JOURNAL OF

THE TRANSACTIONS

OF

The Victoria Institute,

OR

Philosophical Society of Great Britain.

EDITED BY THE HONORARY SECRETARY,
CAPT. FRANCIS W. H. PETRIE, F.R.S.L., &c.

VOL. XVII.

LONDON:
(Published for the Institute)
E. STANFORD, 55, CHARING CROSS, S.W.
EDINBURGH: R. GRANT & SON. DUBLIN: G. HERBERT.
PARIS: GALIGNANI & CO.

AUSTRALIA AND NEW ZEALAND:
GEORGE ROBERTSON & CO., LIMITED.

1884.

ORDINARY MEETING, April 2, 1883.

H. Cadman Jones, Esq. in the Chair.

The minutes of the last meeting were read and confirmed, and the following Elections were announced :—

Member :—Rev. A. Jones, B.D., London.

Associates :—Right Rev. J. Horden, B.D., Bishop of Moosonee, Canada; Major-General R. S. Dobbs, Ireland ; T. Tighe Chapman, Esq., Ireland.

Also the presentation of the following works for the library :—

"Proceedings of the Royal Society."	*From the same.*
Two Pamphlets by President Calloway, D.D.	,,
Two ,, ,, Rev. A. Jones, B.D.	,,

The following paper was then read by Mr. T. K. Callard, F.G.S., the author being unavoidably absent :—

THE ORIGIN OF MAN. By the Ven. John W. Bardsley, M.A., Archdeacon of Warrington.

TO read a paper before the Victoria Institute, and especially on such a subject as "The Origin of Man," would overwhelm me with confusion, were I not secure in the indulgence of my friends, the strength of my arguments, and that presence which the Master will vouchsafe to the least of them that put their trust in Him. May He vouchsafe to make my paper helpful to some in whose minds incipient misgivings, it may be, have found a place, whilst confident statements have been dinned into their ears in reference to "the origin of man," which they themselves have had neither the time nor the opportunity to test. As far as is possible, I shall avoid loading my paper with extracts from philosophical treatises and the use of scientific formulæ. In the selection of the evidence to be adduced and in the principles to be laid down,

I have set before myself as a binding canon that in such studies we cannot accept facts too thankfully, test theories too rigorously, and arrive at conclusions too cautiously. At the outset let me remark, on the one hand, that the subject cannot be overrated in its importance, and, on the other hand, that, as our ignorance transcends our knowledge, so we must patiently yet confidently wait for the solution of some seeming difficulties. Its importance arises from the fact that the natural cosmogony of Genesis and the spiritual cosmogony of the Gospel are bound together by countless analogies. To cast aside the creation of Genesis would be to remove the foundation from our Creeds, and to tear down the doctrinal structure of our holy faith, besides destroying one of the greatest arguments for the observance of moral duties and of religious worship. The grounds for confidence in the future manifestation of perfect harmony between the teachings of science and the revelations of Scripture rest in the fact, that in the past their exquisite adjustments have been made more and more apparent as time has passed and light has been given. Sceptics, for example, have often made merry concerning the fancied inaccuracies by which Moses gave grapes to Egypt; Daniel, a Belshazzar, to be ruler of Babylon when the city was taken; St. Luke, a Proconsul instead of Proprætor to Cyprus; and the prophet an abundance of water to pour over the altar when the drought was great in the land; but the tombs of Egypt, the cylinders of Babylon, the coins of Cyprus, and the shells of the fount on Carmel have all risen from the ground to proclaim the sceptics wrong, the Scriptures right. From the experience of the past let us learn to tarry the Lord's leisure, for, though the explanation may be deferred, we may rest assured it will not ultimately fail. There are three topics in connexion with our subject on which errors prevail, in reference to which we shall do well to contrast the statements of the Word of Truth as affirming that the origin of man is a common origin, that the origin of man is comparatively modern, and that the origin of man is divine.

1. *The Common Origin of Man.*—Do the races of men, however distant and however diverse, possess one common nature, and own one common Father? If we appeal to the Scriptures, there is but one answer, and this openly declared and tacitly assumed: "And Adam called his wife's name Eve, because she was the mother of all living" (Gen. iii. 20); whilst, after the Deluge, the record of the generations of Noah concludes (Gen. x. 32): "These are the families of the sons of Noah after their generations in their nations, and by these

were the nations divided in the earth after the flood." The echoes of these statements were heard on Mars' Hill more than 2,000 years afterward by the philosophers who boasted themselves autochthons, whilst the Apostle proclaimed that "God, who made the world and all things therein, hath made of one blood all nations of men for to dwell on all the face of the earth" (Acts xvii. 24–26). This truth, however, not only stands out prominently in the pages of Revelation—it underlies the whole structure. Because men are of one blood, the nature which Jesus took and the blood which He shed can save and cleanse wherever men are found,—"As in Adam all die, even so in Christ shall all be made alive." But the headship and federal character of the two Adams can have no existence unless this truth be received. The brotherhood of men and the universal redemption of Christ are bound up with it as social ethics and as Scripture truths. Had there not been a common source, there had not been a common sin and a common salvation. Those who have read a deeply suggestive sermon of Bishop Ellicott on "The Restitution" (in his little book on *The Destiny of the Creature*) will never forget how, having argued from the Mosaic statement that, whilst in creation the earth brought forth abundantly and the waters teemed with life, man, the lord and sovereign of all, came forth from the hands of his Maker the single representative of his race (single, I say, for the helpmeet is subsequently furnished, and that out of his own body), the Bishop goes on to speak of unities more mysterious and more comprehensive. In the fact of man being a personal being, in contradistinction to the collective races of lower animals, the Bishop finds the basis whereby he argues from the oneness of the race in creation and in the sin of one, that is Adam, to the oneness of the redemption and the restoration by the one, that is Christ Jesus. "The descent of all mankind from one pair," says the Bishop of Lincoln, "what is it but a foreshadowing of the union of Christ with His Church, and of the spiritual derivation of all the faithful in every age and nation from that mystical union which is betwixt Christ and His Church?" If we would rightly divide the Word of Truth in reference to its central doctrinal teachings, we cannot but hold fast to its historical statements as to "the common origin of man."

If, however, the question as to the common origin of the human race be proposed to some men of science, the reply will be far different. With Voltaire, some would say, "None but blind men can doubt that the whites, negroes, Albinos, Hottentots, Laplanders, Chinese, and Americans are entirely distinct races." Some would adopt the language of Dr. Morton,

"Our species had its origin not in one, but in several or in many creations; and these, diverging from their primitive centres, met and amalgamated in the progress of time, and have thus given rise to those intermediate links of organisation which now connect the extremes together." "Here," he says, "is the truth divested of mystery—a system that explains the otherwise unintelligible phenomena so remarkably stamped on the races of men." It is this view, that there was no common central origin for men, but an indefinite number of separate creations from which the races of men have sprung, to which Agassiz gave the sanction of his name, subsequently seeking to prove that there are eight regions of the earth, each containing its own fauna and its own peculiar type of man, and that what are called human races, down to their specialisation as nations, are distinct primordial forms of the type of man.

In whatever terms those replies are couched, they contain statements which cannot in my judgment be reconciled with the statements of Scripture. "The unity of mankind," says the Duke of Argyll, "is too deeply interwoven with the fundamental doctrines of Christianity, and is not easily separated from principles which are of high value in our understanding both of moral duty and of religious truth." Amid this conflict of response there are certain facts which will occur to most of us in confirmation of the Scripture reply, affirming the common origin and unity of the species of man.

(a) Let me name the law of hybrids. It is a general principle that beings of distinct species, or descendants from stocks originally different, cannot produce a mixed race which shall have the power of continuing itself. Mules, for example, cannot continue the mongrel race. Were species capable of blending with one another indefinitely, they would be no longer recognised. The system of life would become an unintelligible chaos; the temple of nature would be fused over its whole surface and throughout its entire structure. It is, however, an admitted fact, that from the amalgamation of races most diverse, be they Caucasian, Mongolian, or African, offspring may arise and races be indefinitely prolonged; and from this fact of a common nature we are entitled to draw a proof that God has made of one blood all nations to dwell in all the face of the earth.

(b) And, further, we cannot but remember that, be the varieties between the different races of men as marked as they may, they are only external, and such as affect the hair, the skin, the skull. The colour of the skin is of all organisms the most liable to change; and, as regards the skull, greater

differences often exist between the skulls in one and the same race than between the skulls of different races on which stress is laid. In the species around us skulls of the wild boar and of the domestic swine differ as strikingly as do the skulls of the typical African and European. In the fierce bloodhound, trained to harry down the helpless slave, and the noble dog of St. Bernard, with its life-saving instincts, we see varieties in the same species as great as any that manifest themselves between any existing races of men, however diverse. In reference to structural and other differences between different varieties of man, we may say, with the Duke of Argyll, that "they are comparatively trifling, and that it may safely be affirmed that all the efforts of anatomists and physiologists, who have been most determined to magnify every point of variation, have utterly failed to render it impossible or improbable that all men have had a common ancestor."

Happily we can appeal to scientific men of the very highest attainments for more than a possibility, or even a probability, that the Scripture reply is on this point the Word of Truth. They declare that the bones in the skeletons of all men are the same in number, arrangement, and disposition; that the blood-vessels are the same in distribution; that the muscles—thousands in number—are the same in all; that the brain, the spinal marrow, the nervous system are the same in all; that the processes of respiration, digestion, secretion, and propagation are the same in all; and that a system of anatomy, compiled in Europe from an examination of the bodies of Europeans only, would be as applicable to Asia, Africa, America, and Australia, as in Europe itself, and that all mankind are of one and the same species. Delitzsch has well summed up their conclusions in the following words: "That the races of men are not species of one genus, but varieties of one species, is confirmed by the agreement in the physiological and pathological phenomena in them all, by the similarity in the anatomical structure, in the fundamental powers and traits of the mind, in the limits to the duration of life, in the normal temperature of the body, in the average rate of pulsation, in the duration of pregnancy, and in the unrestricted fruitfulness of marriages between the different races." The words with which Prichard—no ordinary man, for Dr. W. B. Carpenter says of him, "Prichard was a physiologist among physiologists, a philologist among philologists, a scholar among scholars"—the words with which he concludes his great work on "*The Natural History of Man*" will be in the memory of all. Having, according to the strict rule of scientific scrutiny,

closed his eyes to all extrinsic evidence and abstracted his mind from all considerations not derived from the matters of fact which are immediately on the question, he affirms: "The differences of men are not distinguished from each other by strongly marked uniform and permanent distinctions, as are the several species belonging to any given tribes of animals. All the diversities which exist are variable, and pass into each other by insensible gradations, and there is, moreover, scarcely an instance in which the actual transition cannot be proved to have taken place." And again: "We contemplate among all the diversified tribes who are endowed with reason and speech the same internal feelings, appetences, aversions; the same inward convictions, the same sentiments of subjection to invisible powers, and more or less fully developed accountableness or responsibility to unseen avengers of wrong and agents of retributive justice, from whose tribunal men cannot even by death escape. We find everywhere the same susceptibility of admitting the cultivation of these universal endowments, of opening the eyes of the mind to the more clear and luminous views which Christianity unfolds, of becoming moulded to the institutions of religion and of civilised life; in a word, the same inward and mental nature is to be recognised in all the races of men. When we compare this fact with the observations which have been heretofore fully established as to the specific instincts and separate physical endowments of all the distinct tribes of sentient beings in the universe, we are entitled to draw confidently the conclusion that all human races are of one species and one family."

I do not think it necessary to continue these evidences in support of the Scriptural statement; but, were it needful, I might appeal to those who have studied deeply the traditions, the calendars, the mental and moral affinities of the different races which have peopled, and do now people, the world, and from each and all the verdict will be in favour of the common origin of man. Were our meeting one for dialectical sport, and not for reverent inquiry as to "What saith the Word of Truth?" it would afford amusement to bring forth the representatives of certain scientific theories, and then, amid the din and dust of the arena, to look down from the unshaken vantage-ground whilst they buffeted and vanquished each other. In this way we might appeal to Lyell in favour of the common origin from a single pair,—"a doctrine," he says, "against which there appears to me to be no sound objection"; or to Darwin himself; for not only may we gather the probability from his works, wherein he demonstrates that there may be produced within the limits of one admitted

species of animals, by artificial selection and hereditary transmission of peculiarities, diversities infinitely greater than those existing between the highest and lowest races of mankind; but, for example, in his work on "The Expression of the Emotions in Man and other Animals," he says, "All the chief expressions exhibited by man are the same throughout the world. This fact is interesting, as it affords a new argument in favour of the several races being descended from a single parent stock." And again: "If we bear in mind the numerous points of structure, having no relation to expression, in which all the races of man clearly agree, and then add to them the numerous points, some of the highest importance and many of the most trifling value, on which the movements of expression directly or indirectly depend, it seems to me improbable in the highest degree that so much similarity, or rather identity, of structure could have been acquired by independent means, as must have been the case if the races of man are descended from several aboriginally distinct species. It is far more probable that the many points of close similarity in the various races are due to inheritance from a single parent form."

I must not close this part of my subject, however, without indicating briefly the intensely interesting support which is being rendered to the cause of the Word of Truth, not only on the common origin but also the common language of man, by the science of comparative philology. Time was when from the apparently different species of language the strongest arguments were brought against the common origin of man. It is from that same quarter the doctrine is now receiving its most weighty support. Great authorities like Dr. Latham, regarding it now as a matter of fact that all languages had a common origin, argue therefrom the original unity of man. In his interesting work on "The Origin of Nations," Canon Rawlinson, speaking of the 10th of Genesis, a chapter written 3,000 years ago by a Jew, for Jews, to explain the interconnexion of races, regards it as one of the proudest boasts of the nineteenth century that its inductive science has arrived at almost exactly the same conclusion which Moses, writing 1,500 years before the Christian era, laid down dogmatically as simple historical fact. Max Müller, having affirmed that the evidence of language is irrefragable, and is the only evidence worth listening to with regard to ante-historical periods—the times when Greece was not yet peopled by Greeks, nor India by Hindoos—adds: "Yet before these times there was a period when the ancestors of the Celts, the Germans, the Slavonians, the Greeks and

Italians, the Persians and Hindoos, were living together beneath the same roof." "Many words," says he, "still live in India and in England that have witnessed the first separation of the northern and southern Aryans, and these are witnesses not to be shaken by any cross-examination. The terms for 'God,' for 'house,' for 'father,' 'mother,' 'son,' 'daughter,' for 'dog' and 'cow,' for 'heart' and 'tears,' for 'axe' and 'tree,' identical in all the Indo-European idioms, are like the watchwords of soldiers. We challenge the seeming stranger, and whether he answer with the lips of a Greek, a German, or an Indian, we recognise him as one of ourselves, and there is not an English jury nowadays which, after examining the hoary documents of language, would reject the claim of a common descent and a spiritual relationship between Hindoo, Greek, and Teuton." Bunsen has shown the Asiatic origin of all the North-American Indians, and of Africa Latham has said: "That the uniformity of languages throughout Africa is greater than it is either in Asia or in Europe, I have not the slightest hesitation in committing myself." For these philological arguments each day additional evidence is found, not merely by the correlation of words, but in the grammatical structure,—the bones and sinews which retain their shape and signification with such marvellous persistency. The closest and most distinct affinities have been discovered between the languages of the South Indian Tamil country and the languages of the Finns and Lapps of Northern Europe and the Agrians of Liberia. "Thus," says Dr. Caldwell, "the pre-Aryan inhabitants of the Deccan have been proved by their language alone, in the silence of history, in the absence of all ordinary probabilities, to be allied to the tribes that appear to have overspread Europe before the arrival of the Goths and of the Pelasgi, and even before the arrival of the Celts." Well may he add, "What a confirmation of the statement that 'God hath made of one blood all nations of men to dwell upon the face of the whole earth'!" Surely, brethren, we may not only with confidence rightly divide the Word of Truth concerning the common origin of man, but with thankfulness for the researches of those who, from a scientific point of view alone, have arrived at the conclusion that in the beginning men were of one language and of one speech, and that of one family of man the whole earth was overspread.

2. *The Modern Origin of Man.*—Here, be it observed, the question before us is the origin of man, not that of the earth. That enormous periods have elapsed since the earth's foundations first were laid I cannot but regard as for ever settled.

Among the benefits which science has rendered there have been none greater than the light it has thrown upon some parts of the sacred record which are found to anticipate (when rightly questioned) on this point the discoveries of science. That the fossils which seem to testify of ages long past, and of progressive development, should have had such features of antiquity stamped upon them by the God of truth, though by Him created in a literal day, is a theory which, constructed as it may have been by some timid believer, is utterly abhorrent, as I venture to think, to a right dividing of the word of truth. Happily, there is one aspect of the modern introduction of man upon the earth in which well-nigh all will be agreed. If we lay aside that chronology which is measured by years, and consult that which consists of the sequence of events, we shall find that the fundamental truth of man's origin, as recorded in Genesis, viz., that he is the climax, the consummation and crown of God's creation, is the testimony which geology has always given. Of all the creatures that have been formed to live, it testifies that man is the latest form. "No geological fact," says Professor Dawson, "can now be more firmly established than the ascending progression of animal life, whereby from the early invertebrates of the Eozoic and Primordial series we pass upward through the dynasties of fishes, and reptiles, and brute mammals, to the reign of man. In this great series man is obviously the last term. And when we inquire at what point he was introduced the answer must be, in the latter part of the Kainozoic or Tertiary period, which is the latest of the whole. Not only have we the negative fact of the absence of his remains from all the earlier Tertiary formations, but the positive fact that all the mammalia of these earlier ages are now extinct, and that man could not have survived the changes of condition which destroyed them and introduced the species now our contemporaries." In this confirmation from science of the exact position of man in the order of God's creation, as recorded by Genesis, we may well rejoice. When, however, we turn to that chronology which is measured by years, if God's Word on this point be the Word of Truth, we cannot but recognise that much erroneous teaching prevails.

To the question, When did man appear on the earth? the Word of Truth gives no exact date; for I need not remind my brethren that the marginal 4,004 is of no binding authority, and is but the result of one among the 180 systems of chronology which have been broached as to the period which elapsed between Adam and the birth of Christ. Of all these systems, the lowest numbers about 3,500 years, the highest about

7,000. A whole library has been written concerning the longer and shorter Hebrew chronologies, and now probably the balance of opinion will be on the side of Canon Rawlinson, when, in *Aids to Faith*, he argues in favour of the Septuagint version, in preference to the Hebrew text, and thus adds six centuries to the generally received period which elapsed between the creation of Adam and the Deluge. The corruptions which have crept into the text must have taken place since the time of Josephus, when the Septuagint translation and the Hebrew were in accord. The present discrepancies affect, however, not the facts of the narrative, but the number of years; and, with an ample margin for all these discrepancies, it will not be possible, by any arrangement of Bible dates, to consider the creation of our first father as an event more remote from us than 7,000 or 8,000 years. This reply, however, which Scripture constructively renders, is far different from that which many men of science have proposed, and especially those who have been among the foremost defenders of the common origin of man; and in their divergence concerning the date of man's origin we have, it has been said, one of the questions which stand in the way of an *entente cordiale* between science and religion. When, however, we ask these men of science for their answer, we find scarcely two alike. Bunsen, with his study of Egyptian history, pleads for 20,000 years before Christ. Wallace, in his book on *Natural Selection*, says: "We can with tolerable certainty affirm that man must have inhabited the earth a thousand centuries ago." Sir Charles Lyell asks for "a vast series of antecedent ages"—"periods of incalculable length, which figures cannot enable us to appreciate"; whilst Waitz, in his learned work on the *Anthropology of Nations*, allows us the choice between thirty-five thousand million and nine million years as the period of man's existence upon the earth. When we seek to test these varied dates, we shall have the more reason to affirm that no weapon framed against the Word of Truth can ever prosper. The speculations of Bunsen need not detain us. Rawlinson, in *Aids to Faith*, and Archdeacon Pratt, in his valuable treatise, *Scripture and Science not at Variance*, have shown their foundations to be upon the shifting sands of unreliable scraps of Greek chronology and the deceptive deposits of Nile mud. To arguments in favour of the vast ages which some have required for the development of physical differences, and the creation of languages in the races of men, the following reply from a paper by Professor Dawson may be new, and will not fail to interest. Referring to such facts as that the negro is as much a negro now as in the days when

the Egyptian monuments were reared, and that the fair hair and blue eyes of the Germanic races were contrasted with the dark hair and dark eyes of the South Italian beauty, when Juvenal wrote, as much as now, and to the arguments based thereon, for vast periods wherein physical changes could have been developed, he adds, "A new law, however, is coming into view—it is, that species when first introduced have an innate power of expansion, which enables them rapidly to extend themselves to the limits of their geographical range, and also to reach the limits of their divergence into races. These limits once reached, the races run on in parallel lines until they one by one run out and disappear. According to this law the most aberrant races of men might be developed in a few centuries, after which divergence would cease, and the several lines of variation would remain permanent, at least so long as the conditions remained under which they originated. This new law is coming more distinctly into view, and will probably altogether remove one of the imagined necessities of a great antiquity of man. It may prove also to be applicable to language as well as to physical characters."

It is, however, in geology and the existence of human remains in the earth's crust that the advocates of high antiquity for man find, as they suppose, their strongest proofs. The argument has been thus fairly stated :—"The modern doctrine of man's high antiquity rests mainly on two premises, though these are supplemented by other presumptions of a secondary kind. First, certain flints from Brixham Cave, the valley of the Somme, and caverns in Belgium, are affirmed to have been plainly fashioned into tools, spears, or hatchets by the hands of savage men. And, next, the beds of gravel or stalagmite where they were found are said to have been deposited many myriads of years ago." Now, in reference to these two premises, if either fail, the conclusion is rendered invalid.

(a) As to the first, viz., the artificial character of the so-called flint implements,—whilst on the one hand there are those who do not scruple to declare that "a flint flake is to an antiquary as sure a trace of man as the footprint in the sand was to Robinson Crusoe," and, again, that "the flint hatchets of Amiens and Abbeville seem to the writer as clearly works of art as any Sheffield whittle"; on the other hand, there are experts who can find no evidence in support of such an opinion, but who, on the contrary, regard the evidence that the fractured flints are formed by natural causes to be abundant and conclusive. They point to the fact that, if flint nodules be thrown into such a machine as Blake's stone-breaker, flakes will come out in splinters as perfect as any now referred to human

workmanship, and entitled spearheads, arrowheads, and knives; and that by similar pressure such forces of nature as the planing, rasping, and crushing power of a deep mantle of land ice pushing its tortuous way to the sea would produce all the forms of flakes and cores that we actually find. They point again to the fact that these so-called tools are found in such abundance in some districts that, if the theory be maintained that they are implements lost by hunters, the ratio of lost axes to the savage population must have been as six millions to one. They point once more to the fact that with these implements found in the drift no relics of man are found—not a shred of his clothing, not a fragment of his pottery, not a trace of his abode, not a vestige of his habits and pursuits, not a bone of his frame; and therefore that it would not be easy to find a case in which so large a superstructure had been built on so slender a foundation.

(b) As, however, there are those who contend that some at least among these flints have been formed by man, we will concede the first premiss, and admit for argument's sake that they are artificial, and further also admit that they are coëval with the drift in which they are imbedded. The second premiss, however—viz., that myriads of ages have elapsed since the deposit of the drift—is scientifically unproven. If by the term "drift" we indicate all those deposits of gravel and mud which have taken place since the glacial period, and which cover what may be called the human period, we shall find the utmost divergence of opinion as to the time in question. Sir Charles Lyell contends that the glacial period must be reckoned at 800,000 years ago. Sir John Lubbock is contented with 200,000, M. Adhemar with 11,120, whilst Professor Andrewes contends the ice age ended barely 8,000 years ago. And, as the answers are unsatisfactory, so the modes of computation and the evidences adduced are superficial. The application of the law of averages as applied by Lyell has been admirably exposed by Professor Birks in his pamphlet on "Modern Geogonies," and a folio might be filled with the histories of the discoveries that have covered the finders with ridicule. The human jaw of Abbeville was, Dr. Carpenter bears witness, a successful "plant." The pottery found by Horner in the Nile deposit, and on which an extended chronology was founded admitting no error, no fraud, was proved of no geological value, when Roman pottery was found at even lower depths. That the remains of man have been found with the bones of extinct animals is readily admitted; but "this does not seem," says Prestwich, "to necessitate the carrying of man back in past time so much as the bringing forward of

the extinct animals toward our own time." That systems should be built up in contradiction to the Word of Truth on evidence such as this warrants the application of Archbishop Whately's stern rebuke in a similar case:—"A theory supported altogether by groundless conjectures and inconclusive reasonings, this procedure may be put forward as science, but it is a science which is neither Aristotelian nor Baconian, for it consists in simply begging the question." Shall we not protest when, upon such evidence as this, we find our popular manuals, our newspaper writers, our encyclopædia compilers, flooding the minds of the young and of the uninstructed with the assumption of conclusions on man's high antiquity which are absolutely unproven?

Assuredly, when we seek to divide the Word of Truth aright, we may confidently proclaim the Bible teaching of man's modern origin, since science itself assures us, by the mouth of Cuvier, that man's traditions and historical consciousness in no nation go further back than two or three thousand years before Christ, and since geologists of the first rank declare that "the annals of Genesis afford time for all the geological and palæontological sequence so far as the flint-tool makers are concerned."

III. *The Divine Origin of Man.*—I hasten, in the third and last place, to contrast some prevalent errors in reference to the cause of man's origin with the statements of the Word of Truth. In Scripture it is clearly asserted, not only that God made man, but that it is by Him our souls are maintained in life. The passages will at once occur to all our minds. St. Paul's words to the Corinthians, "A man indeed ought not to cover his head, forasmuch as he is the image and glory of God"; "The first Adam was made a living soul"; or in the Epistle to the Hebrews, where the Apostle adduces words spoken originally of the first Adam, "Thou madest him a little lower than the angels; thou crownest him with glory and honour, and didst set him over the works of thy hands." Two things seem explicitly laid down in these passages—first, that man's body did not grow and was not progressively developed, but was formed from the dust by the immediate operation of God; and, secondly, that that life which constituted him a man, a living creature bearing the image of God, was breathed into him by God. When we turn, however, to some popular teachers of the present day, we are met with theories to account for man's origin which may be resolved into two great classes, those of spontaneous generation and those of development.

The doctrine of spontaneous generation is a revival of the speculations of Greek and Roman philosophers, and

is undoubtedly held by a large class of naturalists at the present time. Professor Huxley has thrown over the theory the sanction of his name, though unable to admit its truth as a scientific fact. If it were possible to look back far enough, he would expect to see the evolution of living protoplasm from not living matter. Though declaring that spontaneous generation has never been proved, he adds, "I must carefully guard myself against the supposition that I intend to suggest that no such thing as abiogenesis has ever taken place in the past or ever will take place in the future with organic chemistry, molecular physics, and physiology, yet in their infancy and every day making prodigious strides. I think it would be the height of presumption for any man to say that the conditions under which matter assumes the properties we call 'vital' may not some day be artificially brought together." Strauss suggests that man originated as—according to his idea—the tapeworm, which is often some 20 feet long, does, by independent origination from mere matter without the intervention of a living being. To all this it must be replied that science knows nothing of such origination, but that, on the other hand, *omne vivum ex vivo* is an established law. Moreover, it must not be forgotten that these theorists have to beg the existence of matter. If matter be not eternal, it must have had a Creator. Whence, then, these atoms invisible and indivisible? Whence the law by which they gather in harmonious forms? Whence the motion by which they are constrained? It was for lack of a lever that Archimedes failed to overturn the world, and we too must give the materialists the physical basis with which they would overthrow the revelations of the Word of Truth. If ever it were possible to summon these atoms to proclaim the secret of their origin, their reply would be, "It is He that hath made us and not we ourselves;" for, as Sir John Herschel has said, they would have "all the appearances of manufactured articles."

The great point of difference between these views and those of which Darwin may be taken as the exponent is, that whereas they have to assume the existence of dead matter, he goes further, and asks for some living cell or germ into which the principle of life has been infused by some creative act, but at this stage he would dispense with Divine intervention, leaving to God the part, if I may adopt a political phrase, of "masterly inactivity," whilst by the operation of two principles, called natural and sexual selection, there came into existence the world of animals and plants—"all the organic beings which have ever lived on this earth

may be descended from some one primordial form." If we appeal to Darwin for man's direct descent, we are told that "the first ancestors were ascidian tadpoles, themselves the parents of a group of fishes as lowly organised as the lancelet, and that from them have been evolved the new and the old world monkeys, and from the latter, at a remote period, man, the wonder and glory of the universe, proceeded." One of Darwin's leading disciples as positively assigns the successive stages. Man was originally an oyster or clam, from which he has progressed to his present condition in the following way: —"The oyster produced a tadpole which produced a quadruped which produced a baboon which produced an ourang-outang which produced a negro who produced a white man." For the possibility of such theories it will be well to remember that the advocates have not only to assume the existence of matter, but of life. Whence came that vital power which quickened into life that first primordial germ? Exact natural science must confess not only her ignorance but her impotence to explain the origin of the first living organism from any of the natural forces with which she is acquainted. Liebig confidently said, "Chemistry will never succeed in exhibiting in her laboratory a cell, a muscular fibre, a nerve—in a word, one of those really organic parts of an organism which are endowed with vital properties." To what straits such advocates are driven it will be seen, when we remember how Sir William Thompson, as President of the British Association in 1871, suggested that the seeds necessary to supply the vital life in plants might in the first instance have reached our earth by aerolites projected from some distant planet or other cosmical body. Such a solution would merely transfer the mystery, not explain it, and that so eminent a scientific investigator should frame such an hypothesis to lend a helping hand to Darwinian views is, as Professor Challis remarks, not only an evidence of weakness, but it shows also wherein the theory is weak. Let it further be borne in mind that the advocates of the views known as Darwinian have to assume the intervals of hundreds, if not thousands, of millions of years for these developments to have matured the present results we see around us. With the bank of eternity at command, all things seem possible to them. It is, however, one of the first fatal objections to such views that the time they require science itself cannot concede.

If we take Sir William Thompson as our guide, we must limit the existence of our earth to one hundred million years. But, more recently still, Professor Tait, in his *Recent Researches in Physical Science*, speaking of the law of the

Dissipation of Energy, discovered by Sir Wm. Thompson, and quoting his three lines of argument, urges "ten million years at the utmost we can give to geologists for their speculations as to the history even of the lowest order of fossils, and for all the changes that have taken place on the earth's surface since vegetable life, of the lowest known form, was capable of existing there." And, further, he adds, "This discovery enables us distinctly to say that the present order of things has not been evolved through infinite past time by the agency of laws now at work, but must have had a distinct beginning —a state beyond which we are utterly unable to penetrate; a state which must have been produced by other than the now visibly acting causes."

There are three additional points which I would raise against these views before I draw my paper to a close.

And, *first*, when we compare man with the savage progenitors from whom he is developed, we find that his development has taken that form which would be most disadvantageous in the struggle for life, according to the theory of natural selection. By no one has this point been put more admirably than by the Duke of Argyll. "The direction," says he, "in which the human frame diverges from the structure of the brute is in the direction of greater physical helplessness and weakness; but this is not the direction in which the blind agencies of natural selection could ever work. The unclothed and unprotected condition of the human body, its comparative slowness of foot, the absence of teeth adapted for prehension or for defence, the same want of power for similar purposes in the hands and fingers, the bluntness of the sense of smell,—all these are features which stand in strict and harmonious relation to the mental powers of man. But, apart from these, they would place him at an immense disadvantage in the struggle for existence. These powers when possessed could not be modified in the direction of greater weakness without inevitable destruction, until first, by the gift of reason and of mental capacities of contrivance, there had been established an adequate preparation for the change. The loss of speech or of climbing powers which is involved in the fore-arms becoming useless for locomotion could not be incurred with safety until the brain was ready to direct a hand. The foot could not be allowed to part with its prehensile power until the powers of reason and reflection had been provided to justify as it now explains the erect position and the upward gaze. If man's frame was once more bestial, it may have been better adapted for a more bestial existence; but it is impossible to conceive how it could ever have emerged from

that existence by virtue of natural selection. Man must have had human proportions of mind before he could afford to lose bestial proportions of body." In this line of argument we have a weapon which yields a fatal thrust to the theory of natural selection.

Secondly. The most ancient remains of man, as a matter of fact, manifest no approximation to our simious ancestors. Such as man now is, such he seems always to have been. The fossil man of Mentone, for example, tells of a man six feet high and of vast muscular powers. His skull might have contained the brain of a Darwin. Such a man, if he were to rise up again among us, might, of course, be a savage, but he would be a noble savage, with all our capacity for culture, and with no more affinity to an ape than any one present. Professor Dawson has shown in a remarkable way that, whilst on the one hand no new species of mammals have been introduced since the post-glacial period, there still exist among us 57 distinct species that inhabited Europe in that post-glacial period. They exist unchanged, and not one can be shown to have been modified into a new form, though some of them have been obliged, by changes of temperature and other conditions, to remove into distant and now widely separated regions. Whatever the period that has elapsed since the glacial age, whatever the duration of man on the earth, there have been these 57 lines of species—a series of lines manifesting no tendency, however far back they may be traced, to converge, but strictly parallel throughout. What conclusions can be drawn from such a fact but one utterly fatal to the doctrine of development? It is facts like this that led Huxley to confess that the first traces of the primordial stock whence man has proceeded need no longer be sought by those who entertain any form of the doctrine of progressive development in the newest tertiaries; and, says he, they may be looked for in an epoch more distant from the age of those tertiaries than that is from us. For that search we may leave our Darwinian friends without any misgivings.

And, *thirdly*, it has been strikingly shown by Mr. Ackland that the system breaks down when tested by the law of probabilities. "In order that any variation may be perpetuated and increased, the pairing of similarly affected individuals is necessary, and this must be repeated again and again, and with every repetition of the process the probabilities against it would rapidly increase. Thus, supposing that in the first generation the proportion of favourable conditions were such that of those animals that paired there were four of each sex that had them to three that wanted them, the chances that any

given pair were alike in possessing them would be represented by two to one against it. In the next generation it would be eight to one, and so on. But, next, we have to do, not with one series of changes only, but with a vast number of different series going on in different directions. If we are to have a large variety of animals produced from a common stock, all the probabilities must be combined against the separate variations, not by addition, but by multiplication, so that the probabilities against the production of all those separate forms become enormous." Applying this principle to one of Darwin's illustrations—the fertilisation of orchids by means of insects—Mr. Ackland proceeds to show that the variation in the insects and flowers must take place at the same time and at the same place, or no result will follow to the insect, while the new variety of orchid must perish for want of an insect to fertilise it. "It is this," says he, "'which makes the supposition of unlimited time almost useless, because, just in proportion as the time is increased, the probability of two independent events happening simultaneously is diminished." Finally tested in this way, Mr. Ackland concludes that the theory completely breaks down. The theory, then, is untenable when tested by scientific tests, as it is also irreconcilable with the Word of Truth; for, although, as a theory, it does not discard a Creator in the first instance, it does withdraw Him at the first conceivable opportunity. The statement that God made the plants and animals after their own kind is one that Darwin considers will ere long be regarded as "a curious illustration of the blunders of preconceived opinion. These authors," says he, "seem no more startled at a miraculous act of creation than at an ordinary birth." The true tendency of Darwin's views has been more clearly seen by some of his followers than by himself. "The first living germ granted," says Carl Vogt, "the process of evolution will account for all we see. Man is not a special creation produced in a different way and distinct from other animals endowed with an individual soul, and animated by the breath of God; on the contrary, man is only the highest product of the progressive evolution of animal life springing from the group of apes next below him. The theory," says he, "is one which turns the Creator out of doors, and does not leave the smallest room for the agency of such a being."

Happily the theory which is thus opposed to the distinct teaching of the Word of Truth is one that meets with no quarter in some of the highest courts of science. Nay, it is the exclamation of one already quoted, the Duke of Argyll, that the difficulties of Darwinism are not theological, but scientific.

The theory is one which relies to some extent expressly on "unknown agencies," and is absolutely unsatisfactory as an explanation of difficulties it seeks to solve. "If the theory of development can be shown to involve difficulties of conception which are quite as great as those which it professes to remove, then it ceases to have any standing ground at all; for an hypothesis which, to avoid an alternative supposed to be inconceivable, adopts another alternative encompassed by many difficulties quite as great, is not entitled even to provisional acceptance." Wallace, although advocating the doctrine itself, argues that it is not applicable to man, and that it cannot account for his physical organisation, his mental powers, and moral nature. Huxley, whilst undertaking to show that the anatomical differences between man and the chimpanzee are not such in kind or degree as to justify their classification in separate orders, does this, however, on the condition that he may omit mind from his phenomena, admitting that, if this be taken into account, then the difference is so wide that it cannot be measured, an enormous gulf, and thus practically gives up the question. By German men of science of the first rank the theory has been pronounced to consist of "bold flights and arbitrary assertions." By Agassiz it has been said that "the theory is a scientific blunder, untrue in its facts, unscientific in its method, and ruinous in its tendency." "Everywhere," says Professor Phillips, "we are required to look somewhere else by the hypothesis; which may fairly be interpreted to signify that the hypothesis everywhere fails in the first and most important step. How is it conceivable that the second stage should be everywhere preserved, but the first nowhere?" The mind revolts against the theory when once it has been fully considered. There would be something grotesque, were it not painfully saddening, in that ingenuity which proposes to fill the gap which exists between the higher religious and moral sentiments of man and the instinctive affections of the brutes by that miserable ape, which, when crossed in love or when pining in cold or hunger, is imagined by Lubbock to have conceived for the first time in its poor addled pate the dread of evil to come, and so became the father of theology. Between man and the brutes there is a great gulf fixed, one which seems, however, to swallow up all those who seek to cross it by theories of their own. It is only when we rise on the wings of faith and accept the teachings of the Word of Truth that we rise to nobler themes, and an all-sufficient Cause, as we tell our descent, and add, "which was the son of Adam, which was the son of God." It is no legend, but the grand old revelation of Genesis that satisfies

all our legitimate desires after the mystery of life in the words,—"The Lord God formed man out of the dust of the ground and breathed into his nostrils the breath of life."

The CHAIRMAN (Mr. H. Cadman Jones).—I have now to return the thanks of the meeting to Archdeacon Bardsley for his admirable paper, and to Mr. Callard for so kindly reading it. I am sorry to begin by adverse criticism, but I must own that it takes a little too much of a theological turn. It is the object of this Society to see whether science does not really harmonise with, instead of conflict with, anything the Bible says; but, in entering on this investigation, it is necessary to be very accurate in laying down what the Bible really does say on any scientific question. The old instance of the case of Galileo is so familiar to all that one need hardly cite it. It was considered that his teaching contradicted the Scriptures, but there is not a person in this room who would not agree with me in saying that, in spite of all the decrees of the Pope and Reverend Fathers, the earth does move. I should be glad if any one whose studies have lain in that direction would say something about the discrepancies in the Hebrew and the Septuagint chronology, and as to how far we may consider the Scriptures really furnish materials for laying down a complete system of dates. The writer of this paper evidently appears to think the Scriptures do; that there is a difference between the periods which must be allowed according to the different modes of computation of dates; but still materials are furnished which do give some limits with regard to the period that can be allowed between Adam and the Deluge. It is very desirable that something should be said on this subject, because what takes place in our meetings here goes out to the world, and I think mischief may be done if it should go forth uncontradicted that the Scriptures make statements which, it may turn out on investigation, are not necessarily meant by them. Perhaps, also, for popular readers it might be desirable that we should have rather fuller information on the subject of Max Müller's argument, as referred to on page 261, because I think that those who have any acquaintance with comparative philology, which I myself have not, would find a difficulty in discovering that some of the words there alluded to are identical in all European languages. I myself plead ignorance on the subject, but it certainly does not occur to me that the word "tree" can, by any analogy, be the same as the Latin word for "tree," which is a word in another Indo-European language. Again, I do not see what analogy there is between the word "dog" and the Latin "*canis*," and so on in many other cases. I think that when statements of this kind are going out, although based upon the authority of Professor Max Müller, in a work intended to be perused by the general public, it would be but proper that there should be some kind of explanation to show that they are well founded.

Prof. S. E. O'DELL.—So far as I can perceive, I do not think that the Scripture references could have been evaded. It seems to me that they

have been brought forward for the purpose of showing that science, to a very great extent, agrees with those Scripture quotations. Those questions have not been given here in a dogmatical manner for scientists to accept, because they are believed to be inspired; but to show that they agree with what is held by a great number of eminent scientists. During the last three Sundays, I have had the pleasure of listening to three sermons that have been preached by Dr. Benjamin Ward Richardson, F.R.S., who is acknowledged to be an eminent scientific man, and one who has studied the subject of evolution. Speaking on that subject, he ended one of his addresses by saying, "This much, at least, I do believe, that I am a living soul." So far, then, we may perceive that he did not derive anything from the doctrine of evolution, which is opposed to that belief. He made another observation which I think is worthy of remark, seeing that he is a man of science of whom most of us know something: he said "If I believed science to be opposed to religion, I would give up all my scientific attainments, and would become the poorest minister of the poorest pulpit." * (Applause.)

Mr. HASTINGS C. DENT.—May I be allowed to mention one or two things that have occurred to me in connexion with this admirable paper? On the second page the writer says, "I have set before myself as a binding canon, that in such studies we cannot accept facts too thankfully, test theories too rigorously, and arrive at conclusions too cautiously." I think that that is a very important point, and one that should always be remembered, because the evolutionists bring forward probabilities, speculations, and hypotheses of every conceivable description. They prepare papers and lectures, of which we recently had an example, in which "ifs" and "may-bes" are advanced before long into "must-bes" and certainties. (Hear, hear.) On the fourth page there are some remarks on the immutability of species. This is a point which I consider one of great importance, and one which certainly appears to be, if anything can be, completely proved. For instance, we have in the Silurian rocks certain species and genera of crustaceans, which are represented by trilobites and ostropods.

---

* Baron F. von Mueller, K.C.M.G., M.D., F.R.S., recently—September, 1882—concluded a lecture on the *Flora of Australia* with these words, to which he calls my attention.—ED. "Why should that Divine Power, which the most extreme scepticism must acknowledge as the beginning of all beginning, be ennarrowed, according to the glimpses of poor mortal souls in this our atom of world of worlds, to operations such as only be within mortal grasp? Why should any of us endeavour to reduce, what must be eternally sublime beyond all human conception, to simple formulas or calculable processes? Sad would it be, were the final results of scientific striving to culminate in disputing away that consoling and trust-inspiring and elevating blessing which any mind imbued with piety must derive from the contemplation of Nature's wonders; it is thus that through worldly revelation we are allowed to perceive, though slight it may be, some of that grandeur of supernatural supremity, which happily for human existence is in its Godly fulness denied to mortal eye!"

The trilobites do not exist now, but they are represented by microscopical forms. The ostropods continue perfectly immutable and absolutely the same down to the present day. Here, therefore, we have those particular forms maintaining their distinguishing characteristics down to the present time,—the highest, the lowest, and the intermediate forms and genera remaining perfectly distinct. On page 265 there is a reference to the period that has elapsed between the glacial epoch and the present time; Sir Charles Lyell, it is stated, contended "that the glacial period must be reckoned as occurring 800,000 years ago. Sir John Lubbock is contented with 200,000, M. Adhemar with 11,120, whilst Professor Andrewes contends that the ice ended barely 8,000 years ago." On the mountains of Scaw Fell, Snowdon, and several others in our own lake district, besides those of the Ben MacDhui series, we have traces of Alpine flora life, which represent the glacial epoch. The *salix herbacea*, one of the smallest willows that exist and which only grows to the height of from one inch to three or four inches, is there found. Now, supposing this to have so continued for 8,000 years, it would afford additional proof of the immutability of species, by the fact that it has not been improved off the face of the earth, or developed into a larger form of plant. On page 267 we have the serious point of spontaneous generation discussed, and Professor Huxley is referred to as having "thrown over the theory the sanction of his name, although unable to admit its truth as a scientific fact." It might be desirable to state that Professor Huxley simply allowed it as a probability in past times,—that originally there must have been spontaneous generation,—in order to get over the idea of creation, although he does not think it possible to prove that this spontaneous generation now takes place. So it is with most of those who contend for this theory; they use it simply for the purpose of putting the idea of the Creator further and further from our minds. I think the writer very properly sums up the evolution question in the words of Agassiz:—"The theory is a scientific blunder, untrue in its facts, unscientific in its method, and ruinous in its tendency."

Surg.-General C. Gordon, C.B.—On the fourth page of the paper allusion is made to the law of hybrids. As far as my inquiries have gone, there is no instance of two distinct races of persons producing a third race, having the properties and qualities in equal proportions of each of the progenitive races. The product possesses the characteristics of one or the other in a predominant degree; but in no instance with which I am acquainted do they possess the properties of the two parents in equal proportions. Of course, when several races become mixed as we ourselves have been, the remark I have just made requires to be modified. On the next page there is a remark with reference to the modification that takes place in the case of dogs. Those modifications are familiar to all of us, but what seems to me to be very peculiar is that the argument which has so many illustrations with regard to dogs is not applicable with regard to man,—that is to say, the dog, which is allowed here to have arisen from one original description, becomes modified into "the fierce bloodhound which is trained to harry down the

helpless slave, and the noble dog of St. Bernard with its life-saving instincts." Many scientists, who willingly accept this principle, refuse to apply it to man. They say that mankind, instead of coming from one stock, has had so many different origins. I am of opinion, however, that the arguments used in the one case ought to be used in the other, or not at all. On the page following there is a point to which I should be inclined to take special exception. The writer says, "We find everywhere the same susceptibility of admitting the cultivation of these universal endowments." According to my experience of different nations,—and I have seen a good many,—their turn of thought is as distinct as their external characteristics; and I think that, perhaps, some mistakes may have arisen from the application to other races of those particular trains of thought which are suitable to ourselves under the peculiar circumstances in which we were situated. Therefore, I should be inclined to think that this paragraph as it stands has several exceptions in our experience of races and peoples. There is another point I have noted on page 267, which refers to the views expressed by an eminent authority,—Professor Huxley. With all due respect to so high an authority, it seems to me that the purport of the paragraph the writer has quoted is simply that the doctrines laid down are inexplicable. In one passage we are told, "If matter be not eternal, it must have had a Creator." As has already been stated by a gentleman who has preceded me, such an assertion only tends to throw the ultimate causation further and further back. At the bottom of the same page the question of selection is raised. The theory is a very difficult one. Various kinds of selection are alluded to; but the selection seems to have taken place absolutely before there was any creature to select from. The creatures who selected each other must have attained their special characteristics before the selection took place, or how could they have made the selection? Like many others, I have studied the Darwinian theory, and tried to think it out; but it seems to me that the principle laid down with regard to that theory fades away, and gives place to another theory. If we say it means progressive development we find ourselves in contact with creatures that are retrogressive. If we admit the principle which is laid down, it indicates progression, but we find many creatures existing through geological stratum after stratum from the most distant geological epochs, where we should naturally infer that everything would be shown to have progressed, instead of what we really do find, namely, that many of those creatures remain to the present day exactly as they were even in the Silurian ages. (Hear, hear.)

Mr. T. K. Callard, F.G.S.—In reading this paper to you, I hope I have conveyed the full meaning of its author. There are some parts of the paper with which I do not quite agree; but, taking it as a whole, I think it an admirable production, and I very much enjoyed reading it. The author says on pages 262 and 265, where he refers to the question of the antiquity of man and the origin of the human race, that these things are very closely allied. Of course, if there were no antiquity of man, evolution could not stand for twenty-four hours; therefore we have to look clearly

before we make concessions as to man's extreme antiquity, because that is a step in the direction of the Darwinian doctrine. Speaking of flint implements, Mr. Bardsley says, "As, however, there are those who contend that some at least among these flints have been formed by man, we will concede the first premiss, and admit, for argument's sake, that they are artificial." Now, I am not prepared to go with the author to the extent of conceding that these things are artificial. I contend, as I have done all along, that those so-called implements which were first presented to our notice were natural formations ; but that afterwards there come to be presented a class of implements which, when you look at them, seem to alter your hypothesis. I have had some presented to me of such a character that I should not dare to say that they were not artificial, but in that case there is another way of accounting for them, and that is that those better class of implements are forgeries. Often when you go to a museum and see a number of these things, you say, "I am doubtful about this, and about that ; but, in the case of this particular implement, there can be no doubt whatever." You say, when you put the three together, "Although, when I take them separately, I am not satisfied, yet when I take them collectively I cannot escape the conviction that man has been here." Last autumn I was in the Valley of the Somme with Doctor Southall, who had come over for the purpose of sifting this question ; and in our presence some of these flint implements were manufactured from the gravels in the Somme valley. We met with an English gentleman who had been there for twenty years, and went with him to the gravel beds. There were men digging among the gravel, and putting aside those pieces which they supposed to be implements made by man. They showed them to us, and we said we were not satisfied about some of them, as we could not see the evidence of human workmanship. The gentleman who was with us said to one of the workmen, "You can make these gentlemen an implement if they wish for it, can you not ?" "Oh ! yes," replied the man, "if none of the other workmen are looking on, I will;" and, no one being near, he took up a flint, and without any hammer, but simply by using another stone, in less than five minutes manufactured the implement, which I now produce. Doctor Southall said, "I should like one too" ; and in a few minutes the same man made another implement of the same character. (Laughter.) "Well," I said, "I am quite certain that that is not the first by some hundreds that you have made, or you would not be able to produce them with so much dexterity." The man laughed ; and then we tried to make some implements, but found we could not do it, the fact being that we were not experts, and the workman was. "But," said the man, "I don't see that that affects the question which you are considering. Anybody who knows anything about these implements, looking at this stone, would know that it was recently made. You can always tell when a flint has been freshly broken, and it would take thousands of years to make this look like the one I have just shown you." I could not understand how the older-looking stone got the appearance it bore unless it was by

friction in the gravel, and therefore I spent some time that evening in applying the friction in question to the newly made implement. On the following day we went to the gravels about twenty-eight miles from St. Acheul, where M. Boucher de Perthes obtained his collection of implements. We asked to see what stones they had, and they showed us a few. We did not consider them very convincing; but taking the flint, which I have already shown you, out of my pocket, I said, "What do you think that is?" "Oh," said the man to whom I showed it, "it is undoubtedly a Paleolithic implement." I said, "How old do you think it is?" "Oh!" he replied, "thousands and thousands of years." "What leads you to think so?" I asked. "I can tell at once that that is thousands and thousands of years old," he replied. "Well," I said, "I saw it made only twenty-four hours ago." The man laughed, and passed it round to the other workmen. However, there is the fact that they had mistaken this newly made implement for a real Paleolithic stone. When I came home, I put it by the side of another flint, which about four years ago was sold to me as a genuine Paleolithic implement. I compared the two, and said, "Is the older one of natural formation?" It puzzled me, for the new one was apparently brother to it, and it struck me that the man who made the one could have made the other. Therefore, I recommend any one, in deciding a question of this kind, to be very careful how he attributes the good implements to Paleolithic workmanship. I could go one step further, but in doing so I must withhold names. Some of these flints I had with me at a meeting of the Geological Society, and one of the experts on this very question asked to look at them. He said, "You have got some treasures there, Mr. Callard." I replied, "Yes, I have been in the Somme, and brought home some specimens." "Yes," he said, "and very good specimens, too." I asked him, "Do you think they are the work of man?" and added, "You know there have been such things as forgeries; are you sure that this is not a forgery?" He looked again, and said, "There is no forgery here; they are genuine Paleolithic implements." "Well," I replied, "I could not have a much higher authority than yourself." He answered, "I think I know as much about flint implements as any one living." There being some other geologists present, I did not like publicly to point out his mistake, but subsequently I wrote him a letter, telling him the fact. He replied that it was most extraordinary that he should have been taken in by a St. Acheul forgery, adding, "It shows the danger of giving an opinion by artificial light, and after one has dined." (Laughter.) He made a joke of it; but it is more than a joke, especially when we remember how we have been led step by step in this doctrine of evolution, and that those flint implements have been used to back the doctrine up. We ought, I say, to be upon our guard, in visiting such a Museum as that of M. Boucher de Perthes. He is now dead, but I remember once, when visiting that Museum, I asked the person representing him, if he would point out to me the implements which M. de Perthes had, with his own hand, taken out of the gravels. He said, "I cannot do

that; but there are some that have his own handwriting on them, and I suppose he took those out himself." I looked at them and said, "They are not so good as the others; those that have something like authority about them are the more doubtful-looking ones"; but when I came to those which the men had brought to him, and which he had purchased, all doubt vanished; there was no question but that men had made them. Now, I would have you bear this in mind; when you come to those implements which are so convincing that any reasonable person would say, "Man made this," you should ask the question, "What evidence is there that they are ancient?" While Doctor Southall was with me we wished thoroughly to investigate this question. We had to consider certain implements that are found in the Valley of the Axe; we went to the Axe gravels, and spent some time there. We found certain forms approximating to those we had seen before;—some of them have been on this table sent here by Mr. Whitley, but we were doubtful about them. I said at the time, "They are like the Acheul flints; but there is nothing about them that nature could not have done."—Mr. Whitley joined us when we went to Exeter, and there we saw the finest specimens they had. The Curator of the Museum had been invited to meet us for the purpose of showing us the specimens. Doctor Southall was with me, and when he saw some of the flints he said, "I am convinced that those are not forgeries, and that the hand of man has been at work upon them." He handed one to me, and another to Mr. Whitley; we both examined them, and felt we must be prepared to withdraw what we had hitherto said, if those were really Paleolithic implements from the Exeter gravels. I said, however, "There are a few questions I wish to ask." We first of all put certain of the implements aside as doubtful; there remained about twenty-five which we all agreed were artificial. I said, "Can you tell me whether any geologist found any one of these twenty-five, because we know that geologists have been down to these pits?" The Curator's answer was, "No geologist found any of them." "But," I asked, "when geologists come down here, do they never find any good implements?" "No, they never have found one like these." I said, "There is Mr. ———, who is a good judge of implements; did he ever find one?" "No," he replied, "nothing like these." I said, "It is a curious thing that the men who are competent to judge of these implements have never found any. How did you get these specimens?" His answer was, "They were brought in by the workmen." "What," I asked, "induced the workmen to bring them?" He replied, "Well, we pay them from 5s. up to a guinea each for them." I thought the man who made the flint I have shown you would have been very glad of such a customer. "But," said the Curator, "you don't mean to say you doubt them?" I said, "I should not like to be so hard as to say that. Can I purchase any implements about here?" He answered, "I don't think you can, as they don't find them now." "How long," I asked, "have they ceased to find them? Do you still buy them?" He said, "No; because we have got enough." "Then, since you ceased to buy them, the men have ceased to find them?" "Well, was the answer,

"strangely enough, they have." "Well," I said to Dr. Southall, "please take note of these questions and answers." I do not wish to lay an undue stress on all this, but we are bound to look at it as reasonable men, and my firm conviction is, that out of the thousand flint implements in M. Boucher de Perthes' Museum nine hundred at least are forgeries, and the rest doubtful. When you come to other museums in different parts of the country, and see numbers of implements with M. Boucher de Perthes' name upon them, one would naturally suppose that that proved the authenticity of the flints ; but, from what I have told you, you will see that it is nothing of the kind. I am not doubting M. Boucher de Perthes; I am merely representing that he has been taken in. I have never been able to find one of those unquestionably humanly formed paleolithic implements, nor have I been able to find a man of authority who has taken one of them out of the gravel himself. Perhaps some gentleman present may have been more fortunate than I, and it may be too much to suppose that all these implements, we have in such numbers, have been forged. About nineteen years ago a geologist of Cambridge, who was determined that he would not be taken in by the workmen, went out with a pick-axe to work by himself. He searched for three days and found five implements. This would have been conclusive ; but, in the note he sent along with the implements, he stated in a postscript : "I am thoroughly convinced that every one had been put there for me to find." Those five implements were washed, and it was found that each of them had been covered with ochre to give the proper appearance. It does not follow that because there have been these deceptions there has been deception in every case. Still, I say, there is enough to make us cautious, and not be too ready to admit that the flints are artificial, unless we know they are modern, and in that case there need be no question about them. There is one other point I would refer to. The subject of the paper is "The Origin of Man." Was man created, or was he developed? At a recent meeting a very learned paper was read in which a Mr. ———, the author, clearly defended the hypothesis that man was developed; but to make it less unpalatable he put it that this was done "under control," to show that it was not an atheistical question with him. He thought there was God in it. I urged upon that occasion that it was not possible that man could be descended from the anthropoid ape, as Mr. ——— contended ; that if man came from the anthropoid ape that animal must have produced man. Man, by the admission of all geologists, is post-Glacial ; it is also acknowledged that there has not been time since the Glacial epoch in which the ape could have become man. Therefore, if man was descended from the ape, it must have been from some ape which immediately preceded him ; consequently, we are driven to the conclusion that, if man descended from the ape, the ape must have lived through the Glacial period. I tried to show that that was impossible, and gave evidence from Darwin himself, from Thomas Belt, and from Wallace, of the existence of a cold climate, even up to the Equator—so cold that the glaciers had

come down in that part of the world as low as in the Chamounix Valley. I pointed out that no ape could live for a single winter in the Chamounix Valley, and the reply was that in the Miocene period there have been found, in Arctic regions, fossils and plants of tropical growth, and the argument was that there might have been some warm spots in which our ancestor, the ape, might have been screened from the cold, and so have survived. I should have thought that if you could prove Glacial cold at the Equator in America you would find the same in Africa; I wish to be clear on this point. The anthropoid ape which is nearest to man is either the gorilla or the chimpanzee; and, if man is descended from the ape, it must be from something like one or other of these animals. Du Chaillu, who discovered the gorilla and chimpanzee, found their habitat within two or three degrees of the Equator, south latitude, and it is there only that they are found. If you can get evidence that there was anything like glacial cold near the Equator in Africa, as has been proved with regard to America, then I think you have settled the point that our ancestor the ape could not have lived there. I have got here a few lines of Du Chaillu's which I should like to read. He says:—"Not far from Makenga there was a remarkable and very large boulder of granite perched by itself at the top of a hill. It must have been transported there by some external force, but what that was I cannot undertake to say. I thought it possible that it might have been a true boulder, transported by a glacier, like those so abundant in northern latitudes. Whilst I am on the subject of boulders and signs of glaciers I may as well mention that when crossing the hilly country from Obindjé to Ashera'-land my attention was drawn to distinct traces of grooves on the surface of several of the blocks of granite which there laid strewed about on the tops and declivities of the hills. I am aware how preposterous it seems to suppose that the same movements of ice, which have modified the surface of land in northern countries, can have taken place here under the Equator, but I think it only proper to relate what I saw with my own eyes." I thank him for relating this; at that time he was not prepared to think that the glacial cold had come down so far, but he was certain it was proved that it did in South America.—It is in accordance with analogy to believe that this was the explanation he thought of, but did not like to put into print, although he has left it for us to consider to-night. If this were the case, no ape could have possibly lived there; and, therefore, no ape was living when man was first created.

The meeting was then adjourned.