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A table of contents for *Bibliotheca Sacra* can be found here:

https://biblicalstudies.org.uk/articles_bib-sacra_01.php

ARTICLE III.

THE SCIENTIFIC FOUNDATIONS OF
BELIEF IN GOD.

BY THE REVEREND D. GATH WHITLEY,
SCORRIER, ENGLAND.

- LA FAILLITE DU MATÉRIALISME. Par Pierre Courbet. 3 vols. Troisième Édition. Paris. 1902.
 LA PROVIDENCE CRÉATRICE. Par A. de Lapparent. Troisième Édition. Paris. 1907.
 POUR ET CONTRE L'ÉVOLUTION. Par l'Abbé Leroy. 2 vols. Quatrième Édition. Paris. 1904.
 L'HOMME ET LE SINGE. Par le Marquis de Nadaillac. Sixième Édition. Paris. 1907.
 UNITÉ DE L'ESPÈCE HUMAINE. Par le Marquis de Nadaillac. Cinquième Édition. Paris. 1905.
 LES SILEX TAILLÉS ET L'ANCIENNETÉ DE L'HOMME. Par A. de Lapparent. Paris. 1907.

THE age is scientific. We are ceaselessly reminded of the progress of science in every direction. Its achievements in the past are mentioned, its victories in the present are dwelt upon, and its conquests in the future are predicted. Science is the very life of civilization, and "scientific progress" has become the watchword of the age. Everything must be tested by science; and theories, notions, and beliefs must submit to undergo from it a cross-examination.

Supernatural religion must, we are told, form no exception, but must submit its claims and evidences to the crucial test of scientific examination. Observation, experiment, and reasoning, all running in the scientific channel, are, so we are confidently informed, the true criteria of the value of religion. The dogmatic utterances of men of science must be accepted with-

out question, and the general consensus of scientific opinion — although somewhat difficult to obtain — must be considered to be infallible.

Now, before accepting these statements, we have two questions to ask: *First*. What is understood by science? We are invariably referred, in reply, to the wonders of astronomy, geology, biology, chemistry, and physics. But these are all *physical* sciences, and mental and moral philosophy are always ignored. It must be remembered that those sciences which deal with mind and morals are as much true sciences as those which deal with the heavenly bodies, or with the organic and inorganic phenomena of this earth. In determining therefore the relation of religion and science, mental and moral philosophy must have a voice. Nay, their voices are the *most important* of all; for they deal with those problems which are, of all, the most important of all questions to man. These problems are: Whence came I? Why am I here? and Whither am I going? The sciences which give answers to these tremendous questions are the most important that man can study.

Secondly. Is it not true that the further physical science advances, the more numerous become the difficulties that it meets, and the more insoluble are the problems that it encounters? Thus gravitation is still an inexplicable phenomenon. The ether fills space, but no one knows what it is. Electricity remains an absolutely unknown thing, and the mysteries of radium bring home powerfully our ignorance to our minds. Again, the mysteries of life are perfectly insoluble. Let us listen to Sir Oliver Lodge, who speaks as follows: "Let the Materialist explain, if he can, what he means by his own identity, or the identity of any thinking or living being, which at different times consists of a totally different set of material

particles. Something there clearly is which confers personal identity and constitutes an individual, it is a property characteristic of every form of life, even the humblest; but it is not yet explained or understood, and it is no answer to assert gratuitously that there is some fundamental 'substance' or material basis on which that identity depends, any more than it is an explanation to say that it depends upon a 'soul.' These are all forms of words." ¹

There is at this present time a series of small books dealing with the relations between Religion and Modern Science being published in Paris,² the names of some of which stand at the head of this article. They are written by the leading scientists in France, who are devout Christians and also first-class men of science. A glance at the titles will prove not only this, but it will show how wide has been their circulation, while their cheapness places them within the reach of all readers. They form an excellent antidote to the cheap materialistic literature which circulates so widely at the present time. We should much like to see English translations of some of them, and perhaps these will appear by and by. The books, also, are so small, although printed in good bold type, that they can be carried comfortably in the pocket. The aim of all these works is to show, that, while fully admitting all the leading discoveries in recent times relating to physical science, it is absolutely impossible to explain these discoveries in a materialistic manner. The only way in which the revelations of modern science can, according to the authors of these works, be interpreted, is to realize the presence and superintendence of an Almighty Originator and Director.

The self-satisfied materialist who professes to be able to explain all the riddles of the universe is confronted by two tremendous problems; and he is bound to believe them, though

he cannot in the least comprehend them. The first of these is the ether. This mysterious entity fills all space. Its function is to propagate light, and possibly electricity also; and its existence is absolutely certain. Nevertheless we know nothing whatever about it. Is it material? Is it formed of atoms? Or is it, according to Hirn, a something intermediate between matter and spirit? No one has seen the ether, and no one has been able to isolate it. It manifests itself only by its effects, and yet every scientific man believes in its existence. Then comes gravitation — that mysterious force which holds the universe together. What is its nature? We cannot tell; and yet its existence is certain, and is universally believed. How can the materialist maintain that he is able to explain the universe when he knows nothing of the cement that holds it together? Here are two great principles in science, the existence of which is firmly believed, while their character is incomprehensible. Why then should we refuse to believe in the existence of God present everywhere, like the ether and gravitation, although his nature and manner of working are absolutely unknown to us?²⁸

Materialism suffers shipwreck on the question of Origins. According to it there can be only developments and transformations, but no real origins. To admit origins would be to grant an Originating Power outside matter; and this admission would mean the death of materialism. The following origins call loudly for an explanation: (1) the origin of matter; (2) the origin of mind; (3) the origin of motion; (4) the origin of life; (5) the development of life; and (6) the origin of man. These problems are discussed in the works which we have placed at the beginning of this article. We cannot examine them separately, but will traverse the ground over which they pass.

How did matter originate? What is matter? Can any one

answer? The electrical theory of matter does not help us, for the electrons themselves have to be accounted for,⁴ while the theory of Professor Bain that matter is "a double-faced unity," and may be defined as "one substance with two sets of properties, two sides—the physical and the mental,"⁵ is impossible, simply because the attributes of both are diametrically opposite. Haeckel and his followers declare that matter or "substance" is eternal. But on what evidence is this statement founded? On none whatever; and it is made simply because their theory demands it! How they would laugh if they were told that the only reason for the immortality of the soul was because the system of Christians demanded it! Yet they themselves advance precisely the same argument. Moreover, it must be borne in mind that matter is not a united whole but consists of atoms. Are atoms then eternal? Certainly not; for they are, according to one theory, composed of electrons, about which there is only supposition. Then again, the chemist tells us that about seventy simple elements are known to exist, divisible into metals, metalloids, and gases. These, Haeckel supposes, have been developed from a primitive material, the *prothyl*. He also maintains that all space is filled with ether, from which all matter and elements are developed by condensation.⁶ But these speculations are profitless; nobody knows anything definite about matter or about the ether either; time is wasted in unscientific guesses; and we would better pass on.

What is the origin of mind? On this question what has materialism to say? An attempt is made to meet the difficulty by a series of developments from the earliest living creatures down to the appearance of man.⁷ But this does not touch the difficulty, for we require an explanation of the *origin of mind itself*. Was mind evolved from matter? This is clearly im-

possible, for the attributes of the two are entirely different. Thus the attributes of matter are inertia, extension, cohesion, elasticity, color, etc. But the attributes of mind are entirely different; such as these, affection, fear, memory, love, hate, etc. How absurd it would be to ask the questions What is the color of hope? How long is fear? Moreover, mind is a *unity*. As the Duke of Argyll well says: "In the analysis of matter we reach elements which can be wholly separated from each other, so that each of them can exist and can be handled by itself. In the analysis of Mind, we are dealing with one Organic Whole; and the operation by which we break it up into separate faculties or powers is an operation purely ideal, since there is not one of these faculties which can exist alone, or which can exert its special functions without the help of others." * Mind is not diffused in space like the ether, but is concentrated in a *person*, and everywhere it dominates, guides, and controls matter, whilst it is essentially distinct from it. Hence the impossibility of mind being developed from matter. Again then we ask, How did mind originate? If it be replied that mind is eternal, this simply admits that personality is eternal, and this at once admits the possibility and probability of the existence of an eternal, personal God.

Now let us proceed to the next question, What is the origin of motion? This is a hard nut for the materialists to crack; but, like the former difficulties, they try to overcome it by declaring that motion is eternal! Haeckel's words are as follows: "Movement is as innate and original a property of substance as is sensation";⁹ and again: "Substance is everywhere and always in uninterrupted movement."¹⁰ These statements are utterly unscientific. It is one of the fundamental principles of science that matter is inert, and cannot move it-

self. Inertia is one of the chief characteristics of matter, and on this axiom all our natural philosophy depends. Either, then, materialism is scientifically false, or our scientific foundation-truths must be abandoned. What is the origin of motion? Every effect must have a cause, and the cause must be adequate to produce the effect. Where are we then to look for the cause which in the beginning originated motion? It must of course be sought in force; but in what kind of force? Under our eyes, we know of but one *primary* cause of motion; this is will. The human will is able to originate motions in the human body and outside it, and this indicates what can be done by a Will which is Infinite. Let us take a simple illustration. The constellations above our heads are matter, and they move with a proper motion of their own. How did that movement begin? It cannot have originated in matter, for that substance is inert; therefore it must have originated in mind. But this mind must represent a Will both infinite and omnipotent. Dr. Joseph Cook in an eloquent passage sets forth the same truth in these words: "Will you remember, my friends, that the definition of Force is this, *That which is expended in producing or resisting motion?* That is Meyer's definition; and Meyer, if he had never given any other proof of genius than this one phrase, would deserve to be called a man of great powers. But go behind even this definition, and, for the sake of clear ideas, ask, what is expended in producing or resisting motion? Surely the thing we can think of as being expended thus is *pressure?* What produces pressure? Your Carpenters, your Agassizs, and your Herschels, your Newtons, your Sir William Hamiltons, your Danas, as well as your Richters and Carlyles, and Lotzes, all hold that behind the pressures which produce the motions of the Universe is — Will! Motions, Pressures, Will, is the Universe transfigured?

This is not declamation, however, but established philosophy of the latest date." ¹¹ Or to put this, as he does, somewhat more simply and tersely, Matter is in itself inert, and cannot move itself. The stellar constellations in the heavens are matter, and they move. What causes their movement? It cannot be matter; therefore it must be Mind. An infinite Mind alone, acting by its infinite Will, can alone originate and maintain these motions. This infinite Mind and Will belong to an infinite Person, and this Person is God.

We now come to another still more important origin — the Origin of Life. What has materialism to tell us on this most important question? The attempt to evade the difficulty by declaring that life is eternal, utterly breaks down here. Every one who has the least knowledge of geology admits that the earth was once in a state of igneous fluidity. The heat on its surface was then so intense that life was impossible, and organic existence could begin only when this condition had passed away. Life, then, has not always existed, and it is certain that there was a time when it first appeared on our globe. How did it originate? Haeckel replies, that life began on our earth by the development of the inorganic into the organic, by means of Spontaneous Generation.¹² This idea is, like the former, utterly unscientific, being opposed by all scientific investigation and experiment. Everything shows that life always originates from preëxistent life. Sir Oliver Lodge says: "Many have been the attempts to generate life *de novo*, by packing together suitable materials and keeping them pleasantly warm for a long time; but if all germs of pre-existing life are rigorously excluded, the attempt hitherto has been a failure: so far no life has made its appearance under observation, except from antecedent life. . . . So far, all effort at spontaneous generation has been a failure."¹³

This may be taken as the verdict of science, and the words of Dr. Joseph Cook still convey a great truth: "Always, when you take up a book on biology, turn to the chapter on spontaneous generation. If any man believes in spontaneous generation he is behind the times."¹⁴ But there is a further difficulty which the materialists do not seem to have noticed, and which is presented by geology. If, when the earth had sufficiently cooled down to allow life to exist, life began by the passage of the inorganic into the organic, then, this process must have taken place in *many* places. The roots of life began therefore in *hundreds* of places simultaneously. Now geology gives us the history of the development of life in different parts of the world, and this development is always *the same*. There is always an ascending progression of a *precisely similar character*, wherever we can place the history of life. For instance, the invertebrate precedes the vertebrate, and of the latter the fish precedes the reptile, the reptile the bird, and man closes the mammalian series. If this order is constant, it proves guidance and design; and if the *stem* of life developed by design, the *root* must have originated by design also. Either, then, spontaneous generation never occurred or it took place through the intervention of an Almighty Designer. Either of these conclusions is fatal to the Materialistic hypothesis.

If spontaneous generation occurred in the past, why does it not occur now? The great theory of geology advanced by Haeckel¹⁵ and the Materialists is the Uniformitarian hypothesis of Sir Charles Lyell.¹⁶ This theory maintains that we must explain the past changes in the earth's history by the events which now take place, and we must never call in *unknown* forces and powers. Well, then, all the forces and powers which are *now* acting cannot produce spontaneous

generation; and, as the *same* forces acted (by the theory) in the past in the same *manner*, we are compelled to conclude that, as spontaneous generation does not occur now, it *never* occurred. The believer in Sir Charles Lyell's theory is bound to come to this conclusion in the name of the uniformity of nature. If any one is disposed to deny this conclusion of established science, and to say with Haeckel that we do not know what changes *may* have occurred during the chaotic state of the earth when it was cooling down from its condition, we reply in the words of Dr. Samuel Johnson: "He who will determine against that which he knows because there may be something that he knows not, he that can set hypothetical possibility against acknowledged certainty, is not to be admitted among reasonable beings."¹⁷

To attempt to avoid the force of scientific demonstration by trying to draw a parallel between the origin of life and the marvels of crystallography, as some materialists are in the habit of doing, is futile. However beautiful and wonderful the formation of crystals may appear, it is a *purely mechanical* process which can be carried on in the laboratory of the chemist. But who ever heard of the chemist producing *living beings*? The crystal does not die, because it does not live; and the number and size of the crystals depend upon the will and the skill of the operator.¹⁸

Again we quote from Dr. Cook, who speaks as follows: "Let us pause for a moment to notice leisurely the confusion of thought of those who compare this transmutation of the not living into the living (in animal existences) with the formation of a crystal. I can form a crystal and dissolve it, and form a crystal again out of the solution. I can take two gases and mix them, and produce water; and then by an easy chemical process, I can change the water into these two gases;

and I can do this, back and forth, any number of times. But, if a bioplast is once dead, it cannot be resuscitated. Materialists talk about the process of life being a kind of 'vital crystallization,'—whatever that may mean. Be sure you hold to clear ideas. . . . You may braid and unbraid the threads of any inorganic whip-lash again and again, but once unbraid any living strands, and there is no braiding them together again for ever."¹⁹

All science teaches that life always comes from preëxistent life; so that the first life could have originated only by the direct act of God.

Let us now consider the phenomena of Succession in both the organic and the inorganic world.

Geology shows us an *order* in the arrangement of the sedimentary rocks, and this order is *invariable*. There are some countries in which the geological succession of the fossiliferous beds is nearly perfect, but in other regions this is not the case. But the order is never inverted. Thus, the Archæan rocks are always at the bottom, then come the Primary beds, then the Secondary, and lastly the Tertiary deposits close the series. Nor is this all, for there are subdivisions which always occur in the same places. Thus, the coal-measures are *always* in every region of the earth found near the top of the Primary deposits,²⁰ and the white chalk formation is *invariably* discovered at the summit of the Secondary beds. Now, why is this order *invariable* in every part of the earth which has been geologically examined? How could it have happened by blind chance? How could pure chance produce a succession which is always the same in every region in the world? If the regiments of an army always advance in the *same* succession when conducting military operations, we invariably conclude that their evolutions are guided by a master-mind; and in precisely

the same manner we are compelled to believe that the *invariable* succession of the geological deposits manifests the working of a designing Mind and Will during the past ages of the earth's history. This may be called the geological evolution which Sir Andrew Ramsay so learnedly set forth to the members of the British Association at Swansea,²¹ and which Professor Lapparent powerfully maintains, in his work under review,²² can be explained only by referring it to the guiding providence of Almighty God.

The succession of living forms on the earth and the development of the course of life during the past ages of the world's history now claim our attention. Here we are at once brought face to face with the theory of evolution, which is constantly declared to be the greatest discovery in modern times. Every one, we are told, accepts it, and the followers of the Materialistic leaders consider it to be a perfectly established truth; while even the defenders of the Theistic position generally accept it. We do not discuss the truth or falsity of evolution, but we must remind our readers that it is still only a *theory*. Moreover, even now, there is much to be said *against* it as well as in *support* of it. The Marquis of Nadailac, one of the leading scientists in France, has recently declared: "Since the publication of the celebrated work of Darwin, the doctrine of Evolution, taken in the widest sense of the word, has not made any serious progress, but has, rather lost ground."²³ But we are not now concerned with this discussion. If evolution be a universal *law*, then it must have had its origination in a universal *Mind*. For what is the origin of law in the political sense? Most certainly mind. The working of that mind may be manifested either in acts of Parliament or in the edicts of an absolute sovereign. Law always implies mind for its origination and for its administration. So

we conclude, following all reasonable analogy, that the laws of nature, both organic and inorganic, must have originated in the purpose and thought of an infinite Mind. The present position of science compels us to conclude that it is impossible to accept evolution unless we consider it to be guided and directed in every step by the overruling providence of God. This is the scheme of Theistic Evolution so well set forth long ago by Professor Asa Gray,²⁴ and afterwards accepted by Sir Charles Lyell,²⁵ and by so many eminent scientists. Fortuitous and haphazard evolution cannot possibly be held to-day.

We will now present some evidences of the manifestation of design and guidance in the course of creation during the past ages of the earth's history.

1. *Adherence to special types in the development of Life.* Animals in the present time are arranged in special divisions, which exhibit particular types of structure. Thus, the biologist speaks of the Protozoa, the Cœlentera, the Annulosa, the Mollusca, and the Vertebrata,²⁶ and to these types all living animals can be referred. Now, all through the past history of the earth, from the very *dawn* of life, these same types have been represented, and *no others*. The types put forth variations many of which have passed away; but all through the millions of years of the earth's past existence, the types themselves, notwithstanding surrounding changes, have continued unaltered. This could not have occurred, had blind chance alone prevailed during the past ages of our globe's history. There is in this a demonstration of an *Influence* brought to bear on the course and development of life, and that Influence manifests itself in different ways. There is, first, a *selective* Influence, which chose these types, and no more; next, there is a *controlling* Influence, which

restrained them from developing indefinitely; lastly, there is a *preserving* Influence, which protected them from extinction, amidst all the changes which were ceaselessly operating around them. Let it be remembered, also, that at present the geographical distribution of plants and animals on the surface of the earth is arranged in local regions, which have each their special features and limits. Thus, we speak of the Ethiopian, the Indian, the Australian, and of others.²⁷ These divisions did not always exist. At the beginning of life living beings of similar character were uniformly spread over the land, and amidst the waters. But, steadily through the course of past ages, there has been an uninterrupted progress towards the *localization* of faunas and floras until the present state of diversity was established. In all these changes, slowly originated, and steadily guided to a particular end, it is impossible not to recognize the direction and superintendence of a guiding Mind and Will.

2. *Progressive differentiation of climates.* There are at present various climates and zones of climate on the earth's surface, each characterized by special temperatures; whilst there are arctic and antarctic regions around the poles. This arrangement of climates did not exist in the earliest ages. In the commencement of the earth's history *one uniform climate* prevailed all over the world, which is proved by the similarity of the animal and vegetable remains of those ancient eras. There were then *no* polar icy regions, for a warm climate prevailed everywhere. Slowly, variations of climate appeared, and, at last, just before the appearance of man, the present climatic conditions were established. Why were there not different climates at the beginning? Let us think that the varying climates of the earth, with their different plants and animals, furnish so many schools for human

enterprise and education. They estimate man's love for enterprise; they awaken his sense of the sublime and beautiful in nature; they originate commerce by the interchange of different commodities and they develop man's mental powers by their varying features. That such an arrangement of climates did not exist when man was not upon the earth, and was gradually developed until it was perfected just before man appeared in the world, is another strong evidence of design and purpose in the past history of the course of creation.

3. *The development of natural beauty.* Here is a new field for Christian apologists, and one which, up to the present, they have strangely neglected. The world may be considered not only as a *machine*, but also as a *picture*, the perfecting of which picture took vast ages. Beauty of color depends on sunshine, a clear sky with occasional clouds, hill and dale, land and sea, the blending of numerous tints, and on the presence of graceful animals, of bright birds, and of beautiful flowers. These elements were wanting at the beginning of creation. The sky was not clear; the sun's rays could not pierce the murky vapors; the ocean was universal; and plants and flowers did not then exist on the earth. Slowly the different elements of natural beauty were introduced, just like different tints laid on a water-color painting. The land increased. Its flora developed and became more diversified. At last, *just before man appeared on the earth*, the world attained to a state which exhibited the perfection of natural beauty. If the gradual growth of a painting exhibits the skill of the painter, how much more does the slow and steady evolution of the sublime and beautiful in nature demonstrate the ceaseless working of the Divine Artist, who, in the past ages, has steadily developed the beauty of the earth, as a means

of instruction, and a source of pleasure, for his coming creature—man!

4. *The Carboniferous era and the Glacial period.* Coal is not only found in the Primary deposits, but is worked from Jurassic and Cretaceous beds in the Secondary formations, as well as from some Devonian and Tertiary deposits. They are, however, insignificant compared with the great Palæozoic coal-measures. Now every beginner in geology knows that coal is formed by the decay of forests which were composed of a special kind of vegetation. Forest after forest decayed, sank under the water, and successive forests of exactly similar character took their places. At Cape Breton in Nova Scotia, there are the remains of *fifty-nine* forests, turned into coal, and buried one above the other.²⁸ This means that *precisely similar conditions* prevailed in *precisely similar forests*, throughout long ages, and no disturbing elements were permitted. More than this, the coal while forming must have been preserved in its *purity*, as well as accumulated in basins. When we reflect that this took place through vast ages, during which all kinds of agencies were ceaselessly working on all sides, we cannot avoid the conclusion that the continuation of the same conditions in the same area could have resulted only from supernatural design and guidance.

The Glacial period is another such instance. We reject the idea of *many* glacial eras, and hold that Sir Joseph Prestwich has convincingly demonstrated that there was but *one* Glacial period, which occurred during the Quaternary era.²⁹ This great Ice age of the Quaternary period is, therefore, the only one of which we speak. Now, the time of this great period of glaciers and ice-sheets was just previous to the advent of man. The glaciers plowed up the land, and formed a thick soil of clay, sand, and gravel, and the floods which took

place when the glaciers were melting distributed this earthy detritus far over the surface of the land. Thus was formed that *arable soil* which is so necessary if man is to cultivate the ground. Surely, that this should have occurred just before man's appearance is a strong evidence that the *soil* was thus prepared for him? William Chambers, reflecting on this, declared: "If this is not design, all I can say is, that it looks very much like it."³⁰ Hugh Miller is still more emphatic, and refers to the circumstance in his usual eloquent manner. He says: "We owe our arable land to that geologic agent which, grinding down, as in a mill, the upper layers of the surface rocks of the kingdom, and then spreading over the eroded strata their own debris, formed the general basis in which the first vegetation took root, and in the course of years composed the vegetable mould. A foundering land under a severe sky, beaten by tempests and lashed by tides, with glaciers half choking up its cheerless valleys, and with countless icebergs brushing its coasts, and grating over its shallows, would have seemed a melancholy and hopeless object to human eye, had there been human eyes to look upon it at the time; and yet such seem to have been the circumstances in which our country was placed by Him, who, to 'perform His wonders,'

'Plants His footsteps in the sea,
And rides upon the storm,'

in order that at the appointed period it might, according to the poet, be a land

'Made blithe by plough and harrow.'"³¹

Now, let us pause here for a moment and think of all these adaptations, designs, and arrangements which, as we have shown, are exhibited in the course of creation during long

ages. What do they manifest? Surely they demonstrate design and purpose working out a plan. A plan implies a thought; for the plan is first conceived and originated by the thought. But there cannot be thought without a thinker; and as a thinker must necessarily be a person, we reach the conclusion that the past history of the earth manifests the guidance and superintendence of an almighty Person, who is the Infinite and Eternal God.

We now reach the most important point in the whole discussion — the Origin, Character, and Destiny of Man. All else is of quite minor weight compared with this, for the most supremely solemn questions which man can ask are: What am I? Whence came I? Why am I here? and Whither am I going? Compared with these problems, everything else in physical science fades away into comparative nothingness.

Let us begin by an attempt to clear the ground, and to indicate how man's true position in nature may be ascertained. Professor Huxley in a well-known work³² gives as a frontispiece a procession of skeletons the first of which is man, and behind him march the four anthropoid apes — the gorilla, the chimpanzee, the orang, and the gibbon. A grim procession certainly. *Zoologically*, Huxley proves his case. Considered with reference to his skeleton or general bodily organization, man is simply the head of the animal kingdom, and is but the last link in the chain, the difference *anatomically* between him and the anthropoid apes being merely one of degree. But man's position in *nature* is entirely different from his position in zoölogy. The classification in zoölogy is founded on form and structure alone. But man's place in nature must be judged by his *works*; and when this method of ascertaining his position is applied, we see at once that there is no comparison whatever between man and the animals around him.

What are man's works? They are the splendors of painting, music, sculpture, literature, and the triumphs of engineering and mechanical invention. Besides this, man changes the face of the earth by cultivating the land, reclaiming the wastes, and domesticating different animals. What are the works of the anthropoid apes in these fields? Absolutely none. They do not possess a nature capable of doing these marvels. When man in his *totality* is considered, it is seen that between him and the lower animals no comparison whatever is possible. Let us apply this reasoning to the various organs of man. The brain of man is very much like the brain of an anthropoid ape, such as the orang or the chimpanzee; so that the difference between the brain of man and the brain of an ape is purely one of *degree*. But how entirely different are the thoughts that issue from man's brain from those which come from the brain of the ape, for man's thoughts lead to great physical and mechanical inventions. If the thinking machines are so exactly alike, how is it that the *products* of the thinking machines are so entirely different? Is it not plain that there is in man a different nature from that which exists in the ape, and this different nature in man uses the brain in a way entirely different from the way in which the ape uses its brain? Again, take the human hand. Merely looked at anatomically, its bony framework is precisely like the hand of an ape. But what are the works which the hand of man can perform? They are the marvels of literature, music, painting, sculpture, and mechanical invention. Can the ape's hand do these wonders? No. Why not? Because the ape's hand is not guided by that *rational and inventive nature* which directs the hand of man. Looked at in this manner, it is plain to all thinkers, that man's nature is *entirely different* from the nature possessed by the anthropoid apes,

and that special power that exists alone in human nature may well be defined as "the image and likeness of God."

There are no creatures intermediate between man and the apes, for there are no created beings that can do any works intermediate between apes and man. The works are either genuine human works or genuine ape works, but there is nothing intermediate. Take the case of *Pithecanthropus erectus*, the Java relic, which is declared to be an intermediate link between man and apes. What works did this creature perform? We do not know, for no one lived at the time it existed to record its actions. Consequently we are quite unable to guess what sort of nature the creature possessed; hence no one can possibly say that it was an intermediate link between man and the apes.

The closer the resemblance between man's bodily frame and that of an ape is proved, the stronger becomes the demonstration that man possesses a special nature, which must have had a supernatural and spiritual origin.

Kinglake in his account of the Battle of Inkermann tells us, that, in the later portion of the conflict, one hundred Russian small guns were attacked by two English large and heavy cannons, and that so terrible was the fire of these two English guns, that the smaller Russian pieces of artillery were quite crushed and the Russian army was defeated.⁸³ In the conflict relating to the origin and nature of man which Christian scientists are carrying on against the materialists, there are two great guns which should be always used. They are Mental Philosophy and Moral Philosophy; and when these open fire materialistic skepticism is sure to be defeated.

Professor Wallace has convincingly proved that man's mental and moral faculties must have had a spiritual origin,⁸⁴ which of course is equivalent to saying that they were pro-

duced by the special act of the Creator. Wallace holds that man's body was developed; but on this theory it is hard to think *when* man's rational and spiritual natures were introduced, as without the special nature to guide it man's body must have perished.

In discussing the subject of the advent of man upon the earth, we have to consider, at the very beginning of the debate, the *place* where man appeared, and also the *time* of his origin. Did he make his appearance at *one* place or at many simultaneously? The answer given by evolutionists²⁵ is generally that man appeared at *one* particular place in the earth's surface alone. And yet, according to the views of the materialistic theorists, there are great difficulties in accepting this decision. Anthropoid apes were, at the time of man's origin, spread over a large portion of the surface of the Old World in Europe and in Asia; and all over the eastern hemisphere in *every region* these apes must—according to the Evolution theory—have been steadily developing in the direction of man. This *must* have been the case, for the conditions and causes of development were acting *everywhere*. How was it then, that while apes were progressing towards man in *all* regions of the Old World, man appeared in *one* region alone? Some supernatural cause must have arrested the development of apes in every part of the world save one, and the same supernatural cause must have guided the development of one special family of apes in *one particular district* of the world alone. This of course implies the direct intervention of God.

It is impossible to decide, according to the materialistic theories, *where* man originated; and the numerous regions which have been fixed upon as the spot of his appearing are so perplexing and contradictory that they furnish a startling

demonstration of the untrustworthiness of many of the modern speculations relating to the origin and nature of man. Man's appearance on the earth has been said to have taken place in Europe, Asia, and Africa, and even in lost continents which formerly existed in the Indian and Atlantic oceans; while more than one daring theorist has declared that man first appeared on the earth in the regions around the North Pole, when these lands enjoyed a milder climate than prevails in them at present. Whilst these varied and contradictory opinions are surprising and even amusing, they do not concern us at present. Let us assume that man originated at *one* spot on the world's surface only. Immediately the question arises, Why and how did he spread over all the earth? Animals are limited to certain regions, and the highest apes are confined to very small portions of the world, and show no wish to leave their homes. But man has spread everywhere; and, if he originated at one place only, must have migrated in every direction from the very beginning of his existence. Why was this? Simply because at the time of his origin man possessed a nature *entirely different* from that of the anthropoid apes beneath him: and that nature not only had different propensities which induced him to migrate, but enabled him to overcome all difficulties of the route, and to conquer all variations of climate. If we hold that man appeared on the earth at *one* spot only, we are compelled to believe that he possessed a perfectly unique nature, and this implies a supernatural origin.

Let us picture to ourselves man beginning his existence in some favored region of the warmer parts of the world. The human race increases and multiplies, and then migrations begin. Why should man migrate at all? Many maintain that it was through want of food and by incessant fighting. Here

is Mr. Fiske's account of the conflicts and struggles of the earliest men: "In respect of belligerency the earliest men were doubtless no better than brutes. They were simply the most crafty and formidable among brutes. . . . The conditions of the struggle for existence were not yet visibly changed from what they had been from the outset of the animal world. The struggle meant everlasting slaughter, and the fiercest races of fighters would be just the ones to survive and perpetuate their kind. Those most successful primitive men, from whom civilized people are descended, must have excelled in treachery and cruelty, as in quickness of wit and strength of will. That moral sense which makes it seem wicked to steal and murder was scarcely more developed in them than in tigers and wolves."⁸⁵

We cannot accept these opinions. There was no need for these endless struggles and fightings in man's earliest days, for the causes of this hostility did not then exist. Why should primitive man fight? Food was everywhere abundant. In every direction vast quantities of game existed, which at that time were comparatively tame and could be easily captured, and all the rivers swarmed with fish. The human race was few in numbers, and there was land enough for all. Collisions must have been uncommon, and when they happened the beaten party simply moved a little further away. The earliest days of man's existence on the earth were times of profound peace. Man could never have penetrated to the different regions of the earth unless he had, at the *very beginning*, possessed a *physical constitution* which was fitted to endure all the varieties of climate which exist on the surface of the earth. No animal possesses such a constitution, for they are strictly limited to certain regions. Hence it is clear that man could not have inherited his physical nature from

the apes, but must have received it direct from God. The real explanation of man's ceaseless wanderings over the world is to be found in the commission given to him by his Maker at the commencement of his existence: "Be fruitful and multiply, and replenish the earth, and subdue it." This implies that a special nature was given to him at the time of his origination, and at the same time a Divine impulse influenced him; so that, in obedience to this impulse, he journeyed ceaselessly over every part of the earth's surface.

We have now to inquire, *When* did man appear on the earth? We certainly find him in the Quaternary period, endowed with all human faculties, and as perfectly man as he is in the present day. It is quite certain therefore that he could not have originated by evolution in a time so recent as the Quaternary era. Besides this, at this epoch, when man had established himself in Northern and Western Europe, there were no apes whatever in this region from which he could have been developed. Again, the Quaternary era contains the Glacial period, and what became of man during his great winter of vast glaciers and moving ice-sheets? If he originated before the Ice age, did he leave Europe when he observed the terrors of the Glacial period coming on? If he did, his intellectual powers must have already been fully developed to sustain and guide him during the terrible migration. If, on the other hand, he remained where he was, and maintained himself, like the Eskimo, amidst glaciers and ice-sheets far greater than those of Greenland, then this must have been a still more splendid triumph of human intellect and invention over the terrors of an arctic climate. If, on the other hand, man began his existence *after* the Glacial period had passed away, then we are once more confronted with the difficulty that at that time there were no apes in Europe from

which man could have been developed. Moreover, this last time is so recent, that it is less than 10,000 years ago, which is a time utterly too short for man's development.

We must turn to the Tertiary period in geology as the time in which man appeared on the earth, if he originated by evolution. How does the case stand, and what answer do the Tertiary ages give to the materialistic theorists, who seek to derive man by fortuitous development from the apes? It is an extraordinary fact that in all the Tertiary periods there is not a single bone or skull of man, nor are there the remains of any creature from which man could have been developed! Wherever the Tertiary formations have been examined in any portion of the world this has been the verdict.

The oldest of these eras is called the Eocene period. It was a time when a tropical climate prevailed all over Europe, and when the whole of the northern hemisphere was clothed with a splendid vegetation such as now only grows in the hottest regions of the earth. But no trace of man has ever been found in the Eocene formations. Of his bones, weapons, or relics, nothing whatever has been found. No anthropoid apes then lived, and lemurs and baboons formed the highest type of living creatures.

The Miocene period followed, in which the climate of the northern hemisphere was nearly tropical. Here the case stands somewhat differently, for relics of man are said to have been discovered. At Thenay in Central France, in a deposit of undoubted Miocene age some small fragments of flint have been found, which are thought by some theorists to have been made by man. But they are so small as to be insignificant, and most of the leading English archæologists — along with Sir John Evans²⁷ — refuse to accept these insignificant bits of flint as of man's workmanship. But suppose

we grant that these diminutive fragments of flint were really made by man, let us ask what were they used for? They were arrow-heads; so that the men who fashioned them, had already invented the bow. Now, such an invention could never have originated with apes, or with creatures intermediate between apes and men, for the framing of a weapon, especially a weapon to be propelled by another contrivance—such as the bow—is a mechanical invention which only man's reason could originate. In fact Professor Thomas has said³⁸ that the bow and arrow is "the most wonderful invention in the world." If, then, these flints of Thenay are really of human workmanship, they show that man in the remote days of the Miocene period was as truly man as he is to-day, and consequently they throw no light whatever on his origin.

It has been well said,³⁹ that man's earliest inventions were the most wonderful of all his discoveries. Language is the exemplification of the thoughts that already existed, and speech merely expresses the conceptions which are living and moving in the mind. The discovery of fire, of the manner in which the cereals could be developed from grasses, and the invention of clothing and of weapons, are all discoveries of primitive man, and they are as important as any inventions of the present day. Had not primeval man possessed a reason fully developed he must have perished.

In the Pliocene period, which follows the Miocene, it is asserted that there are genuine relics of man. But they are all of no value. Animal bones have been found bearing cuts, which some have thought were made by man; but it is now generally supposed that these markings were produced by the teeth of sharks, or by earth shocks, which caused the bones to rub against each other. Some twenty years ago four or

five human skeletons were found in Pliocene beds at Castelnedolo near Brescia, and it was thought that these might represent the genuine remains of Tertiary man. But these bones lay in a *marine* deposit, so that if they were of real Pliocene age we should have to conclude that the most ancient of men were so highly civilized that they possessed ships and boats.⁴⁰ It is in fact a case of later burial, and the skeletons are of such a high type that they show that their possessors must have been highly intellectual.

But what are we to say concerning the wonderful discovery of the Missing Link between man and apes which was found by Dr. Dubois in the Pliocene beds of Java in 1891 and 1892? This remarkable "find" made a great sensation, and Haeckel and his followers boldly claim it as a genuine discovery of a creature which was in real truth half a man and half an ape. The relics are but *four*, and consist of part of a skull, two teeth, and a femur (leg bone). These form rather a frail foundation upon which to construct a creature which is partly human and partly simian. Endless discussions have been carried on concerning these wonderful relics, and the result of these debates is summed up by M. de Mortillet,⁴¹ in an amusing manner. The English consider that these remains belong to a *man*: the Germans hold that they are the relics of an *ape*; while the French declare that the bones and teeth belong to a creature *intermediate* between the anthropoid ape and man! Truly, when such learned doctors differ, who shall decide?

But what do the relics themselves say? They were not all found lying together, nor were they discovered at the same time. The top of the skull shows that its possessor had a brain quite as large as the civilized ancient Peruvians. The leg bone is perfectly human, while the teeth resemble those

occasionally found amongst the native Australians, many of whom are so clever that they have learned to play chess! In fact the remains of the so-called *Pithecanthropus erectus* clearly belong to a man who was a member of the dark Dravidian race, which in former days extended itself from southern India to Australia.⁴²

It comes to this, therefore, that in the very beds (i.e. the Tertiary) in which there ought to be found — if the materialistic theory of man's origin be true — not only remains of the earliest men, but also indications of the semi-human ancestors from which they were developed, not a single trace of any of these relics has been found in any part of the world! This is a heavy blow indeed to the idea that man was developed from apes by means of fortuitous variations.

Now, passing to the Quaternary era in geology, we find man's remains very plentiful. But then they are exactly the same kind of men as are found living at the present day. They were indeed wild and rude, but they were as truly human as are the Zulu of South Africa, and the Red Indian of North America. Man then appears *suddenly*, endowed with all true human faculties: so that he could not have been slowly developed from the animals beneath him.

The attempt to give to man a greater antiquity than that of the Middle Quaternary era, by means of the so-called "eoliths" of Belgium, has collapsed quite as completely as the schemes of development which have just been referred to. M. Rutot, in 1900, found certain rough flints in Belgium, which he declared lay at the very base of the Quaternary deposits, and were of a far ruder character than any which had up to that time been discovered. To this industry he gave the name of *Reutôtienne*, and a type which was of a later age he termed *Mesvinienne*, whilst intermediate between

these a third type was created, and called *Maffieu*. All the flints belonging to these types were then united by M. Rutot under one general name of *coliths*.⁴³ But so rude are these flints that they present not the least sign of human workmanship, and not a single bone or skull of man has anywhere been found with them. M. Lapparent also points out that there is at present a cement factory near Paris, in which rough nodules of flint struck together by a shaft in a huge tub assume the same forms as the *coliths*, from which he argues that these flints were not made by man, but were formed by concussions when natural nodules of flint were rolled together in the waters of rivers during great floods!⁴⁴

But let us now pass to the Quaternary period. Here the relics of man are numerous and consist of his skulls, bones, weapons, and various implements. But all these human relics show that man was then as perfectly man as he is now, and they furnish no trace whatever of any creature intermediate between man and the apes from which man could have been developed. At the same time the *works* of man in the Quaternary period, in which he first appeared on the earth, were precisely the same as uncivilized man performs at the present day. They were hunting, fishing, cooking his food, making his clothes, snaring wild beasts, navigating the rivers, building huts, fabricating pottery, and trading in all directions. These occupations testify unanswerably that the first men had already a *genuine human nature*. To put the question in another way. *Up* to a certain point in the geological record we find the apes existing with all their known characteristics. *Down* to the same point we find man existing with all his special actions and nature. There is no passage from the one to the other. Nature, both in the past and the present, draws a hard-and-fast line between man and the lower animals.

So fully developed was man in the Quaternary period, that anthropologists have divided the human remains of that era into three distinct races — those of Canstadt, Cro-Magnon, and Furfooz. The members of the last two races possessed brains quite as large as those of the average Europeans in the present day, and the representatives of the Cro-Magnon race were amongst the oldest members of the human family. Of the Engis skull, which is one of the very oldest which has been discovered, Professor Huxley has said: "It might have contained the brains of a philosopher."⁴⁶ The men of the Canstadt race were more savage and brutal, and their typical remains are those represented by the skeletons of Spy and Neanderthal. But even here, the characteristics are in every way truly human. The cranial capacity of the Neanderthal skull must have been about 1220 cubic centimeters, which is larger than that of many Hindoos, and of many of the clever semi-civilized Mound Builders of North America. M. de Quatrefages has also shown⁴⁶ that the *form* of the Neanderthal skull much resembles that of many civilized Europeans, who lived in France, Denmark, and Scotland. The Spy skulls are even larger in their cranial capacity than the cranium of Neanderthal. Virchow, the leading anatomist in Germany at the time he spoke, has said of these earliest men: "They have heads so large that many a living person would be only too happy to possess such."⁴⁷ And again, the same great authority says: "When we study Fossil Man of the Quaternary Period, who must, of course, have stood comparatively near to our primitive ancestors in the order of descent, or rather of ascent, we always find a *man*, just such as men are now."⁴⁸ So speaks Professor Boyd Dawkins, in the following emphatic language: "The few fragments of Fossil Man which remain to us prove that

at this remote period Man was present in Europe as man, and not as an intermediate form connecting the human race with the lower animals." 49

Every evidence that science has brought forward, proves that man must have had a supernatural origin, and that he proceeded direct from God, being placed upon the earth by a miracle of Creative Power.

No scientific theory can possibly be made to work without an originator, and when it is once started it cannot continue without a guider and a superintendent. We see order throughout the universe, but this order can be maintained only by the harmonious working together of numerous laws and processes. To originate and to maintain these the action of mind is required and this implies thought. But there cannot be thought without a thinker, and as a thinker must necessarily be a person, we are led to the conclusion that behind all the phenomena of the universe there must be a Personal God. Evolution cannot possibly do its work, in producing order, without superintendence. There are such countless accidents, variations, and contradictory developments always possible, that the steady progression and orderly unfolding of the course of creation could never have taken place without the guidance of an Almighty Director. As Professor Clerk Maxwell has well said: "I have looked up many strange theories, and have found that none of them will work without the intervention of a God."

But whilst the sum total of the facts in nature testifies to the existence and incessant action of an Omnipotent Being, it does not demonstrate a *relationship* between Him and man. Amidst the marvels of the universe man realizes the working of Divine Power; but, at the same time, while feeling this, man experiences a loneliness of soul, which cries out

for something more. What is wanted is a *companion*, for we are not all *head*, but have *hearts* also. How then may man have fellowship with that Great Being who originates, supports, and directs all things? Science can give no reply. But here Revelation comes forward, and discloses the mystery of Redemption. The Son of God became incarnate, and through Him and in Him man is raised to communion with God. The longings of human nature are satisfied in Christ; the course of creation fitly finds its consummation in God become man; the human soul realizes all its yearnings in communion with its Incarnate Lord, for "in him dwelleth all the fullness of the Godhead bodily; and ye are complete in him."

"Beyond the eastern plains I see a light,
Which breaks the shadows, than the sun more bright.
Like streaks of morning clouds our thoughts may fade,
But One stands forth, by whom the worlds were made.
Eternal wisdom in His words unfolds,
The key of knowledge in His hand He holds,
He solves the mystery of human strife,
And crowns our striving with Eternal Life."

NOTES.

¹ *Life and Matter* (4th ed.), p. 68.

² The books are published by Bloud and Co., 4 Rue Madame, Paris.

³ This point is strongly urged by M. Courbet in his work, *Introduction Scientifique à la Foi Chrétienne*, pp. 45-50.

⁴ Sir Oliver Lodge, *Life and Matter*, p. 32.

⁵ *Mind and Body*.

⁶ *The Riddle of the Universe* (cheap English edition), p. 79.

⁷ Professor Henry Drummond, in his work entitled *The Ascent of Man*, devotes a chapter to "The Dawn of Mind." But as he merely describes the different kinds of mind, the origin of mind itself is left unexplained.

⁸ *The Unity of Nature*, p. 328.

⁹ *Riddle of the Universe*, p. 86. ¹⁰ *Ibid.*, p. 86.

¹¹ *Biology and Transcendentalism*, p. 74.

¹² *The Riddle of the Universe*, pp. 91, 130, 131.

¹³ *Life and Matter*, pp. 195, 197.

¹⁴ *Scepticism and Rationalism*, p. 149.

¹⁰ Riddle of the Universe, pp. 28, 89.

¹¹ So powerfully advocated in his Principles of Geology.

¹² Rasselas, p. 188.

¹³ See the able work of M. P. Ortolan entitled *Vie et Matière ou Materialisme et Spiritualisme en la presence de la Crystallogenie*, pp. 43-57.

¹⁴ Biology and Transcendentalism, pp. 45, 46.

¹⁵ Of course there are coal-beds in other positions, but the reference is to the coal-measures *par excellence*.

¹⁶ Address to the British Association, 1880.

¹⁷ La Providence Créatrice.

¹⁸ L'Homme et le Singe, p. 21.

¹⁹ Natural Selection not inconsistent with Natural Theology.

²⁰ The Antiquity of Man, pp. 505, 506.

²¹ The subdivisions of the Annuloida and Molluscoïda need not be noticed.

²² We follow the division laid down by Dr. Sciator in his paper read to the Linnæan Society in June, 1857.

²³ Lyell, Elements of Geology (6th ed.), p. 488.

²⁴ Quarterly Journal of the Geological Society, August, 1887.

²⁵ Ice and Water: a review of the Superficial Formation.

²⁶ Sketch Book of Popular Geology, pp. 65, 66.

²⁷ Man's Place in Nature.

²⁸ The Invasion of the Crimea, vol. iv.

²⁹ Darwinism, p. 478.

³⁰ It must be remembered that it is only the materialistic evolutionists who are referred to whenever the word evolutionists is used.

³¹ Man's Destiny, pp. 77, 78.

³² Ancient Stone Implements (2d ed.), p. 658.

³³ In his recent work entitled Sex and Society.

³⁴ By the Duke of Argyll; see Unity of Nature, pp. 521-524.

³⁵ As is well urged by MM. Fraipont and Lohest in their able work called *La Race Humaine de Néanderthal ou Canstadt en Belgique*.

³⁶ Formation de la Nation Française, p. 222.

³⁷ See the able paper of Mr. Horatio Hale read at the annual meeting of the Royal Society of Canada and entitled Language as a Test of Mental Capacity.

³⁸ Bulletin de la Société Belge de Géologie, vol. xvii. p. 427 (Julliet 28, 1903).

³⁹ Les Silex Tailles et l'Ancienneté de l'Homme, pp. 45-53.

⁴⁰ Man's Place in Nature, p. 156.

⁴¹ Hommes Fossiles et Hommes Sauvages, pp. 62, 63.

⁴² The Freedom of Science, p. 60. ⁴³ *Ibid.*, p. 60.

⁴⁴ Early Man in Britain, pp. 168, 169.