor Keith declares the deductions from ontogeny and phylogeny are not valid, while Professor Sidgwick, in the Encyclopædia Britannica, says there is no proof of their relations, and Bergson totally rejects the parallel. This foundation is, then, getting quite shaky, and already needs some propping up. Partially as a result of this, we fear we must at last part with our old friend—"the missing link." He is indeed, in a parlous state. Leading scientists of the day stoutly deny the existence of our friend anywhere. He is certainly backward in coming forward. Professor Keith says indeed, this missing link is now generally given up. For man to have descended from the ape would require millions of years and 100 links: and of such there is no record, nor any trace.

Some sixteen fragments of fossil skulls exist in the world now, after nearly a century of diligent search, and on these the existence of our friend was based. Professor Rudolf Virchow, however, surely a first-rate authority, after careful examination of the Pithecanthropos—the missing link in the South Kensington Museum—pronounced it to be an ape; and on the further evidences declares there is no missing link or proanthropos amongst them, and that our friend is a phantom.

Some Japanese fossil skulls just discovered, and some others of very remote date, have actually a larger brain capacity than

the average brain to-day. I believe it has been gravely suggested that at that time their owners were becoming men, and the effort was so great that extra brain capacity was required for the purpose. Dr. A. R. Wallace declares there are very many missing links of all sorts, of which there should be necessarily almost innumerable fossil remains, whereas he bitterly complains of there being hardly any in the two possible strata, the Eocene and the Myocene; but with remarkable courage, instead of accepting this as a proof of their non-existence, he actually says it is rather a proof of the imperfection of the geologic record. Why this should be so imperfect we are not told, but it is evidently regarded as improper.

3. *A third difficulty is the result of the application of Darwin's evolution to man.* In Dr. Benjamin Kidd's last work, "The Science of Power," Darwinism is most gravely charged with being the principal cause of the atrocities of the late war, because its leading doctrine, which had a tremendous vogue in Germany, is the bestial law that "might is right, and is the sole force in the path of progress"; and we must remember this law is ethical as well as physical. Now, civilisation depends on the subordination of the individual to the social welfare. Darwinian progress, on the other hand, consists in the assertion of the individual against the social welfare; and this is what actually always occurs in the degeneration of civilisation. It may be remarked in passing, that Christianity immensely helps civilisation in asserting this doctrine of self-abnegation as a leading tenet. Professor Weismann considers that the highest form of civilisation tends, *per se*, incessantly to degenerate. "Darwinism is," says Benjamin Kidd, "the very antithesis of the social integration which is taking place in civilisation, for the ascending history of the human race is the sacrifice of the individual to collective efficiency. The law of sacrifice is the true law of progress." "In Germany, Hæckel was the supreme exponent of Darwin, and Nietsche followed. His teachings are the interpretations of Darwinism."

"If A was able to kill B, before B killed A, A represented the survival of the fittest and proves that might is right."*

We are not surprised, when this bestial law of Darwin's is extended to humanity, and has become the new gospel of Germany, to find that Christianity was trodden under foot, and declared to be the greatest enemy to progress Germany had ever had. Nietsche impiously declares Christ to be the worst blasphemer of all time, because He denied this bestial law for man!

This degrading doctrine made the last war what it was in incredible brutality and cruelty. If men will take the supposed law of progress for beasts as the law for themselves, so far from

* B. KIDD, The Science of Power p. 48, etc.

thereby producing the " superman," they degrade humanity to the bestial level, and men act like beasts.

The greatest lover of Darwin cannot say that he ever indicated that this law of natural selection did *not* apply to man. Indeed, the contrary is the case; and no surprise need be felt that Germany fell into this fatal error. As we well know, Professor Huxley, Darwin's doughty champion, everywhere asserted that Darwin's law held good for all living animals, amongst which he classed humanity.

Not until the very close of his life did the truth on this subject shine in upon his soul. Not until his " Romanes " lecture at Oxford in 1893 (see " Romanes " lecture, p. 34), did he in one sentence overturn that deadly lie which has brought death or misery to millions, and set civilisation back in Europe fifty years.

Huxley then said, to the delight of all Christians, and to the dismay of all his friends, that—

" The ethical progress of society depends, *not on our imitating the cosmic process* (ruthless self-assertion), still less in running away from it, *but in combating it.*"

I grant the phrasing is obscure, but it is a wonderful utterance from Huxley; and declares that in evolution there is one law for the beast, and an opposite law for the man. That if egoism is the bestial law, and might is right; altruism is the human law and might is no longer right. Broadly speaking, would it be too much like John Bull if we said " that in a general sense, while the Germans fought to establish the first law of these two, the Allies fought to establish the second; and by God's good hand obtained the victory "?

To return to our organic evolution. The outsider has still a few stumbling blocks to get over before he can accept what the twentieth century has left of Darwin's original evolution.

4. *The fourth difficulty is the sudden appearance in the rocks of the fossils of myriads of entirely new species, unpreceded by the greatly desired intermediate types, of which the strata are so shamelessly deficient.** These new species are perfect in every respect, and no evolution is apparent in their structure. Darwin pointed out that these sudden arrivals (shall we say, " from nowhere," or from the hands of the Creator?) were very serious objections to his theory.

He, of course, relying for advance in variations denied fixed species, but in this his following is not numerous. Few have any idea of the numbers of the different species, each with its own peculiar and fixed characteristics, and extraordinary instincts. The insects alone number three-quarters of a million species, of which beetles can show 1/200,000 varieties!

*Recent discoveries of isolated supposed " links " do not invalidate the general statement.

5. *The fixity of species is another difficulty that has not yet been surmounted.* Types of an intermediate character in animals are indeed hard to find. The best chain of evolution that has been in any way established, and very well advertised, is that of the horse. But here, alas, is a very weak link, for the apocryphal "Merchippus," on whom the claim so greatly depends, has been deduced by a professor's inner consciousness solely from the evidence of some teeth, which are declared to be its only true remains. Sir W. Dawson describes this evolution of the horse as worthless.

The almost complete and greatly lamented absence of intermediate types is, indeed, rather fatal, and if evolutionists were not cheered with the vision of a great "find" some day, I fear they would almost despair.

The modern substitution of Lamarck's evolution for Darwin's, in other words, the action of environment for that of natural selection, does not help to prove the evolution of species.

Evolution is indeed not the right word to apply to changes from environment, unless it can be proved that such changes advance the organism from a lower to a higher stage, indeed to another species. As Mr. Arthur Sutton has pointed out from his prolonged studies of plant life: "Self-adaptation or environment is not sufficient for the origin of fresh species." Indeed, differences produced by environment only last while in the environment. George Klebs, Ph.D., stated at Darwin's jubilee that "So far as experiments justify a conclusion, it would appear that changes due to environment are not inherited by the offspring. Like all other variations, they appear only so long as the special conditions appear in the environment." The most that Darwin would venture on as to this was, that changed conditions of life may produce a "new sub-variety," a very different thing from a new species! Modern professors are not so modest; for in 1912 Professor Henslow declared that "spontaneous adaptability to changed conditions of life *is* the origin of species—a statement broad enough to require a great deal more proof than we have at present.

Here Mendel and de Vries came to the rescue, and with their wonderful instances of "mutations" instead of variations, as shown in peas in Hungary and evening primroses in Holland, hoped to make matters easier. Jumps (or mutations) over great gaps, enormous instead of imperceptible steps all the way, reduced at once intermediate types from thousands to dozens. What force produces the jumps is quite obscure; for at present mutation seems more of a freak than a certainty; though it must obey some undiscovered law. Mutation is, however, compatible with the language of the first of Genesis (which owes its immortality largely to its unscientific wording). One can picture

the Creator, rightly or wrongly, endowing at His will the primordial germ with power to rise to the next step in creation per saltum or " mutation "; and this could be repeated by the Divine will without intermediate types at all; which would accord with the geologic record, and redeem it from the reproach it has so long unjustly laboured under. No one can, of course, say this *was* the method, for we don't know; but it is at least more feasible than Darwin's " natural selection "; only it labours under the fatal drawback of requiring a Creator or directing force with a fixed purpose and power, which nowadays is asking rather too much. The only mind of which science is officially aware is man's.

Professor Schäfer points out that " supernatural intervention is unscientific," a fact that has already struck us as obvious, but which does not necessarily make it less true. A. R. Wallace, on the other hand, in his unscientific way, says, " We must postulate a mind as the source of all the forces of the whole material universe." (" World of Life," p. 338.)

I hope the Institute is not yet tired of the difficulties in evolution, for there are still a few most serious ones ahead.

6. *The next difficulty is about the* 500,000 *species of insects.* Insect life, indeed, seems expressly designed to strike despair into the Darwinian's heart. It is certainly a terrible problem, to conceive how an animal evolves, that begins life by crawling on numerous legs, under a long, soft body, suddenly folds itself up one day and dissolves into a creamy mass of cells, all absolutely alike, where it lies without motion, or apparently life, as a chrysalis for days or weeks; and then, miracle of miracles, its dirty grey slime is transformed into the gauzy wings, gorgeous body, and long attenuated legs of a dragon-fly, or into the painted glories of a nectar-sipping butterfly, or maybe into the polished scarabæus of a blackbeetle. Where in this variegated life, does natural selection carry on its beneficent task of evolution? Is it the worm, the quiescent corpse, or the horny consummation that proves might is right?

If, indeed, evolution by natural selection were the whole truth about the universe, we could boldly say, " Never did such lowly and inadequate means produce such magnificent and transcendental results, as seen in the insectivora." But this is another difficulty. Is it true that any animal, however fit, has itself the power to evolve either the repulsive horrors or the startling beauties of the insect world? Some stout-hearted believers still say " yes." Most of us however, may envy, but cannot attain to their faith. On the whole it seems easier, safer, and indeed wiser to take the simple path of believing the word of God.

7. *The next difficulty is that of instinct, and specially of insect instinct.* Henri Fabre, the French naturalist, a name known to us all, disagreed with Darwin. He, in his reliance on the struggle for existence, and the gradual evolution of various powers that might be useful in some far distant generation, is confronted by Fabre's insistence on instinct, *which is never learnt* by the animal, but belongs at the very outset, in full power, to the insects that require it. An incomparable observer (easily the first in insect life), as distinguished from a theorist, Fabre has collected a number of different instances of instinct, which, as he thinks, destroy the theory of the evolution of insects. Darwin himself, a true judge, did not fail to realise something of the kind. He clearly dreaded the problem of the instincts when he said, " The instincts appear sufficient to overthrow my whole theory." (" Origin of Species," p. 191).

Unfortunately, Darwin died just as the discussion with Fabre was beginning, but up to his death he still adhered to the theory that instinct is an acquired habit. Of course, this necessitated the transmission of acquired habits, in which Lamarck and Darwin fully believed, but which Weissman and others of the first rank stoutly deny. Not only did Fabre believe that the wonders of creation were quite inexplicable without the assumption of a Divine Architect of the universe, but he had an extraordinary regard for the life of the insects he studied and described, but could not explain. Fabre has indeed helped us to realise that in life there is nothing common or unclean, and he treated it as sacred.

I must here turn aside for one moment to illustrate this. Fabre had a great glass case, containing twenty-five scorpions. In the day time you saw nothing, but at night with a lantern you could see the marvels of scorpion life, including love-making. " Sometimes their foreheads touched, and the two mouths meet with tender effusiveness. To describe these caresses by the word ' kisses ' occurs to the mind. One dare not employ it; for here is neither head, face, lips, nor cheeks. Truncated as though by a stroke of the shears, the animal has not even a snout. Where we should look for a face are two hideous jaws like a wall. And this for the scorpion is the height of beauty! With his fore-legs, more delicate and agile than the rest, he softly pats the dreadful mask of his partner; to his eyes, an exquisite face. Voluptuously he nibbles at it, tickles with his jaws the face touching his, as hideous as his own. His tenderness and naiveté are superb. The dove, they say, invented the kiss. I know a precursor—the scorpion."

The impassable gulf of the amorphous slime we call a chrysalis, between caterpillar and insect, we repeat, seems to defy all the powers of Darwin's evolution, to say nothing of the incredible accuracy of the insect instinct. In the sphex wasp it is required

that its eggs should be laid in some living body powerless to harm them, for some entirely inscrutable reason. From birth this wasp surpasses all surgical accuracy in the use of its sting. For in the large caterpillar it operates on, it has to find the exact spot on its back, of incredible minuteness, where injected poison will paralyse all the motor muscles without destroying the life of the animal. No bungling is of use. The exact spot must always be instinctively known (it is never looked for), so that the caterpillar in its living death becomes the foster-mother of the sphex progeny. There is no evidence of any objection on the part of the caterpillar.

8. *The next difficulty is to conceive the gradual evolution by natural selection of most complicated organs that can be of no possible use to the innumerable "links" until their formation is complete.* Take, for instance, the evolution, according to Darwin, of the eye, or of a feather.

Imagine the survival of the fittest in countless steps, evolving by degrees a feather. For what possible use is inconceivable, since the evolver has never left the earth, and a feather could not help it to do so. Darwin said the thought of the evolution of the eye (useless till complete) always gave him a cold chill down his back; Bergson plainly declares such evolution impossible.

Indeed, I do not know of any book by any leading evolutionist that explains how imperfect organs could possibly be evolved in the interest of the animal, with a steady persistence through centuries (?), until at last the long chain of defunct and missing ancestors were rewarded by a distant offspring possessing an eye. This is another stumbling block, that must be overcome if evolution is ever to be more than an unworkable hypothesis; but of this, there is at present no sign.

9. *The last difficulty I shall adduce* (not with the idea of their number being exhausted, but with a sincere desire not to exhaust my audience) *is the philosophical difficulty of evolving extremely complicated structures out of the simplest forms by such a chance force as natural selection.*

This difficulty may not strike some as insoluble; nevertheless, it points out that the theory of evolution runs mainly counter to the usual order in nature—when any proposed evolver is excluded.

Science, of course, has nothing officially to do with origins or first causes. It only concerns itself with actual facts and results, and their connections. It says "the origin of matter and force are unknowable." Dr. A. R. Wallace, however, is not of this scientific view. He says: "Science demands the knowledge of an intelligent being as the first cause of physical force."

In modern times Professor Henslow has endowed life with the power of directivity, and there can be no doubt that the Creator

has endowed life in the individual cell with purpose. It can preserve its own life by the progressive selection and assimilation of food, and can reproduce its own species: but its directivity must have proceeded from a supreme Director. When, however, we come to the direction of a complex organism like man, we look for the general directing force of the countless cells and numerous organs for the good of the whole, in the expression of life in mind; and so far as such direction is extra-conscious—to the unconscious mind in man. Life, indeed, itself is not a force, but a directing of force. No force can direct itself, and no natural force is alive. But no directing force in life has been known to change one species into another, and reproduction is strictly limited to " after its kind."

It is, however, so difficult to speak of creation, or, indeed, of evolution without touching on life; that practically scientists have found themselves forced, most unscientifically to discuss its origin. Such a discussion took place at Dundee, I think, in the year 1912; when, as I have already stated, ten professors joined in, each contributing his idea on the abstruse subject, but, so far as I know, not one of the ten ventured to suggest that possibly God as Creator might prove to be the missing source of life.*

There can be no doubt life existed from the beginning, and there is now little question that the phenomena of life are essentially purposive, or, as Professor Henslow says, " directive," and are therefore the phenomena of mind; and if we further ask, Whose mind? there is but one final answer, " God's," for He alone existed in the beginning.

Abiogenesis, or the production of living protoplasm from chemicals has been affirmed, and specially by Dr. Charlton Bastian; but drastic experiments have proved that already existing life had not been sufficiently excluded in his experiments, and that the premisses being unsound, the conclusion was false.

To-day it is generally accepted that life alone can produce life, and that all attempts to make it artificially have so far failed.

Dr. A. R. Wallace declares that " living protoplasm has never been chemically produced."

Huxley, indeed, says: " Life exists before organism and is its cause."

But life can only produce life *after its kind*, from creation till now. Grass can never produce a tree; and if in any way the body of a man is to be made from a single living cell, the mind of the Creator as well as the fashioning hand must be

*We may remark here that protoplasm is not so much the physical basis of life as that (as Professor Burden Sanderson shews) life is the basis of protoplasm.

present every step of the way. If we are to trace such Divine action in Genesis and further on, from earth to heaven, we seem to discover seven steps in this new Jacob's Ladder:—

1. Unicellular organisms or protozoa—the beginning of all life.
2. Multicellular organisms or metazoa (including all vegetable life).
3. The invertebrata.
4. The vertebrata up to the primates.
5. The natural man.
6. The spiritual man (by the new birth), as great and true a step in progression as any of the others, and a distinct new species —true to type.
7. The Superman or Christus Consummator, the last Adam—the last for which the first was made—the end in view from the first moment life ever appeared on this planet.

I do not press these closing views, nor are they the subject of this paper, but to me they are both true and harmonious.

I will not apologise for the shortness of my remarks, for their brevity will give opportunity for others to speak, who are no doubt more conversant with evolution than myself.

Indeed, it may be possible that we may be favoured with an esoteric view of the subject, which would be of great interest to all of us, and possibly solve some of the difficulties that puzzle outsiders.

DISCUSSION.

The CHAIRMAN (the Rev. J. J. B. Coles, M.A.), said they had listened with great pleasure to a most interesting paper by Dr. Schofield. In calling on them for a vote of thanks by acclamation, he would make a few remarks. On page 83 the first paragraph, we read: "When therefore we speak of evolution, we must explain what particular meaning we attach to the word. At one end of the scale it may mean nothing more than the general scheme of progression, outlined in Genesis i., as the method of the Creator. At the other it may connote a directive force that has itself fashioned every form of life without any creator at all."

The Christian student of science holds fast to the dignified opening words of Scripture: "In the beginning God created the heaven and the earth."

That God was pleased to work by gradual methods as well as by direct creative energy, is, I take it for granted, what most of us here present believe.

Professor Alfred Russell Wallace, when referring to the question as to how life originated in this planet, affirmed that power was exercised from without. In a word, life was given to the earth.

Mr. W. HOSTE said: I hardly think Dr. Schofield need have been so apologetic at the beginning of his admirable paper. If he is an outsider, there are no "insiders." Even a Max-Müller could not pose as an expert on the language of primitive man; the best of cartographers could not produce a reliable map of the other side of the moon. It is difficult to see how a man can be an "esoteric" Evolutionist. No one has ever seen evolution in process, nor is there one direct proof that any of the four foundations of Darwinism, unlimited variability, unlimited time for variation, transmission of acquired characteristics or natural selection, repose on anything more solid than assumption. We can all read books. The man who reads the most on this subject, unless he has something better than man's word to go by, should be the most muddled, for the voices are very conflicting. I think Dr. Schofield might have added, to his modern gods and goddesses—"Science," a swollen puffed-out word, glibly used by the scientists of the penny Press; but the best scientists allow there is much more outside than inside it. Dubois-Raymond says of natural selection: "We seem to have the sensation in holding to this doctrine of a man hopelessly sinking, who is grasping a single plank that keeps him above water." Then why hold to it? Weissman long ago assured the scientific world that if they gave up "Evolution," and especially "Darwinism," nothing remained but "Creation," of course, a *reductio ad absurdum*; but Wilser writes: "He is no scientist who has not settled accounts with Darwinism." Hæckel was so anxious to prove "Evolution" that he used to do a little forging on his own account in his embryological diagrams. When forced to confess this, as he did in the "Münchener Allegemeiner Zeitung," of January 9, 1909, he covered his retreat by asserting: "The great majority of all morphological, anatomical, histological and embryological diagrams . . . . are not true to Nature, but are more or less doctored, schematized, and reconstructed." It is the little boy's excuse for robbing the orchard. It might not be without use to remember this when visiting the South Kensington Museum. Hæckel became very unpopular with his fellow scientists. Some scientists have been known to develope cannibalistic tendencies. The "odium scientificum" is as real as the "odium theologicum."

As for the process of Evolution itself, should we not have expected in the earliest strata containing organic fossils, that these would have been at first all of one sort, gradually merging by a series of infinitely small variations into new types? In reality it is disconcerting to find on the contrary at the very start a large variety of animal remains, some of which disappear altogether, while others persist for ages, unchanged, like the ammonites; while new forms

are constantly and suddenly appearing. As the eighth Duke of Argyle wrote: "The new forms always appear suddenly from no known source, and generally, if of a new type, exhibit that type in great strength as to numbers." How exactly this fits in with that "progression," which, as Dr. Schofield remarks, is so characteristic of Gen. i.! To meet above difficulty the "possible" "Imperfection of the Record" is suggested. But Science knows no resting place on "may be" and "perhaps." As a fact we have, as Urquhart shows in his "Bible and how to read it," rocks, such as the Jurassic, in which occur continuous and undisturbed series of long and tranquil deposits, 1,300 ft. in thickness, in which as many as 1,850 new species have been counted, all of them suddenly born, invariable as far as they go, and superseded by still newer forms. Hæckel hailed Darwin as a great deliverer from the tyranny of the Scriptural Record, which he considered, no doubt rightly, to be the greatest obstacle to the acceptance of Evolution. Darwin provided what Hæckel called an "anti-Genesis." Certainly Gen. i. in scientific language would be an amusingly pedantic document, and as Dr. Schofield asks pertinently what scientific "language would be the up-to-date one?" The language of Gen. i. is not in advance of the science of any time, it is not behind the science of any time. Professor G. Dana, the well-known geologist, in his "Geology," pp. 760, 770, writes: "This document (*i.e.*, the first chapter of Genesis), if true, is of divine origin. It is profoundly philosophical in the scheme of creation it presents. It is both true and divine. It is a declaration of authorship both of creation and the Bible." When W. E. Gladstone proposed Dana as arbitrator between himself and Huxley in their great controversy as to the scientific accuracy of Genesis i., Huxley replied: "There is no man to whose judgment I would more readily bow than Professor Dana." I cannot help strongly deprecating the placing of Christ (see p. 91) as a sort of superman—the last development, by whatever process you please, in a progressive series, beginning with the protozoa and mounting up through the invertebrates to "the natural man." I think this gives the case away, degrades Christ, and contradicts the facts of our Lord's origin, as presented to us in the Scriptures, three things the lecturer would never do wittingly.

Mr. THEODORE ROBERTS desired to add another difficulty in the way of the evolution theory, which he remembered the late Lord Salisbury mentioned when delivering his address as President of the British Association nearly 30 years ago.

It was that the biologists declared that they required at least 50 million years for the development of the first protoplasm into a man, whereas the geologists affirmed that some two million years ago the surface of this earth must have been so hot as to make life impossible.

He thought that many had been attracted to evolution as finding

a reason why so many animals were furnished with the means of causing pain to others; a thing which appeared at first sight incompatible with a beneficent Creator. He thought the explanation with regard to the present Creation might lie in the fact that the fall of man, who was really God to the lower animals, had affected them, as indeed appeared from the Scripture. "The whole Creation groaneth and travaileth in pain together until now," Romans 8, 22.

But this would not explain the evidences in fossil remains that animals before the advent of man were furnished with weapons with which they could torture one another. It might possibly be that at that time this world was inhabited by some superior creatures who had passed away and whose passions affected animals.

However, there did not appear to be any clear and full explanation, which should make us humble and remember the limitations of our knowledge, and that in many things we had to walk by faith and not by sight.

The Rev. J. E. H. THOMSON, M.A., D.D., writes:—I appreciate very highly Dr. Schofield's paper, and should have been delighted had circumstances permitted me to be present on the 6th of this month. While agreeing with the author in the ambiguity of the term, I yet think that "Evolution" may have a thoroughly theistic meaning. If it is regarded as indicating the method the Creator followed; that Creation was not the result of the "Fiat" of a moment, but a process by which step by step the more complex was evolved from the more simple according to a purpose. This may quite well be true.

There may even be an excuse for saying "Nature" when we mean "God": it may result from a reverence analogous to that which leads the Jews to avoid the sacred name when reading the Law. This does not affect the difficulties pointed out by Dr. Schofield, which really apply to the purposeless evolution of modern science. Personally, I have been impressed with the millions of "missing links" needed to render complete the process of a fortuitous "Evolution."

The purpose in evolution cannot have been merely the emergence of "Man." There are numerous highly specialised forms of life which appear to be terminals, *e.g.*, the ostrich, the elephant, and in geologic time, the Pterodactyl. These cannot be steps to further evolution. There is an interesting region for enquiry: the instincts which in so many animals lend themselves to domestication and modification by man. This leads to the question whether it may not be that, parallel with evolution of man, there was the evolution of animals to fit them to be subjects of man's rule. If it be objected that this applies to few genera, the mysterious fact of the Fall may explain this. The suppression of reproduction by gemmation, by bi-sexual reproduction and the care of the young, seems to find its reason in the evolution of altruism.

DR. W. WOODS-SMYTH wrote:—I am glad to get a glimpse of Dr. Schofield's paper. I am an evolutionist, because, like Hæckel, I found it in the Bible. The succession of living organisms revealed by geology agrees with the doctrine of evolution, and that succession is *absolutely* in harmony with Genesis i. as far as the Scripture goes. The Bible alleges the earth to be an efficient cause in the bringing forth of living organisms. In the Hebrew the word is in the *causative* voice—this denotes all that the earth stands for, namely, the life given to it by God, the environment, natural selection, etc. Man by his feeble powers and limited vision, by his use of selection, has produced varieties which, had they been found in Nature, would have been placed not simply in different species, but in different *genera*. Man, by experiments on a few organisms has produced varieties of organisms *which are inherited* through generations, and the permanency of the new characters, which *are inherited*, depends upon the length of time they have been subject to changed conditions. Natural selection works on many millions of organisms, and through long millions of ages—hence its achievements. True natural selection ***alone*** cannot produce a species of living organism. No more can its Biblical correlative, election, *alone* produce a Christian.

The elect of Christ and Darwin are ever the Overcomers. The point is by what means do they overcome? Nietzsche, in his narrow soul, thought of might, power, force; this was a mistake. The great saurians excelled in strength the mammals, but the mammals by more brains and alertness of body were the overcomers. The earlier gigantic mammals excelled in strength their later congeners, yet the later overcame and displaced them by more efficient adjustments. Man has the dominion over all creatures, but not by might or force; and Christ overcomes by the revelation of the love of God and the majesty of Him who loves.

Note by Dr. Schofield on Dr. Woods-Smyth's remarks: If evolution means only succession it is too vague for controversy. Neither water nor earth were efficient causes of animal life, for God had to create and make every living creature. I do not consider natural selection and God's election as correlatives. Might, power, force, is not confined by Nietzsche and others to what is physical.