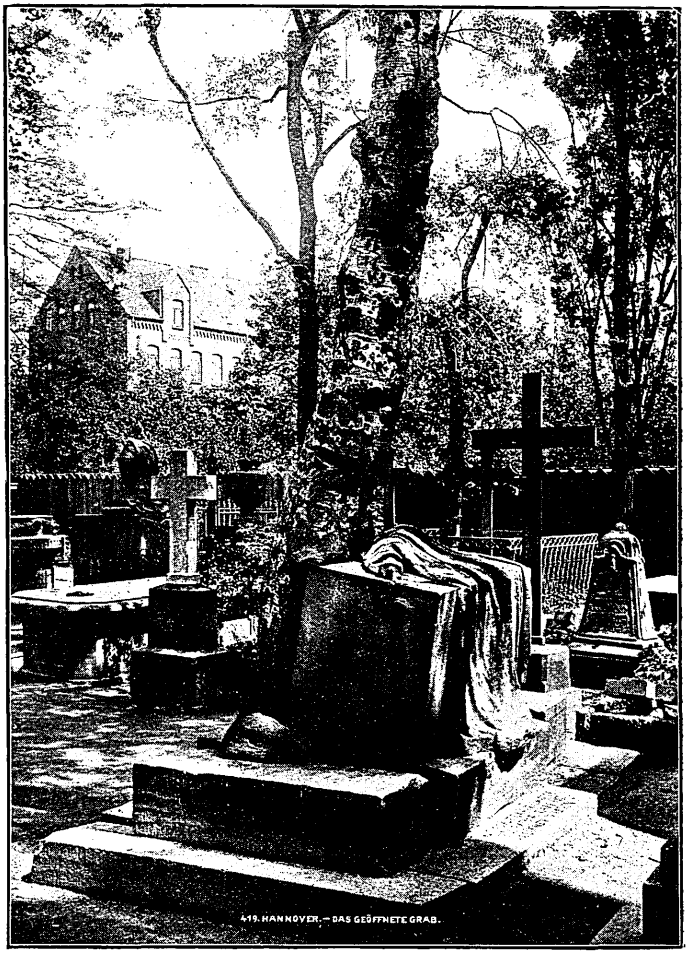
Outlines of Modern Science and Modern Christianity



THE GRAVE THAT "NEVER SHALL BE OPENED."

(*See page 46.*)

OUTLINES

OF

MODERN CHRISTIANITY *and* MODERN SCIENCE

BY

Geo. E. McCready Price

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That Nature lends such evil dreams?"
—*In Memoriam LV.*

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—*Froude*, "*Short Studies*," *p. 325*

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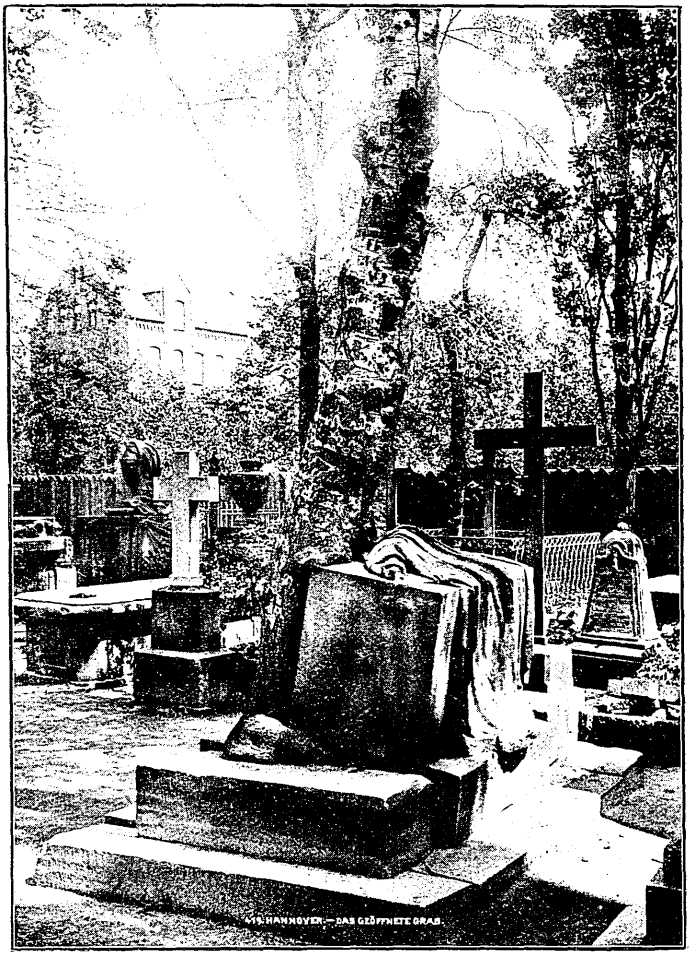
OAKLAND, CAL. San Francisco Kansas City New York



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PUBLISHERS' PREFACE

One of the mightiest problems which faces the human race,—nay, the mightiest,—is the salvation, the regeneration, of the human. He finds himself, when he awakes to consciousness, in a world of sin, of abnormalities, of inconsistencies, of depravity, of death. The highest types of nobility and princely worth, the lowest types of depravity and moral unworth, the wretchedest inconsistencies, the most intricate puzzle of all, is found in man himself.

Whence is he? Why is he? What is the ultimate of it all? What changes may we look for? Is character the result of the will, the result of environments, or does it involve relationship with divine power? Does death end existence? These are questions which have insistently demanded answers through all the centuries. That the great pagan religions have not answered these questions satisfactorily is evidenced by the conditions and oftentimes destruction of the peoples who were their most zealous devotees.

Among the pagan religions of earth the Christianity of two millenniums ago nearly glowed like a sun among dead worlds.

"The people which sat in darkness
Saw a great light;
And to them which sat in the region and shadow of death,
To them did light spring up."

To man in the utter despair of weakness the gospel came "the power of God unto salvation to every one

that believeth." It taught man so to come into harmony with God that he could receive the inflow of God's life. It showed God's power to save by the great facts of His creation, and demonstrated that power in the healing, the regeneration of men. It created men anew in Christ Jesus. It lifted man from the inherent selfishness of the flesh to a life of unselfish devotion to others. It swept idolatry, with all its debasing influences, from the heart and made man a worshiper of the one God of love, with every faculty open toward the Infinite. And, notwithstanding its corruptions by "science falsely so called," by pagan superstitions, by heathen traditions which make of God an unspeakable tyrant, by abnormal and monstrous union with the state, Christianity has brightened the face of the world and given hope to those who were sitting in despair in the shadow of death.

As long as the spouse of Jesus Christ clung to her sovereign Lord and His only remedy—regeneration by the creative power of His life as set forth in His Word—there was hope. But in these later days a subtler form of evil—nay, every subtle form of evil—has crept into the church itself; it finds utterance in her theological seminaries; it is given to the world through her publications; it is taught from pulpits dedicated to the promulgation of the gospel of the power of God. It tells us that God is not a personal Father; that the story of His creative power and providential dealings with His earthly children is mythical allegory; that man did not come direct from the Creator's touch, made in the image of God, but evoluted through untold millenniums from the lower orders of life; that the

days of creation were not literal, but long aeons of time; that man did not fall, but evolved, ever upward on the whole from the protozoa to the ape, from the ape to the civilized man; and that the only hope of the race is in continued evolution. Hence man needs no sacrifice, no Saviour; that Jesus the Christ if He lived and died at all, lived and died in vain; that there is no resurrection of the dead, no personal return of the Lord.

And in the light of all this the children of the church are turning from the Word as the chaff and accepting the deductions and inductions of the hypothesis and reasonings of science as the wheat. And souls despair and die, and go out into the great unknown darkness with naught to lean upon save the uncertain, contradictory theories of a sick, halting theology.

It is to meet this backward, downward drift that the author has written this little work. It is believed that there are thousands in the ranks of scientists who, if they did but pause and think, would be glad to know, even as their hearts demand, a better way. It is believed that thousands of religious teachers who are now giving the Bible such uncertain homage have been dazed and confounded by the strong assertions of infidel scientists, but that if they only understood the true bearings of the questions at issue, they would be glad to welcome to their heart the Old Book, and preach anew its soul-stirring, life-giving, character-regenerating doctrines. We believe that this book will help every earnest, seeking soul back to "the old paths where is the good way." Such is its mission, and such is the prayer of THE PUBLISHERS.

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INTRODUCTION

That there is room for a book which takes the real Biblical side of the pending Science-versus-Religion controversies must be very evident. If I were to say that since Darwinism arose such a book has not been written before, my readers would doubtless smile at my assurance, and with the monumental works of Dr. McCosh, Dawson, and others in their minds and hearts, would lay this little work down without further examination. But with the scores of books now being issued on "Theistic Evolution," I have thought that side of the matter pretty well represented, and that a little contrast might be acceptable to intelligent, thinking men and women.

The present work is an endeavor to get back to primitive Christian principles. My idea is that if there is any truth whatever in Christianity, we shall not help matters at all by trying to "reconstruct" the whole system of Christian theology, as the Theistic Evolutionists are now with one voice advising us to do. That is, if Christianity is anything more than a beautiful myth, we can not hope to improve either its spirit or its fundamental doctrines as revealed in our only Text-book of its principles. Hence, it has occurred to the writer that before this unconditional surrender, it might be well first to make one more honest effort to get back to real primitive Christian principles without any compromise whatever, and try

whether the known facts of science, as distinguished from its theories, would not be better explained from the Mosaic account of the Creation and the Deluge, if these be understood according to their literal and obvious intent. Consistency is sometimes a guide to apparently elusive truth.

For some time it has been noticed by the "man in the street" that the nineteenth century monument of Uniformitarian Geology erected by Lyell and Agassiz (and I write their names with respect), and built about with such indefatigable zeal by their devoted followers, was growing rather top-heavy with absurdity. If the great army of workmen now busy in finishing it have not observed this, it does not imply any defect of mental vision on their part, but only that they are too near the base and too devoted to their work to discern this disaster impending above them. I should be extremely sorry to see it tumble upon their heads; and my fourth, fifth, and sixth chapters are to be taken as only so many kindly shouts of, "Out from under!" before the inevitable crash takes place. If I have spoken rather vigorously therein, it has not been through malice or from disrespect for a single one of the hundreds who are laboring on this work in single-minded devotion to truth. But unless Christianity is a fable rapidly being forgotten, this whole fabric of modern geology is the thing that will have to be "reconstructed" on an entirely new foundation.

The author makes no claim to scientific attainments. The logical necessity for such a work, and the long neglect of others better qualified to under-

take such a task, are the only excuses he would offer for giving these pioneer ideas to the public in their present comparatively crude condition. But he has not consciously blinked a single difficulty, though the extremely limited number of good scientific works within his reach has rendered some parts of this first effort of the kind ever published (as he believes) far less complete than he desired.

To those who find in these pages anything that throws new light on old questions, and who themselves have something additional to offer along these same lines, I would say that I shall be extremely thankful for suggestions or criticisms that may serve either to add to or take from these outlines, and so render them more worthy of public favor, because approximating more closely outlines of truth. The book of nature and the written Word, having one and the same Author, must, when truly correlated, "shed light upon each other."

The delays incident to publishing in California and correcting proofs in Eastern Canada may serve to explain to the curious some apparent incongruities in the contemporary dates referred to in the notes and elsewhere.

G. E. McC. P.

December, 1901.

CHAPTER I.

The Terms Defined.

The human mind seems prone toward world-building. The slightest tendency toward reflective thought appears to awaken its latent curiosity as to the origin of things; and men in all ages have never had to reason very long to see that if a designing Mind is really the generating cause of this cosmos, ourselves included, not policy alone, but, in the deepest, truest sense, filial duty will lead us to reverence, and if possible obey, the great Father of all. The inherent obligations of a creature to its Creator, and the necessity of the creature conforming to the fundamental principles of its own being as implanted by the Creator, have always been regarded as the highest possible basis of all moral duty and worship, and as it is impossible to acknowledge the claims of one Creator and ignore the sweet reasonableness of Christianity as the revelation of His love, modern reasoners who are unwilling to admit its claims upon them have adopted the only other course possible, and have, these three hundred years or so, devoted their powers to explaining away the constantly accumulating evidence that our universe must have had an intelligent Designer.

They long ago gave over the attempt to maintain a dogmatic atheism. No one with the least knowl-

edge of our marvelous universe would dare claim that science can ever hope to demonstrate the non-existence of a Creator. The atheists of old have become the agnostics of our day. In full view of the countless evidences of design in nature, and of the marvelous and ineluctable laws that regulate the movement of everything, from molecule to starry system, they keep telling us over and over again that we can not *be sure* that these laws are the expression of an *order-loving Mind.* The old idea of anything being the result of chance has been long exploded; but with strange inconsistency they have put in its place, and I might say endowed with all its horrible attributes, blind, impersonal, unrecompensing law—"awful with inevitable fates."

Strange reasoning! Science has never been able, doubtless never will be able, to show us the beginnings of anything—neither of space, nor time, nor matter, nor force, nor motion, nor life, nor consciousness, nor anything at all—no ultimate cause whatever. But by comparison we know that on a small scale *our wills* are active causes. In fact, as Romanes has said, a personal will such as our own is the *only real* cause of which we have direct experimental knowledge, or that we can conceive of. Therefore, how can we avoid the conclusion that the marvelous combinations and adaptations of the universe have been brought about by the causative will of an infinite personal Being? According to Dugald Stewart's two famous axioms:—

"1. Every effect implies a cause.

"2. Every combination of means to an end implies intelligence."

Agnostics themselves always talk and reason in this manner when they find chipped pieces of flint in the earth. But what slender evidences of a designing mind does even a polished arrow-head present compared with even the most degenerate plant or animal form!

When we begin to trace the relations of cause and effect anywhere in nature, we are led along by irresistible logic to the conception of a supreme Mind as the only ultimate Cause of which we can conceive. When we see anything take place—say the lifting of a teakettle lid—we instinctively say it must have had a cause. The immediate cause we find is the expanding steam into which the water has been converted by the heat beneath. The heat is traced to the combustion of the coal; but whence came this energy so long latent in the coal? They tell us that it really came from the sun, which, ages ago, stored up this energy in certain vegetable substances that were then laid away in the earth—pigeon-holed, as it were—for the convenience of man. But to get at the real ultimate cause we must go back of the steam and the heat, back of the coal and the sun, and ask whence they all originated. If they are not self-existent, if they did not create themselves—an utterly unthinkable idea—there must have been a creating Power that originated them. Whence came the *wisdom* displayed, the *idea,* the *plan* of it all? We may say, as Spencer has done, that the creation of something out of nothing is an unimaginable idea— a "pseudo-idea," he calls it.[1] This is partly correct, though,

[1] "Biology," I, pp. 336, 337.

like most other cavils of this ingenious critic, it is based on a misconception. We have no need of justifying the idea that the material universe was created out of absolutely nothing. But "nothing," as generally understood, means merely no substance appreciable by our senses. It does not exclude spiritual substance as preexisting with God Himself. Paul explains this in Heb. 11:3. He says we understand by faith that the worlds were not framed "of things which do appear." God may have created, and doubtless did create, what we call matter out of spiritual substance coexisting with Himself from eternity.

But, in a more limited, accommodated sense, we know that the human mind is constantly causing ideas, images, and inventions to exist that as such did not exist before, and is thus creating these ideas in the ordinary meaning of the term. When Longfellow composed his "Evangeline," he certainly caused something to exist which did not exist before. A man can not get a patent on a machine unless he can in this small way prove his kinship with the Creator. And until our faculties have been perverted by the subtilties of a false philosophy, we can not look upon any work of this kind without saying that it *must be the work of mind.* Dr. Paley's classic illustration of the watch as proof of an intelligent watchmaker has been met with many a sneer and quibble by unbelievers, but it has never been answered. But all such inventions or creations as these are limited, and are only imperfect types of absolute creation. When we come to contemplate the

great machine of our cosmos, a thousand times more marvelous than any creation of man's, our minds expand to the contemplation of absolutely limitless Power and unsearchable Wisdom—an unconditioned, eternal Mind.

The nature and origin of the chemical elements, whose undivided parts we call atoms, is one of the problems that scientists have long labored upon in vain. Whence came they, with their invariable and ineffaceable properties stamped upon them, as James Clerk Maxwell remarks, "incapable of growth or decay, of generation or destruction"? Whence came these millions of exact duplicates of one another which through all the changes of nature continue unbroken and unworn—the exact equality of one to each of all the rest giving them "the essential character of a manufactured article"? Whence came they save from the mold of the great Master-Builder, "who in the beginning created, not only the heaven and the earth, but the materials of which heaven and earth consist"?

The all-pervading character of law, so far from being against this idea, is one of the strongest of proofs that an order-loving Manager is at the head of the universe. A system of religion which all acknowledge has given to the world its highest conceptions of mental or moral laws, has surely nothing to fear, but everything to gain, from the proof of physical law being equally certain and eternal. "Till heaven and earth pass, one jot or one tittle shall in nowise pass from the law."

"God is law, say the wise, O soul, and let us rejoice;
For if He thunder by law, the thunder is yet His voice,
Speak to Him thou, for He hears, and spirit with spirit may meet,
For closer is He than breathing and nearer than hands and feet."

For half a century or so the evolution theory has furnished the only "orthodox" scientific method of classifying or explaining phenomena; though, as I have said, they long ago gave up looking for real origins or ultimate causes. But within recent years we have arrived at another stage in the development of this idea, in the astonishing way in which the current religious thought has imbibed and even assimilated it. Thirty years ago, or even less, it seemed as if agnosticism and materialism would soon become supreme, and relegate Christianity to the museums as a curiosity of the past. But as it was in the days of the Roman Empire, in the conflict between the Christianity and philosophy of that day, the former would not down. Pagan philosophy conquered only when it got baptized and was admitted to the church, though I shall not here attempt to further trace the result. In a similar manner to-day, and without in any way changing their ideas concerning the origin of man, the evolutionists have quite generally become reverent, if not religious. They no longer sneer at religion or Christianity *per se.* They have found they can not by the scientific methods get at ultimate causes; but the rational demand for an ultimate cause can not be silenced in the minds of thinking men. If we can not get back of materialistic conceptions by purely scientific methods, we must leave this task to a rational philosophy. We

must not lay upon science a task that in the very nature of things it can not perform; we must not expect it to go outside of its own domain and solve questions in philosophy that have taxed the human mind for ages. When these things are realized it is seen that even if all present phenomena have come about through the process which we call evolution, yet *even then* our cosmos demands a Creator just the same as before. The marvelous discoveries of recent years, so far from demonstrating or even encouraging materialism, seem to have acted more like a *reductio ad absurdum.*

But, more than this, not only has nature led them to theism—they seem also to have decided that a religion of some sort is an indispensable adjunct to civilization. Plato, in his ideal "Republic," considered that he would have to have some religion taught to the whole people, even though it should only be founded on pure fiction manufactured for the occasion. The Romans had the same idea. The later leaders of the French Revolution adopted similar methods. In fact, legislators have universally reasoned in the same way, deciding that a religion of some kind the people must have. Prof. Huxley has left himself on record as saying, "I do believe that the human race is not yet, possibly may never be, in a position to dispense with it."[2] Even Spencer was afraid that if the restraints of the popular ideas about divine authority were swept away, "before another and fitter regulative system had grown up to replace

[2] "Life and Letters of Thomas Henry Huxley, F. R. S.," vol. 2, p. 300, by Leonard Huxley. Macmillan & Co., 1900.

it," the results might be "disastrous."[3] Hence, modern evolutionists seem to have decided that as Christianity is the best yet developed, it is decidedly the fittest to survive, and so they are willing to make some effort to assist in the process.[4]

Of course, we all understand that it is not the old-style Christianity of Paul and his age that is thus becoming popular with scientists. It is doubtful if all of them even call it Christianity. It is "Theism," the belief in God as the author, if not exactly the creator, of the universe. Also, the Bible—though of course containing many crude ideas of God, as they say—when weighed and purified by the winnowing processes of the Higher Criticism, they admit contains the most sublime ideas we have of human life and destiny. These they say will undoubtedly bear the test of reason and science, and hence must be among the eternal realities.

And I can not refrain from inserting here a few words concerning the way in which the current teachings of science have contributed to build up a great system of scientific dogmatism that, as far as ordinary people are concerned, is as verily a system of trust in human authority as any ecclesiasticism of the past. In all this I shall try to be fair and just to every one.

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[3] "The Data of Ethics," preface. By Herbert Spencer, 1884.

[4] Cf. James Russell Lowell's remarks in his famous after-dinner speech about what men ought to be thankful for "who live in ease and luxury, indulging themselves in the amusement of going without a religion." Also Mathew Arnold's challenge, "Point out ten square miles on the surface of the globe which have not come under the influence of Christianity where the life of man and the honor of woman are safe."

But the subject of evolution is a large one. Its system of supposed evidences constitutes a vast complex of material, while very few even of the scientific leaders profess a personal mastery of as much as half the material depended on. Each particular line of facts and theories has been developed and elaborated by some one or more specialists, while their brother specialists in some other line of work are disposed to take on their *dicta* the general results of their work, which often consists of *an indistinguishable compound of facts and theories.*[5] Each depends on the others for those collaterals of the general evidence that are outside of his own particular line, and a premium has all along been placed on this general tendency by the disposition among many of them, notably Mr. Spencer, and the many who have copied his peculiar methods of argument, to rule out of court every other possible explanation, and to declare any given facts under consideration to be "inexplicable" on any other view but their own. I will not now speak of the notorious teaching of the former, where he says that "*before* it can be ascertained *how* organized beings have been gradually evolved, there must be reached the conviction that they *have been* gradually

[5]Cf. Haeckel's well-known line of argument, which is based almost entirely upon the idea that the embryonic life of the individual is but a brief recapitulation, as it were by memory, of the general history of the species through geological time; though, as we shall see in chapter V of this book, this geological succession in time instead of being *proved* by geology is only one of its primary *assumptions*, utterly incapable of any proof whatever. Even Spencer's argument is almost as much dependent upon these supposed proved facts of geologic succession.

evolved;" or where he says we must "reconcile the facts" of organized life with his supposed universal laws of matter and motion.[6] But all of them so continually ignore that most primary law of all scientific evidence which says that before a thing can be considered proved the evidence in its support must not only tend to explain all the general facts in the case, but must be of a nature to exclude every other explanation. Too often all the recognition we find of this latter principle is the *ipse dixit* of such men as Spencer repeated in page after page, that on any other view the given facts would be "inexplicable." So that, taken altogether, we have seen growing up before our eyes a vast system of scientific dogmatism founded upon the authority of scientific experts, which, for the people of our age, has replaced the ecclesiastical authority of former periods. But any such trust in mere human authority in matters of belief concerning origins and duty is the greatest foe to true intellectual freedom that our world has ever seen.

But to understand how this change has come about, we must look upon it from the standpoint of Protestant orthodoxy. After all, it is the latter that has changed, not the scientists. It is doubtful whether this modern theistic evolution differs much from Huxley's well-known admiration for the ethical teaching of the New Testament, already alluded to. But for years the average intelligent church-member, to say nothing of the ministers and theologians, had felt himself compelled to be acquainted with the fash-

[6] "Biology," I, pp. 408-410 (Italics mine).

ionable scientific theories. Orthodoxy, however, did not supply them with the *proper premises* to examine the current science to advantage. To say nothing of some other points to be mentioned later, the whole religious world had already gone back on the Mosaic record of a universal deluge (let not the reader smile), and had almost universally adopted Dana and Dawson's day-period theory of creation as explaining the geological facts. And therefore, with this travesty of what the Bible really teaches—for I can call it nothing else—they were not in a position to judge of the comparative merits of the two systems. In the geological succession of life on the globe through countless ages, they had already swallowed the skeleton of the evolution theory without knowing it. Accordingly, when they took up the examination of Darwinism from this insufficient standpoint, they were not long in seeing the weak and inconsistent position in which they stood. Thus they began the task of orienting their religious ideas, particularly as to the inspiration of the Bible, in accordance with the supposedly "proved" deductions of science. And so the work has gone on until orthodox Protestantism is to-day very different in teaching and spirit from the church of fifty years ago, from that of the early reformers or the primitive Christians; different, in fact, from the wilderness church of all ages, but resembling in its spirit, its philosophy, and in its practical impotence in fulfilling Christ's last commission, the proud Pharisaic church of all ages, which history declares has been too often a persecuting power.

But, side by side with this movement of Protes-

tantism bodily toward the evolutionist's standpoint, has been another equally well-marked movement getting back to the old paths and the old-time spirit of the gospel. Old-fashioned Christianity is not dead, but as yet is not confined to any one organization. There are old-fashioned followers of Christ in all the churches, who "sigh and cry for the abominations that are done in the midst thereof," and who it may be said are doing all the practical old-fashioned kind of work that Christ and His apostles did. It can not exactly be called a reaction against the rationalism of the Higher Criticism, for the latter is the child of yesterday; the former, hoary as the hills. And, so far as we can judge, the reaction, if such it may be called, against the "Higher Criticism" generally leads to Ritualism and the Roman Catholic Church. The latter is certainly the only branch of Christendom that has in either numbers or prestige gained as a body by the work of the higher critics. But this truly modern Christianity is like none of these. In fact, it is the exact opposite alike of ritualistic formalism and skeptical rationalism. It is instinct with life through vitalizing faith in a living, personal, and complete Saviour; and, while especially insistent on the perpetuity and interdependence—yea, identity—of all spiritual, moral, and physical law, it keeps clearly in mind that the current deductions of science as to origins are infinitely less reliable than the Word of the eternal God, which has been handed down to us at such a cost of suffering and blood. The same spirit that called out Abraham from his country and his kindred; that sent Elijah to the king of Israel and John the Baptist to the people of Judea with messages of

reform; that directed the tent-maker in his self-supporting missionary wanderings; that supported the Waldenses in their long-continued struggles for freedom among the mountains, and the martyrs of all ages in proclaiming their message of soul-liberty in face of the most frightful tortures and death—this same spirit is now sending abroad "to every nation, and kindred, and tongue, and people," the spiritual children of the reformers and martyrs of all past time.

They realize that if there is any truth whatever in the mission of Christ and Christianity, we can not hope to improve either His spirit and methods, or the fundamental doctrines of the church which He established, as revealed in our only Text-book on the subject. *A reform and a return to these primitive principles is the next thing in order for every one who wishes to get his bearings toward the present-day problems of either politics or science.*

As for their views on inspiration, I may say in a few words that they are not very much concerned about the "original documents" from which the Biblical writers "compiled" their books. They do not presume to cut and divide it, calling some parts true and others mythical, to suit their own preconceived ideas, making all the Bible nothing but the gropings after the Infinite of men more or less good and wise. In the very nature of things, when we begin to do this, all reverence for it as the special revelation of the Creator to us of the twentieth century must long since have vanished. Certainly this is not treating it as Wesley, Luther, Wycliffe, the apostles, or even Christ

Himself treated it. "When men, compassed with human infirmities, affected in a greater or less degree by surrounding influences, and having hereditary and cultivated tendencies, which are far from making them wise or heavenly-minded, undertake to arraign the Holy Scriptures, and to pass judgment upon what is divine and what is human," they are certainly taking the ground of the unbeliever, and have no right to arrogate to themselves the name of Christian.

But this point will be further considered in chapter VIII. I need only remark here that, like the historic church, these modern believers would no more attempt to explain the mystery of the written Word than that of the incarnate Word—Christ Himself. There is the same indefinable blending of the divine and the human, sublime, incomprehensible. When we begin to dissect and separate the one from the other, all reverence must certainly have departed, to say nothing of faith. It would be useless, if nothing more, to work in fields so far beyond the limits of the human mind, rushing boldly in where angels fear to tread.

The written Word presents the same mystery of incarnation that the world saw some nineteen centuries ago. The divine is there, the human is there. We can find either of them that we look for; but we shall not see the divine Spirit, with its searching personal lessons for our souls, by dissecting the dry bones of its literary construction. In coming to earth, Christ doubtless assumed the physical and even the mental peculiarities of the Hebrews,—not the Aryans,—just as the written Word also displays many

touches that picture the heredity and environment of the writers. It is even written of Christ that He "was made in the likeness of *sinful flesh*," though "in Him was no sin." Just so with the Bible. We may find traces of the limited ideas, almost the prejudices, of the authors; but God kept them from blundering to our confusion in this twentieth century.

But before going further into the study of what this modern Christianity is like, we must glance backward at some of the conflicts and questions of other days.

In the days of the apostles the Greeks were the great philosophers and scientists. They had dived deep into nature, and had got all that the unaided human senses could then discover. Our moderns may smile at the spontaneous generation of Lucretius, and the eternal uniformity of the present order of nature as set forth by Aristotle, even if they admire Anaximander and his fellows for teaching the transmutation of species and a kind of Greek Darwinism. But we must not think ourselves so far superior. Our petty knowledge of certain mechanical contrivances has done much to swell the inordinate vanity of the present generation; but it is certain that it can not "carry us one step further into real nature;" and it may not show us possessed of any firmer or more disciplined minds than they had back there, who wrestled, as we are doing, with the great world problems of existence. Their literature has been imitated for over two thousand years; their art has been the despair of every generation since; and their civilization, which culminated in the Roman Empire, ex-

hibited, for at least half a dozen times the length of our boasted century of progress, a development of law and government that we have not surpassed.

Into such a world, proud of its wisdom like the present, came Paul with his simple story of the crucified One, the incarnate Creator dying to show His love for His creatures. In spite of all that our modern critics may have to say to the contrary, his story was just the same as that which had comforted Job in his affliction with the knowledge that his Redeemer lived and would "stand at the latter day upon the earth" (Job 19:25); had directed the mind of Moses in governing his rebellious millions; and had tuned the harps of David, Isaiah, and the other Hebrew bards. He had definite and clear ideas as to the past of our world; and to those who by philosophy were trying to persuade themselves of inherent natural immortality, he showed that a future life can be attained only through a resurrection and a glorification of our present bodies.[7] His future for our world was no less plain. "Evil men and seducers shall wax worse and worse, deceiving and being deceived." "In the last days perilous times shall come."[8] But when some of his Thessalonian converts obtained the impression from his first epistle that these evil times and the second coming of Christ were right upon them, he wrote them positive assurance to the contrary: "Let no man deceive you by any means; for *that day shall not come,* except there come a falling

[7] 1 Cor. 15 : 16–18, *et seq.*

[8] 2 Tim. 3: 13; 1.

away *first,* and that man of sin be revealed, the son of perdition; who opposeth and exalteth himself above all that is called God, or that is worshiped; so that he as God sitteth in the temple of God, showing himself that he is God." "For the mystery of lawlessness doth already work; only there is one that *restraineth now,* until he be taken out of the way."[9] Men smiled and argued when he spoke to them of Jesus and the resurrection. But he could stand in their own chosen assembly of wisdom, and demonstrate to them that he had a science and a philosophy of life compared with which theirs was but childish prattle.

The distance of eighteen centuries or so has given us a perspective from which to judge of the relative merits of the science and philosophy of that day, as opposed to that Christianity. They say a great change has come about since then in the questions involved. But aside from the comprehensive doctrine of evolution, it is safe to say that agnostic philosophy is practically the same to-day as it was in the days of Porphyry and Julian. It is the argument of men who are continually asking for "more evidence;" who raise little quibbles about the Bible's use of the words "firmament," "sky," or "earth," or about *two* demoniacs being mentioned in one place and only *one* in another; and who reiterate the statement that we "can not believe" that strange events, like the Deluge or the raising of the dead, ever took place in the past, because we do not see similar events taking place to-day. So that, apart from the doctrine of evo-

[9] 2 Thess. 2:3, 4, 7, R. V.

lution, the philosophic objections to the Christian religion are to-day no more than those that the church has had to meet in all ages, and has so constantly lived down and overcome. Ninety-nine per cent of all modern arguments against the Bible and its religion are grounded on the supposed truth of the current theory of evolution; and accordingly this one idea, in its various phases, is what I shall endeavor to consider, and what I shall mean throughout this work when speaking of *modern science* as opposed to Christianity.

I think it is not necessary for me to attempt here to explain the doctrine of evolution as currently taught and believed. Darwin is by many supposed to have originated it; but Darwin only dealt with one division of the subject. In a broader sense we find that two divisions of it—the nebular hypothesis and uniformitarian geology—are very much older than Darwinism, while later advocates of the doctrine have elaborated it in detail, and have applied it to every department of scientific inquiry. And as the theory as a whole naturally falls under four or five different heads, I have preferred to give a reasonably full statement of the evolution doctrine in these different departments as they come up for consideration.

And one more word on this point as preliminary to all discussion. A work like this implies the sacredness of nature and the importance of its study; that is, the holy, elevating character there is in *all* honest study of the works of the Creator. His works and His written Word are equally divine. I

will yield to no one in my reverence for true science, or in my respect and love for those who have made science what it is to-day. The great names of Darwin and Huxley, of Romanes and Mivart, of Lyell and Agassiz, with scores of others who might be mentioned, living as well as dead, all of whom are inseparably connected with the rise and history of the doctrine of Evolution, are to me synonyms for incarnate honesty and love of truth. It would be silly for any one to ask how I can believe them to be so honest in purpose and yet so wrong in many of their conclusions. Unfortunately, we are all mortal and fallible. The sincerest love of truth can not always emancipate us from our intellectual heredity and environment, or the "zeitgeist," as the Germans call it in its broadest sense. The premises of Darwinism were established as I have said a century or more ago, and, as is usual with great world-errors, *it is the premises that are wrong*, not the conclusions only. And, as is usually, almost invariably, the case, the fault lies at the door of the church, not of science. The defenders of a perverted form of Christianity have ever been the most effectual obstacles to the progress of truth. So that although in the course of the present work I may have occasion to handle the arguments and conclusions of modern science somewhat roughly, *yet the men and their motives* are inconceivably beyond my reach. The words of my Master, "Judge not, that ye be not judged," certainly do not point out our attitude toward ideas and doctrines, but most positively and surely do they indicate the only Christian, or even gentlemanly,

way of treating the motives and individualities of our brother man. Hence, if my words, in some cases, seem strong and full of feeling, I wish it expressly understood that *in all cases* it is the ideas and doctrines which I am contending with, not their authors or advocates. It is too late in the world's history for me to revive or perpetuate that age-old mistake of Christian apologists. Nevertheless, I hope that a good deal of energy and luminosity of statement may be allowed in contrasting what I consider error with what I believe to be truth, without incurring the reproach of indulging in personalities, or even presumptuous forgetfulness of the impassable gulfs which separate me from these modern scientists as to knowledge of the details of nature.

But before resuming our study of this modern revival or continuation of primitive Christianity, we must consider for a moment the kind of Christianity with which philosophy has been supposed to be in conflict; for, while evolution is in unmistakable contradiction to the first chapters of Genesis, and a thousand as direct statements throughout the Bible concerning man's origin, it is only with *something else* than a literal, common-sense understanding of its teaching that philosophy has ever had the slightest quarrel. The only argument that the world has ever had for pure Christianity has been the fagot and the headsman's ax. It has stopped to argue the point only with something less than primitive faith and earnestness. Such men as Celsus and Porphyry were developed only after the church had left the first simplicity of the apostles. And such modern men as

Herbert Spencer would not have half a dozen words —outside of evolution—to say against anything but a similar modern perversion of Biblical teachings. The church of the latter half of the second century was already well started on the road to Rome. Modern Protestantism has not by any means got entirely out of Rome and back to the old paths, and of course can meet the arguments of opposers only at an enormous disadvantage. It not only lacks the signs and wonders of the early church, but to a great extent, also, is not attended by the equally wonderful work of transforming evil characters, which has always been the most unanswerable of arguments in favor of its divine origin. But besides all this, there are several points of common logic on which skeptical philosophy has decidedly the better of orthodox Protestantism.

The first of these is undoubtedly the immortal-soul theory, and its logical conclusion, the horrible doctrine of eternal torture, which has without doubt made thousands upon thousands of honest infidels and skeptics. But so nearly universal in the modern and historic church is this idea that it is often difficult to get the honest objector to see that the Bible really does not teach such doctrine. Spencer, in his well-known "Ecclesiastical Institutions," makes this his main point of attack on Christianity. He shows most conclusively that all man-made religions are founded upon the idea that man has a double or spirit capable of existing apart from the body, and which does so exist after death; and that since Christianity is also based upon this same idea, it must, like all

other religions, be only a humbug and a system of priestcraft.[10]

Now I shall not attempt to prove the Biblical teaching on this subject. I shall have to refer the reader to the numerous tracts and books treating on the matter, and confine myself to three dogmatic statements.

1. No well-informed person will, I think, claim that the Old Testament teaches the natural immortality of the soul, or that the Hebrews of that period believed in it.

2. It is only found in the New Testament by confounding the promise of a resurrection and a future life with the essentially heathen idea of a double that is capable of existing apart from the body.

3. From Justin Martyr down to the present day many of the brightest lights of the church, such as William Tyndale, Milton, and Martin Luther, have denied it *in toto;* and hundreds of thousands to-day, through all the churches, do the same, looking for-

[10] The writer is aware that Mr. Spencer's ghost theory has never been very popular, and that since the publication of Professor Robertson Smith's "Religion of the Semites," and Dr. J. G. Frazer's "Golden Bough," it has been largely discarded among the learned as explaining the origin of religions. This only illustrates the well-known fact that men would far rather give up the idea of a divine revelation, almost rather that of one supreme God, than surrender the self-pleasing, though utterly irrational, doctrine of an immortal soul. Indeed, how many professed Christian writers have made this almost their sole point of attack on Darwinism,—that it destroys this idea of an immortal soul! They seem to forget that it was not exactly the father of truth who is credited with that very ancient declaration: "Ye shall not surely die. . . . Ye shall be as God." R. V.

ward to a future life only as the gift of Christ through a resurrection.

The second vantage ground of philosophy comes, perhaps, from the almost universal neglect to preserve a clear-cut distinction between the obligations of religion and the duties we owe to civil government.

The second vantage ground of philosophy comes, the most "unutterably saddening" pages of history, that Huxley spoke of with such despair;[11] and, despite of the Reformation, despite of Roger Williams, despite of the ringing cries of freedom that were heard in 1776, the whole world seems to be rushing along the same road that the Romans traversed under Constantine in the fourth century; though it would seem that no sane man would wish to land modern society in that wilderness of woe to which he and his bishops conducted the deluded church.

I shall not mention other points; but the clinging to these and other traces of popery or heathenism has entailed habits of acting and reasoning that would long ago have been outgrown and discarded had the church continued along the lines laid down in the sixteenth century.

The way in which these teachings put arguments into the mouth of the agnostic is very evident. Not only are they indefensible from the standpoint of reason, but in defending them the church has been led to adopt views of inspiration and methods of "interpretation" that have developed, logically enough, into the "Higher Criticism," which may be called a hybrid between the religion and the science of the

[11] *Nineteenth Century*, February, 1889.

day, and which, like all other hybrids, is utterly useless in generating anything for the good of the world. But the "Higher Criticism" is fast becoming orthodox, though reverting more and more to the agnostic type, and, together with theistic evolution, occupying, as we have suggested, about the same position that Huxley did a quarter of a century ago. while many of the more devout and pietistic in the churches, like Dr. B. F. Da Costa, and the High Church party of England, are fleeing in the opposite direction into the open arms of that personification of ecclesiasticism, the Roman Catholic Church. These two movements are fast dividing the modern world between them. It is to-day a very exceptional congregation in any of the popular churches that is not working in either the one direction or the other.

But out of them both, and from the still darker regions beyond, the Lord is gathering and training a people who not only do not attempt to apologize or explain away the Bible, but who are continually translating it into every-day life as an object lesson for the world.

Do you ask where this relic of a bygone age is to be found, and under what name? No doubt in your own town or village; doubtless, also, under various names. Her children may be so obscure that you have not considered them worthy of your notice. They are sighing and crying for the abominations that are daily practised about them in the name of their Master, though they may still be clinging, with the love born of fond memories, to associations and institutions that they sadly confess have, *as bodies,*

lost their power to represent their Master and Lord. As they go about their daily work of ministering to the neglected, the fallen, and the lost, you see little about these earnest souls in the great dailies; but, in the language of John the Baptist, "there standeth One among you whom ye know not." The best answer to skepticism is this modern incarnate Christianity; the best protection against ecclesiasticism is a touch of the living faith that will take us out into the highways and byways of the world, proclaiming salvation from sin and its consequences as the simple gift of God; seeking not to save the *state,* but the *individual;* not to purify the politics of the world, but to gather out of the nations a people for His name.

Thus the vitalized Christianity that many believed to be only a thing of the past, only an idealized creation of the historic imagination, is incarnate in the world to-day. It is gathering fresh courage and strength from every advance that is made in the discovery of chemical or physiological law; and from every new though saddening development in the social, political, or international world problems. It is going about the world intent upon the same work as its Master did through Galilee and Jerusalem, and, like Him, pleading with the modern dead formalism: "O Jerusalem, Jerusalem, thou that killest the prophets, and stonest them which are sent unto thee, how often would I have gathered thy children together, even as a hen gathereth her chickens under her wings, and ye would not! Behold, your house is left unto you desolate."

CHAPTER II.

Divine Immanence.

The Bible student will remember that throughout the Hebrew prophets God's creative energy, and His ability to reveal the future, are the usual and almost the entire proofs which He advances of His power, and of His right to demand our worship and obedience.[1] The same thought is largely carried out throughout the whole Bible. Evolution is supposed to more or less explain away the former, while the "Higher Criticism" strikes at the very foundation of the latter. Between them they have so far discredited the Bible in the eyes of the common people that, as the result of their fifty years' work of poking fun at its "nursery yarns," it is practically removed as far from every-day thought and life as it was in the Middle Ages, when the people were unable to get it or to read it. The results are the same in both cases —increasing crime and lawlessness, and once more the triumph of might over right; the proud, exultant shouts of despotisms, civil and ecclesiastical, with their feet upon the prostrate neck of liberty, fondly imagining that this triumph is permanent and eternal. The study of prophecy as a proof of inspiration is beyond my purpose, but in this chapter I shall try to set forth the teachings of the Bible and the book of

[1] See Isaiah 40:25, 26; 41:21, 23, etc.

nature concerning God's relation to His created works.

In taking up the study of what the Bible says on the subject, we are immediately led to the Sabbath. This is one of the two institutions that, according to the Bible, man brought with him from beyond the gates of Paradise, a souvenir of that happy time and of the universal fatherhood of God. Hallowed by the Creator's example and blessing, it was given to the race to point them to God's created works as a reminder of their relation to Him as creatures; and that through the study of nature's works on the blessed rest day, men's minds might be wooed away from the things of time and sense, and directed to the study of the great Creator of all.

Now, I care not to speak of the Sabbath in so far as it is a matter of controversy concerning the day to be observed. The Sabbath as an institution is as broad as Christendom, and as old as religion; and in so far as it has any meaning whatever, it is the sign or reminder of God's power and wisdom to create, and of His power and love to recreate or redeem: the two most fundamental conceptions of all religion. And as the souvenir of these attributes of God, it is of especial importance to-day, when God's position as Creator and His character as revealed in His works are so universally denied or ignored.

It will require no effort to make plain that right ideas concerning God's relation to us and the works of nature lie at the very basis of all morality. Philosophers have in all ages sought for the ultimate basis of morality—why certain things are right and others are wrong. Unbelievers, who deny a personal

Creator, have never been able to find any higher reason for right and wrong than policy, and the good of society. Hence, they have never been able to show any great evil in such things as pride and envy, and others of the darkest passions of the human heart, because they can not be proved to be against the well-being of others. But the idea of creation brings in higher motives, and a higher reason for right and wrong. Because God created us, we are under infinite obligations to worship and obey Him. Moral duties, then, are such as inhere in our relationship to God as creatures. Hence, we see also that the Sabbath, as the sign of our relation to God, is the souvenir or reminder of all moral obligation.

It is particularly of value to-day, when men have so universally banished the Creator from common thought and life, like some great absentee landlord governing his estates by delegated agents, which we call gravity, light, heat, electricity, magnetism, chemical affinity, etc. As Le Conte remarks, the people of our age have practically forgotten the great Creator, and only recognize these delegates, which they have organized into a great scientific polytheism, and seated in the temple of the universe. "These be thy gods, O Israel," they keep telling us, "which brought thee out of the land of Egyptian darkness and ignorance. These be the only gods ye need to fear or study about in any manner." Is it so very far a transition from this to the nature-worship of the ancients? The first glimpses that we get of the Assyrians and the Egyptians in the tablets and monuments which they have left, give us gleams of a previous higher

state of civilization and a purer religion—the afterglow of a time almost forgotten. Had they not, probably, passed through the same stages of religious faith degenerating into materialism, and thence into nature worship, which we have at least seen started in our own age?

The development of any great system of thought like that of modern scientific doubt of the Bible, can only be rightly understood in its historical aspect. Those who are convinced that evolution is really wrong will wish to see how one part of it after another was taught as fast as the world would swallow them, until Darwin and Spencer have completed the process, and almost the whole educated world of our times is sincere in the belief that man has developed from the lower forms of life, through countless ages, to what he is to-day. This full-fledged evolution was not possible without geology—*in fact, geology furnishes nine-tenths of its argument;* and geology, as we shall see in a subsequent chapter, is based on two fundamental *assumptions:*—

1. That the action of the elements has been uniform with the present in character, perhaps in degree, during all past time.

2. That there has been a gradual succession, perhaps development, in the life upon the globe.

But besides these two basic ideas, evolution is also materially dependent upon that other notion that matter is itself endowed with certain properties by means of which it acts, all phenomena being but the outcome of this endowment of matter. Some may, of course, regard this materialism as the result rather

than the assumption of evolution, but it will be necessary to consider this idea first before examining the theory in detail.

Until Kepler and his three famous laws, men had no conception of the orderly arrangements of the solar system. Had he been asked the ultimate cause of these beautiful laws, he could only have replied, "The creative will of God." But then Newton came forward and gave another, a secondary, a physical cause. He showed all these orderly arrangements to be the necessary result of universal gravitation. Here the philosophers had something that they thought banished God from the heavens, at least. We all know that Newton himself was a reverent Christian, as, indeed, have been most of the really great discoverers in nature. But, as Le Conte remarks, his results were eagerly seized upon by Voltaire and his school, encouraging the fashionable skepticism of the eighteenth century which culminated in the blasphemies of the French Revolution But then came chemistry, the microscope, and electricity, with all their associated wonders, until now we see law and order pervading the whole cosmos, from the mote dancing in the sunbeam to the planets rolling on through space in their trackless paths.

Of course, I do not mean to say that we understand all these marvelous laws. But we have got far enough to see *their correlation:* that such things as gravity, electricity, magnetism, light, heat, chemical affinity, etc., are transmutable into one another back and forth without loss, and hence must be only different manifestations of *one universal, omnipresent*

energy. Even vital force is now correlated with the others, so that the amount of vital action in both plants and animals is strictly proportionate to the amount of food used.

Hence, we see that law and order reign supreme, and we are forced to choose between two opposing views. Either the first cause is far more closely connected with nature, and carries on all natural phenomena in a far more direct way, than we are accustomed to think, or else nature operates itself and needs no God whatever. To us moderns there is really no middle position possible.

But the origin of the crystal or of the solar system, as we have already shown in the previous chapter, leads us irresistibly to the conception of an intelligent Designer. I need not repeat the argument here. We then ask, Does He act directly, or has He endowed matter with certain properties? Does He act immediately upon matter, producing all its manifestations, or has He delegated His authority to the molecules by establishing fixed laws for them, and then retiring, like some "absentee landlord"? When we consider simply dead matter, we may not be able to come to a definite conclusion, or might, possibly, incline to the latter view. But when we consider life, and the processes which we call vital, we begin to get clearer ideas. Vital processes are at the very least not interpretable in the terms of physics and chemistry. This is strikingly shown when the organism dies; for then the chemical forces regain their power and reduce the whole to a mere mass of inorganic molecules, the gastric juice eating its way

through the very stomach that secreted it. Here is plainly something that the theory of inherent properties delegated to matter will not explain. No amount of imaginary properties delegated to the molecules will explain the processes of life.[2] The Creator must act directly on all these; but, as we have seen, the amount of vital force in any organism is as strictly proportionate to the amount of food consumed as is the amount of steam generated proportionate to the coal burned beneath the boiler. *The consideration of the first cause in even inanimate nature having without fail led us to the conception of a Creator, the correlation of forces demonstrates the doctrine of divine immanence.* And thus the idea that matter contains in itself the "promise and potency" of all phenomena, as Tyndall says, is seen to be an *assumption,* not a conclusion, of the materialistic scientists—and that in face of the countless evidences of design pervading all nature, eloquent of a Mind as their ultimate cause, even the atom bearing the stamp of a "manufactured article."

But, because there is no third view of nature, and men refuse to see the beauty of this doctrine of the Divine Immanence, looking only at the dreadful nearness of the Deity as revealing too vividly their own wretched shortcoming and spiritual nakedness, they throw away their Bibles and drift upon the cruel rocks

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[2]The leading article in *Nature* for Aug. 1, 1901, opens with a sentence describing the present as a time "when many, if not most, biologists are confessing that they find no helpful analogy between the operations of not-living matter and the adaptive and coordinating activities of the living organism."

of sheer materialism, saying that matter is eternal and has latent in itself all the properties by means of which it acts and works, even the marvelous powers of a Newton or a Kelvin being originally latent in the nebula.

This was the way it acted thirty or forty years ago, in man's first flush of conquest over some of the more marvelous mysteries of nature, and the hope that evolution would ultimately explain them all. But pretty soon the deeper thinkers began to see that not even thus had they dispensed with a real first cause. Even supposing the solar system, ourselves included, started as a nebula and began to contract, what started it? How could its motion *begin* without some outside cause? Or what but a designing Mind ever stamped upon the atoms their marvelous "properties" and their exact similarity to one another, giving them all the character of the manufactured article? Even an out-and-out infidel like Herbert Spencer can, amid the mysteries of nature, find "the one absolute certainty—that he [man] is ever in presence of an infinite and eternal Energy, from which all things proceed."[3] He and a few of his more ardent admirers may declare that science must ever remain agnostic; that we can not know that this eternal energy is endowed with intelligence; but of late years, as we have seen, the current is setting strongly the other way, and we have the modern phenomenon of almost all evolutionists becoming reverent, or even theistic.

We must now see what the Bible says about the re-

[3] "Ecclesiastical Institutions," p. 843, D. Appleton & Co.

lationship of God to nature. Here we shall have no difficulty, for it makes the matter very plain. It very positively recognizes the direct and immediate action of God in every event and phenomenon of nature; and what we used to think only the highly figurative expressions of the Hebrew poets is seen to be *actual science, after all.* According to the Bible, certain properties have not been imparted to matter, and it then left to act through this endowed energy, as even most Christians seem to think is the case. Jehovah has not delegated His authority to the molecules, nor even to the angels, as some theologians would have us believe, though doubtless celestial spirits carry on a thousand lines of ministry in our cosmos of which we have no conception. But who gives them their force and energy? Are they not conditioned, and thus created beings? But to return. Matter, according to the Bible view, possesses no innate properties whatever. It is, of course, all under law; but it *has not been endowed to act in this manner of itself.* Nature testifies of an active personal energy, a vital presence, continually working through matter in certain regular ways; and those few methods which we have been able to define and label we call the laws of nature.[4] Further, nothing, then, is "su-

[4] A striking illustration of the power of God in nature, which, though standing alone in particulars, is but one of a milliard in character and kind, is the stone tomb in Hanover, Germany builded somewhat over a century ago. It was made of large slabs of stone bound together by iron bands, and surmounted by a huge block weighing a ton and a half. On it was this inscription, "*This grave is purchased for eternity; it shall never be opened.*" But a little poplar seed was somehow inclosed in the mold within the

pernatural," but the most uncommon as well as the most common acts are all due to the direct act of God, or to power which He supplies to free, intelligent beings.

In their beautiful hymn, as recorded by Nehemiah, the Levites used to sing, "Thou, even Thou, art Lord alone; Thou hast made heaven, the heaven of heavens, with all their host, the earth, and all things that are therein; . . . and Thou preservest them all."[5] As far as our world is concerned, creation is complete, for "the works were finished from the foundation of the world," and this may be what science means by the "conservation of energy;" but the Creator's living presence is still manifest in "upholding all things by the word of His power."[6] It is not because the machine has once been started, and then left to act through its own inherent energy, that breath and pulse continue their ceaseless rhythm; but

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tomb, and the power of God in the little germ caused it to grow; a slender shoot found a crevice between two of the great stones, and its hidden power in the tender plant broke the iron bands asunder, and moved every stone from its original position. The tree still lives, and waves victorious branches over the rent sepulcher, which man in his impotent and limited knowledge declared should "never be opened." The mighty power of God in a tiny plant that a child could have broken off for a toy whip to lash his wooden horse, laughs to scorn the finished work of man to shut out God from His own creation. And who has not seen the same thing often repeated in the lifting of some large stone by the wayside by the upthrusting of a tiny seed in which was the energy of the divine!

[5] Neh. 9:6.

[6] Heb. 1:3.

every rising breast, every throbbing heart, tells us of the sleepless watchcare of Him "in whom we live, and move, and have our being;" "who is above all, and through all, and in you all."[7] Even the wicked, who use to God's dishonor the powers of life which He has given them, are spoken of in the following thrilling language in Isa. 43:24, which is especially positive and plain: "Thou *hast made Me to serve with thy sins,* thou hast wearied Me with thine iniquities." The Creator is ever at the service of His creatures. He attends us into the depths of sin, that He may bring us back again; He stays with us in all our folly and wrong-doing, and even supplies the power to the tongue that curses Him.

And this because God has created the mind free, and capable of choosing right or wrong. He had all the varied forms of nature passively obedient to Himself; all mere automata; but He wished something more than this: He wished to see something capable of understanding Himself and His motives, and serving Him from love—neither from fear nor force. For this purpose He created intelligent, free personalities, with the implied possibility that they might choose something different from the divine way, and hence introduced this possibility of evil and confusion in His universe for a limited time.

But, leaving the realm of free will, and going back to strictly natural action, we find that the varied phenomena of nature are only the objectified modes of God's thought; the forces of nature are but the different forms of one great all-pervading Energy or

[7] Acts 17:28; Eph. 4:6.

Will; and the laws of nature are the orderly ways in which that Will acts—orderly because He "is not the author of confusion," and invariable because He is perfect, and therefore unchangeable. He does not have to experiment to learn how best to do a thing. The universal character of the "great eternal iron laws," so far from being against this view of the Divine Immanence, is the only thing we should expect. He who sees the end from the beginning is not to be surprised or driven into some violation of His established methods by any emergency that may arise. Spiritual, moral, and physical law are one, after all, and equally certain, universal, and unchangeable. "Till heaven and earth pass, one jot or one tittle shall in nowise pass from the law." Matt. 5:18.

But let not our wise ones dream that they have really mastered the A, B, C of natural law. Only the other day it would have been declared utterly impossible for human vision to see through a two-inch plank. To-day, with our knowledge of the X-rays, thousands can now perform this quondam miracle. A few generations ago the sending of news to England and back again in five minutes would have been counted "supernatural." It looks now as if we might soon do it even without wires. Newton (1642-1727), in speaking of Dan. 12:4, which says that "many shall run to and fro, and knowledge shall be increased," declared, on the strength of it, "I should not wonder if some day men will travel at the rate of fifty miles an hour." Half a century later, when much more was known of the power of steam, Voltaire, though very fond of quoting as against the Bible

Newton's wonderful discoveries in astronomy, brought forward the above remark to show how the study of the prophecies of the Bible had led the English philosopher to make a fool of himself; but which was the fool, the believer or the doubter? As the result of researches with the ultra-violet rays, and with the radiations emitted by radium, even the "ultimate atom" has been shattered into countless fragments; and what becomes of all the elaborate theories or "laws" founded upon its supposed indestructibility?[8] Such things should teach us caution, if not wisdom. We who worship an omnipotent and omniscient and therefore unchangeable God of nature, who declares Himself to be "the same yesterday, to-day, and forever," may well believe with Huxley in the eternal uniformity of natural law; but the ques-

[8] I have not yet seen that these results lend any support to the idea of the real homogeneousness of matter, that is, that all the chemical elements are but allotropic forms of some one primal element. It has been well remarked that by no "select shuffling" of these primordial units can the laws of chemical affinity or the diverse qualities of the resulting combinations be made intelligible to us. However, we know that protoplasm is alike in all the myriad forms of plants and animals, and yet the dictum holds good that each cell comes only from some preexisting cell of its own kind, *omnis cellula e cellula*, as the biologists say. But if matter is really homogeneous, and thus the action of the chemical elements be explained as analogous to this action of the cells, it would seem to me only additional proof of the Divine Immanence, since *nothing but an ever-present Intelligence* could keep substances made up of exact duplicate parts from acting in the same manner under all circumstances—that is, could ever make the chemical elements, such as iron, oxygen, etc., *maintain their individuality* throughout nature, as we know they do, even in the far-distant stars.

tion is, Are any of us competent to define the limits of natural law? For aught we know, the most stupendous of Biblical miracles, say the raising of the dead or the destruction of the ancient world by a cosmic deluge, may be as truly according to natural law as the metamorphosis of an insect or an ordinary cloudburst. For aught we know, the existence of spirit beings all about us—not souls of dead people, but extra-terrestrial beings—may yet be demonstrated by scientific methods, and if we are to judge by the scores of learned works now being issued along this line, we would think it not only possible, but probable. This, be it expressly understood, might not change the general attitude of the world toward real Christianity one hair's breadth. Ingenious critics would still find ways to interpret these facts, or would make them the basis for new speculations and theories. The Jews were not the only people who have required signs and wonders; nor were they alone in disregarding some of the plainest that could possibly be given.

As has been already suggested, we are every now and then coming across things that contradict some law supposed to be universal. These exceptions evidently come under the head of some higher law that we have not yet discovered. It may be all right in ordinary language to speak of the laws of gravitation and chemical affinity; of the properties of light and heat; of electricity, magnetism, and the X-rays—just as even astronomers speak of "sunrise" or "sunset." But the most exact and certain of all our "laws" may be only the crudest rule-of-thumb from a little higher

standpoint. For we know that for almost every law yet discovered in physics or chemistry—the most exact of the sciences—some startling and mysterious exception has also been found, reminding us of the pitiful limits of our knowledge. And every fresh discovery only tends to render more probable or more certain the fact that *all the forces of nature* are but different manifestations of one tireless Energy, whom we Christians love to speak of as our Father.

But before closing this chapter and passing on to the more definite examination of the theory of evolution, we must glance at two or three ordinary phenomena in illustration of what I have been saying.

I wish not to forestall the consideration of the nebular hypothesis; but my first example will be taken from our solar system. With all our marvelous instruments, a real knowledge of our own system, to say nothing of the universe in general, is coming in but slowly. Men long ago noticed so many similar movements in the members of our sun and his family as to indicate that they were evidently of one origin. The sun and his attending globes, both planets and satellites, rotate from west to east, and the planets, with their satellites, revolve about the sun in the same direction. But there are striking exceptions. Among others, the moons of Uranus rotate *from east to west,* and revolve in planes nearly at *right angles* to their planet's orbit. Anything more contrary to the general arrangements of our system, to say nothing of the nebular theory, could not well be imagined on the part of these little fellows; yet it appears to create no confusion, but they all sweep onward in their courses with rhythmic swing, and nightly dis-

course upon the puerility of man's guesses as to their origin, or even the real laws under which they are now running. A boy living near a railway track might, with a little observation, be able to say that at a certain hour an express or a freight would be sure to pass. But every now and then a "special," like one of our "tramp" comets or meteoroids, sweeps past, and shows how little he knows of the plans and arrangements at the head office.

Or let us look at the truly wonderful way in which water acts in its expansion and contraction. It is an all but universal rule in nature that every substance, solid, liquid, or gas, expands with the heat and contracts with its absence, the result being that solids always sink in their own liquids. In a lecture delivered before the Royal Institution in London, as long ago as 1867, Dr. Sterry Hunt used this fact to prove that the ordinary notion of a heated liquid interior for our globe is absolute nonsense. But ice, on the contrary, does not act thus. In the liquid state it (water) contracts with the cold till it reaches 4 degrees C., which is its most condensed state. It then begins to *expand with the cold*,[9] till it reaches

[9] I know that water is not entirely alone in this curious action. Some of the common oils, I believe, act similarly; also iron, antimony, and others among the metals. Silicon also has lately been found to expand almost uniformly up to 1400° C., when it begins to contract with further heat, and reverses the whole process when cooling. Theoretically many substances may do this at extreme temperatures. But has any torturing of the kinetic theory of the molecules been able to wring from it an explanation of these phenomena? It has long been evident that these voluminous theories about atoms, molecules, and ether, are but learned masks for our ignorance of real nature, perhaps I should

zero C., when it becomes solid (ice), and after that follows the usual law of expansion and contraction. But, as Thos. Edison remarked, it is a lucky thing for us poor mortals that ice is thus an exception to the general rule. For if it occupied less space in the solid than in the liquid state, as most substances do, it would sink in water as fast as it formed, with results too awful to contemplate; for our lakes and rivers would freeze solid in the first months of winter, and all the summer could possibly do would be to thaw them out a little on top. The scientist may believe any sort of kinetic theory he likes about it, but it is not difficult for me to believe that, through some higher law, which we may or may not discover in the future, the Lord every winter's day makes in the case of ice an exception to His general rule, so that this world may be inhabited.

Then there is that still unsolved problem of how light is transmitted to us from the sun or the immeasurably distant stars. It was one of many similar problems propounded by the Almighty to the afflicted Job, to show him that human suffering is not by any means the only unexplained phenomenon of nature. "By what way is the light parted (or distributed)?" was the problem presented to the patriarch; and this age-old question is still unsolved. The modern theories of the ether, with its waves or

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rather say makeshifts to avoid the constantly accumulating evidence of the immediate action of Deity in every phenomenon of nature. I understand that in some of the more recent textbooks on chemistry, particularly the German ones, *e. g.*, Oswald's recently issued "Inorganic Chemistry," atoms and molecules are conspicuously absent.

oscillations, may serve to allay the questions of the awakening youthful mind, eager to peep into the mysterious depths of God's creation, but in the last analysis it leaves God's question just as He asked it, and assists us in no way whatever to understand how the phenomena are really produced. By the theory of the ether, the problems are not solved, only postponed. The various phenomena of nature inevitably tend to produce in the unsophisticated mind the thought of an Intelligence behind nature as their immediate and active cause. This, we have seen, is the uniform teaching of the Bible. But scientists will insist on presenting a physical cause. We try their theory, but in this case, at least, instead of one mystery it raises a dozen. How then are we better off than before? The theory that light, radiant heat, gravity, etc., are transmitted by waves or oscillations in the ether, a rare elastic medium pervading all space, even the interior of solid bodies, is what they are pleased to call a "thought-economizing device." This it certainly is, for it serves admirably to keep us from thinking about God as ever present in nature, and from reading the open lessons of His loving care in the daily phenomena of life. Rather let us call it a God-forgetting device, for it seems to me to be only a materialistic substitute for the Spirit or Power of God; and I, for one, am not willing to worship it in His place.

If it served any useful purpose whatever in the scientific business of life, or in the thousand-and-one questions that we daily ask nature in our laboratories by our experiments, it would be different.

But I can not see that it does so. It may have assisted in enabling us to see the rhythmic regularity in which the radiant forces act, but the laws of their acting are readily handled and equated by mathematical formulæ, and so the conception of the ether as a material entity, having *all* the other properties of matter except weight, as Lord Kelvin says, is perfectly useless. I am not aware that it serves any purpose whatever in actual experiment not served equally well by mathematical formulæ. It seems of use only in the vain imaginings of the nebular hypothesis concerning the origin of our world, a point to be dealt with in our next chapter.

I can not present the utter inadequacy of the theory to explain the facts better than in the words of my friend, Dr. L. A. Reed:—

"A necessary part of the ether hypothesis is that the ether is imponderable; i. e., has no weight, for if it had weight, it would fall in the direction of the strongest attracting force, and thus cease to be a uniform medium everywhere present. Being imponderable, or without weight, we are shut up to the conclusion that the ratio between the interspaces of these atoms and the atoms themselves is vastly greater than the like ratio in ordinary, or ponderable, matter. To put it plainly, the atoms of the ether, in order to fit out the theory, are as small with reference to the spaces between them as the sun and earth are compared with the space between them. And between these atoms there is absolutely vacant space. Therefore we have abandoned the first difficulty of how the force passes from the sun

across the interspace to the earth, only to come to a second just like it—how does the force pass from one atom of the ether to another atom through the vacant space which always exists between them?"

After showing how the theory of the construction of the ether is that it is composed of atoms which are never in contact, but with vast gulfs between them, he asks how this force (light or radiant energy) "in passing through the ether, moves from one of these atoms to the other."

"With our ether hypothesis, we are no better off than we were before. We still have to imagine a body as acting where it is not, and in the absence of anything by which its action may be transferred. It makes no difference with the philosophy of the thing whether the exercise of force be on a large or small scale. In the words of Herbert Spencer, "We see . . . that the exercise of force is altogether unintelligible. We can not imagine it except through the instrumentality of something having extension; and yet, when we have assumed this something, we find that the perplexity is not got rid of, but only postponed. We are obliged to conclude that matter, whether ponderable or imponderable, and whether aggregated or in its hypothetical units, acts upon matter through absolutely vacant space; and yet this conclusion is positively unthinkable."[10]

It thus seems perfectly evident that, like many other modern theories, this of the ether is only an effort to postpone from our thoughts the real lessons

[10] "The Scriptural Foundation of Science," pp. 90-95, 1901.

of phenomena, to push the real Cause back one step further,—a last, desperate effort, in face of the constantly accumulating evidence of modern times, that the Great First Cause is far more intimately connected with life and motion than many are willing to believe. Since it only explains the unknown in terms of the unknown, it can only act as a sort of buffer or shield between us and the conception of the Divine Immanence. But if for this dead, materialistic ether we substitute an omnipresent spiritual Intelligence, the phenomena are at least intelligible; while to me they are intelligible in no other way.

"There lives and works
A soul in all things, and that soul is God."

Thus wrote one of the truest of poets over a century ago; and those of us who love the God of nature are only cheered and encouraged in our expectant hope by every modern discovery of science that opens up some fresh vista in the tireless ministrations of Him who not only "called light out of darkness," but who said, "I *am* the light of the world." John 8:12.

But among the wonders of nature, nothing, perhaps, is more remarkable—nothing seems so to usher us into the very workshop of the Creator—as when beneath the microscope we study the action of the cell, with its component protoplasm. Huxley called the latter the "physical basis of life," because it is the same in both plants and animals, and is the basis of all organized existence. Speaking of the protoplasm of plants and animals, we have the following, from good authority:—

"We can not distinguish the two by any chemical or physical tests, and can only say that, taken as a whole, the protoplasm of plants differs from that of animals in its secretions."[11]

This only means that the one does a different work from the other. Yes, and how different! The cells of all life exhibit such a division of labor, and move so rhythmically about their several duties, that, as we watch them under the microscope,—there are five millions of them in one drop of our blood,—we can almost hear the great Captain of nature issuing His orders to them. It is preposterous for any one to tell us that their regular, soldier-like movements are the result of properties residing in their elements; though, even then, the question would come up as before,—Whence these marvelous properties? But look at this speck in one of our fingers; it is building up bone. Another speck, its brother, nay, its exact double, in our brain, is building up brain tissue. Or look at these marvelous little creatures that we call the white blood-corpuscles, as they travel here and there, ferreting out, and, in their self-sacrificing way, swallowing the poisons they find in the various parts of the body. And yet these masses of protoplasm never get confused or do the wrong kind of work, unless, perchance, we violate the laws of our bodies and give them too much to do, loading them down with poisons that they try in frantic haste to eliminate. The various cells may then get confused as to duty and do the wrong kind of work, building up fatty matter in place of muscle or depositing bony

[11] C. E. Bessey, Botany, p. 1.

matter between our joints, when we then say that we have rheumatism. But as long as we work in harmony with God's purposes concerning our being, He guides these little fellows in their wonderful division of labor, and they do not get confused, but always do the part assigned them faithfully and well. These cells have all the appearance of being mere automata beneath the immediate control of some master Mind.[12]

I can not do better than give here the latest thing that has come to hand. In reviewing an elaborate work by Professor His, a well-known biologist of Germany, the editor of *Nature* has occasion to speak of the growth of the embryo, and says:—

"How is it that certain structures arise at certain, usually predestined, times in particular places, and only there, and out of certain cells alone? The simplest answer, and that long made the basis of almost all embryological research, has been that out of three primary layers of cells the embryo and all its parts take their origin. The working out of the details has largely been the labor of embryological investigation of the past fifty years. . . . *We still do not know why a certain cell becomes a gland-cell, another a ganglion-cell; why one cell gives rise to a smooth muscle-fiber, while a neighbor forms voluntary muscle.* . . .

[12] Perhaps even a better example of this would be the "Protista," or lowest forms of life, and intermediate between plants and animals, which, though "utterly destitute of even a rudimentary trace of a cerebral or neurological organ," are yet declared to exhibit "intelligent movements" beneath the microscope. See a learned article by Hermann Wettstein in the *Boston Investigator*, December 14, 1901.

"It would appear to be quite possible that numbers of embryological problems incapable of any fundamental solution may exist. The range of human mental vision may have been reached with the limitations of microscopic lenses. However that may be, it is daily becoming more apparent that *epigenesis with the three layers of the germ furnishes no explanation of developmental phenomena.*"[13]

The Darwinian argument from the embryological development will be taken up in its proper place. It has provided some of the most common arguments, real or imaginary, of such men as Huxley, Spencer, and Haeckel. But it seems to me to furnish one of the strongest proofs of the Divine Immanence, and that perfectly independent of the question whether man has descended from the lower forms of life or not. As my friend, Prof. J. A. L. Derby, very pertinently remarks:—

"The nearer the human embryo approaches that of a rabbit or dog, composed of masses of identical protoplasm similarly arranged, as it undoubtedly is, the clearer the demonstration that only some directing Power behind its growth keeps it from developing into a rabbit or dog instead of into a child, and the more clearly we understand what God meant when He commanded each living form to produce 'after his kind.'"

According to Darwin's own theory of "pangenesis," representative gemmules from all the various tissues of the parent's body are present in the germ cells, and therefore in the offspring develop into

[13] *Nature*, May 23, 1901, pp. 75, 76 (Italics mine).

corresponding tissues. This looks plausible enough at first; but the facts of atavism, the transmission of well-developed arms or legs that the parent may have lost years ago, as well as the now generally acknowledged fact that acquired characteristics are *not* transmitted, have all so told against this theory that it would not be putting the case too strongly to say that most biologists have abandoned it. But of the numerous theories substituted, none that I know of seem willing to face the fact that the component parts of germ-cells may be exactly similar to one another *in reality,* and that only what I may call a continuity of germ responsibility serves to insure the reproduction of the structural traits of the parent. If both you and I meet a starving man on the street, it may not make a particle of difference, as far as the *kind of food* goes, which of us gives him a meal at the nearest restaurant, or which refuses. But our individual actions decide as to which gets his thanks, and whose moral or religious ideas he will respect, perhaps imitate. Or, on the other hand, it may make no difference in the *pain of the blow* which of us gives him a kick or which does not; but it would certainly result in deciding as to which of us is to be followed by his imprecations, and about which of us he can never hereafter believe anything good. Just so it seems to me that God may have ordained that, though different germ-cells be *all structurally alike,* each shall develop only into structures and characters similar to its parents. Surely this is infinitely more reasonable than Haeckel's idea that, like men in a community, the various cells of the embryo enter into

a kind of mutual-benefit arrangement, and fix on a division of labor among themselves for the good of the whole, which seems little short of deifying the atoms and molecules. Another scientist, who ought surely to have the best light that is available to-day from the standpoint of the philosophy founded by his father, remarks of similar phenomena that individuals develop as they do because they "are the successful ones who have inherited from successful ancestors"[14] the power of developing in this manner, which, of course, is no explanation at all.

Let me here give a quotation from Le Conte, which, of course, is only an imaginary case, for we can not watch the embryo develop under our eyes; but it may be taken as a truthful statement of the facts as gleaned through all these years, from Von Baer to the present time:—

"Suppose, then, we have one thousand eggs, representing all the different departments, classes, orders, families, etc., of animals. Many of these may doubtless be identified by form or size, or some other superficial character, as the eggs of this or that animal, *but structurally they are all alike.* At first, *i. e.,* as germ-cells, they all represent the *earliest* (?) *condition* of life on the earth, and the *lowest forms* of life *now.* If we now watch their development, we find that some remain in this first condition without further change. These we set aside. They are *protozoa.* The remainder continue to develop, but at first it would be impossible to say to which of the

[14]Francis Darwin, before the British Association, Glasgow, Sept. 16, 1901, and reported in *Nature*, Nov. 14, 1901, p. 43.

several departments or primary groups they each belonged. Then, by cell-multiplication, the original single cell becomes a cell-aggregate. It may be compared now to a compound protozoan, such as foraminifera. The cell-aggregate then differentiates into layers, and forms, in fact, a two-layered sack, called a gastrula. This is the structure of some of the lowest cœlentrates, such as the hydra. Thus far all seem to go together. But now, for the first time, the primary groups are declared. If it be a vertebrate, for example, the most fundamental characters,—the cerebro-spinal axis, the vertebral column, and the double cavity, neural and visceral,—are outlined. Suppose, now, we set aside all other departments, and fix our attention on the vertebrates. At first we could not tell which were mammals, birds, reptiles, or fishes; but after a while the classes are declared. We now set aside all other classes and watch the mammals. After a while the order declares itself. We select the ungulates. Then the family is declared, say the *Equidae;* then the genus, *Equus;* and, lastly, the species, *Caballus.*"[15]

Surely Professor Derby spoke truly when he said that such things give unmistakable evidence of an ever-present Intelligence; and that the nearer the human embryo approaches that of one of the lower animals, the clearer is the demonstration that only some directing Power behind its growth keeps it from developing into one of these forms instead of into a child.

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[15] "Evolution and Religious Thought," pp. 176, 177. I give italics as I find them.

Thus, then, I may conclude my argument. I have not intended to rely upon any of the mere mysteries of nature, *per se,* as furnishing any proof of the conscious, intelligent character of the Force present behind phenomena, though to me personally some of the problems connected with heat and light are of such a nature that they seem intelligible in no other way. However, design is manifest through inorganic nature in a thousand ways, and, as Dugald Stewart has said, "Every combination of means to an end implies intelligence." But the marvelous action of the cells or component units of all organisms is of a much higher nature, for they have all the seeming of mere automata under the direct control of an intelligent, purpose-filled Mind, which, as the correlation of forces teaches us, must be identical with the energy pervading all nature, whose work in various ways we know as light, heat, gravity, electricity, etc. Or, let me try to sum up the whole thing in a single sentence: Nature in a thousand ways gives us unmistakable evidences of design, and therefore of an Intelligent Power behind phenomena; moreover, the protoplasmic units of the developing or mature organism have all the appearance of being mere automata beneath the immediate action of this Intelligent Power; but the vital power or force working in every organism being *capable of exact correlation with all other forces,* such as heat, light, gravity, electricity, etc., the immanence or immediate action of this Power in *all* the phenomena of nature is demonstrated beyond a doubt.

In the modern light of the marvelous construction

of our universe, with such countless evidences of design and of adaptation of means to an end, let no one tell us that such things are not the direct work of a supreme Mind, but that all these wonderful mutual adaptations are merely the properties of matter! Such a notion makes too perpetual a draft on our credulity, and the idea of the direct action of a supreme, intelligent Will is too much in the nature of a simplifying thought for us to abandon the beautiful view presented in the Sacred Scriptures: "These wait all upon Thee. . . . That Thou givest them they gather; Thou openest Thine hand, they are filled with good." From protoplasm to man, from atom to starry system and illimitable space, all things are moment by moment dependent upon the sleepless energy of the great Creator of all.

True, the natural human heart can not bear this thought. It brings us too close beneath His gaze in our spiritual shortcoming and nakedness. Sinful men will not live and work thus beneath the very eye of the Infinite. And so they draw the veil of their scientific materialism over their hearts to hide them from His all-searching gaze. In ancient times they did the same; and the marvelous knowledge of nature which they had in the morning of our world degenerated into the nature worship which we find at the first dawn of secular history. It is only the Christian who dares face the fact that the common forces spoken of as light, heat, gravity, etc., are not the real causes of phenomena. He alone delights to look upon the unveiled majesty of the Creator in His ceaseless service of love, perpetually ministering to the

needs and even the whims of His creatures; and if it reminds the believer of his own spiritual nakedness and insular selfishness, it serves also to perpetually remind him that it is only the bestowed righteousness of Christ that can clothe the ashamed soul beneath the eye of Infinite Purity and Unselfish Love. But this is amply sufficient. That garment was woven in the loom of heaven, beneath the eye of the Master of design, and it will always avail the shivering sinner if he will take it now, while it is freely offered, like all the other gifts of nature's God, "without money and without price."

CHAPTER III.

Scientific World-Building.

Our objections to the now fashionable doctrine of evolution, especially that last division of the subject, or the last stage in the process, called Darwinism, are mainly philosophical and moral. From these standpoints we shall endeavor to show, in a subsequent chapter, that the doctrine of man's development from the lower animal forms through untold ages of survival of the fittest is contrary alike to the fatherhood of God and man's moral accountability for sin; and that the idea that a ceaseless struggle for existence and survival at the expense of others is the normal and not an abnormal condition of society and creation in general, has, in the words of the late Sir William Dawson, "stimulated to an intense degree that popular unrest so natural to an age discontented with its lot, . . . and which threatens to overthrow the whole fabric of society as at present constituted."[1] The supreme test of a doctrine ought to be its effect on life and action. Weighed in this balance, the Darwinian origin of man is certainly most sadly wanting.

But in considering the evolution theory as a whole—"from mud to mind," from the nebula to the Sermon on the Mount, for it is just this—our first

[1] "Modern Ideas of Evolution," 1891, p. 12.

work must be with the scientific aspects of its first stages. Quite a popular writer on the subject has told us: "If the theory of Evolution be not universal, the germs of decay are in it."[2] Hence, we shall take it up in historical order and give an outline of some ordinary familiar facts which show that the theory is, to say the least, not proven. Or, as all our ideas of origins must, from the scientific standpoint, rest upon *rational probabilities, not mathematical demonstration,* we shall undertake to show that the whole scheme of evolution, from beginning to end, is in the highest degree improbable and absurd.

Every modern scheme of evolution starts, of course, with matter distributed more or less evenly through space, and then, by contraction and condensation, endeavors to shape our world and solar system from this nebulous cloud of diffused matter. But the theory is as nebulous and hazy as the materials it deals with, so that we can not properly speak of the nebular theory unless we qualify it with some proper name, as that of Kant, Laplace, Spencer, or Lockyer, as the case may be. Each one of these, with other less famous names that might be mentioned, has seen some of the absurdities of his predecessors, but could not resist the temptation to try his hand at world-building, and thus establish the first stage in the process of universal evolution.

There being so many forms of the theory, I shall endeavor to confine myself to objections that have weight against them all; for, though so diverse in

[2] "The Story of Creation," p. 9, by Prof. Edw. Clodd, F. R. S.

methods and processes, they have many points in common. They all start with diffused matter, begin to contract it by gravitation, develop a rotary motion in the parts by the collision of the particles with one another, and all end with our world a cooling globe, with its interior still a heated, perhaps liquid, mass. Accordingly our consideration of the subject must be largely confined to those points of the process that are more or less common to the various forms of the theory.

Of course, none of the world-builders mentioned above ever tried to account for the origin of their diffused nebulous cloud. But diffused matter as much needs accounting for as agglomerated matter. And especially if, in that far-off time, its particles contained in themselves, as Tyndall says, "the promise and potency of all terrestrial life," what gave to matter these marvelous powers of orderly arrangement, and capacities for the beautiful constructions and wonderful adaptations that we everywhere behold? How can we think of *law* save as the work of *mind?* How think of the *plan* of our universe as an invention except as the work of a Supreme Intellect, infinite and eternal? We are degrading our mental powers by prostituting them to any such pantheistic adoration of atoms and molecules.[3]

[3] It ought to be evident to all that we must either accept the doctrine of the Divine Immanence in all its fulness or adopt the following language of Professor Haeckel, in his latest work, "The Riddle of the Universe:" "Matter and ether are not dead, and only moved by extrinsic force; but they are endowed with sensation and will; they experience an inclination for condensation, a dislike for strain; they strive after the one, and struggle against

But even if they have their cloud of diffused matter ready made, it must be strictly limited in extent, or else it would never set up attraction toward a center, for there would be no center. An infinite universe full of matter would never aggregate. But how came this part of space to be full and other parts empty? Also, if matter is eternal, as they all declare, it only makes the case worse for them. If matter be eternal, *how came it to be diffused through space, if its natural tendency is to come together* into bodies like the planets or the sun—if the homogeneous is eternally unstable, as Spencer says, and always tending toward the heterogeneous? What reason can we imagine for the molecules being primarily separate? Or, after staying in this diffused state, asleep from all eternity, what made them wake up and start on their never-ending journey toward one another? Were they getting lonesome? Did one little fellow start first and all the others follow like sheep, or did they all wake up and start together at the same time? I do not like to appear trivial, but questions like these show the extreme fanciful nature of their theories.

Of course, they do not attempt to account for either the origin of matter or the beginnings of motion, any more than they now pretend to account for life since Pasteur gave spontaneous generation its quietus. They tell us that such things are unknown

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the other."—*Page 380.* But if this be not pantheism, or the deification of matter, what is it? No wonder the president of the British Association, before the recent meeting at Glasgow, speaks of it as an "unproved assertion."

and unknowable. We can not even tell the real reason for such a universal thing as gravitation. We can only describe how it acts. Science never conducts us to primary causes; in thousands of cases, not even to secondary ones. But this, as I have already shown, only shows the limits of the scientific method, for *science as such only deals with phenomena and the things of time and sense,* and thus can never to any philosophic mind demonstrate the materialistic notion of the universe. The question of real origins and ultimate causes belongs to philosophy and not to science, and *philosophy revolts at the idea of matter being the real cause of anything,* and assures us that there is an infinite Mind as the first cause of all.

Out of the numerous forms of the nebular theory some, like La Place, start the universe hot—a vast fire-mist—and condense it in the cooling; some, like Spencer, start it cold and condense it in the heating, or, perhaps I should say, heat it in the condensing. But surely this last error is worse than the first, for it is contrary to all analogy and experience. No such process as the condensing of solid bodies out of flaming gases has ever been actually seen by man in either heaven or earth. As one writer tersely expresses it: "Nobody ever expects to see the burning of gas result in coal; the process of gas-making is not one of condensation, but the reverse,—the conversion of solid bodies into gases. We know of no other way in which a continuous flame can be produced than by the combustion of some solid or liquid fuel."[4]

[4] Robert Patterson, "Errors of Evolution," p. 30.

Even the combustion of hydrogen is not a process of condensation, but of diffusion. Nor has the spectroscope ever shown us any vaporized mundane elements except where they are now under the action of intense heat. It is hard enough for us to liquefy such substances as iron, calcium, and silicon, but in the intense heat of the sun they exist as vapor or gas. In fact, we know of no force in nature capable of maintaining the water, metals, and other solids of our globe in the form of vapor save intense heat. Even the gases of our atmosphere have been converted into solids by cold, so that the idea of a nebulous fluid at the absolute zero is a gross contradiction of terms. It seems even more absurd than La Place's fire-mist.

But the homogeneousness[5] of the original matter is equally absurd, though absolutely essential to their theory. Has the chemistry of the heavens tended in any way to encourage the idea that the elements as we know them are but allotropic forms of one primal element? Has the spectroscope ever shown us any such homogeneous matter in space? They

[5] Of course, I am here speaking only of matter from the standpoint of natural science—not philosophy. The latter may teach us, as already intimated, that God did not create what we call matter from absolutely nothing, but from preexisting spiritual substance. In this sense, then, matter did have a "homogeneous" origin. But such speculation is far beyond natural science, and beyond my purpose here. If science has demonstrated anything at all, it is that such elements as iron, oxygen, and carbon *are material entities, and maintain their individuality intact throughout our whole cosmos, even in the far-distant stars and nebulae.* Hence natural science knows nothing of their hypothetical homogeneous matter.

have found numerous examples of diffused gaseous matter, glowing with intense heat, but always composed of some of our own mundane elements, such as nitrogen, hydrogen, barium, iron, etc. When captured, the rays of light, like the messengers of God that they really are, always tell the truth. And no sun, or star, or nebulous matter has ever yet been found containing only one simple, uncompounded element; while these existing masses of nebulous matter, like the persistent types of the geologists, are without explanation if matter has since all eternity been condensing into systems or worlds.

But the original oneness or homogeneousness of matter lies at the very foundation of the modern materialistic evolution of Haeckel, Spencer, and their followers, though I believe the theistic evolutionists do not bother their heads about the matter. Of course, common sense refuses to believe in the eternity of compound or combined substances. We instinctively say that the elements must precede the combination. But of the seventy odd elements that compose our cosmos, no two are alike. Each has "properties" entirely different from every other, and utterly antagonistic to many others. Many of them are so prone to combine that we can not keep them separate with all our skill. Chemists have hard work to keep any gas absolutely pure for half an hour in any vessel they can devise. But why should we be asked to believe in a primal condition of matter of which we are not only without example in nature, but which we can not even conceive to be possible?—Only because of the determination to dispense as

much as possible with the Creator and the great Organizer and Combiner of these elements into the world as we find it.

But suppose we give these world-builders a great nebulous mass of homogeneous matter—composed of only one element—what could they do with it according to the laws of physics and chemistry? What could they produce from such a mass?—Certainly nothing but physical or mechanical change—no chemical or organic change whatever. The law of gravitation might be persuaded to set up contraction for them, and, if assisted by polarity, might even produce heat or electricity, though contraction and heat are exact opposites; but not even thus can we imagine any chemical action or reaction whatever, to say nothing of the spontaneous generation of life. They might work it up into any shape they liked, into globes, cubes, or flat discs; they might even set up convoluted vortex rings throughout the whole mass; but by no other process than that of adding another and different substance to it, could they, by any law of physics or chemistry, produce from it a single compound substance. They could never get out of it what was not in it. No action or reaction is possible between the atoms of the same substance or even the allotropic forms of the same substance; and no chemical change could possibly occur until some other element was introduced from the outside.

But, as James Clerk Maxwell eloquently declares:—

"No theory of evolution can be formed to account for the similarity of molecules [atoms], for evolution

necessarily implies continuous change, and the molecule is incapable of growth or decay, of generation or destruction. None of the processes of nature, since the time when nature began, have produced the slightest difference in the properties of any molecule. We are therefore unable to ascribe either the existence of the molecules or the identity of their properties to the operation of any of the causes which we call natural. On the other hand, the exact equality of each molecule to all others of the same kind gives it, as Sir John Herschel has well said, the essential character of a *manufactured article,* and precludes the idea of its being eternal and self-existent. . . .

"But though in the course of ages catastrophies have occurred, and may yet occur, in the heavens, though ancient systems may be dissolved and new systems evolved out of their ruins, the molecules [atoms] out of which these systems are built—the foundation stones of the material universe—remain unbroken and unworn. They continue this day as they were created, perfect in number, and measure, and weight, and from the ineffaceable character impressed on them we may learn that those aspirations after accuracy in measurement, truth in statement, and justice in action, which we reckon among our noblest attributes as men, are ours because they are essentially constituents of the image of Him who in the beginning created not only the heaven and the earth, but the materials of which heaven and earth consist."[6]

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[6] Address before the British Association, August, 1873.

We shall now endeavor to give some of the minor puzzles and inconsistencies of the theory in the mechanical arrangements of our solar system.

But let us first have a definition of the nebular theory as generally understood. I quote from "Popular Astronomy," by Camille Flammarion, translated by J. E. Gore, and published by D. Appleton & Co.:—

"Well, the most probable hypothesis, the most scientific theory, is that which represents the sun as a condensed nebula. This carries us back to an unknown epoch, when this nebula occupied the present place of the solar system, and even more, an immense lens-shaped mass of gas turning slowly on itself, and having its exterior circumference in the zone which makes the orbit of Neptune, or further still, for Neptune does not form the true limit of the system. Let us imagine, then, an immense gaseous mass placed in space. Attraction is a force inherent in every atom of matter. The denser portion of this mass will insensibly attract toward it the other parts, and, in the slow fall of the more distant molecules toward this more attractive region, a general motion is produced, incompletely directed toward this center, and soon involving the whole mass in the same motion of rotation."

He then proceeds: "The laws of mechanics show that, as this gaseous mass condenses and shrinks, the motion of the rotation of the nebula *is accelerated.* In turning, it becomes flattened at the poles, and gradually takes the form of an immense, lens-shaped mass of gas. It has begun to turn so quickly as to develop, at the exterior circumference, a centrifugal

force superior to the general attraction of the mass, as when we whirl a sling; the inevitable consequence of this excess is a rupture of the equilibrium, which detaches an external ring. This gaseous ring will continue to rotate in the same time and with the same velocity; but the nebulous matter will be henceforth detached, and will continue to undergo *progressive condensation* and *acceleration of motion.* The same feat will be reproduced as often as the velocity of rotation surpasses that by which the centrifugal force remains inferior to the attraction. It may have happened, also, that secondary centers of condensation would be formed, even in the interior of the nebula."[7]

Let us now in imagination take our stand at some point in space where we can watch this great mother nebula as it gives birth to the planet Neptune, its first-born. As this planet is now 2,790,000,000 miles from our present sun, the great mother must at this time have been considerably over 5,000,000,000 miles in diameter. But, contrary to mammalian parturition, this outer ring must have opened this 5,000,000,000 miles for the parent body to squeeze through. It is difficult to see how the particles of the young planet could get together again after being spread out over this immense area. One would think that the parental affection of gravitation would

[7] Page 72, *et seq.* (Italics supplied). For many of the arguments here given in refutation of this statement of the nebular theory, I am indebted to a suggestive work, "The Earth and the World, How Formed?" By A. G. Jennings, Flemming H. Revell Co., 1900.

have a thousand times more power to draw these detached pieces of a ring back again to itself than these scattered fragments of the new-born ring would have of getting together so as to form one compact body.

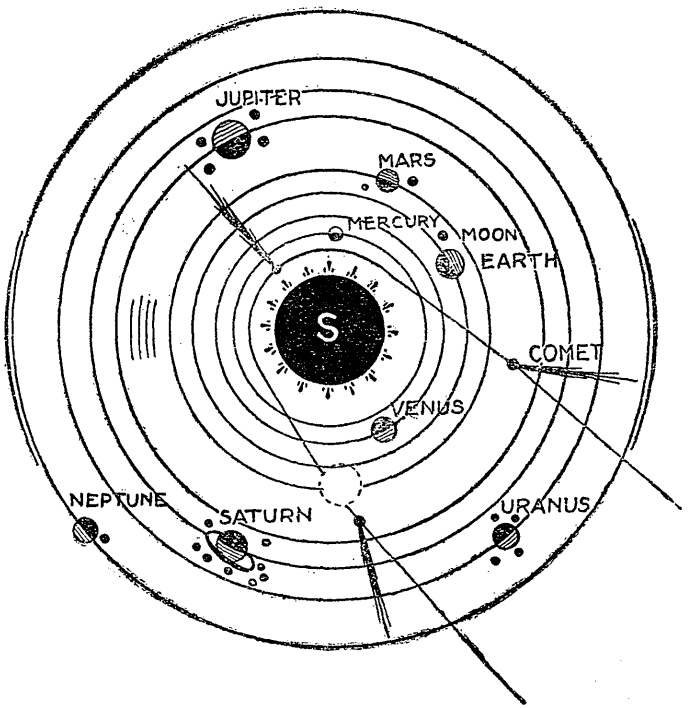

DIAGRAM OF OUR SOLAR SYSTEM.

But then, I suppose, the instincts of a new-born planet must be equally marvelous with those of terrestrial animals.

After untold ages of watching and waiting, while

the rotating mass was condensing and contracting down to the limits of the present orbit of Uranus, which is about one billion miles nearer the sun than Neptune, this second of the planets is delivered. We should expect, after this enormous shrinkage of over two billion miles in diameter, that Uranus ought to be a body vastly greater in size than it is. Astronomers, however, have long searched in vain for any other planet between it and Neptune.

But it would never do to pass by the very schismatic behavior of this planet's four little satellites, or moons—grandchildren of the old mother nebula. As everybody knows, the planets all revolve about the sun from west to east, and rotate on their axes in the same general direction. These four little fellows ought also to revolve about their parent in this direction; but, through some strange perversion of heredity, their rotation as we now find it is *from east to west,* while they revolve in planes nearly at *right angles* to their parent's orbit. Why they have not long since been disinherited for contempt of parental authority, the evolutionists have not informed us. But there they are, and there they have been, acting as if there were no such thing as a nebular theory to which they ought to conform.

Then comes Saturn with its triple rings, the wonder of the heavens. As Saturn is about 900,000,000 miles nearer the sun than Uranus, the mother nebula having contracted 1,800,000,000 miles in diameter since the birth of the last-named planet, we should confidently expect, in this case at least, a daughter (or son) of some proportionate size. On the con-

trary, its total mass is only about equal to that of our earth, while its lack of density, and the wonderful stability of its encircling rings, are equally puzzles for the theorists.

But the next to be born of this heavenly family is indeed a child worthy of its parent—the mighty Jupiter, prince of the planets, in volume about 1,400 times that of our earth, or more than that of all the other planets combined. But, as it is only about 400,000,000 miles from Saturn, we can not understand why this comparatively small contraction should have produced a planet so much larger than the three preceding planets taken together, in the formation of which the nebula had contracted about 4,000,000,000 miles.

Its great speed of rotation also—rotating in less than 10 hours—gives its equator a velocity of 27,000 miles an hour, or 27 times faster than our earth, and *almost 7 times faster than the sun,* the mother of us all. We must now call to mind that as Neptune, the first-born of the system, revolves about the sun in 165 of our years, this must have been the original rotary motion of the nebula, which would, however, at that time give its circumference a velocity of about 11,000 miles per hour. But if, while rotating at this rate, it threw off the mass of matter which we now call the planet Neptune, why does not Jupiter, going 27,000 miles an hour at its circumference, or nearly *two and a half times as fast,* be even now throwing off rings at a rapid rate? It must have infinitely less gravitational force to keep its equator in subjection, though the force of hereditary example alone,

one would think, would make the task an extremely difficult one.

After another vast break and enormous contraction, during which a few hundred pieces, called asteroids, were given off, which, however, never seem to have had the slightest notion of combining together into one body, another planet, Mars,[8] is born of the now exhausted mother; but it is only a dwarf, being the smallest of the system, except Mercury.

Then came our earth; then Venus and Mercury, the two interior planets. One curious thing about Venus and Mercury is that, as some astronomers declare, they both rotate on their axes only once while revolving about the sun, thus always presenting the same face to it. How they could ever have contracted this strange habit, when all their elders had set them such a different example, it is hard to tell. Surely they have not been doing anything to be ashamed of that they should continue to look their mother in the eye in this suspicious manner, though, if they have anything in common with the ancient Greek deities whose names they bear, we might well imagine sufficient reason. At any rate, how came the law governing centrifugal force to allow of Mercury, the last of the planets, being also the most *dense* of all, some say as heavy as lead, or

[8] The smaller of the two satellites of Mars, which were discovered by Professor Hall in 1877, presents another problem for the theorizers. It is, I believe, only about 6 or 7 miles in diameter, and distant from its planet about 4,000 miles (5,800, some say), but it flies around the latter *more than three times while the planet is rotating once.*

about twice as dense as any other body in our solar system?[9]

Last of all we have the sun, which, according to the theory, is only the remains of the once mighty nebula, the "lank and all o'er-teemed" mother of us all. But how is it that it has so little density? If Mercury, the last[10] planet given off, is a fair indication of its density or of its speed of rotation at that time when the rotating mass was 70,000,000 miles in diameter, with its rim passing through space 2,500,000 miles per day, or 100,000 miles per hour, which is the present size of Mercury's orbit and its rate along it, why should the sun be, in weight, *light* out of all proportion even after contracting from 70,000,000 miles down to less than 900,000? Why, moreover, should it have such a slow rotary motion, taking about twenty-five and one-fourth days to rotate on its axis, thus giving its equator a velocity of only about 4,000 miles per hour, while Jupiter and Saturn move through space about six times as fast, and Mercury, the last of all, twenty-five times as fast? According to the theory, the rotary motion *increased* as the mass contracted, and hence we should expect to find the sun, the last result of this contraction, to be now turning at a frightful rate of speed, and to be, above all its

[9] That is, according to the laws relating to revolving bodies, "the heaviest parts of the material, if at liberty to change position, gravitate toward the *outer edge* of the revolving body." Hence, according to the theory, the substances composing Mercury, whatever they are, should have been thrown off first, not last.

[10] I have omitted Vulcan, for, as Professor Newcomb says, "Its existence is not generally accepted by astronomers."

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children, flattened at its poles into almost the shape of a thin disc. On the contrary, its motion is comparatively slow, and astronomers tell us that its polar and equatorial diameters are so nearly equal that absolutely no difference between them can be perceived, in short, that it is the most perfect sphere in the whole system.

Some few years ago Mr. Grant Allen published a book entitled "Force and Energy," which professed to give a detailed statement of the whole philosophy of world-making. Many of the ideas had, of course, been advanced before, and are still held by some of the leading physicists of England. But in many respects it was quite original, and especially in professing to give an exact and circumstantial account of the whole process, though, to do the author justice, Mr. Allen himself does not seem to have taken it very seriously. It has, however, been taken up and incorporated by Prof. Edward Clodd in his popular account of Evolution,[11] which has had a wide circulation.

In these books the reader will find it assumed that the ether—of which neither the authors, nor anybody else, know anything at all, not even its existence—is "relatively imponderable," though "capable of receiving and imparting energy from or to the ponderable units of matter."[12]

In this respect the ether is very like matter. Indeed, they acknowledge it to be a kind of matter:

[11] "The Story of Creation, a Plain Account of Evolution," by Prof. Edw. Clodd, F. R. S. I use the American reprint by the Humboldt Library.

[12] "Force and Energy," p. 30.

"Matter . . . is also present throughout space in the imponderable state known as ether."[13]

This assumption is made because of that magnificent law, discovered long since the time of La Place, that power can neither be created nor destroyed. Hence, as their nebula condensed, they must have something to which the enormous amount of resulting radiant energy (heat, etc.) can be transferred, but not lost. But what right have they to assume that the ether, which they have confessed is a kind of matter, is subject to separative power (energy), but not to aggregative power or attraction? Mr. Allen says that bodies, molecules, atoms, "electric units," and I suppose we must now say "cathode ray units" also —are susceptible of both force and energy, which terms he uses in the somewhat peculiar sense of aggregative and separative power. What common sense is there in assuming that the ether is not subject to weight or gravity, though they admit it has *all* the other properties of matter?[14] Is it probable? Is it even moderately reasonable?

We have already shown in the previous chapter that this idea of the ether was invented many years ago, professedly to help us in understanding how light and radiant energy can be transmitted through space, where ordinary matter, such as we know it, certainly does not exist. But we have also shown that this hypothetical ether is acknowledged by even Herbert Spencer to be of no service whatever in helping us

[13] "Story of Creation," p. 119.

[14] See the address of Lord Kelvin before the British Association at Glasgow, reported in *Nature*, October 24, 1901, pp. 626-629.

to understand this problem, since it does not explain how the waves of light pass from one atom of the ether to another atom; for it is a necessary part of the hypothesis that the atoms of the ether are never in contact, but immeasurably more distant from one another than are the particles of ordinary matter. We have in addition shown that this idea of the ether is equally useless, even as an hypothesis, in the ordinary work of science, and that it is of service only in these speculations concerning world-building. But I really know not how to answer these speculations, when even the very facts on which they rely to make good their theory seem to have been expressly invented for the occasion.

The theory is not helped by asking hard questions about the relative distribution of matter through space, or what becomes of the radiant energy that we may say is "lost" in space. We are not in the world-making business. We do not feel obliged to deal with matters so beyond the limits of reason and revelation. The burden of proof rests with them. They have entered that line, therefore let them make their theory intelligible and free from manifest absurdities before investing it with the sacred name of science.

But what would happen if all matter, the ether included, is equally subject to the laws of separation and attraction? Whatever else might be the result, it seems clear that attraction would never so get the upper hand of separative energy; that is, the nebula would not even begin to aggregate together; or, even if aggregated into masses as the universe is now, it

would rapidly tend to become homogeneous throughout, force and energy, in Mr. Allen's peculiar sense of the words, exactly balancing each other. The molecules of the original nebula would certainly continue to maintain a masterly inactivity.

But there is another way in which the law of the conservation of energy is against the theory. The present order of things certainly had a beginning, and must as surely have an end. The whole universe, solar system and all the other systems through limitless space, must, according to their speculations, become one cold, lifeless mass, with all its energy dissipated; or, as they seem to prefer, if matter is eternal, a new order of things will be instituted, and the *same dismal farce gone through,* sin and misery ever the most prominent characteristic.

"Ceaseless redistribution of matter involves the beginning of another state of things."[15]

But this is nothing but a huge perpetual-motion machine, that forever keeps itself running, a conception so contrary to the first principles of mechanics as not to need any refutation. Their great chief, Mr. Herbert Spencer, tells us that the development theory "works after a method quite different from that of human mechanics." I should think so. But what then becomes of the "observed uniformity of nature," on which they wish us to rely? There is certainly nothing like a perpetual-motion machine known to the mind of man. No power in a machine can keep it running even after it has been started. They and not we are the ones who have forsaken the

[15] "Story of Creation," p. 121.

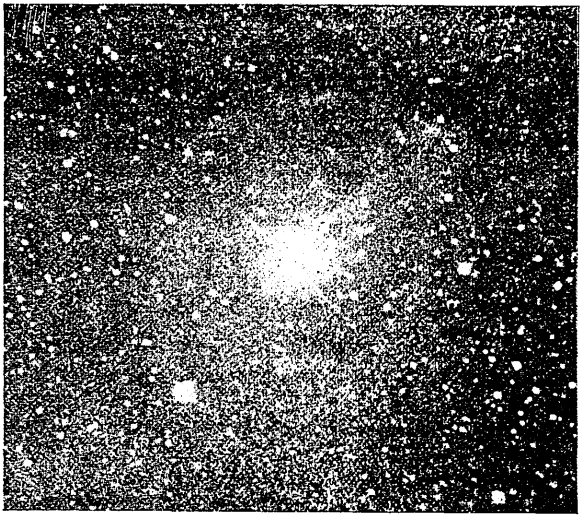
"solid ground of nature," to which the mind must trust "which builds for aye." So much for the latest edition (so far as I am aware) of the nebular theory, which has been palmed off upon the public in the name of science.

But, to return to our general view of the theory, I shall only give one more of the many other problems that its advocates have to solve. The two elements, oxygen and nitrogen, which constitute by far the largest part of our earth and its surrounding envelopes of air and water, are both conspicuously absent from the spectrum of the sun. Or, according to the conundrum which Lord Salisbury, then president of the British Association for the Advancement of Science, propounded at the sixty-fourth annual meeting of that body:—

"If the earth is a detached bit, whirled off the mass of the sun, how comes it that, in leaving him, we cleaned him out so completely of his nitrogen and oxygen that not a trace of these gases remains to be discovered, even by the sensitive vision of the spectroscope?"

Every comet, too, that shows its nose inside our solar system laughs at the nebular hypothesis; and now and then, for a change, away outside our system, we have fixed stars blazing up suddenly and disappearing to the naked eye, like the late Nova[16] in

[16] More recently this interesting star has put in a thundering rejoinder to the arguments of the nebulists by positively reversing their theory right before their eyes, *i. e.*, changing from an ordinary star into a true nebula. And instead of requiring millions of ages for the work, the change only occupied a few weeks. It faces the scientific world as a tremendous mystery. Prof.



Nebulosity about Nova Persei, Sept. 20, 1901. From a photograph by Prof. G. W. Ritchey with the two-foot reflecting telescope of the Yerkes Observatory. Exposure three hours fifty minutes.

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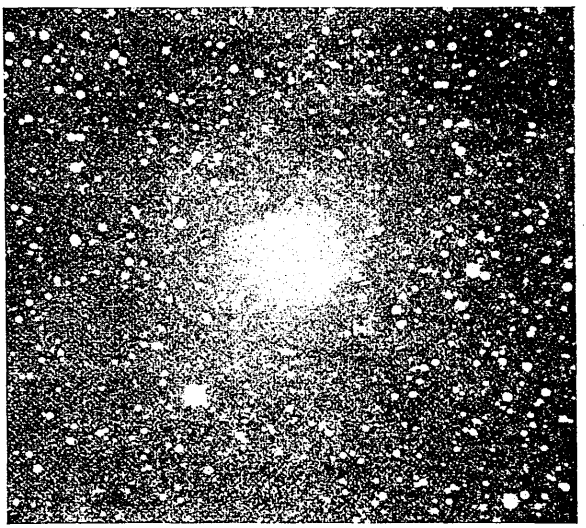

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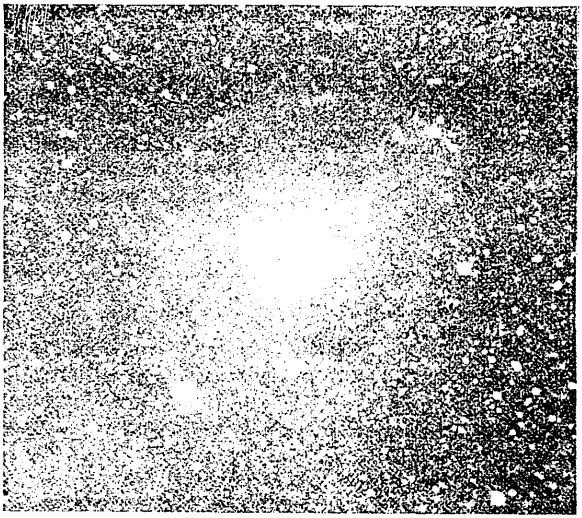

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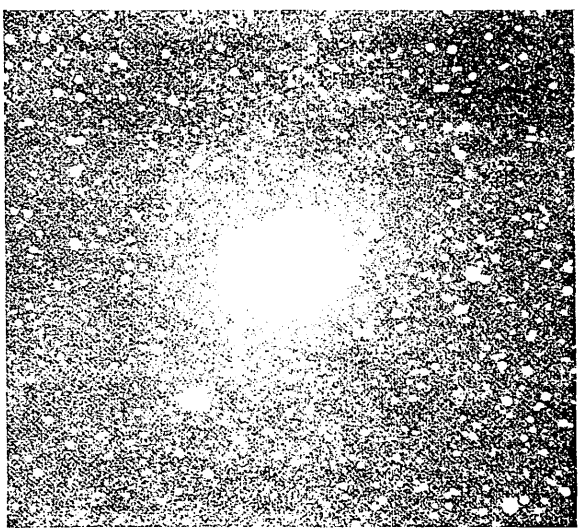

Nebulosity about Nova Persei, Nov. 13, 1901. Photographed by Prof. G. W. Ritchey with the two-foot telescope of Yerkes Observatory. Exposure seven hours.

Kindness of the *Scientific American.*

Perseus, and some even to the telescope-aided vision, to keep our astronomers busy guessing.

That the law of gravitation alone is sufficient to keep our solar system in order even now seems eminently doubtful; that it, or all the known laws of physics and mechanics put together, are sufficient to explain their origin from an original nebula, whether cold or hot, is preposterous and absurd. On the contrary, the various component parts of our solar system have all the appearance of having been expressly prepared for the particular place and service which they fill, just as it is recorded of the temple of Solomon, "built of stone, made ready before it was brought hither." In short, the whole nebular hypothesis is very evidently only a clumsy makeshift, as a substitute for the sublime words that open the record of our origin, as given in the Christian's Bible, "In the beginning God created the heaven and the earth."

Of course, the origin of our world was according to law, and the laws of nature. How could the origin of nature be contrary to nature? No one ever dreamed of such a thing until some atheists invented

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Garret Serviss, an astronomical writer of note, says with reference to it (San Francisco *Examiner*, Dec. 29, 1901): "This [the nebula in Perseus] is the nearest thing to a new creation in the heavens that has ever been witnessed," and further remarks, "*If* we could *think* that the process which these motions reveal is really the formation of something resembling our solar system, then we should have to admit that the creation of worlds may be effected in a period measured by months and years instead of gigantic lapses of time, and the imagination would be led back to the scriptural account of the making of the world in six days." One is constrained to ask, Why not as well think that as to adopt some uncertain hypothesis? "If weak thy faith, why choose the harder side?"

this libel on the Word of God, because it served their purpose. "God is not the author of confusion," and He doubtless formed our cosmos by some beautiful and regular process, but just how He has not informed us; and it is quite probable that the reason He has not informed us is because our finite minds could not understand any explanation that could be given. One of us might as well try to explain to an infant how a steamship is made. God's creative power is as incomprehensible as His existence.

The nebular theory, like all other cosmogonies, is utterly puerile. To some it sounds more sensible than those of the Chinese or Hindoos, or that given by Plato in his "Timaeus," but solely because it enters more into details, and, by pretending to give a circumstantial account of how creation was brought about, it confuses and dazzles the human mind. It talks about things beyond our knowledge, which often seems the same as talking wisdom. Our theorizing friends have yet to learn that most fundamental of all truths, that *reason, apart from divine guidance, will trick us at every turn, just as our senses do until trained to see, and feel, and hear.* Reason is the highest and noblest faculty that we possess, but, like all our faculties, is subject to the limitations and imperfections of mortality and sin. It needs the illumination of divine light to keep us from unconsciously incorporating our own secret wishes and predilections with our explanations of the mysteries of nature. The shores of time are strewn with the sad wrecks of human speculations, built with the greatest care by giant minds, who thought they could traverse the channels of the great unknown without a pilot.

CHAPTER IV.

"Molten though Rigid."

An objection that is common to every form of the nebular theory as yet formulated is that it always ends with our planet a cooling globe, and millions and millions of years since life started on it, and with its interior still a heated, perhaps liquid, mass. It is true that scientists have now quite generally come to the conclusion that our world is solid throughout. As one of the very foremost scientific journals in the world remarks, "Modern analysis tends to the conclusion that our globe is solid throughout."[2]

A consideration of the physical results of the tides of this interior molten sea, with other problems almost equally formidable, have driven all but the old-school geologists to this conclusion sore against their wills, for it deprives them of their traditional methods of mountain-making and their charmingly simple ways of accounting for earthquakes and volcanoes, to say nothing of the dark doubts it casts upon their old, old story of a "pulsating crust," as Dawson calls it, with half of the continents alternately

[1] "Its [the earth's] center may be, and probably is, still occupied by a molten (though rigid) mass, whose heat has not yet been fully conducted away."—Force and Energy, p. 37, by Grant Allen, Humboldt Library.

[2] *Nature*, February 28, 1901, p. 414.

rising and falling, even during the "latest" of geological times.

If any one wishes to see how hard geologists will work to make out a case in favor of a heated interior for our world, and the thinness and present mobility of its "crust," let him read "Controverted Questions of Geology," by Joseph Prestwich, D. C. L., F. R. S., etc. (1895), who undoubtedly ranks as one of the very leading geologists of England. It is altogether a very candid discussion, as would be expected from a professor in Oxford University; but he begins by assuming that all admit the "original molten state of the globe,"[3] and his whole discussion is with the physicists (Lord Kelvin, the late Professor Tait, and their fellows) as to *how thick* the "crust" is now. It would be tedious to go into the technical discussion of the subject, but I may say that in Article V he seems to prove conclusively (1) that the cause of the uplift of mountain areas, and the squeezing and crumpling of their strata, must lie at no great distance beneath the surface; (2) that their traditional explanation of "volcanic action is incompatible with a thick crust;" (3) that, if the increase of heat with increase of depth is uniform down below the limits of actual experiment, "the heat at a depth of about 30 miles would be such as to fuse the basic rocks."[4]

But I suppose I would not be doing justice to the subject if I did not give at least a summary of Dr. Prestwich's arguments.

[3] Page 4.

[4] Page 158.

On the first point he gives an outline of the well-known geological facts that the great mountain chains invariably have the appearance of having been ridged up by the folding and crumpling of the top strata, and their resulting elevation into ridges, caused by some strong lateral pressure exerted on their edges, just as a very thin or somewhat damp piece of paper will ridge up in the middle if it be laid out on a table and the opposite edges be shoved toward one another. "In the Alps there are seven, if not more, of these great folds, each constituting a mountain chain. In a straight line across they measure about 130 miles; but if the strata were stretched out in the original planes, it is estimated that they would occupy a space of about 200 miles."[5]

After giving other examples even more striking, he adds:—

"It is difficult to see how these corrugations of the earth's crust are to be accounted for, unless we assume that the crust rests on a yielding substratum, and that of no great thickness. For if the earth were solid throughout, the tangential pressure would result not in distorting or crumpling, but in crushing and breaking. No such results are to be seen, and the strata have, down to the time of the youngest mountains, yielded, as only a free surface-plate could, to the deformation caused by the lateral pressure." "Let us suppose not entire solidity, but a crust 800 miles, or even half 800 miles, thick. What would be the magnitude of a mountain chain resulting from the crumpling and upthrow of such a mass of rocks?

[5] Page 149.

. . . for if a solid plate of any kind be broken, and the fractured edges turned up, by reciprocal pressure in presence of a resisting body beneath, the width of the protruding mass will bear a definite relation to the thickness of the plate. If, on the other hand, the plate is sufficiently pliable to yield without fracture, and should be bent into folds, the height of the arches and the width across the folds will in like manner be proportionate to the thickness of the plate."[6]

He then adds the very pertinent question, "Would it not rather appear that a crust even of 30 miles is in excess of what the height and breadth of any mountain chain would, on this finding, indicate?" I should think so.

On the second point, or that relating to volcanic action, he asks how we are to imagine "that a column of lava could traverse a crust 800 to 1,000 miles thick without the loss of so much heat as to cause

[6] Pages 150, 151. But we must remember that on a smaller scale very many of the soft surface beds have likewise been folded over each other, like a flattened form of the letter "S," so that, as Lyell says, "a continuous seam of fine loose sand between two layers of gravel or loam might be pierced three times in one perpendicular boring;" though the *underlying* horizontal beds "have not participated in these movements *in the smallest degree*." And as far as I know, there is almost *every possible stage of gradation* between the giant folds in the Alps or the Andes, and these similarly crinkled surface beds on the coast of Norfolk, England, to which Lyell refers. Hence the same cause that produced one case probably produced all. Therefore, as these Cromer beds in Norfolk were positively folded in *some* manner without resting on any "yielding substratum," we evidently do not need a fluid interior to explain mountain making on a larger scale. See note. page 176.

the lava to lose its fluidity and consolidate before it could reach the surface."[7]

To meet this difficulty, he says that Mr. Hopkins has suggested that these eruptions may originate in vast cavities or pockets "filled with fluid incandescent matter, either entirely insulated or perhaps communicating in some cases by obstructed channels."

But besides the objections advanced by Professor Prestwich, I would like to ask the advocates of such a makeshift theory what rationality there is in supposing the earth to consist of a solid shell enclosing a solid nucleus with a molten fluid zone in between? What could originate such a state? to say nothing of preserving it these millions of ages, as they say. But would even this get rid of the mathematical objection in regard to the earth's rigidity?

The other point made by the learned geologist to prove a thin crust over a molten nucleus is that, if the increased heat with increase of depth continues uniform down into the bowels of the earth, "the heat at a depth of about 30 miles would be such as to fuse the basic rocks." But any conclusions based upon an "if" of such an extremely doubtful character (for actual scientific experiments have only very rarely extended to a mile or so, and exhibit the most varied rates of increase, pointing not to one central source, but to various local sources, of heat) must be of little weight; and if we find later sufficient causes to explain the folding and crumpling of the rocks, and a reasonable explanation of earthquakes and volcanoes, without imagining a fluid interior to our

[7] Pages 159, 160.

earth, and thus completely reconcile the utterly antagonistic conclusions of the mathematicians and the geologists, this increase of heat as we go down into the earth will not concern us very much, for the extreme cases that could not well be accounted for by chemical action might well be due to the same cause as the volcanic phenomena.[8] More than this, I may say that I have tried to average the exhaustive tables given by this author of "all the observations" on underground temperatures taken in mines, artesian wells, etc., of which he "could find record;"[9] and I find that the average (excluding fractions) of the actual temperatures at all the various depths taken is *less than 69° Fahr.*, which is scarcely higher than we may well suppose the *surface* temperature to have been

[8] There is no doubt that pressure under certain conditions tends to generate heat; for instance, if we take a cubic foot of earthy matter and pile upon it foot after foot of the same material, it has been calculated that, if we could extend this column a little over fifty-nine miles, we would have a temperature approximating 6,400 degrees, which would, of course, melt all known rocks. But, while heat is undoubtedly thus generated by pressure as long as there is any movement of the particles to accommodate themselves to the pressure, it is more than doubtful if any heat whatever would be produced by any amount of pressure *after* stable equilibrium has been reached, as is evidently the case in our globe. This will amply account for the metamorphism and crystallization of the sedimentary strata where they have been folded and crumpled in mountain-making; but as for anything further, or imagining that *these conditions prevailed in the formation of our earth*, it is, I take it, only another way of stating the nebular theory, and lands us in just the same condition,—with our world white hot inside,—which, as this chapter is designed to show, is contrary to both geology and physics.

[9] Pages 249-264.

when the Tertiary fossils were laid down, for they show a semitropical climate even in the Arctic regions. Hence I think we ought to have a rest from this threadbare argument for a while, or until they have got down a good deal deeper than any observations yet recorded.

For be it clearly understood that, while the geologists can thus clearly prove that the cause of all these geological actions must lie at no great depth beneath the surface, the physicists, led by Mr. Hopkins, Lord Kelvin, and the late Professor Tait, have decided, in their strictly mathematical fashion, that our earth must be solid throughout. I must give Lord Kelvin's own words: "Whatever be its age, we may be quite sure the earth is solid in its interior; not, I admit, throughout its whole volume, for there certainly are spaces in volcanic regions occupied by liquid lava; but whatever portion of the whole mass is liquid, whether the waters of the ocean or melted matter in the interior, these portions are small in comparison with the whole; and *we must utterly reject any geological hypothesis* which, whether for explaining underground heat or ancient upheavals and subsidences of the solid crust, or earthquakes, or existing volcanoes, assumes the solid earth to be a shell of 30, or 100, or 500, or 1,000 kilometers thickness resting on an interior liquid mass."[10]

What, then, is the conclusion to which these things would bring us?—Just this: If these conclusions of the geologists and those of the physicists are equally certain and reliable, and there seems no good reason

[10] Report British Association, 1876, pp. 6, 7.

to doubt either party, then their hopeless disagreement *must be due to some false premise common to both.* This is a well-known principle. When two well-informed persons are confirmed in hopeless disagreement, it is almost certain that they are *both* wrong on some point *common to both* that has been left out of the mutual consideration. Each sees the absurdities of the other, and therefore these absurdities must from their common standpoint have a real existence, and it is only by rising to some higher view that we can get at the real truth in the matter.

It will not be difficult to discern the fallacy that is common to both the physicists and the geologists. It lies in the mutual assumption that our earth is a cooling globe. We may not know what the past history of our world has been, or how it originated; but if we can give a reasonable explanation of the geological phenomena, one thing would then seem almost certain,—it ought to be considered demonstrated beyond all cavil that it did *not* originate by the hot process. At least, if such should have been its beginning as a globe, this fact has not the slightest bearing on either the formation of mountains, the mobility of the crust in the past, or the present action of earthquakes or volcanoes.

The scientists may press upon us here with questions as to how our world was made, or what its interior is really like at present. Suppose we can not tell. We are not in the world-making business. If our scientists are bound to speculate on such things, they are free to do so. We may indeed say with Emerson that "the world was built in order, and the

stones march in tune." But I prefer to keep well within the bounds of known facts.

They often tell us that the shape of our world,—slightly bulging at the equator and flattened at the poles,—is proof positive that its substance must once have been in a fluid condition. But it would have taken this shape had its fluidity been due to water instead of fire. A rotating ball of mud would take the same shape as a mass of lava of the same consistence, so that this of itself proves nothing. And as to our earth's interior, we really know very little about it, not much more than a fly does of an orange's pulp by walking over its surface and sucking at its rind. Our deepest mines—about 6,500 feet—are only like a pin-prick. As for examining even the surface, the fly would have decidedly the advantage. Nearly three-fourths of our world is covered with water, and by far the larger share of the remainder has never been really examined by any scientist. They tell us that the materials in its interior must be very heavy; that, taken as a whole, our earth has a specific gravity (5.6) about double that of the average rocks at the surface (quartz being 2.65 and granite 2.72), or a little less than cast iron. Taken as a whole, it must also be about as rigid as steel, though through some cause or causes parts of the surface strata are, or at least have been, extremely mobile. We also know that beneath the surface in very many parts of the world there are even now extensive subterranean fires, that shake us up occasionally, and now and then take to bubbling up through holes in the ground. These are a few of the general

facts to be considered, and the probable explanations of some of them we must now seek to determine.

We might say a word here about the effects of pressure in producing metamorphic and crystalline rocks out of the sedimentary strata, as found in all the mountain ranges where the strata have been folded and crumpled; but we are relieved of all necessity of accounting for the formation of the various so-called igneous rocks, for at the last annual meeting of the English Geological Society (Feb. 15, 1901) the president, J. J. H. Teall, F. R. S., summed up the results of the year's work in this direction by saying that "the origin of species, so far as igneous rocks are concerned, is a problem the final solution of which has been handed on by the nineteenth century to its successor."[11] They can never hope to explain the very diverse kinds of these rocks as originating from the one great molten mass in our earth's interior. They might as well expect to get both salt water and fresh from the same faucet.

But if the great mountain ranges have been formed by a thin crust of strata over a molten interior being crumpled and folded upwards by the lateral pressure acting over the resistance from beneath, as they say, we would most naturally look for volcanoes *along these lines of folding,* for the volcanoes are supposed to connect directly with the molten interior. But this is not where we find volcanoes, for, as Prestwich says:—

"The great mountain ranges of the Alps and Pyrenees, where the strata are tilted, contorted, and

[11] *Nature,* March 14, 1901, p. 482.

enormously crushed, do not contain a single volcano; the strata are highly metamorphosed, yet show no traces of igneous fusion. In the Andes the volcanoes are mostly situated on flanking ridges, or on the lower grounds at their base, and rarely on the high central ridges. We must, in fact, look for volcanoes on lines of fissure rather than on lines of fault."[12]

But even this slender hope is denied them, for Sir Archibald Geikie, in reviewing the latest volumes issued by the Italian Geological Survey and the Royal Academy of Naples, dealing with the active and extinct volcanoes of Italy, gives as the very latest and best conclusions on the subject that no traces of fissure connecting the various volcanoes can be made out.[13]

As to the real causes of the folding and crumpling of the strata, I shall beg the reader's permission to postpone a consideration of this subject until chapter 6, where he will find what little light I have on the subject.

We now come to the subject of earthquakes and volcanoes, phenomena which in the popular mind are proof positive that the whole interior of our globe is a vast mass of fiery liquid rock, with which the craters of the volcanoes communicate directly, and of which they are, as it were, but the blow-holes. But scientific men have long recognized the difficulties sur-

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[12] "Controverted Questions," pp. 86, 87.

[13] *Nature*, May 30, 1901, pp. 103–106.

rounding such a view, some of which they have indeed been able to remove by ingenious suppositions.

One of these numerous difficulties, which they have not been able to entirely remove, is very concisely stated in a well-known American journal: "Moreover, contemporaneous not far distant vents sometimes furnish quite different material. This could hardly be possible if all volcanoes had a common source." [14]

The extremely large volumes of steam and other vapors given off from volcanoes during eruptions have been made the foundation of perhaps the most generally-received theory of volcanic action current at the present time, viz., that originated by Mr. Poulett-Scrope. How the water comes to get mixed up with the fiery liquid and completely distributed through the whole mass, as the theory requires, "just as much as it is necessary that the powder in the gun-barrel should be at the back of the shot;"[15] or "why, the passage to the exterior once opened, the eruption should cease until all the mass susceptible of boiling over should be expelled," and thus volcanoes forever become extinct after one eruption,[16] the originator of the theory has not explained. One would certainly think that, if volcanic action were due to the causes he has assigned, the occluded vapor would be blown off once and forever.

Another serious objection to this view is stated by our author, as follows:—

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[14] *Popular Science Monthly*, July, 1895, p. 305.

[15] "Controverted Questions," p. 84.

[16] *Id.*, p. 104.

"There are an ample number of carefully-recorded cases to show that the discharge of lava is not in proportion to the discharge of steam, nor is the discharge of steam always in accordance with the escape of lava, which they should be if the hypothesis were correct. These conditions would, on the contrary, seem to be perfectly independent one of the other."[17]

It would be tiresome to enter into all the difficulties attending this and all other theories based on the primary idea that the vast interior of our globe is still a heated, perhaps liquid mass, resulting from our earth being a cooling sun on a small scale. But if "modern analysis tends to the conclusion that our globe is solid throughout," it is quite evident that earthquakes and volcanoes must affect only the surface rocks, or, in other words, must be confined to the few thousand feet of superficial strata. We have only now to consider an explanation of volcanic action, which to me seems amply sufficient to account for all the known facts. By observations in deep mines, it has been long understood that the chemical decomposition by water of various kinds of rock, such as iron and copper pyrites, will produce considerable heat. To give an extreme but familiar example of somewhat the same nature, we know that water and lime are capable of generating a furious heat as they unite, if in any considerable quantities. Sir Humphrey Davy, and, later, Gay-Lussac, the French chemist and physicist, made these facts the foundations of their chemical theories of the causes of earthquakes and volcanoes. Even Sir Charles

[17] *Id.*, p. 95.

Lyell seemed to think them sufficient to account for the volcanic phenomena.

But we have another and far more potent cause of these phenomena, which seems to have been strangely overlooked, viz., the burning of vast coal fields deep beneath the ground. And, allowing the chemical action above mentioned as a partial cause, we have in the subterranean burning of vast coal and oil deposits a full and complete explanation, as it seems to me, of all earthquake or volcanic phenomena, so constantly brought forward as proof positive of our earth being molten inside. Nor does the writer pretend to advance this as an idea of his own devising. He makes no pretensions to being a geologist, but he knows this idea to be held by numerous science teachers scattered all over America, though it does not seem to have received any proper consideration from our geologists.

When we come to deal, in succeeding chapters, with the other geological phenomena, we shall have something to say concerning the origin of coal. For the present it will suffice to say that some cause, at some time, buried vast forests deep beneath the surface of the ground in almost every quarter of the globe. And it is a singular fact, to say the least, that those countries most subject to earthquakes, and having their surfaces dotted with fire-belching volcanoes, are countries *where practically no coal is to be found.* Why should we not suppose that these countries also have their coal deposits, but buried so deep that we can not get at them?

"Very little is known of the substrata of a volcanic

mountain. We know that Vesuvius, Etna, and Hecla stand on Tertiary strata; that some volcanoes in America stand on Cretaceous or Jurassic strata, and others on the older rocks, but of the stratigraphical details underground we have very scanty information."[18] It would seem quite evident that, in the above cases at least, there may be vast carboniferous areas deep down in the earth. If this coal and oil should ignite, it might burn for hundreds of years, an example of which on a small scale is given us in the numerous coal mines which now and then take fire, and defy all human efforts to put them out.

The Summit Hill Colliery, Pennsylvania, owned by the Lehigh Coal and Navigation Company, is a good example. It has been burning for forty years, and the company has spent a million dollars or so in fruitless endeavor to extinguish the awful fires below. About a year and a half ago the fire began eating its way through the rich veins of coal in the Panther Creek Valley, and the Spring Tunnel Colliery had to close, throwing some three hundred men out of employment. I can not say just how the case stands at present.

In the case of fires in Nova Scotia coal mines, whole rivers have sometimes been turned in upon the raging flames, with apparently little immediate effect, though just at present I do not think any of them are burning. In fact, Dr. Robert Bell, F. R. S., Director of the Geological Survey of Canada, lately wrote me:—

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[18] "Controverted Questions," p. 119.

I can only recall one example of a coal or lignite seam actually burning underground at the present moment. This occurs on the east bank of the Mackenzie River, about one mile above Fort Norman, at the junction of Great Bear Lake River with the Mackenzie" (near the Arctic Circle).

In the same communication he also says:—

"We have some examples near the Saskatchewan River, one of which occurs on the North Branch, about sixty miles above Edmonton, where a thick seam of lignite coal has been burnt a short distance underground to a breadth of a quarter of a mile back from the river in prehistoric times; and the rock which was in immediate contact with the coal had become more or less fused, and is said to *somewhat resemble some volcanic products.*"

Of course, Dr. Bell is here speaking only of the Dominion. Other similar examples could be found in almost any country. There is a mine in the north of England which has, I think, been burning continuously for about a century. And, of course, the *deeper in the earth* such fires occur, the more will they resemble volcanic phenomena.

As millions of tons are thus consumed beneath the ground, the vast quantities of adjacent limestone would be burned, perhaps whole miles of rock even melted with the intense heat. The action of some large quantity of water suddenly breaking in upon this mass of lime and melted ore would be like a blow upon nitroglycerine. To say nothing of the heat, which would, if possible, be increased in fury, the resulting explosions would shake half a continent to

its foundations. The confined steam and other gases would struggle for an outlet, and, having found or made one, vast fountains of smoke, steam, mud, and melted rock would be vomited forth upon the trembling earth, burying towns and villages forever from sight.

That volcanic eruptions are almost always preceded by the sudden disappearance of the water in the wells and springs of all the surrounding country, has long been a well-known fact. During an eruption of Mauna Loa, in the Hawaiian Islands, the sea water was in one case observed pouring down a fissure, which had opened in the ground, into the depths below[19] There are also doubtless vast underground reservoirs of water in almost every part of the globe, and these, being tapped by a fissure in the rocks, would act in the same manner. From the intense heat within, the in-rushing water would immediately flash into steam, and thus instantly expand to about 1,700 times its original volume, which is over five times the expansive power of gunpowder, and nearly twice that of guncotton.[20] Would not a few tons of water thus exploding beneath the ground be sufficient to account for all the facts of earthquakes, as far as we know them?

And I believe that all cases of upheaval and subsidence of the surface strata, at least within historic times, are due to these or associated causes. Sir Charles Lyell and his followers of the uniformitarian school have given us some alleged facts about the

[19] "Controverted Questions," p. 123.

[20] *Vide*, pp. 133, 134.

slow and gradual change of level in Sweden or Greenland, but such data are, to say the least, of very ambiguous character, when compared with the numerous instances of islands suddenly rising from the bed of the ocean, and as suddenly disappearing. In short, I do not believe in any such slow and gradual elevation or subsidence of whole continents, such as the uniformitarians, who worship at the altar of Chronos, always invoke in succession over the vast unknown past to account for the various fossil-bearing strata scattered over the world.

Some small elevation and subsidence of limited areas is, of course, reasonable enough, as due entirely to the expansion and contraction of the superficial strata, caused by the heating or subsequent cooling of these rocks, as explained above; for experiments made some time since by the officers of the topographical corps of United States engineers regarding the expansion of various rocks by heat, have shown that, "if a mass of sandstone a mile in thickness should be raised in temperature two hundred degrees Fahr., it would expand sufficiently to lift its surface ten feet above its former level." Hence, if this thickness of rock were raised to anything near the fusing point of iron (2,912° Fahr.), or even of silicon (1,500° Fahr.), we would have a far greater change of level than any that has actually been measured and calculated by scientists. Of course, the cooling of such a mass would cause the lifted surface to descend to its original position, a process which is perhaps going on in parts of Greenland and Sweden. Nor am I alone in saying that the data which have

been given us concerning such earth movements having come about gradually over vast areas, are utterly insufficient. Such men as Prestwich, Murchison, and Sedgwick, the fathers of English geology, would be among the first to say that the few facts bearing on this subject, which have been gathered during the limits of recorded observation, are not only very few and limited, but ambiguous, to say the least.

To take one of the most familiar examples given to prove a considerable gradual change, that of the columns of the ruined temple of Serapis, at Pozzuoli, on the Bay of Naples (the Puteoli of Acts 28:13), there is, of course, no possible doubt that, since this temple was built about two thousand years ago, the land thereabout must have sunk, and since risen again at least twenty feet; for a band around the columns eight feet wide, extending from about twelve feet to about twenty feet in height, has been perforated by the borings of marine shells, remains of which are still to be seen in the holes they have made, though *the lower twelve feet are quite smooth.* It is argued that the subsidence must have been so gradual as not to throw down the three columns of the temple which are still standing. But it is equally evident that it may have been so sudden as to throw down *all but these three.* The lower twelve feet certainly seem to have been covered by earth and mud quickly enough to have completely protected them from the attacks of these borers. Nor is this Bay of Naples so far removed from all volcanic centers as to make some sudden earthquake action an improbable explanation. In short, it is only reasonable to admit that all their

examples put together do not prove, in any real sense of the word, that any gradual rise or *subsidence* of any *considerable area* is now going on, or has been going on during the historic period.

But instances of very sudden changes of level are common enough. During the night of January 23, 1855, a considerable part of New Zealand was thus elevated; and in Chile, in 1822, fully 200,000 square miles of territory between the Andes and the Pacific rose to a height of from two to seven feet. In the historic earthquake of Lisbon, in 1755, where 60,000 persons are said to have perished in six minutes, a large portion of the city was permanently engulfed 600 feet beneath the waters of the bay. Also in 1819, 2,000 square miles of land near the mouth of the Indus sank out of sight during an earthquake, and became an inland sea; while other portions of the country were elevated to a nearly uniform height of 10 feet. But these changes are all due to the causes assigned above to the action of earthquakes or volcanoes in general. And, as we shall see in the succeeding chapters, there are far better ways of accounting for the fossil-bearing rocks than to invoke the gradual rise and subsidence of large areas prolonged over unmeasured geological ages.

In fact, from a consideration of the arguments which I have endeavored to outline above, we may consider it now *almost demonstrated that our earth is not a cooling globe;* and thus one more very important stage in the process of evolving the genius of human thought from the gas of the nebulous cloud is seen to be without foundation.

And this theory of our earth being a cooling globe, and not yet by any means cooled throughout, is, I take it, the only positive objection that the Bible furnishes us against the nebular theory. We would have no more objection, *per se,* to considering the manner in which a world was formed than the way in which a chicken is produced from the egg, if it did not land us in something contrary alike to the Word and to common sense. Of course, in the case of either the world or the chicken, we must have the materials, and some competent outside cause to originate the conditions and conduct the process; they both require the continual presence and fostering care of the great Creator. We are getting no nearer the real mystery in the case by saying that all the tissues of the chick are built up by the protoplasm in the egg. The protoplasm in the toes is the same as that in the little creature's brain Why does the one build up claws and the other brain cells? Does memory guide these little things in their wonderful division of labor? But they all started from one original germ cell, hence they all ought to have the same memory pictures. Or have they entered into a mutual-benefit arrangement, like the members of a community, as Haeckel would have us believe, each contributing by actual desire and effort, I suppose, an individual share to the general progress of the whole?—No; they have all the appearance of being mere automata working at the direct bidding of a Master Mind. Every step of the process needs a Creator, just as much as the first cell division. In the words of one of the very highest of scientific

authorities already quoted, "We still do not know why a certain cell becomes a gland-cell, another a ganglion-cell; why one cell gives rise to a smooth muscle-fiber, while a neighbor forms voluntary muscle;" and this also "at certain, usually predestined, times in particular places." And in the same way the idea of a Creator would not be disposed of, even if we could possibly hit upon the probable process of world-formation. We would not, by understanding the process, really get at the cause of the phenomena any more than we do now at the real cause of life. From the scientific method the real mystery remains as much behind the veil as ever before.

And it may be well to remember that the record in Genesis has not put the least direct limit upon our imaginations in accounting for the manner of our world's formation. It only says: "In the beginning God created the heaven and the earth. And the earth was without form, and void; and darkness was upon the face of the deep."[21]

This, be it clearly understood, and as other writers have so clearly pointed out, was *before* the six days of our world's creation proper began. The six literal days of creation, or peopling our world with life forms, begin with verse 3. *They begin with the whole body of our world already in existence.* How long it had been formed before this we are not told, and whether by a slow or rapid process we have no information. And, as we shall see hereafter, there is no ground to believe in the "interval theory," which would regard this as a lapsed condition, and

[21] Genesis 1:1, 2.

all the geological strata as having been laid down in some previous state of unrecorded existence. Such a view is alike contrary to science and revelation. All that we can positively gather from the Biblical record is that, at the opening of the first week of mundane time, our globe was covered with vapors or waters, with the Spirit of God brooding upon the face of these waters.

But if the Bible has left the real formation of our globe in obscurity as to time and manner, we can not say the same with regard to the things on our globe as we find them to-day. No believer in the Sabbath as the divine memorial of creation's week will hesitate to give as the distinct, positive teaching of Genesis that life has been on our globe only some six or seven thousand years; and that the earth as we know it, with its teeming animal and vegetable life, and man as the crowning work of all, was brought into existence in six literal days; and let scientists overthrow it if they can.

They can call the language somewhat anthropomorphic if they wish. The earnest Christians of all the best ages of the church have never made any effort to avoid what scientists stigmatize as anthropomorphism, or the figure of attributing human feelings and motives to the Deity, and describing His actions as we would those of man. The Bible knows nothing of this bugbear of the scientists. When God says that He "created man in His own image" of mind and character, it is but natural that, when telling us of His own acts and motives, He is not ashamed to describe them in terms familiar to us. "He speaks to us in our own language, that we may

better understand Him." Language is so poor a medium of thought that, as one writer puts it, we have to represent even our own mental ideas by physical images. How inevitable, then, that we should picture the divine nature by its human image! We can not avoid it if we are to think about Him at all. Independent, rational personality is the highest thing we know or can imagine. We are offering Him the very truest and noblest we have when we call Him a Person, though even this, the best we have, falls far short of the infinite reality.

As to the Scripture's positive language that life has been on our globe some six thousand years or so, what have they found to prove it false?—"Oh, geology," they say, "geology! Have you no respect for the demonstrated facts of geology?" I certainly have the utmost respect for the real *facts* of this or any other branch of science. The book of nature is as sacred as the written Word, though far more liable to be misunderstood. The storied rocks have yielded up their treasures, though, as we shall see hereafter, they only grow eloquent to the truth of Genesis when we read them aright, by dealing only with the naked facts in the case. Facts and theories must be kept entirely distinct. And when atheists and unbelievers begin spinning their theories about these facts; when, for instance, they show us a fossil shell that they say is at least 50,000,000 years old, I can only answer, "Who told you so?" though my justification for such an apparently impudent question must be reserved till the next chapter.

But before passing on to these questions of geology proper, we must glance for a moment at the

problems clustering around the origin of life. We would not forget the history of *Bathybius,* the prototypes of Haeckel's *monera,* discovered and described so eloquently by Huxley in 1868, as the long-sought-for connecting link between the organic and inorganic worlds, but which, however, Huxley was at last obliged to admit before the British Association for the Advancement of Science, assembled at Sheffield, was, in fact, nothing more than a simple precipitate of sulphate of lime. But, to be serious, has any one since the untiring experiments of Tyndall, Dallinger, and Pasteur, dared to intimate that we may yet at some future time originate life by artificial means? But these theorists seem to consider that it would simplify the process immensely to place the scene back "beyond the abyss of geologically-recorded time," or off in some region among the slimy ooze at the ocean's bottom, where the investigator can never hope to go, just as Haeckel locates his "alalus," or ape-man, in Lemuria, an imaginary continent now at the bottom of the Indian Ocean. Man, or one of the higher animals, they think, could not be produced from the inorganic in twenty-four hours, even by the Creator, though the same thing prolonged over a few million years would be a simpler thought, and more according to natural law. "It is a question of energy versus time," as Nicholson says.

Creation by natural law, forsooth! Who ever had the audacity to intimate that creation could be otherwise than orderly and by natural law? How could the origin of nature be contrary to nature? The only thing we urge is that they have not yet discovered

the law, or even the process; nor are they likely to do so very soon. The origin of organic nature could not well have been otherwise than by natural process. Do they understand all natural processes? At some time life was not in existence on our globe. All agree that it had a beginning. Even if created by the great Creator, the living was at some time formed from the not-living or the not-material. It does not take even Huxley's famous "act of philosophic faith" to believe that. So that, in spite of all the haze that has been thrown about this question, the Biblical creation of the organic from the inorganic is no more contrary to, or even outside of, natural law than is evolution. The only difference is we have a competent cause, while they have nothing but the helpless molecules and atoms.

But see what we avoid. According to the Bible, death in even the lower animals (and consequently all misery and suffering; the less is included in the greater) is only the result of sin on the part of man, the head of animated nature, a reflex or sympathetic result, if you will. But with evolution we have countless millions of years of creature suffering, cruelty, and death before man appeared at all, cruelty and death that, as we shall show, have no moral meaning at all, save as the work of a fiend creator, or a bungling and incompetent one.

As helping us to understand how this jump from the not-living to the living could be made, I can not do better than quote a somewhat long paragraph from Le Conte, who, as an out-and-out evolutionist, can not be charged with being prejudiced in favor of direct creation:—

"Force and matter may be said to exist *now* on several distinct planes raised one above another. There is a sort of taxonomic scale of force and matter. These are: (1) The plane of elements; (2) the plane of chemical compounds; (3) the plane of vegetal life; (4) the plane of animal life; and (5) the plane of rational and, as we hope, immortal life. Each plane has its own appropriate force and distinctive phenomena. On the first operates physical forces, producing physical phenomena only, for the operation of chemical affinity immediately raises matter to the next plane. On the second plane operates, in addition to physical, also chemical forces, producing all those changes by action and reaction the study of which constitutes the science of chemistry. On the third plane, in addition to the two preceding forces, with their characteristic phenomena, operates also life-force, producing the distinctive phenomena characteristic of living things. On the fourth plane, in addition to all lower forces and their phenomena, operates also a higher form of life-force characteristic of animals, producing the phenomena characteristic of sentient life, such as sensation, consciousness, and will. On the fifth plane, in addition to all the preceding forces and phenomena, we have also the forces and phenomena characteristic of rational and moral life.

"Now, although there are doubtless great differences of level on each of these planes, yet there is a very distinct break between each. Although there are various degrees of the force characteristic of each, yet the difference between the characteristic forces

is one of kind as well as of degree. Although energy by transmutation may take all these different forms, and thus does now circulate up and down through all these planes, yet the passage from one plane upward to another is not a gradual passage by sliding scale, but *at one bound.* When the necessary conditions are present, a new and higher form of force at once appears, *like a birth* into a higher sphere. For example, when hydrogen and oxygen are brought together under proper conditions, water is born—a new thing, with new and wholly unexpected properties and powers, entirely different from those of its components. When CO_2, H_2O, and NH_3 are brought together under suitable conditions, viz., in the green leaves of plants, in the presence of sunlight, living protoplasm is then and there born, a something having entirely new and unexpected powers and properties. It is no gradual process, but sudden, like birth into a higher sphere."[22]

Let us consider these words. He says very truly that between each of these different planes there is "a very distinct break." The difference between them is "one of kind as well as of degree." "The passage from one plane upward to another is not a gradual passage by sliding scale, but at one bound. When the necessary conditions are present, a new and higher form of force at once appears, like birth into a higher sphere. . . . It is no gradual process, but sudden, like birth into a higher sphere."

Surely here at least we have processes beyond

[22] "Evolution and Religious Thought," pp. 314–316 (Italics as I find them).

what are dreamt of in any materialistic philosophy. "It is no gradual process, but sudden." Have they discovered the why? Do they ever expect to in this life? Perhaps not. The more exact and minute knowledge of recent years has only served to show more plainly the great gulfs fixed between these different groups of things created, gulfs which their theory of inherent properties is powerless to explain or even comprehend. All theories about matter having innate properties seem like nonsense before such facts. The living at some time originated from the not-living. We call it creation. Can they find a better name? It is preposterous to call it a process of development or evolution due to the inherent properties of the atoms, and effected by them alone. And yet it is doubtless as much according to "natural law" as are the invariable and exact combinations of chemistry. We do not understand the ultimate reasons for chemical affinity any more than we do for gravitation. They are only expressions of the methodical, order-loving mind of Deity. Creation was only another action of the same Mind, and we are not really finding any new difficulty when we say that the processes or the reasons for creative action are beyond our comprehension. When we can really solve some of the myriad problems right before our eyes, it will be time enough to complain about creation being incomprehensible or contrary to "natural law."

Well, then, remembering that, even according to Huxley's "act of philosophic faith," the origin of the living from the not-living must at some time have taken place according to natural law, why should we suppose that such a process was confined to *one*

example? If, when the young planet "was passing through physical and chemical conditions which it can no more see again than a man can recall his infancy," the "necessary conditions" were favorable for one such a creation of life, why not a few billion? Would the production of a few billion such beginnings of protoplasm be any less "natural" than of one alone? Remember, however, that both the arrangement of these "necessary conditions," as well as the endowing matter with these "properties," not only requires a cause, but this cause must be intelligent, for there is indisputable design in this first origin of life. Even Darwin's aquatic grub demands a Creator as much as does the Mosaic Adam. But to return to our subject. The food for a developing embryo might, for aught that we know, be conveyed to it direct from the ultimate laboratories of nature, and it thus be built up by protoplasm in the usual way without the medium of a parent form—other than the great Father of all. Or would it be any less according to natural law to believe that a bird passed through all the usual stages of embryonic development from the not-living up to the full-fledged songster of the skies in one day—the fifth day of creation? And if one example, why not a million? For remember that the youthful earth was then passing through strange conditions, "which," as Huxley says, "it can no more see again than a man can recall his infancy."

As I shall have occasion to remark more fully again, the higher forms differ from the lower only in having what the lower ones have *plus* something else. For this reason, and for this alone, the successive stages in embryonic development must in a general

way resemble the lower stages of the taxonomic, or classification, series. All animal forms, starting from original germ-cells perhaps identical in character, must progress along parallel lines of development, and every now and then one or more forms stop developing because they have reached maturity, while the others go on past this stage, until they also reach their perfect development. It could not well be otherwise. We could not imagine anything else, any more than we could construct a pyramid by building the apex first. But what "law" would be violated in this springtime of the world if, instead of twenty years or so for full development, the first man passed through all these stages in one day,—the sixth of creation week? He might as well have originated from the not-living as the evolutionist's first speck of protoplasm, for he certainly now starts from a mass of this same protoplasm, identical, as we have seen, in all plants and animals.

And by originating thus, he would escape that horrible heritage of bestial and savage propensities which he would get through evolution, a heritage that would make it not his fault, but his misfortune, that sin and evil are in the world, and which would also shift the responsibility for the evidently abnormal condition of "this present evil world" off from the creature to the Creator, and change to us His character from that of a loving Father, fettered by no conditions in His creation, to that of either a bungling, incompetent workman or a heartless fiend; for, though I am almost ashamed to write the words, the god of the evolutionist must be either the one or the other.

The Successive Appearance of Life Forms According to Evolutionary Geology.

[*From Clodd's "Story of Creation."*]

Epoch.	System.	Animal.	Plant.
Primary or Paleozoic. (Earliest known life forms.)	Laurentian.	Eozöon canadense(?); foraminifera.	Sea-weeds; club-mosses; first land plants.
	Cambrian.	Sponges; corals; crustacea; shell-fish.	
	Silurian.	Huge crustacea: the lowest known vertebrates (ganoids or armored fish).	
Age of ferns and fishes.	Devonian.	Insects; swarms of ganoids.	Ferns; calamites; cycads.
	Carboniferous.	Land vertebrates (labyrinthodonts), reptiles.	
	Permian.		
Secondary or Mesozoic. (Age of pines and reptiles.)	Triassic.	Immense reptiles; sea-lizards; marsupial mammals.	Conifers; palms.
	Jurassic.	Immense bird reptiles; true birds.	
	Cretaceous.	Bony-skeletoned fish; large ammonites.	
Tertiary or Cainozoic. (Age of leaf-forests and mammals.)	Eocene.	Huge placental mammals; serpents; numulites.	Trees; shrubs; herbs allied to existing subtropical species.
	Miocene and Pliocene.	True whales; man-like apes.	
(Glacial Epoch intervening and continuing into the—)			
Quaternary.	Post-Pliocene.	Mammoth and other woolly quadrupeds; man.	Arctic and Temperate existing species.
	Recent or historic.	Existing species.	

CHAPTER V.

Geological Guessing.

Geology has long been regarded as the one branch of natural science which could supply absolute facts in manifest contradiction to the Mosaic narrative. In astronomy and the other physical sciences the nebular hypothesis has always been only an hypothesis, by very many not taken at all seriously, though admired for its ingenuity, but acknowledged by all to be neither demonstrated nor demonstrable.

In the fields of chemistry and biology again the evolutionists are getting decidedly discouraged. They have about given up the hope of accounting for the origin of life, or of consciousness, or of finding anywhere the real connections between the different rounds in what they are pleased to term life's great ladder. The general results of the closer study of variation during recent years have all been quite disheartening, especially since Weismann has shown that *acquired characteristics are not inherited, save possibly in the direction of degeneration.* So that not only have they failed to get any conception of the causes or forces that are competent to bring a form of low degree up to a superior status of organization or instinct, or that can "enable an ancestor to transmit to his posterity what he has not got himself," but the enthusiasm with which the theory was

accepted and studied during the first twenty or thirty years of its existence has gradually died out, and thousands are acknowledging with sadness that the explanation it offers of "the riddle of the universe" does not really explain anything whatever. It is only "explaining" the unknown in terms of the unknown.

The archaeologists indeed have of recent years come in with a tardy, and as yet only partial, vindication of the story of Noah's flood. Man, they say, is not only of recent origin, but the discoveries in the various parts of western Europe have led such men as Dupont, Boyd Dawkins, Prestwich, and Dawson, with hosts of others, to the conclusion that primitive or palaeocosmic man disappeared "somewhat suddenly" with the mammoth and the other associated mammals at the time of the "last great subsidence of western Europe;" and some, at least, of the above-mentioned standard authorities have been forced to the conclusion that the story of a great deluge, as described in the Chaldean Deluge Tablets,[1] and what Rawlinson calls the "consentient belief" of all the

[1] "It is reported that Pere Schiel has made a discovery of a clay tablet. To be sure, the record on the tablet does not amount to much, it is such a fragmentary bit; but it is large enough to make sure that the tablet contained the story of the Deluge; and, most fortunately, the most important of all is preserved, the colophon, with the date.

"It is dated in the reign of Ammi-zaduga, king of Babylon (and we know that he reigned about 2140 B. C.). That is, we have here a precious bit of clay, on which was written a poetical story of the Deluge, five centuries before Moses and about the time of Isaac or Jacob. That is enough to make the discovery memorable. We learn positively that the story of the Deluge was familiar to the common people of Babylonia, and therefore of all the east, from Syria to Persia."—*New York Independent, May, 1898.*

great races of mankind,[2] to say nothing of Genesis. explains the ascertained facts in the case far better than any other hypothesis.[3]

In geology proper, however, it has for years been considered that they had positive evidence of the earth's being very much older than a plain, literal understanding of Genesis will allow us to believe. Geology has been the last great stronghold of anti-biblical science. It is safe to say that, without this part of the argument, the doctrine of evolution could never in fifty years have become practically universal, as it is to-day. Darwin would never have got a respectable hearing had not Agassiz and Lyell acted as his advance agents.

The geologists, though, as I have shown in my first chapter, have grown somewhat reverent with the rest. The agnosticism that was so triumphant a quarter of a century ago, seems now to be fading away before "theistic evolution." But the plain Biblical Christian can not help regarding their day-period theory of creation as anything else than a libel on Moses. To say that the days of creation mentioned there were meant for long periods of time, corresponding to the geological epochs, is, as Dean Farrar remarks, only trifling with language. It not only strikes at the very basis of the Sabbath, but, by its forced and unnatural method of "interpretation," it has been the principal cause of the development of the "Higher Criticism," and that widespread dis-

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[2] "Introduction to Study of the Scriptures," chapter 26, p. 190.

[3] See "The Meeting-place of Geology and History," *passim*, by Sir J. W. Dawson. Fleming H. Revell Company, 1894.

belief in the Bible as a real revelation of God to us of the twentieth century, which is eating at the very vitals of modern orthodox Protestantism.

Supported by the strong weight of such men as Dawson and Dana, this day-period theory of creation was once quite popular. But when Gladstone, in 1885, undertook the same line of argument, Huxley showed that the supposed coincidence between the days of Genesis and the epochs of geology is pure fancy. Since then this "explanation" has somewhat subsided. But for over fifty years it has been practically the only answer that faith has dared to give to the insistent questions of unbelieving scientists. The faltering accents of the old-fashioned few, who said that the shells on the mountain-tops were put there by Noah's flood, have grown fainter and fainter, till, outside of the scattered remnant, they have long since become inaudible.

I know I must not ignore that other explanation, the "restitution" or "internal theory," proposed by Buckland, the first president of the British Association, and favored by Chalmers, Cardinal Wiseman, and other well-known scholars. This theory tries to show that all the geological changes (ante-glacial) belong back in some previous state of the earth's existence, before Gen. 1:3, and separated from the six literal days of our present creation by the condition described as "waste and void." Were it not for some of the illustrious names connected with it in the past, as well as the scores of well-meaning books that used to advocate this view, some of which are occasionally reappearing even now (I have one dated 1894

and another 1899), it would scarcely be worth mentioning. It had at least this splendid point about it, that it took the six days of creation as literal days of twenty-four hours each, which any common-sense reading of Moses' words must agree to be the meaning primarily intended by the author. But besides never having shown any moral purpose in all those countless ages of animal suffering and death before man came on the world at all, it has become more and more manifest to be at hopeless disagreement with some of the simplest facts concerning the science of fossil life, and has now even fewer defenders than the day-period theory, which has yet a certain vogue. How sad to see such dodging and twisting on the part of the Bible's professed defenders, instead of taking the record just as it reads, and assigning the great and striking geological changes to their most obvious cause, viz., the Noachian Deluge!

It would seem that no one could give a clearer picture of present conditions than does Peter in his second epistle: "There shall come in the last days scoffers, walking after their own lusts, and saying, Where is the promise of His coming? for since the fathers fell asleep, all things continue as they were from the beginning of the creation,"—uniformitarianism, surely, and an utter disbelief in any "supernatural" event. "For this they willingly are ignorant of [or "wilfully ignore"], that by the word of God the heavens were of old, and the earth standing out of the water and in the water; whereby the world that then was, being overflowed with water, perished; but the heavens and the earth, which are now, by

the same word are kept in store, reserved unto fire against the day of judgment and perdition of ungodly men."[4]

Here we have it plainly stated that one of the chief reasons why the people of what he calls "the last days" will not believe in the second coming of Christ and the destruction of the present conditions by fire, is because they have *grown accustomed to disbelieving the record of the flood.* He pictures them claiming that the phenomena of nature have been uniform with the present in all past time, and that, instead of the world growing old and nearing its dissolution, it is but entering on its golden age of peace and joy. The world, they say, has never experienced any great catastrophe in the past, and so we have no reason to believe that these alarmist reports of an approaching end of the present state of affairs are anything but moonshine.

Most scientists have claimed with the utmost assurance that geology was gradually filling up the missing links, which were not really missing in the chain of life, but only in our knowledge; though, if we take the evidence of some of their best men, it does not seem to have accomplished any such thing.

"In tracing back animals and groups of animals in geological time, we find that they always end without any link of connection with previous beings, and in circumstances which render any such connection improbable."[5]

"Palaeontology furnishes no direct evidence, per-

[4] 2 Peter 3:3-7.

[5] Dawson, "Origin of the World," p. 226.

haps never can furnish any, as to the actual transformation of one species into another."[6]

"Upon no theory of evolution can we find a satisfactory explanation for the constant introduction throughout geological time of new forms of life, which do not appear to have been preceded by pre-existent allied types. The Graptolites and Trilobites have no known predecessors, and leave no known successors. The Insects appear suddenly in the Devonian, and the Arachnides and Myriapods in the Carboniferous, under well-differentiated and highly-specialized types. The Dibranchiate Cephalopods appear with equal apparent suddenness in the older Mesozoic deposits, and no known type of the Palaeozoic period can be pointed to as a possible ancestor. The *Hippuritidae* of the Cretaceous burst into varied life to all appearance almost immediately after their first introduction into existence. The wonderful Dicotyledonous flora of the Upper Cretaceous period similarly surprises us without any prophetic annunciation from the older Jurassic."[7]

"From the geological record we obtain no help. The earliest traces of Angiosperms in rocks of the middle Mesozoic period enable us to say little regarding them, except that the fragments give evidence of an organization as complete as that possessed by the Angiosperms of the present day. The gap between the Angiosperms and other types of vegetation is a wide one, and no links are known."[8]

[6] *Id.*, p. 372.

[7] "Ancient Life-History of the Earth," p. 373.

[8] Prof. I. Bayley Balfour, Pres. Section on Botany, British Association, Glasgow, 1901; *Nature*, Oct. 3, 1901, p. 558.

In view of such facts, it is not surprising to find an out-and-out evolutionist like Professor Clodd acknowledging that "the fossil-yielding rocks supply no key to the origin of the leading groups."[9]

Also Huxley: "What, then, does an impartial survey of the positively-ascertained truths of palaeontology testify in relation to the common doctrines of progressive modification, which suppose that modification to have taken place by a necessary progress from more to less embryonic forms, or from more to less generalized types, within the limits of the period represented by the fossiliferous rocks?

"It negatives those doctrines, for it either shows us no evidence of such modification, or demonstrates such modification as has occurred to have been very slight; and as to the nature of that modification, it yields no evidence whatever that the earlier members of any long-continued group were more generalized in structure than the later ones. . . .

"Contrariwise, any admissible hypothesis of progressive modification must be compatible with persistence without progression through indefinite periods."[10]

All this, of course, is taking for granted, as scientists always do, that the current geology is a witness competent to bear evidence in favor of evolution. It will be one of the objects of this chapter to show that the popular geology not only rests on very uncertain data, but that its supposed evidence in favor

[9] "The Story of Creation," by Professor Edw. Clodd, F. R. S., p. 94.

[10] "Lay Sermons."

of evolution should be ruled out of court on the ground of collusion between the witness and defendant; that it has assumed the main point which the evolution theory seeks to establish when it says, without a scintilla of evidence, that there has been a succession in the life upon the globe, beginning with the more rudimentary forms, and progressing through the crustacea, reptiles, and mammals, up to man; in short, that *geology does not, as is commonly supposed, prove this succession, but only assumes it,* and hence to quote geology in favor of Darwinism, is but reasoning in a circle.

So let us proceed to verify this charge of want of confidence, by examining some of the foundation facts and principles of this much-misunderstood branch of science. And I shall have to take for granted that my readers are more or less familiar with the study of the rock formations, else I could not, within the limits of this chapter, make my meaning plain. Those who are not very familiar with the subject would do well to make reference, as occasion may demand, to the table given at the first of this chapter.

As is well known, almost every spot on the earth gives evidence of having once been under water. And the various water-formed rocks are termed "stratified," because laid down in strata or layers one above another. Great changes besides hardening have evidently taken place since they were deposited for we very often find these strata not horizontal, as they were doubtless laid down, but bent and folded in a most astonishing manner. However, all the

various stratified rocks can be divided into the different kinds of sandstones, shales and slates, calcareous, and silicious rocks. This would be classifying them according to their mineral and mechanical composition. But varieties of nearly all these rocks can be found almost anywhere, and are found in more or less abundance in all the formations or systems, as they are called. These formations or sets of rocks, we are told, represent successive eras in the world's history. Of course, when we find one bed laid down above another, the lower one is evidently the older of the two; but *whether laid down ten minutes earlier or ten million years earlier,* the rocks do not inform us, except we assume the succession of life and answer the question according to the fossils they contain.

Now these "sets," or "formations," are not found together in any one place, but some are "developed" in one country and some in another. Nor is a single "set," perhaps, perfectly developed in any one place. They may have to put together the rocks from half a dozen countries to make a set complete. And it is a very rare thing to find even parts of more than two or three of these sets of rocks so situated that on purely stratigraphical grounds one set could be said to be older than the other. And, of course, when it comes to comparing the rocks of one locality with those of another, distant only a few miles, the stratigraphical evidence is almost sure to fail us, and we are left to mechanical or mineral makeup, and the evidence of fossils or palaeontology. Indeed, disguise it as they may, the latter is the supreme test. In the words of Prof. H. Alleyne Nicholson:—

"It may even be said that, in any case where there should appear to be a clear and decisive discordance between the physical and the palaeontological evidence as to the age of a given series of beds, *it is the former that is to be distrusted rather than the latter.*"[11]

But even this language is scarcely stronger than that of Professor Dana, when he seeks to show how the rocks can be brought, from various lands, "into order, so as to make a continuous history worthy of confidence." "The case," he says, "would have been hopeless were it not for one branch of this history, that relating to the progress of life;"[12] and then he goes on to describe how rocks are determined by their fossils.

Let us see, then, how the evidence of fossils is used to tell the relative age. Suppose we have three sample sections of rocks, containing characteristic fossils, from three different parts of the world, say Quebec, England, and Northern Italy. The first, we are told, is plainly a Laurentian;[13] a specimen of

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[11] "Ancient Life-History of the Earth," p. 40.

[12] "Geological Story Briefly Told," p. 97.

[13] There are large areas of these Laurentian rocks, say in northern Canada, now at the surface, without any signs whatever of any of the subsequent ages upon their faces. If we ask why it is that throughout these vast areas we find no traces of the subsequent millions of years—say of the plants of the Carboniferous age, which Huxley calculated at six million years, or of the immense reptiles of the Triassic—the answer we usually get is, I think, that ever since they were deposited these Laurentian rocks have been above the sea and in stable equilibrium, and, as all the stratified rocks are laid down in water, we now find no other deposits above them. Certainly, if they had been below the sea

the famous Eozoon is very plainly shown on its surface. It is one of the very oldest rocks in the world. It was laid down, they tell us, so many millions of years ago that the mind fails to grasp any idea as to time, and is only concerned with the number of naughts after the digit. The second, however, is immeasurably younger. This piece of one of those large ammonites shows that it belongs to the Cretaceous system, which, as Winchell says, seems "to have been a literal oyster cemetery." But the third is comparatively modern; it belongs to one of the systems of the Tertiary age, perhaps to the Pliocene, the last before the great ice age, for here is a piece of lignite, or brown coal, composed partly of modern species of plants.

We begin to understand Wordsworth's remark to Professor Sedgwick: "O professor," said he, "I begin to like your geological studies very much; there is so much imagination in them!" With mingled wonder and awe we ask our sages how they can tell so much from three pieces of rock. The answer we get is just this, The age of a rock is told almost entirely by the fossils it contains; *the oldest rocks are those containing the oldest fossils.* But how do we know that

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they would have fared like the other rocks. On the other hand, they think that if elevated above the water ever since, we ought not to expect to find any traces of the succeeding forms of life. But is this really credible? On the contrary, it seems little short of a preposterous argument. Or if they say that such traces of subsequent life as they must once have had have since been washed off, I would reply in their own favorite language that they are invoking "forces and processes which we can in no way account for."

they are really the oldest fossils?—Because they are simpler, or further down in the scale of life. When pressed to tell why they think there has been a succession, if not a gradual development, in the order of life on the globe, as such an answer implies, they say that they infer that such has been the case, because, in any given vertical section of beds, the lower strata always contain simpler types of fossils than the upper, and never the reverse. "They then extend this conclusion to formations that are very far apart, and, although they can not show, by the method of superposition, their relative ages, *they agree* that those whose fossils are of the lowest type are the oldest."[14] The various rocks over the world that have similar groups of fossils are then *classed together into a set or formation,* and fitted into their appropriate place in this great hypothetical ladder of life, until age is piled on age, and we have such absurdities as about twenty-five miles total thickness of strata, and a "pulsating crust"[15] to account for the way these fossils are distributed over the world and to excuse their crazy-quilt geological maps, with a "rotation of climates"[16] to help them out of their dilemmas when everything else fails.

Of course, right in this connection they bring in the method of comparison, as taught by Agassiz. The idea of a succession in the life upon the globe was originated long before him, but Agassiz was the

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[14] From a private letter to the author from one of the best-known teachers of science in eastern Canada.

[15] Dawson.

[16] J. Geikie.

first to teach that the embryonic development of the individual furnishes the key to the geological succession; not that he claimed, as modern biologists do, that the embryonic development is but "a brief recapitulation, as it were from memory," of the past history of the species. He did not admit evolution. He would not admit any causal relation of the geological succession to the embryonic. The relation between the two was with him an intellectual, not a natural or physical, one. But he started the idea, and his followers have carried it out to its logical conclusions.

But when with sober reason we begin to examine this idea, and to weigh it *as evidence* in favor of there actually having been such a succession of life on the globe, we see at a glance that the whole thing is pure fancy and moonshine. It is, of course, true that the successive stages by which an ovum is developed into an individual of one of the higher animals resembles, in a rough, general way, the geological succession of life that they have invented, and also the various stages of increasing complexity in the classification series that we have now in the world before our eyes. Though in very many cases, even from their standpoint, the individual development can not be a repetition of the ancestral, and so Haeckel says we must reject them as "spurious additions to the record" (sic). Also the embryo has in almost every form a stubborn fashion of bringing to light evidences of degradation and degeneracy, that do not fit in with their theories. However, there is no doubt that the human embryo, for instance, passes through stages that

in a general way resemble the developing, or even the mature, conditions of some of the lower forms. But I ask in all seriousness, How could it be otherwise? How could the higher condition of structure be reached except by passing through the lower and intermediate stages? The higher forms differ from the lower mainly in having what the lower forms have plus something else. For this reason, and for this alone, the successive stages in embryonic development must in a rough way resemble the lower stages of the taxonomic, or classification, series. It could not possibly be otherwise. Should we expect the brain to develop before the nutritive system, or the limbs to grow before the spinal column? We might as well try to imagine the Egyptians' building the apex of one of their pyramids first, and afterwards the foundation, or expect to see a modern carpenter build the roof of his house first. No, in the name of common sense do not tell us that the embryonic development is even collateral evidence that there has been a succession in the life upon the globe.

We thus see that the skeleton, the outline, of the whole evolution theory is quietly assumed at the very beginning of our work in geology. Assumed, I say, for it is nothing but a pure assumption. What else can you call such an inference from this microscopic, this visionary, data? *An inference based on a series of inferences?*—No; it is nothing but a pure assumption, utterly incapable of any rational proof, and is, as can be readily seen, just the skeleton of the evolution theory. When Lyell, in 1830, began his work of preaching a uniform action of the elements during an

indefinite past time, with a crust rising and falling at his convenience; and when, a few years later, Agassiz brought forward his "method of comparison" and his three famous "laws" of development, they were but the advance agents of Darwin, Spencer, Haeckel & Co., and their modern troupe playing at dethroning the Creator. And after Dana and Dawson had worked up a strong interest among the church people with their day-period theory of creation, we see the whole world crowding to the performance and applauding their work to the echo.

They sometimes say that the rocky records can not be made to tell a coherent story in any other manner than by this succession-of-life idea, and having the fossil witnesses give their evidence one after another in single file. But the whole arrangement seems to be an organized conspiracy of evil to cover up the real story that they tell if allowed to testify in concert, viz., that Moses' account of the Deluge is no myth, but inspired history.

Remembering, then, that the geological succession of life is merely the skeleton of the evolution theory, assumed as a "working hypothesis" as long as it will work; and that, from the Biblical standpoint, this same succession of life is *just the taxonomic, or classification, series, a cross-section if you will, in the life of the antediluvian world,* we begin to get our bearings concerning these two possible explanations of the facts as told by the fossils. They are welcome to try their theory and see if it will work, i. e., see if it will explain a fair share of the ascertained facts in the case, and in addition show that no other the-

ory will explain them. But when they can only assume that there has been such a succession of life, and then take this cross-section in the fossil life, stand it on its little end, and walk it in as evidence in favor of Darwinism, we demur. They are only begging the question to be proved, trying to prove the truth of their own major premise. They might as well try to lift themselves by pulling at the tops of their boots.

This reminds me very much of Spencer's peculiar style of reasoning referred to in the first chapter, "Before it can be ascertained how organized beings have been gradually evolved, there must be reached the conviction that they have been gradually evolved."[17] That is to say, First formulate your theory, and have a firm conviction of its truth. Then investigate the matter, and marshal the facts so as to support your theory. He then goes on to say that the evolution of organisms is only a part of the great whole of evolution in general. We must first assure ourselves that evolution is a settled truth in the other departments of nature, and furnishes the true explanation of all their phenomena. When we have grasped this, we then have the conviction necessary to be acquired before we examine the phenomena of life; and then we can make the investigation necessary to reconcile the facts with these supposed laws of matter and motion. "Only when the process of evolution of organisms is affiliated on the process of evolution in general can it be truly said to be explained. The thing required is to show that its vari-

[17] "Biology," I, p. 408.

ous results are corollaries from first principles. We have to reconcile the facts with the universal laws of the redistribution of matter and motion."[18]

And I suppose if any of the facts stubbornly refuse to be reconciled, "so much the worse for the facts." What a hopeless task it would be to answer such reasoning as this!

Did our scientists never hear of that maxim of the law of evidence, that every fact in a chain of proofs "must be proved independently by direct evidence, and must not be itself a deduction from some other fact," or, in other words, that you *can not draw an inference from an inference?* Or did they never hear of that other equally-important rule of evidence which says that "the collection of facts from which an inference is to be drawn must not only be consistent with the probable truth of that inference, but they must exclude the probable truth of any other inference"? But what are we to think of this shameless collusion between the witnesses in this case of evolution? *For Agassiz proved his geological succession in time by comparison with the embryonic life of the individual; and then Spencer, and especially Haeckel, prove their theory of evolution by showing that the embryonic life of the individual is only a brief recapitulation, by memory as it were, of the geological succession in time.* And then they call us stubborn or ignorant because we refuse to such hocus-pocus the name of science.

But the church has so long—a century, or nearly,

[18] "Biology," I, pp. 409, 410. D. Appleton & Company, 1881.

if we count from Cuvier and his four epochs of creation—swallowed this skeleton of the evolution theory that the average work on geology does not even try to sugar-coat the idea to make it palatable. One might read a dozen of the smaller works on geology or palaeontology without finding so much as a sentence of supporting argument, except this strange whirligig that embryology furnishes the key to the geological succession; and so geology proves evolution. But the matter-of-course way in which this succession of life, and the almost unlimited time necessarily implied, are assumed as the past history of our globe, seems to come upon every student of the subject with such benumbing and overwhelming weight that faith and reason are alike silenced by the very hypnotism of the idea, until he is almost forced to the conclusion that it must be so. The young student thinks that reliable authorities have proved it; after entertaining the idea for a while, it becomes a part of his being; and then, if there has actually been this succession, how can he escape the conclusions of evolution?

Then there is that other line of thought, by which our reason is tricked into supposing that science has proved the uniform action of the elements during all past time.

Science, they say, though busy with classifying the objects and phenomena about us, must concern herself with secondary causes at least. We may not be able to get at ultimate causes through the scientific method, as all acknowledge we can not, but the secondary causes, that they always put up as a veil to

hide them from the dazzling brightness of the Divine Immanence, are in all cases assumed to be themselves competent causes, at least until some more reasonable "cause" is discovered; so that the mind gets familiarized with the absurdity that all the contradictory forces and "properties" displayed in nature inhere in matter itself; that matter has in itself the "promise and potency" of all phenomena. We have already shown elsewhere that this is a question not for science to solve, but for philosophy, and that, before reaching this pantheistic horror of materialism, some unscientific method has come in somewhere; we have, without noticing it, slipped across the border-line between science and philosophy, and have landed at a conclusion utterly contrary to sound philosophy. But having reached this materialistic conception of nature, with our eyes on matter instead of the Intelligence behind it, the rest is very easy. Thus, we may observe how matter acts now under given conditions; then we reason that it must always act thus. Another step and we reach Huxley's fixed postulate of the eternal uniformity of nature, that the Infinite Power never acts, or never has acted, in any way different from what we have been able to discover of the established order of things; hence, there never has been any "interruption" of the present regular order; and consequently such a story as that of a universal flood destroying all the existing life upon the globe is an utter absurdity, and not worth a moment's consideration. Even the Christian so far forgets his Bible as to admit this absolute "uniformity" of nature during the past history of our globe;

and then the gradual introduction of life on the globe, a "creation" prolonged over a few million years by the process of evolution, seems to have a dazzling attractiveness as an "explanation" of all phenomena. He forgets the dozen or so pure assumptions—every one of them anti-biblical—necessary to reach such a position, and lets his mind dwell on such a trivial and perplexing problem as whether a species would vary enough in a few million years to produce a real new species.

The history of this succession-of-life idea, as one of the parts of the now all-supreme evolution, is surely one of the strangest records of the slow-marching years. It came in when the late century was very young, if, indeed, the germs of it did not come over from the preceding one, long before any of Darwin's books[19] had been given to the world. The modern "gospel of despair," as taught by Spencer and Haeckel, would never have been possible without Darwin; Darwin would never have got a more respectable hearing than did Lamarck (1744-1829), the contemporary of La Place (1749-1827), save for Agassiz (1807-1873), with his three "laws" of comparison and his geological succession of life; and the latter would not have been possible without Lyell (1797-1875) and his uniformitarianism. Indeed, we can trace the main outline of this idea of a succession clear back to Cuvier (1769-1832) and his four epochs of creation; and an indispensable preliminary of it even to Leibnitz (1646-1716) and

[19] "The Origin of Species," 1859; "The Descent of Man," 1871.

his cooling globe. Then, what is the use of talking about the origin of species, if every preceding step in the argument is, if possible, even more anti-christian? There certainly seems something super-human—diabolical, most of my readers will say—in the unsuspected way in which this great unbiblical and unscientific delusion has fastened itself upon the world. But almost equally astonishing is the phenomenon of such men of faith, such opponents of evolution as Dana and Dawson, not being able to see that, in their beloved geology, they had already swallowed the skeleton of the evolution theory, and were in the last degree inconsistent in refusing its flesh and blood, as dressed and served up by their comrades in science. It was, no doubt, the result of early education, for each of these men was well along in his geological work before Darwin's time. They refused to go any further on such a road (at least Dawson did), though the habits of years had fastened them where they were. As for the modern geologists, who, of course, are all ardent evolutionists, the false logic of their argument seems never to have occurred to them. Had they ever dreamed that sober men would or could question this succession of life, it is incredible that reason-loving men would ever exhibit themselves before the public for such acrobats in logic as seeking to prove the truth of their own major premise; in other words, they would never dream of quoting us geology in favor of evolution. But what would be the fate of evolution even now without this spectral support of geology? What, for instance, would Haeckel's argument be worth without this supposed bed-rock truth of phylogenesis?

Of course, there are many things in geology which it would seem must have required a vast lapse of time for their accomplishment, at least if we adopt their other utterly anti-Biblical assumption of a uniform action of the elements during all past time; not uniform with the present, it is true, for they require a "pulsating crust," rising and falling like the top of a bellows, and our historic experience has not furnished us with any proof of such pulsating action as their theory requires. Our crust is now certainly very stable compared with the "mobile" nature it has shown during all past time, according to the "uniformitarians," such few changes as history informs us of being decidedly spasmodic and abrupt, and, as we have already shown in chapter four,[20] undoubtedly due to the very local causes connected with earthquakes and volcanoes. And this assumption of a "uniform" action of the elements during all past time, be it remembered, is a point-blank denial of the record of the flood. "It is a question of *energy* versus *time*," as Professor Nicholson says. "We may, on the one hand, suppose them [the geological phenomena]

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[20] To show that in thus denying any systematic gradual rise or fall of continents I am not entirely alone, let me present the following from Sir Roderick Murchison, one of the most illustrious names in geology:—

"The case therefore stands thus. The shelly and pebbly terraces which exist are signs of *sudden* elevation at different periods; whilst the theory of modern gradual elevation and depression *is still wanting in any valid proof that such operations have taken place except within very limited areas.*" "Siluria" pp. 490, 491, fifth edition, 1872, Italics supplied.

to be the result of some *very powerful* cause, acting through a *short* period of time. Or we may suppose them to be caused by a *much weaker force* operating through a proportionately *prolonged* period." And as scientists always consider it their business to push the real first cause of anything back as far as possible, time will always receive the verdict when opposed to energy.

But no one can study such examples as the gorge of the Niagara[21] or the canyon of the Colorado, and fail to be impressed with awe as he tries to estimate the length of time since the water first began to wear away those adamantine surfaces, *if* the rocks were in their present hardened condition when the work of erosion began. Of course, with their uniformitarian theory, they can never suppose that the action

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[21] I believe that Desor, the Swiss geologist, estimated the rate of recession of the falls as not more than one foot a century. This would carry the date of the beginning of their action on the rocks back about three million five hundred thousand years. Lyell made the maximum rate of erosion about one foot per annum, and thus the beginning of the falls would be about thirty-five thousand years ago. Bakewell and others have made them retreat about two or three feet a year. Lately, however, Mr. G. K. Gilbert, of the U. S. Geological Survey, and Mr. R. S. Woodward, of Washington, as the result of very careful work, fixed the average rate of recession at five feet per annum. Hence, Mr. Gilbert, who is certainly a competent authority, says that the "maximum length of time since the birth of the falls by the separation of the lakes is *only seven thousand years*, and that even this small measure may need significant reduction." Sir William Dawson gives about the same short time in his "Meeting-Place," quoted elsewhere. Many others of the "natural chronometers' have had their records similarly revised.

of the elements upon the rocks in these and other places might possibly have begun while the rocky mould was soft and freshly laid. But this, we have seen, is the true Biblical standpoint, and would make the case very different. A few thousand years, beginning with the sedimentary deposits all freshly laid, would seem amply sufficient to account for the most striking instances of erosion by rain, wave, or current. It would probably take several centuries for the mass to harden into anything like its present consistence. At any rate, every argument that tends to shorten the time required for its hardening will tend just so far to answer the only objection[22] that occurs to me against such a view. And, in the mean-

[22] "I have in my collection a curious specimen illustrative of the transition from the stone to the iron period. It was found at Merigomish Harbor, an old place of residence of one of the eastern Micmac tribes. It consists of a mass of hard ferruginous sandstone, which was found at some depth in the ground, wrapped carefully in beaver skins, the fur of which is still well preserved. The mass, when broken, was found to be full of blades of iron knives or daggers, mixed with black and white beads and bugles, among which were traces of basket-work or matting and a cylindrical iron awl or bodkin. The iron instruments had been completely oxidized, and had furnished the cementing material of the mass; and their wooden handles had been perfectly petrified or converted into a hard, fibrous, brown limonite, still retaining the structure of the wood. The deposit was probably a 'cache,' or hiding-place, of valuable booty of the French and Indian Wars, and serves, among other things, to show the comparatively perishable character of iron implements as compared with those of stone, and the *short space of time which under certain circumstances may give to modern objects the aspect of hoar antiquity*."—Acadian Geology, p. 45, by Sir J. W. Dawson, 1878.

time, the wear by the action of the elements would be a thousand-fold more rapid than at present; and the Mosaic narrative, which gives the age of all these fossil-bearing deposits as about four to five thousand years, is perfectly credible.

There are other phenomena also which they appeal to as demanding vast ages of time, such as successive deposits of limestone superimposed one above another, but separated by other strata of a different character, indicating very changed conditions of deposition. It is, of course, out of the question that in the ten months or so that the waters of the flood were over the land, two such successive beds of limestone could have been built up in the orthodox geological way, viz., by the slow growth of corals, or by the accumulation of nummulites or other shells where the animals lived and died. But, again "it is a case of energy versus time," for it would be idle to deny that, if the bottoms of those antediluvian seas were more or less covered with calcareous ooze, such as we now find on every ocean floor, it might not easily be washed up over the previously and subsequently dry land, and be now represented by vast beds of limestone, perhaps even crystalline through subsequent change. This idea would also explain that common puzzle of geologists, viz., how the various land forms got mixed up with the deep-sea limestone, as we frequently find they have been. It would seem that it might even explain the coral limestones, which they so positively declare must all have grown up where they are. On this point I must confess ignorance of what has actually been discov-

ered. The evidence in favor of growth *in situ,* as they say, may be stronger than I am at present aware of, though I suspect that, like the case of the coal beds, next to be considered, they are only reading into the evidence their own foregone conclusions.

At any rate, in thousands of limestones containing shell-fish we have quite satisfactory evidence that the death of the animals was sudden, or, in other words, that they were literally buried alive; for in the case of most bivalves *the hinge at the back makes the shell gape open when the animal dies.* Consequently, when we find a limestone several feet thick composed of such shells quite generally *closed* and *hollow,* i. e., not filled with sand or mud, it is positive proof that this is no ordinary bed of shells slowly built up in the orthodox way, but, on the contrary, that these animals were entombed as we find them, and before life was extinct, by some sudden action of the water. Also, in the case of such "lamp-shells" as *Spirifera* and *Athyris,* whose valves do not thus open when dead, there is after death a hole or notch in the hinge, which would admit sand or mud if the shells were exposed to disturbance after the animals died; but as such shells, throughout Nova Scotia at any rate, perhaps in other countries, "*are usually found with the valves closed and the interior often hollow,*"[23] it seems quite plain that here also we have

[23] Dawson's "Acadian Geology," p. 260. The ordinary text-books generally neglect to mention such facts, as if they were unimportant, and so, although these shells are found practically throughout the whole world in all the "older" rocks, I can not affirm that they are always found in this telltale condition in other countries.

no ordinary conditions of deposit, but the results of some sudden marine disturbance which buried these animals alive. To this also might be added those cases not uncommon where species of different sorts are all mixed up together in "admirable confusion," shells from deep water being mixed with kinds found only near the shore in shallow water, and shells that live attached to rocks, such as barnacles, and those found singly in the sand, being mixed up with others which only occur gregariously in beds. In all these cases it seems absolutely certain that these shells *did not and could not live as we find them,* but that their present anomalous situation is due to some uncommon disturbance of the waters in which they lived. Hence we may be excused if we hesitate a little before accepting all that is said about the coral limestones having grown where we find them, though, even if we admitted it in some cases, it might only prove that a former arm of the sea has now become elevated into dry land.

The great beds of coal, which almost staggered Huxley with their evidence of the Calvinism of "thrifty nature," have furnished the stock arguments to prove the vast length of time that life has been upon our globe. At the South Joggins, Nova Scotia, they have found as many as seventy-six successive seams, laid down one after the other, each of which has its "underclay," varying in thickness from a few inches to several feet, and containing what seem to be the roots of the plants in the beds above. They point to these and other like phenomena as evidence that all the plants forming this coal grew where we find

them; and they grow eloquent in describing the ages necessary for enough peat-like deposits to accumulate to form even one of these seams. When, however, this is complete, they souse the whole country under water and arrange for the deposit of enough soil to form a new "underclay." Then their "pulsating crust" rises again at their bidding, and the same course is repeated, "till the heart is sick, and the brain benumbed," trying to grasp some idea of the length of time required for this one era of the geological past.

Now, I do not claim to have gone into this subject exhaustively. I am not a geologist. But I have gone through the evidences as given in one of the standard works on this particular point—Dawson's "Acadian Geology"—and I must say that the evidence there given of the coal plants having grown where we find them is of the most vague and fanciful character, very little more, in fact, than that many of the stumps of the trees appear upright as in nature, and that the "underclays" have what seem like the roots of the plants in the beds above; though I fail to see how an "underclay," sometimes *only one or two inches deep,* could grow such enormous trees. However, as stumps of trees with large quantities of the roots attached will generally float with the stems pointing more or less upward, this evidence is, to say the very least, utterly insufficient to prove his point, while any one who wills may read enough between the lines to show that dozens of their puzzling problems, as well as all the ordinary facts, are much better explained by the Biblical story of the Deluge than by

their "pulsating crust," no matter how accommodating it may be.[24]

These three phenomena,—the erosive action of the elements, the formation of limestone, and of coal,—are the principal, though perhaps not the only, arguments usually advanced to prove the almost unlimited character of geological time. When these and all other similar arguments are seen to be utterly insufficient for their purpose, providing, of course, the tremendous turmoil of the Deluge be admitted for consideration, what becomes of the long vistas opened up to our minds by the fertile imaginations of the teachers of this modern science?—Why, absolutely nothing remains but their classification series, their cross-section, in the life of the antediluvian world.

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[24] As a further objection to the popular idea that coal was formed by the accumulated deposits of immense peat-bogs being buried by a slow subsidence of the land, I would present the well-preserved character of these plant-forms themselves. Our ordinary coal often shows, with marvelous minuteness, the cellular structure of the wood and even the most intricate veining of the leaves. But the "Tertiary" coals of northern Greenland, containing as they do the remains of oaks, maples, walnuts, limes, magnolias, grapevines, and other subtropical species, also preserve the most delicate forms of the leaves, and even the fruits and the petals of the flowers sufficiently plain for identification. How could such things have lain for centuries in a peat-bog? For these facts see Nicholson's "Ancient Life-History of the Earth," pp. 309, 310.

See also pages 311, 312, where he says that a certain butterfly (*Vanessa pluto*) is found in the Brown Coals of Croatia that "even exhibits the pattern of the wing and to some extent its original coloration; while the more durably-constructed insects are often in a state of exquisite preservation." Any other standard work will give similar statements.

Geological time may seem to have been very long, if you will not believe Genesis, *but even then* the modern fashionable custom of piling the dozen odd formations one on top of another *has absolutely nothing at all to do with it,* until they first prove, by other and entirely independent arguments, that there has been such a succession of life on the globe. But I ask with all seriousness, How will they go to work to *really prove* such a thing? They probably will not have the time. This scheme of life succession may seem to fit beautifully into a theory of universal evolution, and the arguments of Darwin might indeed pass current for whatever they are worth as evidence in favor of this premise of geology, but to ask us to listen to geology in favor of evolution is an insult to our common sense. As the great controversialist, Cardinal Newman, used to say, "There is no touching you, if you first assume your premises, and then prove them by means of your conclusion."

CHAPTER VI.

Biblical Geology.

Having shown the utterly fanciful foundation on which this pretentious system of evolutionary geology is built, we may now consider the truly Biblical science, which tells us of the one and only catastrophe that has ever befallen our world as a whole, namely, the flood of Noah. But modern skeptical criticism has thrown so much discredit on the Mosaic narrative that thousands of otherwise well-informed persons seem densely ignorant of what it really teaches concerning the Deluge and the antediluvian world. Hence it may not be out of place, before passing to the physical results of such an event, to call to mind the facts that are directly stated or implied in the first eight chapters of Genesis. I regret that my limited space will not allow me to give quotations for all my statements, and can only hope that my readers are sufficiently familiar with the record to call to mind the words there used, the spirit and teaching of which I shall strive to neither pervert nor exceed.

The earth, as Adam first saw it, was supremely beautiful. No bare, rocky cliffs towered up between him and the sunlight, frowning destruction upon his feeble steps; no wide, dreary swamps breathed pestilential vapors into his Eden home; no pathless

deserts intervened between him and distant lands. Flower and fruit and seed were produced in limitless profusion, and in almost endless variety. The elements continued to minister to his wants, without terrifying him by any violent or irregular action. For sixteen long centuries no torrents of water descended from those cloudless skies upon the shelterless heads of the infant race; but "there went up a mist from the earth, and watered the whole face of the ground."[1] Even the mild, soft climate, of singular uniformity over all the earth, north and south, was little changed after the expulsion from Eden, until that awful time when "all the fountains of the great deep" were "broken up, and the windows of heaven were opened,"[2] and a third dreadful curse rested upon the earth as the result of sin.

Again, we know that no single animal form in air or water was in the beginning formed to live at the expense of its fellows' lives. Carnivorous instincts were not an original endowment, but came in as a sympathetic result of man's sin. Death in even the animal creation is only the "wages of sin." "To every beast of the earth, and to every fowl of the air, and to everything that creepeth upon the earth, wherein there is life, I have given every green herb for meat."[3] Scientists may, if they will, prove great

[1] Genesis 2:6; see also chapter 9:13, and Hebrews 11:7, where we are told that Noah was warned of "*things not seen as yet.*"

[2] Genesis 7:11.

[3] Genesis 1:30. The animal is broadly distinguished from the plant "by inability to convert inorganic into organic matter." The plant is then an indispensable medium or transition stage from the earthy to the animal. See how beautifully this modern scientific fact was expressed nearly three thousand years ago. Ps. 104:14.

physiological changes in the structure and instincts of the animal creation since that happy beginning, amounting in some cases almost to a transmutation of species, but these changes, I believe, have been ever in the direction of degeneration, not development, as will appear later.

Until the "waters of Noah" blotted out that ancient world, and embalmed fragments of its life to minister to our modern wants, or to convince us that all creation is to-day sadly degenerate in symmetry as in size, the two-fold curse had not served to materially change the physical aspect of the world. There were evident tokens of decay; the climate was more variable, the animals had grown bloodthirsty, and all nature had grown accustomed to the enemy death.

Upon such a world, trusting in an "observed uniformity of nature" that we can scarcely imagine, came, like a blast of utter extinction, the stupendous changes of the flood. Through some astronomical or other causes which we may never fathom, the nice balance of the elements was disturbed, and air and earth were alike violently convulsed. The skies, which never before had condensed into falling drops, now grew black with universal cloudbursts, and the beds of the ocean, and the interior reservoirs of the earth, lost their equilibrium, and vomited forth their waters upon the sinking land. For five long months did this frightful state of disaster continue, until "all the high hills, that were under the whole heaven, were covered, . . . and the mountains were covered."[4] *"All flesh died that moved upon the earth,*

[4] Genesis 7:19, 20.

. . . and *every living substance* was destroyed which was upon the face of the ground."[5] Not until the twenty-seventh day of the second month of the next year, or a year and ten days, was the district of Armenia sufficiently dry to receive Noah and his family;[6] and it is reasonable to infer that a very much longer time was necessary to place the land and water in their present relative position, which is perhaps quite different from the original arrangement, there being now doubtless a far larger proportion of water surface. Submerged forests are found in almost every part of the world, as, for example, the Mediterranean, the North Sea, and the Bay of Fundy; while raised beaches, now high and dry, and almost as widely distributed, show that, as David says, the waters once "stood above the mountains."[7] The first of these facts seems to show that there is now far more water over the earth's surface than formerly, and the second that the waters subsided to their present boundaries somewhat gradually.

Just how this great event came about, we know not. Were I so disposed, I might speculate as to how such an event might have occurred, either by a sudden shifting of the earth's axis, or some other cause which would chill and condense the water vapor in the atmosphere, and send the waters already on the earth careering over the land. But such remarks would be only speculation, and very probably far short of the truth, or even an actual perversion of it.

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[5] Genesis 7:21-23.

[6] Genesis 8:13-19.

[7] Psalms 104:6.

We have had enough of speculation. I prefer to confine myself to what we actually know, either from revelation or from nature, and to show the harmonious story of the two. The real geological proofs of this harmony will be found a little further on.

There remains only one more point expressly stated in Genesis, viz., that one of the means employed in drying up the waters was "a wind," which was caused to pass over the earth.[8] Two reasons at once present themselves for inferring that this wind was no ordinary affair. The first is that Inspiration has seen fit to give us a record of it. No ordinary storm, or one not nearly as universal as the waters, would be worthy of mention in such a connection. The second reason is that no ordinary or local wind would have had any appreciable effect in drying up the remains of the Deluge that would be left after the subsidence of the ocean floor and the elevation of the present land surface. These two reasons make it a moral certainty that, if we are to take the record according to its obvious meaning, we must believe that *the greatest elemental disturbance which this world ever saw* took place at the close of the long period of submergence, and as the waters of the flood were retreating to their present boundaries.

And right here I might say a word concerning the well-known folding and doubling of the rocks seen in every great mountain range. We have already quoted standard authorities in chapter four, proving the absurdity of the current idea that our earth has a heated, molten interior. It must be solid through-

[8] Genesis 8:1.

out, and be sufficiently rigid to withstand the tide-generating influences of the sun and moon. But equally evident is it that the cause for this folding and doubling of the rocks must lie at no great depth beneath the surface. A rational view that will perfectly harmonize these apparently conflicting facts of the physicists and geologists is found in the scriptural teaching that our world had an aqueous not an igneous origin, and that, when formed, vast reservoirs of water were hidden away beneath the surface, it being largely the disturbance of these that caused the flood. Again, as most of the great mountain ranges lie near the seacoast, with the highest mountains quite near to some of the greatest depths of the oceans, we must trace some connection between these two facts. Doubtless the original causes, whatever they were, of the land, air, and water being thrown so out of gear at the beginning of the Deluge, would, when removed, allow the elements to come back somewhat to their normal positions at its close. But to accommodate the greatly-increased amount of water on the surface, vast basins would have to be prepared, and this would necessitate a pushing up of the land on one side to make the necessary room, this pushing resulting in the enormous lateral pressure that folded and contorted the rocks in such an astonishing manner.[9]

And two more lines of thought still are implied in considering the action of the elements at the beginning of the flood. When those waterspouts burst

[9] See Psalms 104:8, margin. See note on page 94, also note on page 176.

over all the earth, the deposits carried down into the valleys would now, if not disturbed by the subsequent turmoil and again rearranged, present the appearance of *coarse conglomerates,* sometimes composed of angular stones or chips, perhaps even of boulders; and would rest upon rocks perhaps entirely devoid of fossils. Such beds we do find underlying the Silurian, Devonian, Carboniferous, in fact, about all the formations; and quite generally also the rocks beneath them again are devoid of fossils, and hence probably primitive, even though stratified. Of course, there would be other related phenomena. When conglomerates are forming, we may be sure that sand and even finer silt must be settling somewhere, perhaps not very far away. And hence, perhaps over some ancient soil, we should expect to find such deposits.

The other line of facts is easily deduced from the nature of the animal creation. The smaller and more helpless animals would be first submerged; doubtless the great commotions in the sea would make countless millions of fish, shell-fish, and other, the first victims. *Their specific gravity alone would explain why we generally find crustacea in the lower strata.* The vertebrate fishes, if killed in numbers, would tend to rise to the surface. The larger animals and man would flee to the hill-tops from the rising waters, and, when finally engulfed, would be simply drowned, and not immediately covered with earthy deposits. After a few days or weeks decomposition would set in, and the countless carcasses, millions on millions in number, would *rise and float* on the surface of that shoreless ocean, to be, however, covered

up in *the superficial deposits,* perhaps at the bases of the great mountain chains, when that terrible "wind" prevailed as the waters were subsiding. This may indeed have been one of the chief purposes effected by this cosmic storm, viz., to cover up these decaying bodies everywhere floating about, and keep them from polluting the whole air with their foul stench.

Such, then, are the teachings of the Mosaic narrative. Let us note how science brings to our view the results of this work.

It is well known that the bones of the great extinct mammals, as well as those of the immense reptiles of the "secondary" rocks, are almost always found in comparatively superficial deposits, quite generally also among the foot-hills of ranges of mountains like the Rockies or the Himalayas. More than this, they are found together in such heaps, such vast numbers, as utterly to preclude the idea that they died and were buried in any ordinary way—unless, indeed, those ancient animals had graveyards and buried their dead together. Thus, in speaking of the remains of the Zeuglodon (a kind of whale), Professor Nicholson says:—

"Remains of these gigantic whales are very common in the 'Jackson beds' of the southern United States. So common are they that, according to Dana, 'the large vertebrae, some of them a foot and a half long and a foot in diameter, were formerly so abundant over the country in Alabama that they were used for making walls, or were burned to rid the fields of them.' "[10]

[10] "Ancient Life History of the Earth," p. 300.

Concerning some of the deposits of the western United States we are told that "remains of the Oreodontidæ [extinct pig-like animals] occur in such vast numbers as to indicate that these animals must have lived in large herds around the borders of the lake-basins in which their remains have been entombed."[11]

Whether Professor Marsh's attempt at explanation really explains, I shall leave the reader to judge. It was the best he could do as a uniformitarian. But such collections of ancient remains are just what the sincere believer of Moses' record would expect to find.

I might refer to the remains of the hipparion, also found in immense quantities in Europe and India, but shall confine myself to a more familiar example, those of the mammoth and other semitropical species found in such profusion in the Arctic regions. These in many cases have been so suddenly overwhelmed and embalmed in the ice that their undigested food, consisting of the boughs, bulbs, and leaves of semitropical plants, which, as we have seen, grew in that locality abundantly at that time, has been found in the stomachs of these beasts, as if the latter had been killed yesterday, proving that they were "quietly feeding when the crisis came." Most persons have read of the first specimen of the mammoth, found by a fisherman in 1799, on the bank of the Lena River near its mouth. When it finally tumbled out of the ice, after five years occupied in the latter melting

[11] Prof. O. C. Marsh, "Introduction and Succession of Vertebrate Life in America," p. 39.

around it, the naturalist who wished to secure the specimen and pelt for the museum at St. Petersburg had great difficulty in saving it from the dogs and wolves, for its flesh was in a state of perfect preservation after its millenniums of entombment. But we are speaking now only of the abundance of these remains.

"So abundant, indeed, are the remains of the mammoth that for many years they have actually been quarried for the sake of the ivory—in 1821 no less a quantity than 20,000 pounds of this product having been obtained from New Siberia alone."[12]

Flower and Lydekker say that "in the middle of the tenth century an active trade was carried on at Khiva" in the well-preserved tusks of these creatures, and add:—

"They are found at all suitable places along the whale line of the shore between the mouth of the Obi and Bering Straits, and the farther north the more numerous do they become, the islands of New Siberia being now one of the most favorite collecting localities. The soil of Bear Island and of Liachoff Islands is said to consist only of sand and ice, with such quantities of mammoth bones as almost to compose its chief substance." [13]

We might multiply such testimony to almost any extent, showing that almost all the so-called Secondary and Tertiary rocks reveal a similar state of things,—remains of land and marine life all heaped

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[12] James Geikie, "Great Ice Age," p. 459.

[13] "Introduction to the Study of Mammals, Living and Extinct," p. 430.

together in certain sections in such vast numbers as to prove conclusively to any unbiased mind that they were destroyed all together and in some very extraordinary way. The elemental tumult described in Genesis 7 and 8 seems by far the most reasonable explanation of the facts as we know them. And there is, of course, no stratigraphical evidence—the only evidence of real value—to show that all these deposits referred to above might not have been laid down at approximately one and the same time.

The way in which species suddenly appear, and as suddenly and mysteriously disappear, when the fossils are heard in evidence one at a time, according to the popular theory, ought alone to be conclusive proof that scientists have somehow got things badly mixed.

We have already given several quotations (chapter 5) on this point from Dawson, Nicholson, Clodd, and Huxley, showing the abrupt differences between their successive "ages," and need not reproduce them here, but instead will present the following from an authority equally good:—

"The abruptness with which animal remains in considerable variety first appear in very ancient deposits is undoubtedly a most remarkable phenomenon. With the exception of the still somewhat doubtful *Eozoon,* the vast series of Laurentian rocks have produced no fossils. *But the moment we enter the Cambrian formation, we at once meet with a somewhat extensive series of complex and varied organisms.*"

He then speaks of the various forms of shell-fish,

crustaceæ, corals, and sponges, of which, I believe, they have now discovered 165 species and 67 genera in this one formation; and he argues that this apparent suddenness of their appearance must be owing to the "imperfection of the record,"—there must have been lots of such forms existing for ages before, but their fossils have somehow disappeared.

"This conclusion is supported by *analogous facts, which occur and recur in every succeeding formation.* The highly-specialized corals and fishes of the Silurian rocks must have had ancestors in Cambrian times of which we know nothing."

The "sudden appearance of perfectly-developed winged insects in the Devonian formation" he explains away in the same manner, saying that it "opens up to the imagination of the evolutionist a most wonderful picture" of previous ages of development, enabling him to "clothe these ancient lands with vegetation and people them with animal life, since it is only thus that we can find space and time sufficient for the development of the wonderful insects, the land-shells, the Amphibia, and the reptiles, *all of which appear suddenly, in perfect and completely-organized forms in some parts of the Palaeozoic series;*" while in the Carboniferous rocks "such diversified and highly-specialized types of Annulosa as myriapods, spiders, cockroaches, locusts, dragon-flies, ephemeras, lamellicorn-beetles, and bombyciform moths" have been found; "that it is highly probable that *no fresh ordinal type of insects has originated during all succeeding ages.*"[14]

[14] Alfred Russell Wallace, essay on "The Distribution of Life," pp. 35, 36. Italics supplied.

And so I might go on through nearly all the formations, but can only give one more example on this point from the larger land animals, for they likewise appear about as suddenly in all their glory, almost at the very beginning of the Tertiary age:—

"At present, indeed, we have no decisive evidence of the existence of any members of the Eutherian sub-class previously to the Tertiary;"[15] and the Eutherian sub-class, as is well known, includes *all* the mammals except the monotremes and marsupials. But almost immediately, or before the close of the "Eocene period," which is the first division of the Tertiary epoch, "nearly all the chief groups of mammals had been clearly differentiated from one another."[16]

But it is tiresome to be always talking about the imperfection of the record, for, as Dawson says:—

"When we find abundance of examples of the young and old of many fossil species, and *can trace them through their ordinary embryonic development,* why should we not find examples of the links which bound the species together?"[17]

The various more or less complete breaks between successive "periods" are equally well marked and even more notorious. Just as the various groups appear suddenly and mysteriously, so do they as abruptly drop out of sight, and we see them no more. But these breaks are so numerous and so well known that it would be tiresome to go into the enumeration

[15] Flower and Lydekker, "Mammals Living and Extinct," p. 115.

[16] *Id.*, p. 116.

[17] "Modern Ideas of Evolution," p. 35, 1891, revised edition.

of them. The last and perhaps best known of all occurred at the close of the Pleistocene period, or what they call the "Glacial age," for they are now quite generally agreed that these two periods were contemporaneous and ended together. At that time there dropped out of sight those huge mammals on all the continents,—the mammoth and woolly rhinoceros in Europe, the mammoth and mastodon in North America, the great sloths and armadillos in South America, and the huge kangaroos and wombats in Australia; and along with them there disappeared those human giants found in the caves of western Europe. With regard to this one break at least, it seems quite evident that, as Dana would say, it was caused by the "flood, vast beyond conception," which was "the final event in the history of the glacier," or their great ice sheet. But while this last great break is more familiar to the world, because it deals with these huge animal forms that everybody is familiar with, there are *nearly two dozen* other breaks, more or less as extensive, which are just as familiar to geologists, though less widely known, because they deal with obscure forms that do not so appeal to the memory and imagination. But these sudden appearances and disappearances are inevitable, and just what we would expect, if, as I have said, these formations do not represent ages, but are simply taxonomic classifications in the life-forms *of a complete world that has disappeared from view.* At any rate, it would seem to be decided economy of energy to arrange for these various submergences of whole continents and wholesale extinctions of species

to occur at one time and from the same cause. For, unless we assume the succession of life, there is absolutely nothing to show that all these countless fossil forms were not cut off at approximately one time and by the same catastrophe.

Then, again, as to the character of these remains. Leaving out the lower forms of life, and dealing now only with the vertebrates, it is, I believe, true that almost all existing species have had their representative ancestors untombed from the rocky vaults. In spite of the current ideas of modern progress, the majority of these ancestors of present-day species present us with forms: (1) Larger of their kind; (2) having the characteristic organs of use or ornament, e. g., the antlers of the deer, the horns of the rhinoceros, or the tusks of the elephant, far more strongly developed even proportionately; (3) in many cases also of a larger cerebral development than their modern specific representatives. And while these three points do not absolutely prove that these fossil forms were more healthy, and in the natural course of events lived longer than the moderns, yet, taken together, they point that way strongly, almost conclusively. Hence we may add greater vitality and longevity as points wherein they probably far surpassed the species now living.

In the language of the schools, each reached its "culmination" in some of the "ages" of the past, and their modern representatives, so changed as to be scarcely identical, are acknowledged to be sadly degenerate. Where modern geologists err is in making these different "culminations" in successive

"ages" one after another; but, as we have seen, this is pure assumption. To the believer in Genesis they are all contemporary with one another, the so-called succession of life being, as we have so frequently shown, only the classification or taxonomic series, as the biologists call it, in the life of the antediluvian world. The fossils, if allowed to tell their story in concert instead of in single file, proclaim in thunder tones that degeneration has marked the history of every living form, even since the flood, though even these fossils are doubtless far beneath the forms originally created.

As for the proofs of these three assertions given above, I do not consider such at all necessary. The first is certainly too notorious.[18] The second is almost equally well known. As for the third point, about cerebral development, I am well aware that Prof. E. Ray Lankester and others have written various works showing the increased size of brain in "recent" or modern mammalia, as compared with "their early Tertiary or Mesozoic forebears." But

[18] "Thus the brute races of the Middle Quaternary on all the continents exceeded the moderns greatly in magnitude. Why, no one has explained."—Dana's Geological Story Briefly Told, p. 229. Ivison, Blakeman, Taylor & Co., 1875.

"Nothing is more evident in the history of the fossil animals and plants of past geological ages than that *persistence or degeneracy are the rule rather than the exception*. . . . We may almost say that all things left to themselves *tend to degenerate*, and only a new breathing of the Almighty Spirit can start them again on the path of advancement. This idea might, perhaps, form the basis of a new philosophy of creation more profitable than that of evolution."—Modern Ideas of Evolution, appendix, by Sir J. W. Dawson, 1891 (Italics supplied).

what manner of bearing has this fact—for fact it undoubtedly is—upon my statement above? I have not said that the reptiles or marsupials of the Trias, for instance, had as large brains proportionately as modern placentals or even the extinct ones of the Post-Pliocene. The higher types in the taxonomic series, ancient or modern, certainly have larger brains than the lower types. It is one of the principal *reasons why* they are classed as "higher" in the scale. And, as I contend, the huge placental mammals of the Eocene, for instance, can only be "proved" more recent than the marsupials of the Trias by showing that they are higher in the scale of life. Let objectors only stop a moment, and they will see that all I claim is that the ancient types generally show, on every point on which their remains enable us to form an opinion, a far more perfect development than their modern specific representatives; and this general statement I feel sure there is no competent authority so rash as to deny. We, the conceited dwarfs of the present, are slow to believe what glorious plant and animal forms existed before the flood.

The same strong evidence to the historic truth of Genesis is given us when we consider the question of climate. Every "age," from "Silurian times" down to the "recent," bears witness, through its coral limestones, or remains of plant and land animal life, that the climate in which these forms lived was of the most mild and genial description, and singularly uniform, "periods during which the whole northern hemisphere enjoyed a *kind of perpetual summer.*"[19] The

[19] James Geikie, "Great Ice Age," p. 97.

same species have been found distributed over all this continent from Florida to Labrador, and even far within the Arctic Circle, a singular uniformity of climate that we can scarcely comprehend. These facts agree well with what we know of antediluvian times. The cloudless, rainless skies of those glorious days when the earth was young betoken a vastly different condition of the atmosphere from what we have to-day. But what is our astonishment when we are told, almost in the same breath, that every formation, from the "Silurian" to the "recent," presents unmistakable evidence of "ice action" over the same areas and *practically at the same time!* Talk about credulity! What, then, becomes of our "one great act of faith,—faith in the uniformity of nature,"—about which we used to hear so much from Professor Huxley? Why, this invoking the power of ice action in a semitropical climate is contrary to their own favorite "law of parsimony," which, we are told, "forbids us to invoke the operation of higher causes to account for effects which lower causes suffice to explain." How can they have the assurance to bid us leave the plain, consistent, and eminently reasonable explanation of Moses, and accept this "rotation of climates," as James Geikie calls it, without the most undoubted evidence that the phenomena spoken of was really caused by ice action?

No wonder the latter author exclaims:—

"Geologists are staggered by the appearance of glacial deposits in the Permian, a formation whose fossils indicate mild and genial rather than cold, climatal conditions. The occurrence in the Eocene,

also, of huge, ice-carried blocks seems incomprehensible when the general character of the Eocene fossils is taken into account, for these have a somewhat tropical aspect. So likewise the appearance of ice-transported blocks in the Miocene is a sore puzzle."[20]

That is, palms and other tropical plants grew abundantly in England, and the cinnamon and fig, with palms, etc., grew in North America, in both Eocene and Miocene "times;" while in the latter, many evergreens, together with luxuriant ivies and vines, large-leaved oaks, and walnuts, and even Sequoias (like the pines and "big trees" of California) and magnolias, grew in Northern Greenland, *"within twelve degrees of the pole."*[21] I should think that glaciers over Europe in such a climate were rather a "sore puzzle" for the most ingenious "uniformitarian."

To make the matter worse, they are finding these evidences of "glacial action" over such enormous areas that many of our leading investigators are becoming dazed at the problems involved in making their theories appear even moderately reasonable. For a long time they have taught us that a great winding-sheet of ice extended over the northern regions down to about 40° north in America, and to about 50° in the Old World, though curiously enough confined between the Missouri River and the Dakotas on the west and the Ural Mountains on the east. Agassiz, indeed, and others of the older geologists, taught that the glacial winter was cosmic, i. e., encrusted the whole globe with ice; and, as we have seen in the previous chapter, the strong evidence of this

[20] "Great Ice Age," p. 480.

[21] Nicholson, "Ancient Life-History," p. 310.

comparative universality at least was made the basis of the "interval" or "restitution theory" of creation, which was started by Buckland and advocated by many others. But this idea of a universal coat of ice has been gradually hushed down by the ridicule of modern geologists, most of whom, as evolutionists, of course can not believe in the *great break* in the succession of life which this would involve. Besides, it would labor under the grave inconvenience of harmonizing too closely with the Biblical story of a universal deluge, if for *ice* we only substitute *water*. But more recently they have been finding abundant traces of the same phenomena in different parts of Australia, India, South Africa, and South America—tropical or semitropical countries—though in some cases they are obliged to locate them in "Permo-Carboniferous times," that is, contemporary with the luxuriant vegetation of the coal beds, and though in each case they say the deposits *are stratified,* and therefore could not have been produced by glaciers.[22]

[22] See the outline of a remarkable paper by Professor Penck, in *Nature*, Feb. 21, 1901, p. 405. I know that many, perhaps I might say most, of the leading geologists think that the astronomical theory of successive glacial ages through all "geological time," advanced by Croll and advocated by James Geikie in his "Great Ice Age" above referred to, is not justified by the facts of their science. See "Controverted Questions of Geology," Article II, by Joseph Prestwich, Macmillan & Co., 1895. But the various theories that are substituted—there are nearly a dozen of them—in the endeavor to account for a glacial age *at all* between the warm Tertiary and equally mild Post-Pliocene, are none of them satisfactory, while the evidences of *somewhat similar phenomena in all the other formations*, as quoted above from James Geikie, can not be denied. The plain, simple facts are certainly more explicable on the hypothesis of a universal Deluge than on any other yet advanced.

But these things are no longer puzzles, nor are such minor occurrences as marine forms mixed up with the coal and land plants with the deep-sea limestones, already referred to, if we only forget this ever-haunting specter of the succession of life, and remember that all these deposits were laid down at that universal churning up of the soil of the ancient world, the Noachian Deluge.

With the positive proofs of semi-tropical conditions far within the Arctic Circle, I can not believe that there was at the time of the flood sufficient ice even about the poles to come down over the submerged earth as icebergs, though Dawson has told us that the facts in eastern North America could be sufficiently explained in this way. But as the great tempest of the subsiding Deluge occurred *after* our climate had radically and *suddenly* changed, as witnessed by the entombment of the mammoth, etc., in the ice, and also *at the close of our northern winter,* we may well imagine floating ice to have had some share in the distribution of the "drift." But it is not at all necessary to take every apparently unstratified deposit containing angular stones as having been produced by moving ice, to say nothing of glaciers. When water really gets in a hurry, it can pile things up in quite a wonderful manner, its transporting force varying directly as the *sixth power* of its velocity. That is, "a stream flowing twenty miles an hour will carry one million times as much as a stream flowing two miles an hour," and would be capable of moving blocks of stone "of 320 tons and upwards." And hence, even in some modern instances, it would

bother some of our uniformitarians to find any stratigraphical arrangements in the work it does. As has been remarked, it is not difficult to imagine some sudden shifting of the earth's axis, so chilling our atmosphere as to precipitate its moisture to the earth in universal cataracts. Some mass of hydrogen, like that of Donati's comet of 1858, floating through space, may have been attracted into our atmosphere, and, after robbing us of a vast amount of our oxygen, have descended upon our world in mighty waterfalls. If we suppose the first of these views, the interior reservoirs of water, "the fountains of the great deep," would also at the same time, and because of this change of equilibrium, exert such a pressure upon the crust as to break forth in mighty rivers over the trembling earth. Perhaps the second of these causes may be considered as contributing to bring about the first, though I know they tell us that a comet is "lighter than vanity," and hence would not be supposed capable of disturbing the equilibrium of our earth. But I must leave these considerations for our astronomers to speculate about.[22]

[23] Since this chapter was in type, I have had the (to me) great pleasure of reading "The Glacial Nightmare and the Flood," in two volumes, by Sir Henry Howorth, F. R. S., F. G. S., etc., whose other work on the Mammoth I have quoted below second-hand from Professor Zahm. Of this one I have only space here to say that I consider it a masterly and unanswerable argument that mere ice in any form and postulated in any quantity will not explain the drift phenomena, while a violent movement of the waters will do so perfectly. His books certainly indicate the turn of the tide in modern scientific opinion. It is a pity that this one before me is so full of typographical errors. But in spite

Then, again, when the waters finally subsided, and the world was as it is to-day, with its present extreme climate in the north and south temperate zones, as every green thing had been destroyed, and most fruitful seeds buried too deep to germinate, even

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of this I believe that many good authorities regard it as *a sort of epitaph* of the current glacial theories, though, of course, it will be some time before these theories will cease to be taught as "science" to our little children in the public schools.

A good many authors, Sir William Dawson among the number, have thought an extraordinary tidal movement of the waters to be indicated by the Hebrew expression "going and returning" (Gen. 8:3, 5, margin), which is used about the waters when retreating to their present boundaries. I had not attached much importance to the idea, but a striking passage in Howorth's work has recalled it, and I give it here for what it is worth, though Howorth himself does not by any means approve of a shifting of the earth's axis as a possible cause for his diluvial wave, or "wave of translation," but rather postulates this flood of water being caused by some sudden movements of the ocean bed. He expressly declares a disturbance of the earth's axis to be almost unthinkable, but adds:—

"If this were done on a great scale and rapidly, it would no doubt cause a change in the latter axis [its old axis of revolution], and, as Professor Houghton says, the earth would begin to wabble, and it would continue to wabble, as a top does when going to sleep, until the two axes had again coincided. Meanwhile, however, *the crust of the earth would be tremendously shattered and dislocated*, and, as Mr. Twisden has shown, *two vast tide waves* would sweep the earth, submerging the equator *every 150 days* to a depth of six miles or more" (vol. 1, p. 343). With this let the reader compare the *150 days* mentioned in Gen. 7:24 and 8:3, and draw his own conclusions, though I submit that a tidal disturbance one-tenth part as great would be sufficient to explain all the phenomena of the flood, and almost sufficient to account for the mountain-making and folding and doubling of the soft superficial strata at its close. See note, page 94.

if they could stand a year's submergence, there would for many years be little vegetation to keep the great coats of ice from sliding down the sides of all our northern mountains in the spring, when the frost began to relax. The first few succeeding centuries may, on account of the desolate condition of the earth, have been tenfold more extreme in climate than the present, which would be sufficient to account for all the positive proofs of former greater glacier extension in the Alps and other mountains. Taken together, these things would seem to afford a much more reasonable explanation of the observed facts than any of the theories of the geologists.

There are other points in connection with these so-called "glacial" phenomena that offer very inviting fields for study in this connection, illustrating how easily the Biblical story will immediately solve the other stock puzzles of the geologists. Some of these would be problems in connection with the numerous "interglacial periods," such as the well-known Dürnten beds, in Switzerland, consisting of lignite ten feet thick, with "glacial" deposits both above and below; and the many cases where remains of reindeer, musk-ox, and other animals *at present* inhabiting Arctic regions, are found mixed up with those of other animals *now* found only in the tropics, such as various kinds of elephants, rhinoceroses, and even a hippopotamus, the latter of which at least could not possibly live where the streams froze over even in winter. But if the climate of antediluvian times was uniform all over the globe, as the fossils and the Bible alike testify, then these animals must certainly

have lived together in about the same latitude, their very diverse habitats now having been a wise adaptation of instinct to suit the changed climatic conditions of the present. We may even suppose our present Arctic types being originally adapted to the high mountains and tablelands. Either of these considerations seems far more reasonable than the idea of the numerous glacial epochs, with the animals careering after one another alternately up and down the earth, like droves of crazy Scandinavian lemmings, across bays and seas, as their migration theory involves. No wonder Sir Henry Howorth pronounces the theory of the great Ice Age, as understood by glacialists generally, to be "the wildest dream which a fertile imagination ever imported into science." In the most emphatic terms he declares that he does not "believe in interglacial periods, in a great, overwhelming ice-cap, in the physical possibility of land ice moving for hundreds of miles over level plains like that of Poland, or in the possibility of tropical America being so glaciated that the valley of the Amazon was filled with ice."[24] But I shall not follow these ideas

[24] Quoted from "The Mammoth and the Flood," by Sir Henry Howorth, in "Bible, Science, and Faith," p. 253, by Prof. J. A. Zahm, 1894. Professor Zahm gives some references, which I also repeat here for those of my readers who may wish to go into this subject more fully,—the *Scottish* and *Edinburgh Reviews* for October, 1893; the *London Quarterly Review* for January, 1894; the *Nineteenth Century* for February, 1894; also recent numbers of the *Geological Magazine*. From what little I know of the current controversies about the glacial period it seems very evident that the modern uniformitarian geology has, of late years, been growing so top-heavy with absurdity that a crash is inevitable before long.

further, inviting though they be. I think I have given enough to show that the geologists have quite long enough followed Spencer's plan of "reconciling facts" to suit their theories, and might profitably try the reverse for a little while.

I think I have already referred to Dawson's "Meeting-place of Geology and History" (1894). In this he has occasion to speak of human remains found in anteglacial deposits. Some of these he disposes of quite readily; not so, however, with others. And in considering the unimpeachable testimony of M. Quatrefages concerning a nearly perfect skeleton found near Brescia in undisturbed Pliocene beds, as well as almost equally reliable evidence of man's existence at least in "Miocene times," Sir William's treatment of the matter seems to me far from satisfactory. Incredible as it may seem in such a respectable authority, he is even driven to talking about the flint implements being "the handiwork of Miocene apes"! But these ancient remains, even from their standpoint, do not in any way tend to confirm the evolution theory, for the skeleton for which the great French anthropologist stands sponsor has a well-developed skull, "superior to those of the ruder types of post-glacial men."[25] As Wright remarks, "Eternity itself is *scarcely long enough* for the development of species if the rate of change is no greater than is implied if man and his companions, both of the animal and vegetable kingdoms, were *substantially what they now are* as long ago as the date often as-

[25] "The Meeting-place of Geology and History," pp. 28, 29.

signed to the great Ice Age."[26] More especially is this true, then, if man dates from "Pliocene," perhaps even "Miocene times." According to Dr. Croll's theory—the one most generally received—the so-called Glacial Period began about 250,000 years and ended about 80,000 years ago. The Pliocene was the preceding one, say from 500,000 years down to the beginning of the Glacial Period. The Miocene preceded this, and if man existed then, it might carry us back a million years more or less. Indeed, says Prestwich, "One friend of ours, in a public lecture, even put in a claim for *two millions.*"[27] When it was only a matter of some 10,000 or 20,000 years of a *total blank* between this first appearance of man and the beginnings of civilization and history, a blank during which man made no progress, most scientists with little faith in the Bible were disposed to attack the problem with some courage. But when the tens of thousands mount to hundreds of thousands, or even to millions, no wonder that the most courageous of them shake their heads in despair, and say there must be *something wrong.* For there is not a shadow of doubt that in scores of cases human remains have been found in deposits which would otherwise be placed *far back in "Tertiary times."* But surely here is one of the strongest possible evidences that the geologists have somehow got things mixed, and that their "formations" do not and can not represent "ages," but are simply taxonomic classifications in the life of the antediluvian world.

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[26] "Great Ice Age of North America," chapter 20.

[27] "Controverted Questions," p 8.

Returning to our main subject: It seems evident that the chief difference between the world as we know it and the world before the flood is due to some great change in the atmospheric conditions. Those rainless skies, with a semitropical climate universal over the globe, are proof of this; as is also the long life of man and the great vigor and luxuriance of the animal and vegetable forms found fossil in the rocks. They all speak to us of an atmosphere more vitalizing than we have now. It would even seem probable that ordinary decay and fermentation were then comparatively unknown, for in the first recorded instance of the kind,[28] it seems to have been altogether a new and unexpected result. Whether there was more carbonic-acid gas in the air then, and whether any material increase of this would be consistent with the great vigor of the animals, I know not. It would seem to account for the luxuriance of the plant life. Simply a denser atmosphere might allow far more water vapor to be suspended in it without precipitation, and might, as Tyndall thought, account for that singularly uniform climate over all the world. I have already suggested that some mass of burning hydrogen floating in space might have been attracted into our atmosphere, and might in that case have robbed us of a large share of our oxygen, leaving our breath-supply in the impoverished condition in which it is at present. What has really produced the change, we may never know in this life; but certain it is that there has been a great alteration in our atmosphere since those glorious, balmy, spring-like days, when the earth was young.

[28] Genesis 9:20, 21.

But one more point deserves notice ere closing. The coal plants of the Carboniferous beds, they say, are nearly all ferns, club-mosses, pines, etc. Now we can not for a moment think that the antediluvian forests were composed entirely of such plants. We might believe that the different classes of plants were segregated more into districts by themselves than now, just as we sometimes find quite extensive forests composed of but one kind of tree, say maples or spruces; though it would seem that the washing of the water would be likely to mix them all up together. Doubtless the varying specific gravities of the plants in question may have had something to do with classifying them off together as we find them. Or the plants may have been buried quite near where they grew, by the action of the rising water, assisted partly by the tides, as certainly seems to be indicated in the coal beds at the head of the Bay of Fundy. But what of the *other trees* that must have existed at this same time?—Just this: There are abundant proofs of them in the lignites or brown coals, composed of such plants as conifers, beeches, oaks, maples, plane trees, walnuts, magnolias, vines, figs, palms, etc., etc., which are found in almost every part of the world; and we have also abundant proofs in the character of their remains that they were suddenly overwhelmed, for the delicate forms of the leaves, and even the petals of the flowers, have in many cases been accurately preserved. But the geologists, according to the nature of their "science," *have put these lignites in the other formations,* because, forsooth, their plants are higher in the scale of life.

"Workable coal seams, however, occur in the various other formations (Jurassic, Cretaceous, and Tertiary), so that coal is not an exclusively Carboniferous product."[29]

Lignite beds of these formations have been found in almost all parts of the world,—in England, on the continent, in various places in western America, in Australia, over a large part of eastern Asia, as well as in Greenland and Spitzbergen within 12° of the north pole, as already mentioned elsewhere. Nor are they thin or insignificant in extent. On the contrary, these brown coals are among the most abundant of all. Of many examples, I can give but one, from Victoria, Australia, as described by Mr. Sterling, the government geologist of that colony, before the Imperial Institute in London:—

"A bore put down by the government at Maryvale, near Morewelltown, has proved 780 feet of brown coal, in *beds more than 260 feet in thickness.* . . . Six hundred square miles of these Tertiary brown-coal beds are known to exist in Victoria, of which 300 square miles, with 31,144,390,000 tons of the fuel, occur in the Latrobe Valley."[30]

Then, again, we must remember that very few if any of the plants have been identified that went to produce our anthracite or hard coal, so abundant in Wales and Pennsylvania. Indeed, in ordinary bituminous or soft coal, while many of the plants have been identified as ferns, club-mosses, and Conifers (allied to the existing pines and firs), yet it would

[29] Nicholson's "Ancient Life-History of the Earth," p. 157.

[30] *Nature*, Nov. 21, 1901, p. 59.

be rash to say that no other plants are found in coal of this sort. We also know that there is *every possible shade of gradation* between the most graphitic hard coal and the only slightly-altered lignite, which seems more like pressed wood than anything else. And while, of course, there are real differences throughout in the kinds of plants, which can well be understood as due to distinctly different kinds of forests being buried near where they grew, yet I think it might be quite successfully maintained that the principal difference in character may be far more generally due to differences in the amount of pressure and of the heat generated by the plants themselves, the lignite having "lost less of its original constituents than coal" because subjected to less pressure,[31] and doubtless, also, less spontaneously generated heat and chemical change. For it is a well-established fact that in any given bed of considerable thickness the *heat-giving qualities increase with the depth,* i. e., the lower is more changed than the upper. Again, almost all kinds of coal contain traces of the yellow sulfids known as pyrites, which, Dawson says, are "an indication that sea-water had access to these beds *while the vegetable matter was still recent;*"[32] and the astonishingly well-preserved character of the plants themselves in very many cases shows positively that they were buried *while the plants were still green,* leaves and flowers and fruits being all reproduced before us as when they grew. It is impossible that such things could have lain for centuries rotting in a peat-

[31] See Prestwich, "Controverted Questions," p. 38.

[32] "Acadian Geology," p. 164.

bog, as is commonly supposed. No, these lignites at least were formed from forests suddenly buried, and we naturally infer that *all* coal has been formed in this way. And by what manner of evidence, save on their ubiquitous succession of life, can it be proved that all these various kinds of coal are not contemporaneous and buried at the same time?

As we have already remarked, "modern analysis tends to the conclusion that our world is solid throughout."[33] Good! They are only getting back to the words of David and Job. May we not hope that it will not be long before the more candid among our naturalists will go back even further, and believe the old-fashioned story of a complete world destroyed for its wickedness by a cosmic Deluge? For it is certain that modern discoveries in geology are fast developing a gigantic *reductio ad absurdum* argument against the theories of Hutton and Lyell.

During the past hundred years, while science has been pouring such silent, but none the less eloquent, contempt upon this story of a universal Deluge, how many Christians (?) have secretly wished that this troublesome record was not there! How many would almost have liked to cut it out if they only could have done so on the sly! Even now, with the scientific witnesses crowding together from all sides, like a very theater crush, and the nineteenth-century fabric of evolutionary geology built up with such indefatigable care already tottering to its fall, there will be thousands of well-meaning men who will still present their captious questions and insist on our answer-

[33] *Nature*, Feb. 28, 1901, p. 414.

ing them here and now. They will ask where we would get water enough to cover the Alps or the Himalayas. We must remind them that, as Dana says, "there is nearly three times as much water surface as land surface, the relation of water to land area being 2¾ to 1. The average depth of the sea is 13,000 feet, the average elevation of the land being 1,000 feet. The ocean, then, is *thirteen times as deep as the land is high*, and has a surface area of 2¾ times as large as that of the land;" that there is about 36 times as much water below sea-level as there is land above it. Consequently, as another author remarks, "if the entire present land surface of the earth should sink into the ocean, it would raise the level of the water only a little more than 200 feet, which is only three times as much as the tide sometimes rises in the Bay of Fundy."[34] More than this, they must remember that the Alps, Himalaya, and all the great mountain ranges, *are built up of geological strata* laid down, perhaps, nearly horizontally by the waters of the Deluge, but folded and elevated to their present height by the great lateral pressure that accompanied its subsidence.

They may further object that the ark, with its nearly 100,000 square feet, or over two acres, of flooring, and its 30,000 or 40,000 tons capacity, and though thus capable of carrying 5,600 men and provisions for eighteen months, would nevertheless be insufficient for its task of carrying sample pairs of all the land animals. Hugh Miller declared it impossi-

[34] Dr. F. G. Wright, "Geology and the Deluge," *McClure's Magazine*. June, 1901. p. 138.

ble, and so did Dr. Geikie. But A. R. Wallace and Prof. H. A. Ward tell us that the 1,700 species of mammalia average in size the *gray fox* or the common *house cat;* and Dr. Howard Osgood, and others equally reliable, declare, with irrefutable figures, that the above dimensions of the ark are amply sufficient to carry twice the number of sample specimens required, as well as twice the amount of food; in short, that the problem is entirely within the bounds of ordinary water transportation.[35]

However, it is not at all necessary to suppose that anything like the present number of so-called "species" were represented in the ark by separate pairs of ancestors. Whatever Darwinism may have failed to do, it has at least shown us that they are not all species (in the broadest sense) which are called "species." For example, we know that such an extreme type of pig as the short-nosed Berkshire has actually been produced from the extremely different Wild Boar (*Sus scrofa*). Flower and Lydekker enumerate over twenty species of wild pigs scattered over the Old World, and think it probable that they will all *"breed freely together."*[36] We also know that such diverse types of dog as pug, greyhound, and Scotch terrier have been produced within historic times from some wild type, perhaps of the wolves or jackals, or from the crossing of several. Possibly the whole family *Canidae* may represent but one or two original types, and the almost countless species of deer and antelope but a very few distinct pairs of ancestors; though, of

[35] See D. T. Taylor's "Christianity and Science," pp. 12, 13.

[36] "Introduction to the Study of Mammals," pp. 284, 285.

course, if I were looking for any such ancestral forms among the fossils, I would not look *lower* in the scale of life, as the evolutionists do, but *higher;* I would look for specimens larger and better developed in every way than any similar modern species. It has long been considered that the various species of brown bear of Europe and Asia, as well as the grizzly bear of North America, are probably only well-marked varieties, and the latest investigators in the caves of Belgium seem to consider them *all identical* with the gigantic cave bear (*U. spelaeus*) of the Pleistocene deposits,[37] with which, as Dana says, *"these modern kinds are dwarfs in comparison."* These modern fine specific distinctions are, of course, eminently proper, because very convenient. But it is evident that, if we take a broad view of species, and believe all modern types to be of common descent, which would probably, under favorable circumstances, prove cross-fertile with one another, the problem of accommodation in a vessel of 30,000 or 40,000 tons capacity presents no difficulties whatever.

Another and much more formidable objection I can do little more than allude to. They may ask us how from the one center of Armenia, the thousands of land animals became geographically distributed as they are to-day; especially how the various species in many cases *wandered back to the very same lands where they had been before, and where their fossil ancestors lay buried.* The distribution of plant forms I may pass over as entirely insignificant, as their seeds or roots might remain in the soil; the insects and birds present

[37] See *Nature*, Nov. 7, 1901, p. 13.

few difficulties; and I might reply that the geographical distribution of all animals from Armenia after the Deluge, presents very similar problems, and very few more of them, than the evolutionists have so long practised themselves in solving. I shall not attempt to explain these puzzles in detail, and can only attribute the marvelous results visible to-day to that same inscrutable instinct, the tangible proof of the Divine Immanency, which, as the Bible declares, "bids the swallow observe the time of her coming."

The little opossums of America, to say nothing of other reasons, forbid the evolutionists to make Australia the original home of the Marsupials, as they would dearly like to do. Similar cogent necessities make it much more convenient to have even the Edentates of South America (sloths, armadillos, and ant-eaters) originate in the Old World. In fact, they are compelled to postulate Eurasia as the birthplace of about all the important land animals; and they are particularly careful when disposing of their great ice-sheet to provide a good, warm, dry strip of land from Asia to America via Alaska, so as to admit of the free passage to and fro of the "Pleistocene mammals." But if the evolutionists' fauna can thus distribute themselves over the world, guided by nothing but chance or their personified "adaptation," it will not require a high degree of faith to believe that, guided by a divinely-implanted instinct suited to the necessities of the situation, the whole of the land animals might, in a few hundred years at most, become again distributed over the world as we now have them, even though we may not be able to bid the continents rise and subside as they do to facilitate the process.

If the distribution of these surviving animals depended upon such chance work only as the evolution theory can command, we might consider the chances appallingly great against the sloths, armadillos, etc., finding their way back to South America, where their relatives (surely not their ancestors!), the colossal Megatheriums and Glyptodons lay entombed; or against the Marsupials finding their way back to Australia, where, as A. R. Wallace says, "extinct wombats as large as tapirs, kangaroos the size of elephants, and a phalanger nearly as large as a lion," lay buried in the cave deposits. But we believe in there being such a thing as instinct—something above mere habit. We are not appealing to anything supermundane when we assume an instinct that will lead animals over immense distances in search of suitable food or suitable climate. The food plants of South America and Australia would again be substantially the same as before the Deluge, *in kind* at least, as seeds or roots in the superficial deposits would erelong spring up near their former habitats; and thither the instinct of these animals would lead them—I will not say back again, for doubtless all the actual specimens saved in the ark were gathered from some comparatively-limited area near at hand; but let us say to the former feeding-grounds of similar animals. And why not? If these distant countries were to be restocked with animals of any sort, *these might as well go there as any others.* And if a pair of bobolinks hatched in New Brunswick can find their way practically alone, and with many stops and stays, down across the equator, clear into the heart of South

America for their winter home, a journey not short of 4,000 miles, or *a sixth part of the whole distance around the globe,* to return without fail next spring to their northern birthplace, we have no need to postulate anything "supernatural" to suppose that the extraordinary circumstances of their situation would lead all the creatures preserved in the ark to scatter over the earth in search of the most suitable food and climate. From the eleventh chapter of Genesis we learn that the Lord commanded mankind to "scatter abroad upon the face of all the earth," and it would be according to the usual thing if, while men were disobedient, the dumb brutes obeyed the instinct of their Maker.

> "The world was all before them, where to choose
> Their place of rest, and Providence their guide."

But I must now give a few examples to show that the problems are not exclusively confined to this side of the question.

Those sad-eyed, ghostlike-looking animals called lemurs are now, as to their typical forms, confined to the island of Madagascar. The fossil species, of which Flower and Lydekker enumerate over a dozen, are as exclusively confined to the west of Europe and North America; and these gentlemen remark, "It is very noteworthy that all these types seem to have disappeared from both regions with the close of the upper portion of the Eocene period."[38]

Where they think they existed in the meanwhile, during the millions of years from "Eocene times"

[38] "Introduction to Study of Mammals," p. 696.

down to the "recent," I have no idea. Doubtless that old "geological scapegoat," as James Geikie has called the imperfection of the record, will have to stand the blame, as is usual in such cases; for this strange cus tom species have of *skipping several formations* rep resenting a few million years, is quite the ordinary thing according to the popular arrangement of the fossils, though, as Wallace says, "No one now doubts that, where any type appears in *two remote periods,* it must have been in existence during the whole intervening period, although we may have no record of it."[39]

Professor Marsh tells us that he has unearthed with his own hands *"not less than thirty distinct species* of the horse tribe in the Tertiary deposits of the west alone."[40] But when the whites came here to the New World, they were *all* extinct. No wonder he says, on page 32, that *"no satisfactory reason for the extinction has yet been given."* If we accept the account of the Deluge, this has an intelligible meaning; otherwise it will always be a puzzle.

But this is only one out of the many problems in race distribution that the evolutionist is called upon to solve even here in America. As is well known, the remains of the mastodon, elephant, and rhinoceros are found over nearly all North America. "Why the mastodon, elephant, rhinoceros, and especially the horse, should have been selected with the huge edentates for extinction, and the other ungulates left,

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[39] "Distribution of Life," p. 33.

[40] "Introduction and Succession of Vertebrate Life in America," pp. 30, 31.

is at present a mystery, which their somewhat larger size hardly explains"[41]

No one but one accustomed to see the huge specimens of almost all life forms, as found in the rocks, drop out of sight and be succeeded by their meager and puny descendants or representatives of to-day, would ever think of assigning large size as a *reason for* extinction. The unscientific mind would certainly expect such types to "persist." Their failure to do so seems a strange example indeed of the "survival of the fittest."

And this complete extinction of not less than *thirty distinct species* of horse, Flower and Lydekker observe, "is the more remarkable, as, when introduced from Europe, the horses that ran wild proved by their rapid multiplication in the plains of South America and Texas that the climate, food, and other circumstances were highly favorable for their existence. The former great abundance of *Equidae* in America, their complete extinction, and their perfect acclimatization when reintroduced by man, form curious but as yet unsolved problems in geographical distribution."[42]

Surely a few stubborn facts of this magnitude will offset almost any number of objections about it being "impossible," in the 4,000 or 5,000 years intervening, for the animal forms to become redistributed over the world as we find them to-day.

The Glyptodon, a huge, extinct, South American armadillo, over nine feet long, or about as large as a

[41] *Id.*, p. 52.

[42] "Introduction to Study of Mammals," pp. 381, 382.

rhinoceros, as Wallace says, presents a problem quite similar to that of Professor Marsh's animals "of somewhat larger size," though perhaps some may say that it is not particularly connected with geographical distribution.

" 'Why such a form as the Glyptodon should have failed to keep his ground is,' as the late Prof. W. R. Parker remarks, 'a great mystery; nature seems to have built him . . . for eternity.' "[43]

If the problem were only to account for the mysterious disappearance of the mammoth, rhinoceros, and mastodon, together with "not less than thirty distinct species of the horse tribe," from North America, *all at one time,* it would be hard enough for the most ingenious uniformitarian to render a plausible explanation. But when we consider that at this same "geological period" *similar events were occurring on all the other continents,*—the huge ground-sloths (Megatheriums) and Glyptodons in South America; "wombats as large as tapirs," and "kangaroos the size of elephants," in Australia; the mammoth and woolly rhinoceros in Eurasia; together with an enormous hippopotamus, as far as England is concerned, to say nothing of cave-bears, cave-lions, and cave-hyenas, with which, as Dana says, the "modern kinds are dwarfs in comparison," *all disappearing together at this same time,*—it becomes almost like a deliberate insult to our intellectual honesty to be approached with offers of "explanations" based on any so-called "natural" action of the forces of nature. But when,

[43] *Id.*, p. 204.

in addition to all this, we consider the fact, which is now established beyond controversy, that those human giants of the caves of western Europe, which Dawson calls Palæocosmic (or "ancient-world") men, *were positively contemporary with the animals mentioned above, and disappeared also with them at this* same time, it becomes as certain as any other ordinary scientific fact that our once magnificently-stocked world was destroyed by a sudden and awful cataclysm, which the Bible speaks of as "the flood;" and with renewed courage and faith we turn again to this dear old Book, which has told the same story all these centuries.

Let us now glance again at some of the points we have tried to establish in these two chapters on geology:—

1. The whole science of the modern classification of the rocks into successive "ages" rests upon two pure assumptions: (a) That the action of the elements during all past time has been uniform with the present in character, perhaps in degree; (b) that there has been a development, or at least a succession, in the life upon the globe.

2. The first of these assumptions is a point-blank denial of the record of the Deluge.

3. The second being the very backbone of the evolution theory, it is preposterous to bring in their geology as evidence for evolution. It is "circular" reasoning of the most glaring kind.

4. From the Biblical standpoint this succession of life is but the classification or taxonomic series in the life of the antediluvian world.

5. The various phenomena of canyons and river gorges might reasonably have been accomplished within the limits of Biblical time, if the action of the elements began when the deposits were soft and freshly laid.

6. The successive strata of coal have not been proved, and can not be proved, to have been produced by growth *in situ*. The same may also be said of the limestones. On the contrary, both the limestones and the coal beds often give us unmistakable evidence that they were buried or formed suddenly in some extraordinary way.

7. The fossils invariably supply us with specimens larger of their kind, and showing a far more complete all-round development, than their modern specific representatives, if they have any, whether crustaceans, vertebrate fishes, insects, reptiles, marsupial, or placental mammals, or even man.

8. Many of these relics of ancient life are found together in such vast numbers as utterly to preclude the supposition that they were accumulated in any ordinary way; while they are in just such position and numbers as we might expect if thousands of them had been drifted together on the surface of the water to the foot-hills of the great mountain ranges, and buried there by the storms of the subsiding Deluge.

9. The numerous examples of the sudden appearance of species, as well as the numerous breaks in life between successive formations, are just what we should expect if these arrangements are only taxonomic classifications in a complete world destroyed at one and the same time.

10. All the "formations," so far as we can judge, give us proofs of a milder and more equable climate than we have at present.

11. All, save the Cambrian and Laurentian, which are largely metamorphic, give us very coarse conglomerates, unstratified, angular deposits, or large "traveled" boulders, which have usually been attributed to ice action, with all the involved absurdities of something worse than a "rotation of climates." But all of these phenomena are readily accounted for on the hypothesis of a violent and universal Deluge.

12. The glacial theory, as generally received, involves so many absurdities that it is pronounced by one of the latest and best authorities to be "the wildest dream which a fertile imagination ever imported into science."

13. The discovery of well-developed human remains in Pliocene, perhaps Miocene, strata is one of the strongest possible proofs that these names do not and can not possibly represent "ages," but simply taxonomic classifications in the life of the antediluvian world.

14. The lignites and coal seams of the Secondary and Tertiary rocks were undoubtedly covered up at the same time as the Carboniferous deposits, or the "true coal" formations, there being absolutely nothing save the visionary succession of life to prove that they were not contemporaneous.

15. In short, the destruction of *a whole world of magnificently-developed plant and animal life* by the violent waters of a universal Deluge is seen to be not only possible, but scientifically certain. The evidence

therefore explains the geological phenomena far more easily than a century of ingenious guessing along the lines of uniformitarianism has done. To plain common sense the rocky leaves of nature's dairy are even now becoming eloquent to the truth of Genesis, just as the monuments of Assyria and Egypt have these many years confirmed in thunder tones the truth of Old Testament history.

CHAPTER VII.

Despairing Darwinism.

As far as Darwinism pure and simple is concerned, it must be already evident to my readers that most of the voluminous matter written on the subject, both pro and con, is very wide of the mark, so far as having any real bearing on the Biblical position is concerned. The evolutionists always *quietly rule the true Biblical position out of court,* and formulate as its proxy a figment of their own imaginations, which is little better than a travesty on Genesis and God. Then, having very easily proved this proxy to be a liar, they imagine they have demonstrated the falsity of at least the first part of the Bible.

But let it be clearly understood that the real question between Genesis and Darwinism is not whether species may not vary in a few million years sufficiently to produce practically new and distinct species. The fossils show us that species have varied sufficiently to produce very distinct morphological or structural differences, and in vastly less time than they have imagined. Species will vary—have varied. But the real question is whether the general run of these changes have not all been in the direction of degeneration, not development, degeneration in size (and doubtless longevity), in symmetry of structure, and in cerebral development. This I can not help regard-

ing as the real fundamental question, and a question very easily answered by even a casual reference to the fossils, if allowed to tell their story in concert instead of in the enforced single file of the geological series. A study of embryology will, I believe, lead to the same conclusions, if we once dismiss from our minds this ever-haunting phantom of phylogenesis having any possible bearing on the question. At least Weismann has told us "that an investigation into the history of degenerate forms often teaches us more of the causes of change in organic nature than can be learned from the study of the progressive ones."[1]

What is the use of talking about the origin of species if geology can not prove that there has actually been a succession and general progress in the life upon the globe? What if this geological life-succession be only the classification series in the life of the antediluvian world? Is it worth while talking about the development of superior types by natural selection during the paltry six thousand years of Biblical time?—No one would dream of such a thing. Think of the origin of even one of our organs, such as the eye,[2] by any process of survival of the more

[1] *Nature*, April 18, 1901, p. 590.

[2] "From what I know, through my own specialty, both geometry and experiment, of the structure of lenses and the human eye, I do not believe that any amount of evolution, extending through any amount of time, consistent with the requirements of our astronomical knowledge, could have issued in the production of that most beautiful and complicated instrument, the human eye. There are too many curved surfaces, too many distances, too many densities of the media, each essential to the other, too great a facility of ruin by slight disarrangement, to admit of anything

fit during the historic period, no matter how long drawn out. Darwin used to say that the thought of the origin of the eye gave him a "cold shiver," even with the unlimited time at his command that the geologists had taught him to believe in. His modern followers would be put into convulsions if you limit them to even a hundred thousand years, and especially if you do not give them ready made their general outline of evolution through geologic time.

And the case is only made the more hopeless for them since "Neo-Darwinism," or "pure Darwinism," became established. Weismann, in Germany, and Wallace and Lankester, in England, are names to conjure with to-day in the halls of science; but they have felt compelled to *fall back on natural selection alone as the one and only cause of evolution.* They claim to have proved that "changes in the individual, whether as the effect of the environment or by use

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short of the intervention of an intelligent Will at some stage of the evolutionary process. The most perfect, and at the same time the most difficult, optical contrivance known, is the powerful achromatic object glass of a microscope; its structure is the long-unhoped-for result of the ingenuity of many powerful minds; yet in complexity and in perfection it falls infinitely below the structure of the eye. Disarrange any one of the curvatures of the many surfaces, or distances, or densities of the latter, or, worse, disarrange its incomprehensible self-adaptive power, the like of which is possessed by the handiwork of nothing human, and all the opticians in the world could not tell you what is the correlative alteration necessary to repair it, and still less to improve it, as natural selection is presumed to imply." (Quoted from Thornton, in Wainwright's "Scientific Sophisms," chapter 13, par. 14.)

and disuse of organs, *are not inherited at all.*"[3] And I believe that most naturalists have accepted this idea. But if, with the three or four factors contributing to development as Darwin postulated them, they could only imagine the development of the higher life from the the lower, if granted almost unlimited time plus the geological succession of life *ready made,* what would be their "shivering," what their despair, if (1) narrowed down to any reasonable time, and (2) deprived of their indispensable life-chain, and (3) at the same time strictly limited to natural selection alone as the sole factor in the process! For in the pictures of men and animals on the monuments of ancient Egypt, the races and species are so nearly identical in all respects with their modern descendants that the only wonder is how, in the short time intervening between that dawn of history and the antediluvian age, such surprising changes could have taken place from the forms we find fossil in the earth, though, as we have seen, these great changes were doubtless due to the greatly-changed atmospheric and climatic conditions, as well as of food supply, than which nothing could be more potent.

Hence, if I have really established anything in my two preceding chapters on geology—and if I have not, this whole book is useless and superfluous—it will not be expected of me that I should enter into a detailed explanation of the possible results of variation and the survival of the fittest through their unmeasured geological ages, though a general view of the subject may not be amiss.

[3] Le Conte's "Evolution and Religious Thought," p. 93.

If we take specimens of the strawberry or the wild rose found growing in the fields, we can, by fostering care and wise selection of the "fittest," obtain such improved varieties as to be scarcely identical, at least in appearance, with the forms with which we started. But even if we ignore Genesis altogether, and *regard only the magnificent forms of plant and animal life that are embalmed in the rocks,* these will be readily seen to be only recovering from their degeneration and reverting back to the primitive types because we have more nearly returned to the primitive conditions of soil, climate, etc. But even the best we can produce must be only approximate reversions, for we can only hope to approximate to that glorious climate and that vitalizing atmosphere which our earth must have had when these magnificent fossil forms were embalmed in the rocks as irrefutable testimony of the Edenic beginning of our world. According to Genesis, those climatic conditions were such that no parching drought was ever known, and no drenching torrents of rain washed out the most valuable plant food from the soil; but in the cool twilight hours every separate plant was converted into a condenser. The record states that "there went up a mist from the earth, and watered the whole face of the ground,"[4] just as Mr. J. Aitken has told us would be the case even to-day if there were no dust particles in the air on which the water vapor could condense.

But no one pretends that anything more than varieties, i. e., types cross-fertile with their parents,

[4] Genesis 2:6.

have ever been produced and perpetuated by any action of natural or even artificial selection within the historic period. Hybrids can in some cases be produced by perverting or deceiving natural instincts in animals, or by forced fertilization in plants; but hybrids are either sterile or speedily revert to one of the parent types, and then where is the commencing species? You can, by patient and very close breeding, produce types as utterly unlike as pug and greyhound among dogs, or carrier and tumbler among pigeons. But then, very close breeding weakens the stock, especially in fertility, while judicious crossing of diverse types strengthens the stock and increases its fertility; that is, though the above-mentioned varieties are so utterly unlike in appearance, they are perfectly cross-fertile, and their progeny speedily tend to become uniform or homogeneous if left wild, as in a state of nature. On the other hand, the horse and the ass, though almost infinitely more alike to outward appearance, will not cross in a state of nature, and when induced to do so by man, produce a hybrid that is perfectly sterile. In Huxley's very candid letter to Charles Kingsley he says:—

"If Carrier and Tumbler were physiological species equivalent to horse and ass, their progeny ought to be sterile or semi-sterile. So far as experience has gone, on the contrary, it is perfectly fertile. . . . It has been obvious to me that this is the weak point of Darwin's doctrine. He *has* shown that selective breeding is a *vera causa* for morphological species; he has not shown it a *vera causa* for physiological species."[5]

[5] "Life and Letters," 1900, vol. 1, p. 239.

This is the way all through nature, so that, although Professor Huxley has told us elsewhere, "I adopt Mr. Darwin's hypothesis, therefore, subject to the production of proof that physiological species may be produced by selective breeding," yet we know that this long-desired "proof" is still eloquent by its absence, though for nearly half a century the thousands of biologists have been ransacking every corner of the globe to find it. In fact, most scientists candidly acknowledge that, however "plastic" they may imagine them to have been in the past, species are now fixed within certain limits, beyond which we have never yet been able to carry any product of variation.

Mr. Darwin has, by his ingenious theory of sexual selection among animals, and insect selection in plants, given a plausible explanation for beauty among the higher forms. But the lower forms of all organisms, plants or animals, and *through which they say all the higher forms have come,* are a-sexual or hermaphrodites; and these comprise the vast majority of all living forms. But here Mr. Darwin's ingenious explanations are powerless, for "the most gorgeous beauty is lavishly distributed, even among the lowest animals, such as marine shells and polyps, where no such explanation is possible. *The process by which such beauty is originated and intensified is wholly unknown to us.*"[6]

Again, how did the a-sexual, or unisexual, methods of reproduction pass into the bisexual, or the marvelous complications of the placental system and the

[6] Le Conte, "Evolution and Religious Thought," p. 270.

mammalian method of fostering the helpless infant by the parental milk? Two learned English authors have, I believe, tried to tell "how" in a large octavo volume of several hundred pages; it could not well be made plausible in less. As an eloquent writer declares, "God creates a new thing in the earth when He hangs the nursling on the mother's breast, and bids the two be as one."[7]

[7] As illustrating some of the problems involved in the doctrine of survival of the fittest, which is only a recondite way of denying design in nature, take the following from Professor Owen: "The new-born kangaroo is an inch in length, naked, blind, with very rudimentary limbs and tail. In one which I examined the morning after the birth, I could discern no act of sucking; it hung, like a germ, from the end of the long nipple, and seemed unable to draw sustenance therefrom by its own efforts. The mother accordingly is provided with a peculiar adaptation of a muscle (cremaster) to the mammary gland, by which she can inject the milk from the nipple into the mouth of the pendulous embryo. Were the larynx of the little creature like that of the parent, the milk might, probably would, enter the windpipe and cause suffocation; but the foetal larynx is cone-shaped, with the opening at the apex, which projects, as in the whale tribe, into the back aperture of the nostrils, where it is closely embraced by the muscles of the 'soft palate.' The air passage is thus completely separated from the fauces, and the injected milk passes in a divided stream, on either side of the base of the larynx, into the oesophagus. These correlated modifications of maternal and foetal structures, designed with especial reference to the peculiar conditions of both mother and offspring, afford, as it seems to me, *irrefragable evidence of creative foresight.*

"The parts of this apparatus can not have produced one another; one part is in the mother, another part in the young one; without their harmony they could not be effective; but nothing except design can operate to make them harmonious. They are *intended* to work together, and we can not resist the conviction of this intention when the facts first come before us." (Quoted in Wainwright's "Scientific Sophisms," chapter 13, par. 12.)

But St. George Mivart has put the climax on this line of argument when he asks how natural selection is to explain the *very first steps* of advance toward usefulness. "An organ must be already useful before natural selection can take hold of it to improve it. It can not *make* it useful, but only *more* useful. For example, if fins commenced as buds from the trunk, it is difficult to see how they could be of any use, and therefore how they could be improved by natural selection until they were of considerable size, and especially until muscles were developed to move them. *Until that time they would seem to be a hindrance, to be removed by natural selection, instead of a use to be preserved and improved.*"[8]

This last is the enigma thrown out for those to solve who believe in natural selection as the one and only factor in organic evolution.

For, about 1887, when the writings of Professor Weismann began to make it evident that acquired characters are not inherited, the believers in evolution became divided into two opposing schools, and started what we may venture to call the modern scientific civil war. And while victory is certainly inclining more and more to the side of the followers of Weismann, assured peace is not yet in sight.

The "Neo-Darwinians" not only say that no actual example proving the undoubted transmission of acquired characters has ever been adduced, but they give examples where such an idea would be absurd. In the case of bees and other insects it is the "neuters"

[8] Le Conte's "Evolution and Religious Thought," p. 271; D. Appleton & Co., 1899.

which do all the work, while the real fathers do not work at all; neither does the mother; and yet the newly-hatched offspring are perfect architects from the start. "In many species of ants there are two, and in the leaf-cutting ants of Brazil there are *three,* kinds of neuters, which differ from each other and from their male and female ancestors to an almost incredible degree."[9] They then argue that, since these striking examples of complicated structures and wonderful instincts have been produced "without the aid of use inheritance—nay, in spite of its utmost opposition"—why should we suppose that the latter has played any part in the production of other organisms?

On the other hand, the "Neo-Lamarckians" argue that the influence of environment and the effects of use and disuse "must be true factors, *because there was a time when there were no others.*"[10] And they show, as in the above-quoted argument of Mivart, that natural selection can never explain the *first steps* in the advance toward usefulness. "An organ must be already useful before natural selection can take hold of it to improve it." And, of course, this insuperable difficulty looms up in the case of *every separate organ of every organic type.*

But, between the two of them, what is there left of Darwin's doctrine, anyway?

If an individual positively can not transmit to his posterity what he has acquired in his lifetime, how can he transmit what he has not even got himself, and what none of his ancestors ever had?

[9] Ball's "Use and Disuse," p. 15, American reprint.

[10] "Evolution and Religious Thought," p. 94.

Or, if natural selection can not start a single organ of a single type, what is the use of talking about its supposed ability to improve them after the machinery is all built?

No wonder Sir William Dawson could say in 1891 that "Darwinism seems to have entered on a process of disintegration;"[11] or that Dr. Stölzle, of the University of Würzburg, whose "careful and scholarly" work is reviewed in a recent number of *Nature*,[12] can say that "Darwinism, for scientific circles at least, is at its last gasp. Weismann, the toughest champion of Darwinism, can now write over all his works devoted to the rescue of the selection principle, *'In vanum laboravimus.'* "

We can now better understand Mr. Spencer's style of argument, already referred to in the previous chapter, that, "before it can be ascertained *how* organized beings have been gradually evolved, there must be reached the conviction that they have been gradually evolved." They reached the general outline of this preliminary "conviction" nearly a hundred years ago, when the geologists invented the idea of a succession of life on the globe; and the last fifty years or so has been devoted to ascertaining *"how"* this remarkable phenomenon has come about, trying to "reconcile the facts" of biology with the "ascertained succession in geological time." Since the transmission of acquired characters and natural selection alike fail, one would think that all possible explanations of the *"how"* were about exhausted. But with the preliminary convic-

[11] "Modern Ideas of Evolution," p. 12.

[12] Nov. 28, 1901, pp. 76, 77.

tion strong within them, we still see a few groping about after some "unknown factor," some internal tendency to progress, about as scientific as Topsy's "'Specks I growed."

Behold the sad results of trusting to human reason for these hundred years above the Word of the infinite God!

Dr. Alfred Russell Wallace, who is almost a prince among English scientists, is quite sure that man, at least, must present positive exceptions to the theory of evolution. "The hand of man," he tells us, "contains latent capacities and powers which are unused by savages, and must have been even less used by palaeolithic man and his still ruder predecessors. It has all the appearance of an organ prepared for the use of civilized man, and one which was required to render civilization possible."

Also, in speaking of the "wonderful power, range, flexibility, and sweetness of the musical sounds producible by the human larynx," he says: "The habits of savages give no indication of how this faculty could have been developed. . . . The singing of savages is a more or less monotonous howling, and the females seldom sing at all." "It seems as if the organ had been prepared in anticipation of the future progress of man, since it contains latent capacities which are useless to him in his earlier condition."[13]

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[13] Quoted in "Scientific Sophisms," chapter 12, par. 20.

I know not whether Dr. Wallace has, of late years, reversed any of these statements about man's physical frame, as so many others have done, but I know that he still holds that man's mental facul-

The illustrious Dr. Rudolf Virchow, of Berlin, has long been known as uncompromisingly opposed to calling evolution scientific. At the conference of the Association of German Naturalists and Physicians at Munich, 1877, he declared, "We can not teach, we can not pronounce it to be a conquest of science, that man descends from the ape or any other animal."

More recently we have another German, Professor Klaatsch, of Heidelberg, declaring at the late congress of German anthropologists at Halle (Oct. 15, 1900), that the hypothesis of the direct descent of man from apes was "no longer tenable."

Nor would I forget to mention the brilliant address of Lord Salisbury, then president of the British Association, delivered before that body at Oxford, in 1894, in which he propounded some good problems for evolutionists to think over.

I must, however, conclude these rambling citations with another from the late lamented Mivart, who died under the excommunication of the Roman Church because he could not bring his sense of justice to assent to the horrible doctrine of eternal torture. We have already shown in the first chapter that true Christianity is under no obligation to those myriad

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ties can not possibly be the product of evolution, though it is a great pity if, as seems to be the case, he has only clung to this because of his well-known interest in Spiritism.

Dr. Virchow (quoted above), though I understand himself not a believer in divine revelation, is a striking example of one of the very foremost scientists of the world still holding out against evolution by demanding more positive evidence than its advocates have ever been able to supply, even with all their geological "ages" taken as actual facts.

writers who have gratuitously created needless difficulties for the scientists by claiming that man must have an immortal soul, a double that survives the death of the organism that we call the brain and nervous system, which is evidently in some mysterious way the physical basis of thought and mind. It would be needless for me to say that I can not conceive of the human mind apart from an organism of some kind, though I do not mean to say it must be matter. "There is a natural body, and there is a spiritual body." The Scriptures teach a hope in the future life only through a resurrection and glorification of our present bodily and physical organism; *and the church in all its purest ages has contemplated the future only in the light of this blessed assurance of the resurrection.* Perhaps no other one doctrine among the thousands of parodies that have been palmed off on a credulous world as Christianity has confirmed so many in unbelief as this hypothetical immortal soul and its final corollary, the God-dishonoring doctrine of eternal torture.

The quotation that I give below from Professor Mivart is taken from one of his earlier writings, in which he pronounced Mr. Darwin's "Origin of Species" to be a "puerile hypothesis," and its distinctive characteristic "a conception utterly irrational." However, I regret to say that some years later, overpowered by numbers, he went over to the side of the Darwinians, and, as I mentioned above, died under the ban of the Catholic Church.

But this was his conclusion in the seventies of the late century:—

"Thus, then, in our judgment, the author of the 'Descent of Man' has utterly failed in the only part of his work that is really important; . . . and if Mr. Darwin's failure should lead to an increase of philosophic culture on the part of physicists, we may therein find some consolation for the injurious effects which his work is likely to produce on too many of our half-educated classes."[14]

Thus even among that very large class who had unconsciously, in assenting to the guesses of the geologists as to the past history of our globe, admitted the main outline of the evolution theory, there are many of our leading scientists who can not force their common sense to all its frightful conclusions. But what if it can be shown that still another fallacy has crept into the first stages of the process? Would it not render the whole thing one of the most astonishing exhibitions of the gullibility of the human mind, and illustrate Mr. P. T. Barnum's famous maxim that the public "like to be fooled"?

I shall now try to show where I think this other unscientific assumption has worked into the chain of evidence, *in addition* to the unwarranted guessing about the geological succession. As we have already said, it is only when we look at the history of organic forms since the culminating types were laid down for us in their rocky beds, whether we hear them in concert, or even in single file, as the geologists prefer, that we may get any adequate conception of how variation has acted in the long run. Scientists always

[14] Quoted in "Scientific Sophisms," chapter 12, sec. 20.

reason that if variation is practically unlimited, natural selection will tend to secure the transmission of organs or types more useful or more fitted to survive. And we should naturally think that the full development by use of any organ would be likely to be transmitted to the offspring, Weismann and the others to the contrary notwithstanding. But it seems to me that if we reason that a fierce struggle for existence would tend in general to develop a higher organism, or one more perfectly fitted for the contest of life with the environment, this is only *assuming in addition that hardship in general will tend to develop the finer points of the organism*—and this whether acquired characters are transmitted or not. It might—nay, I may say that we know that it does—do so in man; for it is in the northern climates that man has perfected modern civilization. A too easy or pleasant environment in man results in degeneration; hardship tends to draw out his better qualities, mental and moral at least, though, as we shall see, perhaps not the physical. As Pope in his familiar lines declares, it was for the best interests of the human race that the Creator—

> "Called for a cloud to darken all their years,
> And said, 'Go, spend them in a vale of tears.' "

But just here we must reason carefully. This is only true of man in relation to his mental and moral nature, or after what the evolutionists call the "rational factor," has come in. Hardship is not in itself good for man's physical development, except in so far as benefit results indirectly from stimulating his mental and moral nature, and thus reacting on the

physical, enabling him to provide a better environment for himself, and at the same time inspiring him to discard those vices of a luxurious environment which tend to degeneration. It is only man's proneness to these vices which keeps him from receiving only benefit from the utmost favorable environment, as do plants and animals. The latter are not thus ensnared by enervating moral and physical habits resulting from opportunity; but when all nature favors and smiles upon them they develop according to the full law of their heredity.

But when the lines of their environment become hard and stern, which they have always said are the conditions most favorable for inducing or perpetuating variations, they have no mind or will power that, by seeing a distant goal for effort, can rise superior to present circumstances, and thus make of their hard lot stepping-stones "to higher things." There is only an effort as far as possible to avoid present evil consequences by fleeing these dangers and hardships, or a blind submission when compelled to yield. In the pitiless struggle for existence, which is one of the present sad conditions of our fallen world, the strongest, the swiftest, or the most cunning may indeed survive; but the question is, In the case of the variations induced or perpetuated by an unsuitable environment, such as of food, climate, etc., *is the sum total of these changes in the direction of a more perfect development or the reverse?* Surely we must acknowledge that, whatever it may do in the way of developing special organs or senses to counteract these changed conditions, yet, in its general results, its sum total

of effects, it must and can only tend toward degeneration in size and ideal symmetry of structure, as well as decrease of longevity and vitality. *Hardship in either plants or animals does not develop, it degrades.*

We thus see that this survival of the fittest would at the most *only delay or partly neutralize* the natural tendency of a hard environment to bring about degeneration of the type, all *favorable* variations being only so many makeshifts to counteract as far as possible this general tendency downward. It is certainly not in the crowded centers of plant or animal life, where the struggle for existence is no metaphor, but an actual reality, that we naturally look for the highest types of any given species.[15] Changes in plenty may be induced and perpetuated in the direction of adaptation to their environment, but such changes would be only makeshifts, and only approximately tend to avoid the inevitable degeneration resulting from unfavorable conditions.

And, looking at this matter a little more closely, it is seen to follow inevitably as a corollary from the doctrine of the conservation of energy, which is only the scientific statement of the fact that, as far as our world is concerned, creation is complete; or, as declared nearly 2,000 years ago, "The works were finished from the foundation of the world."[16] We can neither create power nor destroy it, though, as they say, we can lose it, at least as far as this world is con-

[15] Sir William Dawson, who, of course, was no mean scientist, argues in his "Origin of the World," p. 228, that the struggle for existence "*will give chiefly depauperated and degraded forms.*"

[16] Hebrews 4:3.

cerned. The vast energy that comes streaming to our earth from the sun is transmuted back and forth in a thousand ways, though little by little infinite space steals it from us, and we are dependent again upon a fresh supply from the ever-replenished fountain.

Just so, though only in a more ideal sense, is it with regard to what I may venture to call vital energy—*omne vivum e vivo* (life only from antecedent life). Not only so, but *omnis cellula e cellula* is now equally well established; one kind of cell can only originate from a similar antecedent cell. As a noted biologist has declared: "The cells from which the optic nerve, for example, is developed, can not be developed into the auditory nerve, nor cells from which the auditory nerve is developed, into the optic nerve." "One kind of cells can not give origin to another kind of different endowments."[17]

But we also know that cells or organisms are subject to degeneracy and decay. They can not acquire higher powers, though they may gradually lose what they already have. Water very readily runs downhill, but not uphill without a sufficient head behind it. Just so with vital types. It was the great French anthropologist M. Quatrefages, was it not, who remarked that science had not yet explained how "an ancestor can transmit to his posterity what he has not got himself"? Not only so, but he can not always

[17] "The Evolution of the Human Race from Apes," etc., p. 28. By Thomas Wharton Jones, F. R. S. He was Huxley's instructor in physiology at Charing Cross Hospital, and of him Huxley says: "I do not know that I ever felt so much respect for a teacher before or since."—Life and Letters, vol. 1, p. 21.

transmit all that he himself actually possesses of nature's gifts. Vitality becomes lessened, and the type degenerates. Weismann has made great use of this idea in his doctrine of "Panmixia," or the withdrawal of selection, which always results in degeneracy. Selection may serve to counteract this tendency, but only approximately. As Dawson says, "*All things left to themselves tend to degenerate.*"[18] Little by little the endowment of vitality bestowed upon our world at the beginning has, like radiant energy, been returned to God who gave it; but, unlike radiant energy, He has established no regular source of supply from without, no elixir of life for creation in general. As the individual grows old and dies, so do species degenerate and become extinct. The glorious flood of vitality, so liberally showered upon our world in the beginning, has been ebbing lower and lower; and the doctrine of organic nature steadily advancing from the lower to the higher is seen to be as puerile as the old idea of *creating energy by perpetual motion machinery*—and a mistake of precisely the same nature. Both are contradicted by the magnificent law of the conservation of energy, which, as we have said, is only the scientific statement of the scriptural idea, long ago declared, that, as far as our world and system go, creation is complete; though, as the "wages of sin," death has been decreed upon the individual, and degeneration more or less marked upon every vital type.

And this view of nature in general is made absolutely certain by an appeal to the rocks. When we regard

[18] "Modern Ideas of Evolution," p. 250.

all the fossils older than the "recent" as contemporary with one another, and begin to compare them with their puny, degenerate descendants, whether among the mollusks, reptiles, mammals, or even any variety of plant life, we are always met with the testimony that *degeneration has marked the history of every living form since the Deluge;* and who can picture the extent of this degeneration that even the fossils must present since those happy days of peace when the Creator, looking upon the finished product of His work, "took delight," and pronounced them "very good"—no briars or thorns; no parasites; no animal form living at the expense of its fellows' lives; no sickness or suffering; no death throughout man's whole dominion; because man himself was in harmony with his Creator? But man rebelled against his God, and all nature witnessed to him of his fall, weeping in mute sympathy with his remorse. A ceaseless struggle for the supremacy, for even existence, was introduced, the "conception" or generating power of the females of all creation being greatly "multiplied"[19] to compensate for this abnormal warfare. And every such struggle, at the expense of its fellows' comfort or lives, as it generally is, must degrade, because contrary to God's original purpose of universal peace and harmony for all nature. The "tooth-and-claw" phase of nature is not the normal but an abnormal state of things, and hence must degrade even those that survive.

But species have not only been degenerating, as

[19] Genesis 3:16.

we have said, in size (and doubtless in longevity), in symmetry of structure, and in cerebral development (among the higher forms), but countless species are gone altogether, leaving no descendants.

> "From scarped cliff and quarried stone
> She cries, 'A thousand types are gone,
> I care for nothing, all shall go.' "

Even within the historic period hundreds of beautiful plant and animal forms that the Creator placed upon the earth to beautify the landscape and enjoy the free air of heaven, have been extinguished by the greed and cruelty of man. The fossils of the past, the developing embryos of the present, as well as our own experience within the historic period, with one voice testify that degeneration and decay have marked the history of every living form. Just as the individual grows old and dies, so do species degenerate and become extinct.

Mr. George Ticknor Curtis, in his splendidly-reasoned book "Creation or Evolution?" has given a *reductio ad absurdum* along this line, illustrating the limits of variation, that is too good to omit, even though quite long:—

"If the theory that the different species of animals now known to us have been evolved successively by descent from some primordial simplest form, through modifications induced by change of habitation, of medium of life, and accumulation of new structures occurring through an immense period of time, be a sound hypothesis, the process which has evolved superior out of inferior organizations ought, in consistency with itself and with all its supposed condi-

tions, to be capable of being reversed, so as to lead to the evolution of inferior out of superior organisms. For, although the doctrine of evolution has thus far been applied only to facts which are supposed to show an ascent in the scale of being, the argument ought to be equally good for a descent in the scale of being, provided we take care to include all the elements and causes of a change of structure, mode and medium of life, and the necessary element of time, in the operation of the process. The imaginary case that is about to be put shall include all the elements of the evolutionary hypothesis, and will serve to test at least the rationality of that theory.

"Let it be supposed, then, that there was a period in the history of this earth when the whole human race, however it originated, was confined to an island, thousands of miles from any other land. This race of men, adapted to a life in one medium, the air, may be supposed to have so far advanced in the ruder arts of hunting and fishing, and in the higher art of tillage, as to be able for many generations to support life by what the sea and the land would put within their reach, and by the product which their rude agriculture could extract from the soil, or which the soil would spontaneously yield. But as the centuries flow on, the population begins to press upon the resources of the territory, and the struggle for life becomes very great. At length a point is reached where the supply of food from the land becomes inadequate to sustain the population, and what can be made up from the sea will not supply the deficiency. The population will then slowly decrease; but, while this

decrease goes on, there comes in a disturbing cause which will prevent any adjustment of the supply of food to the diminished number of the consumers. The sea begins by almost imperceptible, but steadily progressing, encroachments to diminish the area of dry land; a change of climate reduces the number of other animals available for human food, and reduces the productive capacity of the earth. Then ensues that struggle for existence which is supposed to entail changes of medium of life, and to induce transformations of structure. The conditions of existence have become wholly changed. The wretched descendants of a once comparatively thriving race are dwelling on a territory which has become a marsh. They have no means of migrating to another territory; they can only migrate to another medium. They begin by feeding exclusively on what the water will afford. They pass their lives in the pursuit of a prey which lives only in the water, and in this change of life they acquire or develop organs adapted to the new condition, organs which, in such miserable reproduction of their own species as can go on, they transmit to their offspring. Modifications upon modifications accumulate in this way through untold periods of time, until at last a new aquatic or a new amphibious creature is formed, and the difference between that creature and his remote ancestral human stock is as great as that between man and the seal, or between man and any fish that swims. Still, there will be peculiarities of structure retained, which might lead any inhabitant of another world, alighting on this globe and undertaking to trace the origin

of this new creature, to the supposition that he was akin to a race of men whose fossil remains he might find buried in some stratum beneath the marsh, which was the last habitat of this unfortunate race, when it had all the characteristics of its original type.

"Is it conceivable that this transformation could take place? Could such a condition and situation result in anything but the *utter extinction* of the human race, or, in other words, in an *absolute break?*"

"But now let us go a step further in this imaginary case. Let us suppose that after this new creature, fish or amphibian, descended from the human race, has inhabited the water surrounding the ill-fated island for a million of years, another great change takes place. The water begins to recede from the land by gradations as slow as those by which in the former period it encroached. The land rises from the low level to which it had sunk, by volcanic action. Forests spring up upon the sides of the mountains. The soil becomes firm; verdure overspreads the fields; the climate grows genial; the wilderness blossoms as the rose. Allow another million years for this restoration of the territory to an inhabitable condition. Slowly and in an unbroken series of generations the aquatic creatures, descended from the ancient human inhabitants of the island, emerge from the sea and betake themselves to the land. Modifications upon modifications accumulate; new organs are acquired; the survival of the fittest perpetuates them; the animals ascend in the scale of being, until the human type is again evolved out of the degraded descendants of the population, which two million

of years previously dwelt as men upon the island, and carried on in some primitive fashion the simpler arts of human life. Is not this just as supposable as the evolution of the human race out of some lower form of organism? Are not all the elements,—time, migration from one medium to another, change of conditions, and what is supposed to lead to the production of different organisms,—just as powerful to produce the inferior out of the superior as to produce the superior out of the inferior, and so on interchangeably. The answer in each case is that all such modification in the animal kingdom is limited; that when once a distinct species is in existence, we have no evidence that it loses its distinctive type or merges itself in another, although the earth may be full of evidence that types which formerly existed are no longer among the living organisms."[20]

Like the fossil remains of the lower animals, the general results of discovery of the remains of palaeocosmic man give us pictures of degeneration since, not development. They have found nothing which, to my mind, gives any weight of argument against the Biblical picture of the antediluvians as a race with magnificent physical and mental powers, though de-

[20] "Creation or Evolution," pp. 252–256; D. Appleton & Co., 1889. I would commend the logical exactness of this book to those of my readers who have grown tired of the slipshod methods of "proving" things so common in most of our scientific works. If Mr. Curtis had not tacitly conceded to the evolutionists all their geological absurdities, and had not also burdened his pages with the hopeless and wholly gratuitous task of proving an immortal soul for man, such a book as this of mine would be largely superfluous.

graded in morals and habits: that they existed in such a luxurious condition of climate and natural surroundings as to make agriculture comparatively useless, as it is even now in all semitropical countries; that they had no written language; that with their long lives and retentive memories, and at only a few generations, as generations then counted, from the creation, they might be immoral, and in their outlying tribes, as in western Europe, even vile and bestial in their habits, but in body and brain showing evidence of their heritage of physical and mental health.

I have already referred to this subject in the previous chapter, and can do little more here. Of course, there have been found many rude specimens of our species of ancient times, and countless primitive weapons and implements, which they always assume must prove the barbarous, almost bestial, character of their authors. But right along with these, and doubtless of about the same age, are found the magnificently-developed beings of Cro-Magnon and Mentone, strong of limb and large of brain. "*Their cranial capacity was above that of average Europeans of the present day.*"[21]

[21] From the "Hunterian Oration," delivered in the theater of the Royal College of Surgeons of England on Feb. 14, 1901, by Mr. N. C. Macnamara, and reported in *Nature*, March 7, 1901, pp. 454-458. For the latest and best book on this subject that I know of I would refer the reader to "The Meeting-place of Geology and History," by Sir J. William Dawson, LL. D., F. R. S.; Fleming H. Revell Co., 1894.

It would be altogether foreign to my purpose to go into the details of this subject of primitive man. I can only give three quotations, which will serve to illustrate the Scripture statement that "there were giants in the earth in those days":—

Some of these ancient men, like the old man of Cro-Magnon, had lived to such an extreme age that, though every tooth was sound, they had been worn

"More recent discoveries at Mentone have confirmed the conclusion that this man really represents a race of giants, some of them seven feet high, who inhabited southern Europe in the palanthropic age."—Meeting-place of Geology and History, p. 58.

"The Cro-Magnon race has a brain-case of more than ordinary capacity, a more elevated forehead [than the Constadt race], and eye-sockets singularly elongated horizontally. Broca has measured the cubic contents of the Cro-Magnon skull, and gives as the result 1,590 cubic centimeters, or 119 centimeters more than the average of 125 modern Parisian skulls. The Constadt men were of moderate stature, but strongly built and muscular. The Cro-Magnon race was of great stature, some skeletons approaching to seven feet in height, and affording evidence of immense muscular development."—*Id.*, pp. 81–83.

Mr. Macnamara, also, in the lecture quoted from above, speaks of the great stature of these people buried in the caves, and remarks that "*a race of giants in far-distant times was no myth.*" But when, in following his one criterion of craniology, he assigns to "the same race" the similarly well-developed skulls found in the famous *long dolmens* of England and other parts of western Europe, he is at least very misleading, if not flying in the very face of the geological evidence. For nothing is more evident than the distinct break or difference in fauna, climate, and area of land surface, between those men of the "Mammoth Age" and the men of the long dolmens or temple-tombs, caused by what the geologists are pleased to term the last great submergence of western Europe. As Dawson says, "*No geological fact can be better established than the post-glacial subsidence.*"—Meeting-place, etc., p. 88. And this "subsidence," which, of course, means the Flood of Noah, intervenes between "Palæocosmic" and "Neocosmic man," as Dawson calls them. Of course, it is but natural that the earliest races after the flood should resemble in their skulls the more worthy types of the antediluvians, though in physique we are told they were "of feeble build" and "short stature."—Dawson, Meeting-place, etc., p. 103.

down to the very sockets. The extreme antiquity of these skeletons is beyond question, and only by reasoning in a circle can the archaeologists prove that they are not as old or *even older* than many of the rude or degraded specimens that they are constantly holding up before us as our primitive ancestors. Indeed, from this new view of geology, the presumption is that the Cro-Magnon and Mentone types are really older than the more bestial—"more simian" ones, as they call them—for the former were *certainly buried carefully by their friends before the Deluge;* while many of the latter, found as they are in the river gravels, were doubtless destroyed by the waters that were sent to stop them from further dishonoring the name and degrading the image of their Maker.

Following the lead of Thomsen and the other Danish archaeologists, modern scientists have been in the habit of classifying ancient human remains into the Stone Age, the Bronze Age, and the Iron Age, with various subdivisions. These different "ages" are based on about the same general arguments as the geological ones, and are about as scientific. But though it has been so frequently pointed out that the Stone Age does not mark any fixed period of human history, that some tribes may be using stone while others not very far away may be in a high stage of civilization, and that, from the standpoint of metallurgy, as Mr. John Percy and Colonel Tschering have pointed out, the Iron Age[22] should *precede* that of

[22] Mr. H. R. Hall, of the British Museum, who is an authority on Egyptian antiquities, in his recent work on "The Oldest Civ-

bronze, not follow it, still the whole arrangement fits into their preconceived ideas of evolution, and they think it is good enough as a "working hypothesis."

"According to the brilliant researches of Dr. Schliemann at Hissarlik, the site of ancient Troy, and at Mycenae, there was neither a Stone Age nor a Metal Age in Greece and Asia Minor. More than this, the arguments that the evolution school of archaeology has based on the development of civilization, as attested by the alleged gradual transition from the use of stone to that of bronze, and from bronze to iron, are here decidedly negatived. In the finds at Troy especially there is the most striking evidence of devolution, or degeneration, of the inhabitants who successively occupied this historic spot. Here, as well as at Mycenae, the ornaments and implements discovered, even in the lowest strata, far from indicating a state of savagery and utter degradation, betoken one of high civilization, and of as thorough an acquaintance with the working of metals and the facile arts as was displayed at subsequent periods. In the light of Schliemann's discoveries, not to speak of others pointing in the same direction, made in

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ilization of Greece," shows that, "contrary to the usually accepted view, iron was already known to the Egyptians about B. C. 3500, when, as he says (see p. 198), 'it appears named and depicted on the monuments in a manner which admits of no possibility of doubt as to its nature.' He supports his statements by quotations from a learned article by the Swedish Egyptologist, Professor Pichl, . . . from which it may be safely concluded that the Egyptians were acquainted with the use of iron some 2,500 years before it came into general use in Europe."—*Nature*, July 18, 1901, p. 282.

Egypt and among the ruins of Assyria and Babylonia, bearing on the condition of primitive man in the Orient, the conclusion seems to be inevitable that Hesiod was right, and that the modern evolution school is wrong,—that the history of our race is not one of development, but one of degeneration."[23] Still more recently (1900) Prof. Herman V. Hilprecht, at Nippur, in Babylonia, and Messrs. Hogarth and Evans, at Knôssos, in Crete, have been bringing to the light of day relics of former civilizations, of which we have never dreamed. Professor Hilprecht, I believe, dates some of his discoveries at about 3800 (?) B. C., or earlier. However that may be, he has unearthed a library of about 17,000 tablets, showing "a civilization equal to that of the Greeks." "There were banks and exchanges, loans, a settled knowledge of many scientific questions, and a well-developed commercial method. Beautiful vases have been excavated, which bear records of the greatness of the rulers; the interiors of these vases have been hollowed out by machinery, yet the civilization of to-day has boldly assumed that machinery is of comparatively recent date."

Mr. Evans does not, I believe, claim anything like this antiquity for his discoveries—only at least earlier than 1500 B. C.—but the character of what he has laid bare is equally remarkable. He has also recovered a lot of ancient writings, but they are unlike anything hitherto known, and the information they bear is not yet available, for no one has yet deciphered them. In describing the throne-room of the

[23] Prof. J. A. Zahm's "Bible, Science, and Faith," p. 272.

palace, Mr. Evans says: "The chamber . . . was in many ways as perfect as the room of a Pompeian house, though some fourteen centuries earlier in date. . . . But the most interesting feature remains to be described. The lower part of the mouldings of the arch on either side were, by a strange anticipation of later Gothic, adorned with bud-like crockets. The architectural features, indeed, revealed by these reliefs are in almost every respect unique in ancient art.[24]

We are tired of hearing certain types of palaeocosmic man perpetually spoken of as the oldest, for no other reason than that they are the most degenerate, and certain types of implements or weapons called the most primitive solely because they were not so well finished as certain others in some other locality. When will archaeologists—or geologists, for that matter—learn to reason correctly, and have the honesty of thought to keep *facts* clear and separate from *theories,*—things proved separate from things imagined? For certain it is that, at our first glimpses of human society, as revealed in the monuments of the east—and I refer now more particularly to the more fully-examined remains of Nineveh, Babylon, and Egypt—we have countless fine touches in the thought and life of the people, which show unmistakable traces of some former state of civilization even higher and nobler. Their social customs, their languages, tell us this, and particularly their traditions of an Edenic beginning; and their religions,

[24] *Nature*, May 2, 1901, p. 14.

which give us embalmed in the dry husks of dead formalism and idolatry glimpses of lofty ideals and forms of prayer to one supreme God, the Creator,—all traces of a more intellectual, a more truly human state in the dim, forgotten past, the afterglow of a once brighter day.

One of the most candid writers that I have read on the subject of evolution, Mr. S. Laing, says:—

"To enable us to talk of the 'Darwinian Law,' and not of the 'Darwinian Theory,' we require two demonstrations:—

"1. That living matter really can originate from inorganic matter.

"2. That new species really can be formed from previously-existing species."[25]

Remembering now what Huxley has told us, that "the man of science has learned to believe in justification, not by faith, but by verification," and applying it to these two problems, we know that, as for the first, he himself has told us that spontaneous generation has been "defeated along the whole line," and as for the second, even with their millions of years and the geological succession ready made to draw from, they generally end with the endeavor to disguise their hopeless failure to find one real example by trying to confuse us with the question as to "what is a species."

But then we know that geology refuses to allow them these millions of ages to draw upon, and cries out with stentorian voice that the general trend of variation since its record was made has been toward degeneration, not development.

[25] "Modern Science and Modern Thought," p. 54.

Some day, perhaps not very far distant, this "puerile hypothesis" of Darwinism, as Mivart once called it, will be one more added to the countless wrecks of beautiful theories that lie strewn along the backward path of time, illustrating how easy it is to follow Herbert Spencer's style of reasoning, and "reconcile" any reasonable quantity of facts, if we are only careful to reach beforehand the necessary "conviction" that this reconciling of the facts is only a "corollary from first principles." At any rate, with the process of attrition already going on between the mutually-destructive arguments of the two great opposing schools of evolutionists, and with their common platform of uniformitarian geology threatening an instant collapse beneath their feet, those of us who have held fast our faith in Genesis thus far can well afford to await the development of events.

The Bible is not out of date. Its story of Eden is no myth. The record of the Flood is neither fable nor allegory. They come to us of these last days with the sweet assurance that soon the bright, happy conditions of Edenic life will be restored to our sin-blasted planet, and God's redeemed people will shine forth in the restored image of divine beauty; when "there shall be no more death, neither sorrow nor crying, neither shall there be any more pain, for the former things are passed away."

"God has given in His Word sufficient evidence of its divine character." The great principles of His moral government and His dealings with men are clearly presented. The only way in which men can get for themselves a changed character is clearly

shown, and a humble search for truth will never fail of its reward.

But "*our faith must rest upon evidence, not demonstration.*

"All who look for hooks to hang their doubts upon will find them. And those who refuse to accept and obey God's Word until every objection has been removed, and there is no longer an opportunity for doubt, will never come to the light."

"The finite minds of men are inadequate fully to comprehend the plans and purposes of the Infinite One. We can never by searching find out God. We must not attempt to lift with presumptuous hand the curtain behind which He veils His majesty. The apostle exclaims, 'How unsearchable are His judgments, and His ways past finding out!' We can so far comprehend His dealings with us, and the motives by which He is actuated, that we may discern boundless love and mercy united to infinite power. Our Father in heaven orders everything in wisdom and righteousness, and we are not to be dissatisfied and distrustful, but to bow in reverent submission. He will reveal to us as much of His purposes as it is for our good to know, and beyond that we must trust the Hand that is omnipotent, the Heart that is full of love."[26]

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[26] "Great Controversy," p. 527.

CHAPTER VIII.

Some Moral Aspects of the Evolution Theory.

It is rightly considered that the supreme test of any doctrine, religious, social, or scientific, is its bearing upon life and human action. "Ye shall know them by their fruits." What are the fruits of the evolution theory? We can not help replying that, reduced to its last logical conclusion, it lands every one in sheer agnosticism,—the "gospel of despair," according to Herbert Spencer. It was devised by infidels in the interests of infidelity; and it results in a point-blank denial of the loving fatherhood of God, which is the most fundamental idea of Christianity. The reason every one does not reach those barren, cheerless heights—beneath what they are pleased to term the "high and dry light of science," but which is, on the contrary, the blackness of darkness—is because they are not so logical. The evidences of God's loving care and tireless interest in them, as revealed in His works or in His Word, have in some measure got the better of the merciless logic of their godless theory.

The majority readily admit that, in the light of their theory, the great first cause must be supremely indifferent to the suffering and death of animals, perhaps of men. For during the untold ages the fittest have contrived to survive, even for a time, only at the expense of their fellows' lives. As to the

moral effects of such an idea, more hereafter. A few of the Christians of the present day still accept only that part of the theory which gives us a cooling globe and the geological succession of life; while, following the lead of Dawson and Dana, they demand a special creation, at least for man. They thus avoid the frightful heritage of bestial and savage nature which the evolution of man from the lower animals would necessarily entail. They can not altogether forego every memory of an Edenic beginning for our race. As for the vast majority of the modern school of "Christian" evolutionists, who constantly profess that they can see nothing inconsistent between Christianity and Darwinism, I can only pity their crude ideas of the former, and protest in the name of my Master against coupling His name with a doctrine so subversive of His mission to earth.

Those who wish to orient the Bible as to the shifting, incomplete science of the day, instead of the reverse, will generally meet us at the outset with the statement that the Bible is not intended to teach science. Let us see. According to Prof. E. Ray Lankester, the well-known anatomist of Oxford, "that only is entitled to the name 'science' which can be described as knowledge of causes, or knowledge of the order of nature."[1] Or, in another way, we may by a little reasoning arrive at the same conclusion. As ethics or morals is the highest kind of science, in the broadest sense of that word, and as, from the Christian standpoint, all morality is founded upon *the creature's inherent obligation to and dependence upon*

[1] "Degeneration," p. 7.

his Creator, which is certainly the highest reason for morality that can be found, it follows that all true science or knowledge must be based upon knowing God and our relationship to Him. "The fear of the Lord is the beginning of wisdom." Either way, therefore, the Bible in its very first chapters starts out with the basis of all true knowledge,—a revelation of the Creator, and of our relationship to Him as creatures. In fact, the only way that our poor, limited faculties can really be sure of *anything at all* is through a revelation from some Being possessed of *absolute* knowledge. And it is precisely around these points that the conflict has always raged between "science" and the Bible. It is over basic principles of action, which have an infinitely more direct bearing upon the acts of daily life than has any knowledge of heat or electricity.

But let us grant for the moment that the Scripture was not especially intended to teach the details of nature study, that is, that it has other objects in view, although we know that there is nothing in all the literature of Greece and Rome that shows such an appreciation of the beauties of nature as we find in the Christian's Bible. But we know that the latter was written in various human forms of speech, not in any heavenly tongue. It was written by men in their native languages, and by men that were perhaps not perfect masters of these languages. Each writer shows as distinct an individual style as Macaulay, Addison, or Carlyle. But they knew nothing of electricity or of gravity as such. Some of them may have been entirely ignorant of the globular form of the earth and of the heliocentric motion of our universe; though

it is a very suggestive fact that when we *get back to the time of Job,*[2] which is doubtless the earliest post-diluvian word-picture that we have in the whole Bible, we have a marvelous knowledge of nature that succeeding ages largely forgot. Job at least knew of the earth being "hung upon nothing,"[3] and was sufficiently skilful in his use of his charming figure of the "clay" and the "seal" to state precisely that each separate part of "it [the earth] is turned [to the sun] as clay to the seal" (not the reverse), and thus receives that daily impress of energy that makes its mantle of verdure stand forth as a beautiful garment."[4] I do not wish to imply that any writer in the Bible lays down any dogmatic statement about the earth being flat, or indeed any statement of a similar nature. But they all talk of phenomena as they appear to us. They speak of the sun "rising," of mountains "burning," and of the stars being infinitely inferior to the sun. But we of the twentieth century have not discarded such language, because it expresses the truth of the phenom-

[2] For recent testimony to the extreme antiquity of Job, confirming Doctor Hale's verdict that he lived some time before Abraham, and identifying him with the Jobab of Gen. 10:29, who was the grandson of Eber, see "The Earth and the World, How Formed?" chapter 9, by A. G. Jennings; Flemming H. Revell Co., 1900.

[3] Job 26:7.

[4] Job 38:14.

For a more complete exposition of these and other texts, where the Old Testament writers clearly anticipated the discoveries of modern science in physics and astronomy, see the work (quoted elsewhere) by Dr. L. A. Reed, "The Scriptural Foundation of Science," 1901.

ena in question from our standpoint. We might as well refuse to talk any longer about "seeing" things, because we do not really see them, but only see the pictures of them that are momentarily painted on the back of our eye-chambers by the magic pencil of the sun.[5] In the same way the Creator, when addressing man, is not ashamed to speak of His universe, or even of His own attributes and actions, in terms of human thought. Nor does He stop part way and give us His revelation in the language of the philosophers; "He never shuts Himself up to the learned and the wise." He addresses "the man in the street;" He takes man just where He finds him, under the dominion of sin, and points him away to the eternal realities of the universe from His point of view.

But, looking at it again from another position, the Scripture, though not concerned about "scientific" precision, must at least be as accurate as any science. No imperfection of human language may for a moment be permitted to cast a reflection upon the perfect truth of every statement. If a "revelation" in any genuine sense, it must reveal only truth from God's standpoint, or from that of the universe at large. It must be infinitely more than the gropings of wise and good men after the Creator. The Scripture everywhere claims for itself far more than this. It is in reality as much *an incarnation* as that which the world saw some nineteen centuries ago. Christ

[5] "A concession to the exigencies of language is not a departure from the exactness of science."—Professor Perry, Political Economy, p. 121.

took upon Himself our nature, all stained and scarred by the curse. He was made "in the likeness of *sinful flesh*," that He might "condemn sin in the flesh."[6] In this light the work of the "Higher Criticism," with all other modern quibbles about *how much* of the Bible is inspired, is but the nineteenth or twentieth century revival of the Eutychean controversy. Back there they spent months and years in discussing the vain question of *how much* of Christ was human and *how much* divine. And let us remember in passing that, as the result of that discussion, the pope was made the author of the faith. What will this modern controversy result in? Surely we have much more promising fields for research than the mystery of the incarnation. It will be the lesson of eternity to comprehend some of its first principles. The divine is there; the human is there, both in the written Word and in the crucified. Each partook of human limitations, human infirmity. But Christ did no sin; and God's written Word does not blunder.

However, it is not the conscientious believer in the Bible as a whole,—the modern Christian,—who is likely to be found making apologies for the first chapters of Genesis. He knows too well the awful accuracy of Moses' prediction of the fate of the Hebrew nation, in Deuteronomy 28, to doubt the inspiration by which he spoke. The believer in the last chapters of Revelation, which describe this world renovated and restored to its Edenic beauty, where "there shall be no more death, neither sorrow, nor crying, neither shall there be any more pain," can

[6] Rom. 8:3.

very well believe that this is but our restoration to a long-lost heritage. It is the one who is unwilling to take other parts of the Bible literally, and who refuses to share in the hope of our Lord's return, who must of necessity deny any direct creation of our world, and refuse to believe in anything "supernatural," or beyond what he knows of the laws of nature. The world outside of the Roman Catholic Church is fast being more distinctly divided into two classes, those who accept God's Word just as it reads, daily allowing it to become incarnate in their lives, and those who explain away as "errant" and "uninspired" all that does not suit their own narrow, human, sinful ideas.

But the controversy concerning man's origin has too long hung around the first chapters of Genesis, even though in them is the first picture that we get of God's work of creation. Many "theistic evolutionists" have tried to make it appear that this is about the only part of the Bible that is directly opposed to their theory. But if all the writings of Moses were obliterated from our knowledge, the situation would not be altered a particle. The keynote of the Scriptures is that *man has sinned,* that all are now sinners, and that nothing but divine power can bring us back into fellowship with God and into harmony with His law of love. Character is the result of individual choice of good or evil,—God or self,—and character decides destiny. Those who have allowed their minds and characters to become fixed in ruts that are inconsistent with the happiness of the universe will not be chained to the side of the

infinite One. Their fate is fixed by their own choice, and will be carried out for the good of the universe. The present conditions of pain, misery, and death are not eternal, either past or future. Sin can not always exist in the universe of a holy and just God. It is but an incident, a lesson, in the long story of eternal love. Sin and sinners must finally cease to be. Those who do not allow sin to be cleaned out of them now, will themselves be included in its destruction when God undertakes to clean up His universe. But *just at present man is not in harmony with his Maker.* Take this general thought out of the Scriptures, and what is there left?

Now, that the present state of our world, and of human nature especially, is not ideally perfect, but is most wretchedly imperfect, abnormal, or depraved, through some cause or causes, no one will, I think, deny.

> "All my knowledge is that joy is gone,
> And this thing woe crept in among our hearts,
> There to remain."

The wisest of the ancients, like their modern children, lamented, but could not cure, the ingrained, misery-producing evils of the human heart.

And I can see but three possible explanations of this fact:—

First, assuming, of course, that our material universe, ourselves included, had an intelligent Designer, as it everywhere testifies, man may have been created out of hand in his present condition of misery and evil, fierce lusts, murderous hatreds, and innate selfishness making miserable both himself and all

about him. That is, man was created out of joint with nature and nature's God. But such a notion is too preposterous to be entertained for a moment; for it charges with purposeless folly an evidently wise Creator, making Him the responsible cause of all our world's misery and sin. Let us forget that such an idea was ever mentioned.

Second, man may have been formed in an imperfectly-developed condition physically, mentally, and morally, and may now be on the road to a higher development or ultimate perfection, the evils and innate selfishness of human nature being but the survival of a past, where such a character and nature were a natural endowment, the outworking of principles implanted in nature long ages before man's existence. And then, "*what we call evil* is not a unique phenomena confined to man," and is not in any way whatever connected with man's free will as an intelligent being rebelling against his Creator. It "*must be a great fact pervading all nature, and a part of its very constitution.*" Such is indeed the teachings of "theistic evolution," as advocated by Le Conte and others.[7]

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[7] See "Evolution and Religious Thought," by Prof. J. Le Conte, p. 365.

With this compare the teaching of Celsus, the first ancient writer who undertook to attack Christianity in an express work, and who, according to Neander, "was not improbably a Neo-Platonist."

"For in this world evil is a *necessary* thing. It has no origin, and will have no end. . . . *The* ὕλη *is the source from which what we call evil is ever springing up afresh.*"—Neander's General History of the Christian Religion and Church, vol. I,

But surely this idea is not one whit better than the former, for it makes sin and evil the endowment of the Creator, something that He saddled upon the universe when He started it evolving. Why should He do this? Was He just experimenting, or was He conditioned by the material on which He was working? But this whole conception is so contrary to the notion of the Creator as a God of love that it also ought surely to be forgotten. The agnostics are less dishonoring to His name, for they refuse to believe that an intelligent Designer would make Himself responsible for such a state of things. They urge that it would be nothing but a tyrant or a fiend that could implant such evil tendencies in a creature, and then punish it, even by the law of cause and effect, for living out the dictates of its hereditary nature.

From such God-dishonoring schemes we turn with relief to the *third* possible account of man's origin, which is that "God made man upright,"[8] "in His own image,"[9] and pronounced him "very good;" but that man, by a free act of choice, choosing to disobey one of the lightest possible restrictions, fell from his high estate, and in his heart selfishness took the place of love, by the mysterious inherent nature

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pp. 233, 234. Translated by Joseph Torrey, Henry G. Bohn, 1850.

I have just seen the announcement of Professor Le Conte's death. I am sorry to have to appear in the light of casting reflections on the memory of the departed, though my conflict is not with the man but with his teaching. He has in this volume given us many grand and lofty ideas, though I can not help saying that the teaching of the last chapter, from which the above is taken, is not Christianity, but paganism, pure and unmixed.

[8] Eccl. 7:29.

[9] Gen. 1:27.

of disobedience. That in this he also unsettled the equilibrium and nice balance existing between himself and the surrounding nature of this world, and thus, as a sympathetic or reflex result of his acts, dragged down with him in his fall all that nature over which he had been placed as king; that the history of our world has been one unceasing record of degeneracy and decay, save that a few, in all ages and in all climes, by the still more mysterious virtue of the atonement, have been rescued from this condition and its consequences, and educated and developed so far past the condition of our first parent that, spite of heredity, they can stand where he fell, and are thus proved fit to become subjects of God's everlasting kingdom; that during all the ages the Creator has been trying all that almighty power could do and infinite love devise, consistent with the creature's sacred freedom of choice, to bring every human being into this state of ultimated perfection of character, as a prerequisite to the gift of endless life, a gift utterly unsafe in the hands of rebels. "But ye will not come unto Me that ye might have life."

This is the only explanation that can make our "present evil world" the work of a God of love. And it throws the responsibility of evil on what Romanes calls the only real generating cause of which we have direct experimental knowledge, viz., man's free will. Man's power of free moral choice is an obvious fact, in spite of all the fatalistic quibbles that philosophy has ever devised. And the freedom of the creature's will is the only thing that can relieve God from being directly responsible for everything found

in His universe. And even then the ultimate results, after sin is but a memory of the past, must be sufficient to warrant the frightful risk involved in creating beings free to choose right or wrong, good or ill, loving allegiance to the Creator or rebellion against Him. God did not destroy rebellion in the bud, for then He might have been called a tyrant, and subsequent ages would have served through fear, not love. He has allowed the bud to develop and bear its fruit, and the universe is now pretty well convinced that with the existence of God's law is bound up the well-being of all His creatures. The infidel denies that *one act* of disobedience is sufficient to account for all our world's misery and woe by natural process; but this is only the old lie of unbelief uttered first in the garden of Eden.

But let us go back over some of the principles involved. It is not necessary to assume that our material universe had an intelligent Designer. Nature with her thousand voices testifies of an all-pervading Mind. We must all stand with uncovered heads before the majesty of this self-evident fact. The general results of modern science are certainly tending more and more to demonstrate that matter does not have in itself the marvelous powers of life and motion which we see about us. Reasoning men have practically given up the attempt to think of nature without a God. In the words of the father of McGill University:—

"I know nothing about the origin of man except what I am told in the Scripture,—that God created him. I do not know anything more than that, and

I do not know anybody who does. I would say with Lord Kelvin, there is nothing in science that reaches the origin of anything at all."

So that the modern discussion is not now of the existence of a Great First Cause, but solely about His character. Now the principles which the Maker has put into His work must be an expression of His character, nay, must be His character, as far as the latter can be displayed by the results of work done. To illustrate: If we step into a home and see a moose head in the vestibule or hallway, a deer's head on the wall of the dining-room, and a tiger skin stretched before the grate, we could not well go astray if we rated the proprietor as an enthusiastic sportsman. Or if, in passing a farmhouse, we see, amid the difficulties of a new country, the barns and outbuildings in good condition, the stock and machinery properly housed, and the fields and fences in good order, we naturally conclude that the owner is industrious and careful. Just so with the universe. The "tooth-and-claw" phase of nature, and especially the depraved, evil condition of human nature,—"here where men sit and hear each other groan,"—must in some way express the character of our Designer, unless some free, conscious intelligence (such as man himself) has marred His work and perverted the natural endowment of His creatures. If retaliation for injuries received, if pride and lust, are *perfectly natural* to the human heart, as we must all sadly confess they are, they must express in some recondite manner the character of our Creator, *if He made us as we are, or on any lower or more undeveloped plane of being*

out of which these characters have sprung; and therefore these things can not be really evil; they can not be immoral. How can it be otherwise? Let us be plain. Moral duties are such as inhere in the relationship between the creature and his Creator. No other basis for morality can be found. Hence, if our Creator has endowed any of us with certain instincts and propensities, our moral duty to Him obliges us not to repress and subdue, but to *exercise and develop* these instincts and propensities to their utmost possible extent. It would be immoral to do otherwise—"sinful," if you please. Hence, I repeat, the hatred, lust, and pride so natural to the human heart are in no sense wrong or punishable if they represent a natural endowment given us by our Creator, no matter through what process He formed us.

But every one knows that these instincts and passions bring misery and ruin alike to the subjects and objects of their force. Misery and woe are the inevitable results of their exercise. Hence we can go further and say that a being who would thus punish his creatures, even by the law of cause and effect, for doing as he taught them or endowed them, would be all that we understand by the word "fiend." But such is the god of the evolutionist. Need I suggest that there must be *something wrong* with a notion of man's origin that leads us to such a frightful conclusion? Is not the moral issue, as set forth above, a *surer way* of gauging the truth or falsity of the evolution theory than the long, devious methods connected with variation and the other biological problems, even supposing the theory apparently capable

of the most rigorous proof, which, of course, it is not, even Huxley to the end of his life acknowledging that it is not?[10] Need we offer any apology for measuring this scientific hypothesis *by other and far more certain standards of truth?* In short, need we hesitate a moment to confess that we have an unconquerable aversion for a doctrine so blasphemous, so dishonoring, to the sovereign Lord of all?

In contrast with such a theory let us read some Scripture texts. Our Lord affirmed that He came "to seek and to save that which was lost,"[11] not merely those who were lost, "that which was lost,"—the world and all it contains. This language would be meaningless if man has been continually progressing from a crude beginning. In that case nothing ever was lost; all that our race has known is gain. And surely the principles of progression, which we are told are strictly according to "natural law," would insure the ultimate perfection of the race *without* the intervention of a divine Mediator and the death of a divine Sacrifice. Can we not therefore say that the evolution theory converts into a fable the old, old story of the cross, and makes the whole Scripture a jargon of unmeaning folly?

Let us also note Paul's words on this subject. And I may say here that the words of Paul are as good authority on this or any other subject as those of Moses, or of Christ Himself. To those who admit only that part of the Bible which suits their fancy, I would quote the words of Christ to the Pharisees, with all they

[10] See *Nature*, June 13, 1901, p. 147.

[11] Luke 19:10.

imply: "Had ye believed Moses, ye would have believed Me, for he wrote of Me. But if ye believe not his writings, how shall ye believe My words?" The Scriptures must stand or fall together. Paul, therefore, was not a pettifogging Jewish lawyer, or anything of the kind. He taught the Christianity of Christ, and if his words are nonsense, the whole system of revealed religion tumbles with them. But he distinctly says, "By one man sin entered into the world, and death by sin; and so death passed upon all men, for that all have sinned."[12] If these words have any meaning, they tell us that there was not a note of discord in the harmony of our world prior to the disobedience of our first parent. They tell us that there was no death—hence no suffering of any kind; the less is included in the greater—in our race till decreed upon us for that first transgression. Death, with its implied misery and moral and mental degeneration, are not our inheritance through incomplete workmanship on the part of the Creator; but Paul's Christianity plainly says that they come to us through heredity, by reason of Adam voluntarily putting himself out of harmony with his Creator's plan.

In the first chapter also of this same epistle he tells us that the degraded condition of what scientists call "primitive" peoples is not the result of their *beginning* on a low moral plane, with an inherited bias toward physical and moral evil, but resulted from their choosing not to *retain* the knowledge of God in

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[12] Rom. 5:12–19.

their hearts, till God gave them up to their own lusts, to eat the fruits of their own doings.[13]

But Peter puts the climax on this argument when he holds out, as the hope of the church, "the times of the restitution of all things, which God hath spoken by the mouth of all His holy prophets since the world began."[14] The word rendered "restitution," ἀποκατάστασις is defined by Liddell and Scott as "a complete restoration, reestablishment." This is evidently a return to primeval conditions. According to the evolution theory, "restitution" would be about the worst thing that could possibly happen to poor humanity. It would mean the surrender of all the "progress" of these thousands of years, and our return to the primitive bestial conditions. But Peter says it is more or less the theme of all the holy prophets since the world began, *as the hope of the church.*

No wonder the host of books now being issued by the theistic evolutionists stoutly insist that, *since evolution is true* (?), we must have a complete "reconstruction of Christian theology."[15] But when "reconstructed," as they suggest, the question is, Ought it still to retain the old name of Christianity? Did they not try some such "reconstruction" of Christianity in the third century and onward (Neoplatonism[16]); and was not that one of the prime fac-

[13] Rom. 1:21–28.

[14] Acts 3:21.

[15] Le Conte, "Evolution and Religious Thought," p. 295.

[16] That a comparison between Plato's theory of the origin of animals, as propounded in his "Timaeus," and Darwin's scheme of variation and natural selection, is no mere fancy, the reader

tors whose product is known to history as the Roman Catholic Church? O my brothers, how can you have the heart to recommend such an experiment for retrial?

"For God so loved the world, that He gave His only-begotten Son, that whosoever believeth in Him should not perish, but have everlasting life." The amazing sacrifice required to effect a remedy for the horrible condition called sin is an everlasting protest

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should consult that valuable work already referred to, "Creation or Evolution?" chapter 2, by George Ticknor Curtis; D. Appleton & Co. In this it is shown that the one is simply "the reversed complement of the other," p. 73. Plato started organic creation with human beings, who, neglecting to maintain their high duties and aims, go on in "successive debasements, which result in the formation of lower and still lower animals, until we reach the shell-fish fixed upon the earth at the bottom of the water. . . . The different species of animals, after man, were not special creations by an infinite power interfering in each case by a separate exercise of creative will. *They were a growth of an inferior organization out of a superior* through the invariable operation of tendencies which changed the forms of the animals. . . . It may thus be said with entire truth that the Platonic idea of the origin of the different races of animals presents a parallel to the Darwinian theory, in which it will be found that the one is the *reverse* of the other, *both of them proceeding upon and involving analogous principles of evolution*, operating in the one system from below upward, and in the other from a higher point downward." Pp. 59, 60, Italics supplied. There is little doubt that with slight modifications and an elaboration in conformity with modern scientific discoveries, the scheme of Plato might, *even now*, be made about as probable a theory as that of Darwinism, the real fundamental difference consisting in this one point, that Darwin's ape-men were successful in attaining their ideals, while Plato's poor fellows were not, though in this respect "the divine" Greek seems to have got the nearer to the great heart of nature.

against the idea that man could be developed or educated out of it in any other way. Like oil and water, the two systems will never mix. The evolution theory is the modern scientific way of a man being his own saviour; the Christian religion points us to the "Lamb of God that taketh away the sin of the world."

It would surely seem that no further indictment of evolution were necessary to induce every one really desiring truth at any cost to dismiss such an anti-Christian theory from his thoughts forevermore. But we shall in our remaining chapter examine its nature a little further. Some who are slow to see the issues in the field of ideal religion will readily discern its bearing on the problems of every-day life. Accordingly we shall now show that it is utterly subversive of civil and religious liberty for the individual; in fact, that the only gospel it knows for the evils of our world is a religio-political despotism, a scheme that, as already hinted, surely needs no retrial.

CHAPTER IX.

Evolution and the World Problems.

The children of the present have fallen heirs to the labor of the past. The intellectual accumulations of the ages have descended to us, and lie before us tabulated and indexed for our convenience. A knowledge of our cosmos in some of its broadest generalities and in some of its most minute particulars has taught us how to lay our hands upon the sea, the fire, and the air, and bid them come and go at our convenience, relieving our distress, performing our wearying labor, and shortening time and space at our behest.

But all are not deceived by the tinsel and gloss of our modern civilization. The theistic evolutionists may not be able to see the artificial character of our modern life, or the course in which our world is hurrying on, but then we have already shown them to be about the most illogical people in the world. The agnostic and worldling can see the breakers ahead, even if the popular churches can not; but they see no relief save through a baptism of war, blood, and despotism, such as the world has periodically undergone.

Most clear thinkers know that this is not an age of preeminent mental or moral development. They know that knowledge is not power in the realm of

morals. The creature comforts of a high civilization have never in the history of our world tended to strengthen the foundations of man's moral nature. We can not inherit the progress that our fathers made in heart culture any more than we can in art, and all acknowledge that in the latter we are sadly degenerate. He who reads the thoughts says the same of our morals. "In the last days perilous times shall come;" and the record enumerates nineteen sins that we see to-day abounding on every hand. "Evil men and seducers" are certainly waxing "worse and worse."

In the words of Froude: "We live in days of progress and enlightenment; nature on a hundred sides has unlocked her storehouses of knowledge. But she has furnished no 'open sesame' to bid the mountain gate fly wide which leads to conquest of self."[1] In morals and ethics, as in art, our laws and models are all in the dim, misty past; and the dark ages of sin and woe, that separate us from those bright ideals, have served only to weaken our moral powers of discernment and resolve, and to bind about our degenerate frames our heritage of mental, moral, and physical decay.

But some may ask how we are to account for the wonderful progress and increase of knowledge in these days. I would remind them that increased knowledge does not by any means imply increased mental or moral *ability*. Advance in culture only means that the latent capacities of man's nature have been called into action by education and exercise,

[1] Essay on "Bunyan," p. 34.

not that they have been *acquired* by evolution. As an eminent English author remarks: "Function can not precede mechanism. . . . The telegraph cable had to be submerged in the Atlantic before messages could be flashed between London and New York."[2] Education and opportunity can not create faculty, only nurse it into development. The reader will remember that this is the argument of Alfred Russell Wallace that man has not been produced from lower animals by evolution, because he has in his hand and larynx, as well as in his brain, latent capacities and faculties that are utterly useless to the savage in his barbarous state, and by him absolutely unused. I may also add that they seem to me equally incontestible proofs that the savage can not be a *primitive type,* but must surely be a *degenerate* condition. "It has not been by any fundamentally-improved development of his corporeal frame or mental capacity in the course of generations that man has advanced to his present stage of civilization and knowledge, but by the preservation, communication, and transmission of experience, acquired in all the various ways of life in successive generations. This power to preserve, communicate, and transmit the knowledge acquired by experience is a grand and characteristic attribute of man, the wisdom and experience of the individual being thus not lost to society by his death."[3]

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[2] "The Evolution of the Human Race from Apes, a Doctrine Unsanctioned by Science," p. 29, by Thomas Wharton Jones, F. R. S., F. R. C. S., etc.

[3] T. W. Jones, "The Evolution of the Human Race from Apes," etc., p. 31.

Or, from the standpoint of the Bible: The angel told Daniel that, in the "time of the end," many would be hurrying hither and thither over the earth, and that "knowledge" would be "increased."[4] But Paul also no less clearly pictures the "perilous times" of the same "last days," because of selfishness and sin, and says that, instead of the world growing better and happier, "evil men and seducers shall wax worse and worse, deceiving and being deceived."[5]

The Bible clearly explains this that is such a puzzle, such a seeming contradiction to many, and, besides giving a better explanation of present-day conditions than evolution ever hinted at, it gives a detailed description of the glorious outcome of it all.

The present wonderful increase of knowledge and mechanical power in the hands of man is not the result of inherent racial progress, but of divine interposition for a special purpose. Had it been the result of evolution, it ought to have come somewhat *gradually,* and not be all crowded into the last hundred years,—the last sixtieth part or less of human history. No, there is a reason for it all. The church for long centuries had neglected to heed the command to "go into all the world and preach the gospel to every creature." Like her Jewish sister, she had shut herself up in proud seclusiveness, deeming the rest of the world too degraded to heed the gospel call. But Christ had said that the gospel of His coming kingdom must before the end be "preached in all the world for a witness unto all nations." And

[4] Dan. 12:4.

[5] 2 Tim. 3:1–3.

so, in the very evening of time, while the shadows of the gathering night were settling down over the church's unfinished work, He taught men how to employ the elements of nature, and even the very bolts of His throne, in speeding the work His people had so long neglected.

We may regard this as one of the chief explanations of present-day conditions. We have already in the first chapters of this noted some other important results, such as the demonstration of the doctrine of Divine Immanence and of the all-pervading, unchangeable character of God's law, moral and natural. The first of these serves to accentuate the ingratitude of not loving and trusting our Creator, who attends us down into our lowest depths of vice and folly, supplying physical power directly even to the very tongue that curses Him, until His tireless love breaks out with the reproach that "thou hast made Me to serve with thy sins; thou hast wearied Me with thine iniquities."[6] And the eternal character of God's all-embracing law in nature has evidently been brought to the notice of this generation to show us that His moral law, the rule of His moral government, is equally eternal in its character; that it is embodied in the very nature of His universe, and can be transgressed and set aside only at the cost of misery and death. The great controversy of the ages between good and evil has always been over the character of God's law, whether it was designed in love or not, and over the inherent nature of rebellion, whether it results in happiness and liberty,

[6] Isaiah 43:24.

or the reverse. Modern science has only tended to place us more on a par with the intelligences of other worlds in estimating this great problem. The Sabbath question, involving as it does the whole character of the divine law, is certainly one of the great problems of the day. The Lord evidently means for us to judge of His moral law by our increased knowledge of what we generally distinguish as "natural" law, though with a little clearer thought we would see His mental, moral, and physical laws all correlated together.

But the logical, reflecting scientist is the very man who stands most in awe of the outcome of present conditions along the lines of their natural development. Any one with an intelligent knowledge of the history of nations can not fail to look with terrible forebodings at the prospect before society and the world. So much so that the real statesmen are almost solely occupied with desperate endeavors to stem the universal tendency toward retrograde movements as the next thing in order. Most thinking men acknowledge that we seem as far away as ever from the long-talked-of, long-hoped-for age of universal peace and brotherly love.

A writer in the "Forum," December, 1896, says:—

"The diffusion of intelligence is now understood to be of little conservative value, if not accompanied by a corresponding improvement in morals."

In other words, you may educate the memory and the reason, but if the secret motives of the heart are not purified, you have only a more cultured, amiable rascal.

As to the moral outlook, note the following words of President Harper, of Chicago University, as quoted in some of the recent periodicals:—

"We are training the mind in our public schools, but the moral side of the child's nature is almost neglected. The Roman Catholic Church insists on remedying the manifest evil, but our Protestant churches seem to ignore it completely. They expect our Sunday-schools to make good what our public schools leave undone, and the consequence is we overlook a danger as real and as great as any we have had to face."

Then, again, Goldwin Smith, in the number of the "Forum" referred to above, says that our modern system of education "begets a general desire to rise in life." And this desire "to rise" must inevitably breed almost universal discontent, as we see is the case all about us; for very few, even by industry, temperance, and perseverance, traits not especially characteristic of our day, can manage to "rise" as fast as they think they ought. Organized greed and social position have the upper hand, and evidently mean to keep it. And the almost universally-accepted doctrine that all progress, whether in the individual or the race, is to be *reached only by a process of the survival of the fittest,* is intensifying, as never before, the innate selfishness of human nature, and embittering in every pursuit of life the sad struggle for existence. Perhaps no other one cause and result serve more to differentiate the present age from all that has gone before. The hitherto undreamed of blessings and comforts of the present day, instead

of tending toward universal peace and happiness, have only emphasized the fact that the greater the blessings received, the greater will be the discontent and depravity of unregenerate hearts. Intelligent men of to-day, whether evolutionists or not, stand in dread of a retrograde movement, that will again land our world in the throes of social wreck and possible anarchy, all the more hopeless and horrible this time because it will be universal over the world, coterminous with the bounds of civilization.[1]

Thus far all are agreed. It is when we come to discuss possible ways of dealing with these problems, and of trying to prevent these natural tendencies of our age, that the logic of the evolution philosophy begins to show itself. The increase of frightful and incurable diseases, as idiocy, cancer, and consumption, may evoke the taunt of the heartless philosopher that Christianity, by preserving the moral and physical wrecks of humanity, and allowing them to reproduce their like, is retarding the "progress" of the race. He may even suggest, as some physicians do now and then, that it would be much better to return

[1] Just as these pages are going to the press we have given in the current dispatches to the daily papers a letter from Mr. Herbert Spencer in which he bewails the present tendency toward militarism and the "coercive régime," or despotism; though he seems not to realize that, in glorifying the struggle for survival at the expense of others as the normal and not an abnormal condition of society and creation in general, no other one writer in the English language has perhaps contributed as much as himself to bring about the very condition he deplores. In conclusion he says, "*My fear is that the retrograde movement will become too strong to be checked by argument or exhortation.*"

to the heroic days of Sparta or Plato's ideal republic, when all the malformed and sickly were quietly got rid of by exposure. According to their theory, it was by some such application of the doctrine of the survival of the fittest that we have reached our present attainments. A return to such customs is, of course, logical enough, but perhaps "inopportune," and not likely to be a live issue very soon.

On the other hand, the increase of crime and lawlessness of every kind, the *increased lack of self-government on the part of the individual* everywhere so apparent, has given us two methods of dealing with these conditions, which are not so harmless, because not so manifestly extravagant. On the contrary, they are eminently logical and "necessary," and from the evolution standpoint very likely to bring us relief. They are the greatest living issues before the social and political worlds to-day. These two kindred specifics for all the evils of our time, we may briefly say, are a "benevolent" but sturdy *despotism* and *the regulation of religion and morals by law.* Twin fiends, born in iniquity and cradled in apostasy from God, they are to-day piecing together into life the dismembered forms that man fondly believed he had cut to pieces forevermore. Even now are they leering their bloodshot eyes upon the remnant church as she hurries for the last time into the wilderness, away from that hatred which history declares is so deeply ingrained in the sinful heart that it can be eradicated only by the utter destruction of sin and sinners. These are the living issues before the world. Is democracy a failure? Is the principle of govern-

ment by consent false or true? But, above all, does the state need the assistance of the church, or vice versa? Shall we gain or lose by uniting religion and politics? Reader, these are the questions we must erelong think about and individually and collectively decide. The direst conflict of all the ages is beginning to boom about our ears. On which side will we be found?

It is true that these methods of dealing with present-day problems are not yet being advocated by the same parties. The selfish worldling, the practical politician, is, of course, the advocate of the first. He can not but see that it is the outworking of knowledge and individual liberty on the part of the turbulent classes that is bringing about the social evils he deplores. *Knowledge and liberty are not in themselves regenerative;* they are only *forms of power* placed within the reach of the individual, enabling him to better disguise for a time, or to carry out on a broader scale, his real governing motives of character. And we all know that an increase of power in the hands of sinners only brings an increase of blasphemy, rebellion, and woe. But the only remedy that the politician can think of is to regulate and restrain the causes; in other words, to regulate free speech and individual action. History testifies that, whenever people have ceased to be capable of governing themselves, there has always been found waiting a man or a set of men anxious to assume the job. By our taking up the "white man's burden" of governing what we are pleased to call half-civilized peoples beyond the seas, we shall end by finding a similar state of things requiring attention at home.

As a recent writer very ominously expressed it, "The populace have had their day, and have proved to be ignorant, criminal, and corruptible."

Everybody knows that there is everywhere a strong current setting in against the old-time principles of government by consent of the governed. When world-known scholars like Dr. Lyman Abbott undertake to guide this reaction, we can neither deny nor ignore the trend of the popular mind. What the scholars advocate to-day, the people will believe and *act upon* to-morrow. What with the labor unions, and what with the trusts, we are certainly beholding the fast passing of individualism. And this is not in America only, but in the Old World. The few great nations that have their capitals there are fast parceling up the world between them, and the popular mind in every one of them is tending steadily away from the rights of the individual, and toward the aggrandizement of the state, making everything subordinate to the one idea of corporate "progress." Some are going even further than this, for a recent writer in one of the best-known English weeklies remarks, "As care for the tribe preceded care for the nation, so care for the nation may only precede care for a federation of the nations." When the latter is an assured fact, may heaven pity not only the smaller states, but the poor individual atom in every one of these great, soul-crushing machines. How can men who have read even the outlines of history look on with complacence at the steady growth of this heaven-darkening despotism over the grave of liberty?

Some quotations from the current press and periodicals may not be out of place, as illustrating some of these points.

Signor Crispi, late prime minister of Italy, in comparing Europe with Spain, at the time of the Spanish-American War, said:—

"Europe resembles Spain from a certain point of view. Anarchy is dominant everywhere. To speak frankly, there is no Europe. The European concert is only a sinister joke. Nothing can be expected from the concert of the powers. We are marching toward the unknown. Who knows what to-morrow has in store for us?"

Lord Salisbury, in his Guildhall speech of last year, speaking of the constant danger of war, said:—

"We can not be certain that any government will not yield its powers to the less educated and less enlightened classes, by whom more and more in many countries of the world public affairs are being governed."

In view of these things, it is no surprise to see a strong reaction setting in in favor of imperialism and the centralization of authority.

Lord Strathcona, returning about the same time from Europe, is reported as saying, "There is a wave of imperialism sweeping irresistibly over Europe."

The same is of course even more true of the United States. Ten years ago who ever dreamed that leading American magazines, like the "North American Review," would ever print such articles as the one found in the December, 1899, number of that journal, entitled "Some Consecrated Fallacies"?

The ideas which this writer thus stigmatizes are those historic sentences of the Declaration of Independence that speak of the inherent rights of man; and of them he has the following to say:—

"All men are simply not created equal in any possible sense of the word. . . . *The creation of man has been a gradual process of evolution,* and they have been coming into being in different parts of the earth through long generations, *with differences and inequalities, which development has varied and widened, and not obliterated.*"

So we see that the stronghold, the justification, of it all is the doctrine of universal evolution.

Ten years ago who ever dreamed that such a paper as the "Independent" would yet set aside the great truth of natural rights as only a "theory," and appear to rejoice that "the revolt against it grows apace"?[8]

Dr. Lyman Abbott, the editor of the "Outlook," as might be expected of an ardent evolutionist of long standing, is leading out in this crusade against men having any inherent rights whatever. In a recent number of his paper, after declaring that government is not founded upon the consent of the governed, but upon the inherent right of every man to protect himself, his property, and those dependent upon him, Dr Abbott defines government as follows:—

"What is government?—It is nothing less than the control of one man's will by another man's will. . . .

"The real question as to the basis of government, then, is this, When has one man a right by his will to control the wills of other men, to overrule them,

[8] "The Independent," October 25, 1900.

to substitute himself as the director of the action of other men, to make his personality dominate another's personality? And this question brings us to the same result we have already reached,—he has the right to do this whenever that other is, in the exercise of his own will, violating the rights of his fellow-men."

It will not be expected that I should go into a discussion of this monstrous definition of government, or show that such a definition would not only answer for the most outrageous and absolute tyranny that was ever exercised upon the earth, but any that we can conceive of being exercised. As a recent reviewer has said of it: "Government is not the control of men's wills; it is the protection of men's rights. *It has nothing whatever to do with the wills of men; it has only to do with the actions of men which infringe upon the rights of others.* . . . Government, much less than being the control of one man's will by another man's will, is neither a matter of will on one side or the other; it is neither the enforcement of will nor the subjection of will. There is no need of quoting authority on this point. Search the annals of Anglo-Saxon history and jurisprudence from King Alfred down, and the overwhelming answer you will get is that *there can be no rule of will but the rule of tyranny.*"

These three journals quoted above might well be taken as representing almost all of the educated American public. But they do more than merely reflect public opinion. Perhaps no other three public institutions have such power to mould, to educate,

the public, and to change its attitude on important subjects. But when such teaching as the above is received with scarcely a protest, we may well ask, What next?

The other remedy, the other panacea for the evils of our time, is just as logical, though more horrible by far. For ages the Roman Catholic Church has stood for the regulation of religion by the state—I beg their pardon, for the regulation of the state by religion. The Protestant evolutionist—and how few are the modern Protestants who are not evolutionists!—believes most firmly in religious development and the speedy triumph of Christianity over all the forms of evil. What more logical to those who reject the "supernatural" part of religion than to invoke all the powers of the state, which is the strongest available power at hand? The power of God is out of the question; or, to speak more precisely, the power of the state is about the only "manifestation of the power of God" the rationalist will allow of outside of "natural law," at least the only one competent for the desired result. Why not unite in an organized raid on all unrighteousness, thus hastening the glad reign of peace and joy? Would it not be for the greatest good to the greatest number? Why let the commercial trusts reap all the benefits growing out of this new system of organized and combined effort? For many years now they have been talking and reasoning along these lines, devoting more attention to the salvation of *the state* than to that of *the individual,* till the contagion of this trust fever has quickened their pulses; and what

do we see just ahead?—The confederation together of all the churches for economy of work and to secure the establishment of those things that are held by them in common. But again I would ask the student of history, What do these things mean?

The Roman Catholic Church is, of course, friendly to such an idea. She has had an experience in this sort of thing before. It "'minds her o' departed joys," which she was almost afraid had "departed never to return." But with silent satisfaction she now sees that "all those forces of science, which it was once thought would be fatal to her, are now, in a way which constitutes one of the surprises of history, so grouping themselves as to afford her a new foundation."[9]

And it is the younger men who are leading out along these lines. They were educated in an atmosphere of evolution and "Higher Criticism," all tending to undermine faith in the Bible, and thus to banish it as effectually from heart and every-day life as did the ignorance of the Dark Ages. Those days of intellectual darkness, when the lamp of life was locked up from the common people in the tomb of the dead languages, were favorable to the success of popery. But it is being demonstrated before our eyes that an age of "great intellectual light is equally favorable for its success."

The practical politician will soon find that he can not get along without the help of these religionists: and when we add to these the *fast-developing possi-*

[9] B. F. Da Costa, D. D.

bilities of spiritism in its myriad modern forms, we have a combination which is evidently able (?) to restore peace and prosperity to our poor, distracted planet. A religio-political despotism is the logical outcome of the evolution theory; its triumph is only a question of time; and its strength when established can be estimated only by the breadth and strength of the teaching which during fifty years, or nearly, has been preparing the world for just such a state of things, viz., the belief in the struggle for existence as the normal and not an abnormal condition of nature and of society, and the resultant denial of the Scriptures as the supreme guide of human conduct.

The century which has just now sunk beneath the west, dawned smiling on the buoyant hopes of man. Democracy was looked to as the force which was to redeem all things. But its closing hours witnessed also the passing of its dream. Man has not in him anything tending toward self-regeneration. A few may be saved; the race can not be. Its disease is incurable. It is to-day going the way it has always gone,—building the tombs of the martyrs of the past and lighting the fagot for the "stubborn" heroes of the present.

But these things do not come as a surprise to an omniscient God. Looking down the dark, tear-misted vista of the ages, He saw how human ingenuity would turn into instruments of cruelty and despotism the marvelous knowledge of His created works, and relegate to the museums the vital teachings of His Word. To John on lonely Patmos He pictured how, in the western world, *outside* the ten powers of

Europe, a power would arise that would at first, in its broad principles of freedom and toleration, have all the appearance of *lamb-like* innocence and peace.[10] John saw this rising power of democracy develop and become a mighty power in the earth; but then appeared the native savagery of its character, for, like all the organizations of humankind before, "it spake *as a dragon.*"[11] He saw this lamb-dragon pandering to the power of the rejuvenated antichrist, whose *deadly wound* had been healed, and after whom all the world was wondering;[12] and, united hand in hand, he watched them in their attempt to stamp out the last embers of faith in the Creator as the sovereign Father of all, and the only Being worthy of the worship and obedience of the human mind. Bitter and fierce the conflict, the powers of all the world uniting to force the few faithful followers of His Word, "small and great, rich and poor, free and bond," to receive at their bidding the sign of their power and authority, in opposition to the *souvenir of the Creator's power,*—"and that no man might buy or sell, save he that had the mark, or the name of the beast, or the number of his name."[13]

And in that day—nay, in this day—when we are in the stress and conflict over the very foundations of belief, when evil is once more apparently triumphant, and Satan's first, last lie, "Ye shall be as gods," is again called truth and wisdom, reader, where do

[10] Rev. 13:11-17.
[11] Verse 11.
[12] Verses 3, 12.
Verse 17.

you stand? Are you trusting in the Creator of the heavens and the earth, who alone has the power to re-create you a new creature in Christ Jesus, and who is able to preserve amid the utmost stress and trial every trusting child of faith? Or will you reject the salvation so freely offered *as a gift,* and join those who are seeking in their own way and according to their own theories to save themselves and their world, and who, in their blindness, think it necessary to get rid of the troublesome few who stand in their way?

"Choose ye this day whom ye will serve, but as for me and my house, we will serve the Lord."

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