

ter, has, in these later years, been greatly decreased by the conviction that the fit character is not possessed by any people, nor is likely to be possessed for ages to come."¹

Conquests of Science.

It would be a grave mistake, however, to imagine that, because science has become bankrupt in some things, she has lost her prestige entirely. Nothing could be farther from the truth. No one who is acquainted with the brilliant conquests of science during the present century, could entertain such an opinion for a moment. What M. Brunetière means, and what all those who indorse his statements mean, is that she has failed by attempting what was beyond her competence; by essaying to solve problems and effect reforms that lie entirely within the domain of religion and philosophy. She has erred by confounding empiricism with metaphysics, and become insolvent only by assuming liabilities that were manifestly outside of her sphere of action. But so long as she was content with her own methods, and confined her investigations to her own province, she made good all her promises, if she did not accomplish even more. A glance at the annals of science during the past few decades, to go back no further, should satisfy the most skeptical on this point. She has given to the arts of life an impetus they never felt before. The forces of steam and electricity have received a development and been given applications that have been the marvel of the world.

¹ See *McClure's Magazine*, for March, 1894.

Nor has theoretical science in anywise failed to keep pace with the practical. Chemistry, biology, astronomy, physics, geology, aside from their practical applications, have wonderfully extended our views of the universe and given us far nobler conceptions both of nature and nature's God.

And, paradoxical as it may appear, not the least noble of these conceptions comes to us from that very theory which, only a few years ago, was supposed to have banished forever the Creator from the world of reality; a theory which was at once the scandal of the pious and the incubus of the orthodox. Evolution, it was asserted, had disproved the declarations of Scripture, and shown the inutility of a religion based on Dogma. It had dethroned the Almighty, had demonstrated that the universe is eternal, and that the order and beauty which we everywhere behold is the result of a fortuitous concourse of atoms. There is, therefore, we were told, neither design nor purpose in nature, and the doctrine of final causes, on which theologians were wont to lay so much stress, is completely and forever discredited.

More mature reflection, however, shows that all these assertions are as rash as they are unwarranted. Never in the history of science have thoughtful students of nature felt more deeply the necessity of recognizing a personal Creator, a spiritual, intelligent First Cause, than at present. Never have men seen more clearly the necessity of religion, as the sole agency which is capable of elevating and saving human society from the countless dangers with

which it is now beset. Never has the Divine character of the Book of books, been so gloriously manifested as it is now, after the many and furious onslaughts made on it in the name of science and the Higher Criticism. For, strange to say, the very investigations and discoveries which it was fondly imagined would completely nullify all its claims to being a Divine revelation, far from destroying such claims have but strengthened them and rendered them more logical and consistent.

Evidences of Design and Purpose.

And as to the evidence of design and purpose in nature, it was never more strikingly conclusive. But believing in final causes does not imply, let it be borne in mind, that we can always discover what is the precise purpose which is to be subserved by any given creature or organ. God has not taken us into His counsels, and we can at best catch but glimpses of His Divine plans and purposes.¹

There are, undoubtedly, many ends and purposes to be answered in all created things, and those of which we can attain any knowledge may be the least

¹ Descartes, in reference to this matter, truthfully observes: "Nous ne devons pas tant présumer de nous-mêmes, que de croire que Dieu nous ait voulu faire part de ses conseils." Lord Bacon speaks still more forcibly of the fallacy and folly of those who fancy they can read nature, or interpret the Divine plans and purposes in nature. "Neque enim credibile est quantum agmen idolorum philosophiæ immiserit naturalium operationum ad similitudinem actionum humanarum reductio. Hoc ipsum, inquam, quod putetur talia natura facere, qualia homo facit. Neque multo meliora sunt ista quam hæresis anthropomorphitarum . . . aut sententia Epicuri huic ipsi in paganismis respondens, qui diis humanam figuram tribuebat." "De Aug. Scien.;" V: iv.

important. As Mivart puts it: "Out of many, say a thousand million, reasons for the institution of the laws of the physical universe, some few are to a certain extent conceivable by us; and amongst these the benefits, material and moral, accruing from them to men—and to each individual man in every circumstance of his life—play a certain, perhaps a very subordinate, part."¹ The existence of an intelligent First Cause necessarily supposes that all forms of organization must be purposeful, once such forms exist, just as a world full of design manifestly proclaims the existence of a Designer.

Again, there are some who seem to think, if they can but find out how a law of nature operates, or what may be one of the many millions of purposes which an individual structure may serve, they have thereby eliminated the action of Providence, or shown it to be non-existent. They conclude that because, forsooth, they understand how a thing is done, that God did not do it. "No matter how wonderful, how beautiful, how intimately complex and delicate has been the machinery which has worked, perhaps for centuries, perhaps for millions of ages, to bring about some beneficent results, if they can but catch a glimpse of the wheels, its Divine character disappears."

In marked contrast with the opinions of sciolists and professed monists, respecting design and purpose in nature, is the view entertained by one of the ablest living masters of science, Lord Kelvin. "I feel profoundly convinced," he declares, "that the argument

¹ "The Genesis of Species," p. 259.

of design has been greatly too much lost sight of in recent zoölogical speculations. Overpoweringly strong proofs of intelligent and benevolent design lie around us, and if ever perplexities, whether metaphysical or scientific, turn us away from them for a time, they come back upon us with irresistible force, showing to us, through nature, the influence of a free will, and teaching us that all living things depend on one everlasting Creator and Ruler."

No, the argument from design has not been invalidated; it has been modified. It has not been weakened; it has been strengthened and expanded. Teleology to-day is not, indeed, the same as it was in Paley's time, nor as it was when the authors of the Bridgewater Treatises lived and labored. It is now a more comprehensive, a more beautiful, and a more stimulating science. To Paley, a watch found on the heath by a passing traveler, was evidence of design and of a designer. To the evolutionist, the evidence of design is not merely a watch, but a watch which is capable of producing other and better watches. To Paley, God was an Artificer who fashioned things directly from the materials at hand; to the evolutionist, as to St. Athanasius, St. Gregory of Nyssa and St. Augustine, God is a Creator who makes things make themselves. To Paley, as to the older school of natural theologians, God was the direct cause of all that exists; to the evolutionist he is the Cause of causes—*Causa causarum*, of the world and all it contains. According to the older view, God created everything directly and in the condition in which it now exists; according to Evolution, creation, or development rather,

has been a slow and gradual process, demanding untold æons for converting chaos into a cosmos, and for giving to the visible universe all the beauty and harmony which it now exhibits. It seems, indeed, more consonant with our ideas of God, to Whom a thousand years are as one day and one day as a thousand years, to conceive Him as creating all things in the beginning, and in ordering and administering them afterwards through the agency of secondary causes, rather than to represent Him as perpetually taking up a work which He had left unfinished, and bringing it to a state of perfection only by a long series of interferences and special creations. Understood in this, its true sense, Evolution teaches, as Temple phrases it, that the execution of God's "purpose belongs more to the original act of creation, less to acts of government. There is more Divine foresight, there is less Divine interposition; and whatever has been taken from the latter has been added to the former."¹

Rudimentary Organs.

For a long time naturalists were sorely puzzled as to how to account for the existence of nascent and rudimentary organs, which are manifestly of no use to their possessors. On the theory of special creations, the only explanation that could be offered for their existence was, that the Creator added them for the sake of symmetry, or because they were a part of His plan. Evolution, however, which contemplates not only the history of the individual but

¹"The Relations Between Religion and Science," p. 123.

also the history of the species, yea, even the history of the class and of the kingdom to which the individual belongs, gives quite a different answer. If ontogeny, the history of the individual, affords no clue to the *raison d'être* of these nascent and rudimentary organs, we interrogate phylogeny, the history of the species or the class. "Organs, which on the old theory of special creation were useless and meaningless, are now seen to have their explanation in the past or in the future, according as they are rudimentary or nascent. There is nothing useless, nothing meaningless in nature, nothing due to caprice or chance, nothing irrational or without a cause, nothing outside the reign of law. This belief in the universality of law and order is the scientific analogue of the Christian's belief in Providence."¹

Evolution, Scripture, and Theology.

Evolution accentuates design, without which, as Von Hartmann observes, all were "only a dark chaos of obstinate and capricious forces." It gives a truer and more majestic account of causation, because it brings home to us the truth, that the facts of nature are the acts of God, and emphasizes the teaching of our faith, that the laws of nature are the expressions of "a supreme will and purpose belonging to an Eternal Mind."

Evolution has been denounced as anti-Scriptural, and yet, the most remarkable feature about the Genesis account of creation, is the ease with which it lends itself to the theory of Evolution, that is, of

¹ "Science and the Faith," by Aubrey L. Moore, p. 197.

creation by the operation of secondary causes. We may not, indeed, be prepared to assert with Naudin, that "the cosmogony of the Bible from the beginning to the end is but an Evolution theory, and that Moses is the ancestor of Lamarck, Darwin and all modern evolutionists," but we can certainly affirm, as Canon Hamard points out, that the Sacred Text favors Transformism when understood in a theistic sense—"le texte sacré favorise à certains égards la thèse transformiste entendue dans un sens spiritualiste."¹

Surprising as it may seem, two of the most pronounced advocates of the Evolution theory, are the very ones who are most impressed with the remarkable harmony between the Genesis account of creation and the teachings of Evolution. Thus, Romanes admits that "the order in which the flora and fauna are said by the Mosaic account to have appeared upon the earth, corresponds with that which the theory of Evolution requires and the evidence of geology proves."² Hæckel, however, is even more explicit in his explanations. "Two great fundamental ideas," he says, "common also to the non-miraculous, meet us in the Mosaic hypothesis of creation, with surprising clearness and simplicity;

¹ See "Dictionnaire Apologétique de la Foi Catholique," par M. l'Abbé J. B. Jaugey, col. 3093. Further on the distinguished canon expresses himself as follows:—"Nous concluons seulement, de quelques considérations que nous venons d'ébaucher, que la Bible laisse une égale liberté aux transformistes et aux partisans des créations successives. Ainsi regrettons-nous de la voir mise en cause à ce sujet. Toutes les fois qu'elle n'est point absolument explicite—et il nous semble que c'est le cas—on s'expose, en invoquant son autorité, à la compromettre et à compromettre avec elle la cause religieuse dont elle est le soutien."

² Cf. *Nature*, Aug., 1881.

the idea of separation or differentiation, and the idea of progressive development or perfecting. Although Moses looks upon the results of the great laws of organic development, which we shall later point out as the necessary conclusions of the doctrine of descent, as the direct action of a constructing Creator, yet in this theory there lies hidden the ruling idea of a progressive development and differentiation of the originally simple matter. We can, therefore, bestow our just and sincere admiration of the Jewish law-giver's grand insight into nature, and his simple and natural hypothesis of creation."¹

Evolution has been condemned as anti-Patristic and anti-Scholastic, although Saints Gregory of Nyssa, Augustine and Thomas Aquinas, are most explicit in their assertion of principles that are in perfect accord with all the legitimate demands of theistic Evolution. It suffices to recall the admirable passage of the Bishop of Hippo, in his "De Genesi ad Litteram," in which he proleptically announced all the fundamental principles of modern Evolution. He recognized Evolution not only in individuals, but he also discerned its workings in the sum of all things. God did not create the world, as it now exists, actually, *actualiter*, but potentially and causally, *potentialiter et causaliter*. Plants and animals were created virtually, *vi potentiaque causali*, before they received their subsequent development, *priusquam per temporum moras exorirentur*.²

¹ "History of Creation," vol. I, p. 38.

² Vid. sup., part II, chap. IV, for St. Augustine's views on Evolution.

Evolution and Special Creation.

In reference to the popular objections against Evolution that it reposes on no positive demonstration; that none of the arguments advanced in its behalf are conclusive; that all of them, whether taken severally or collectively are vitiated by some flaw, and that, consequently, they are not of such a character as to command the assent of reasonable men, it may be observed that all of them can be urged with equal, and even with greater force against the rival of the Evolution theory, to wit, the theory of special creation.¹ Contrary to what its supporters would be disposed to admit, it has no foundation but assumption, and can claim no more substantial basis than certain postulates which are entirely gratuitous, or certain views regarding the Genesiac account of creation, the truth of which views may as readily and with as much reason be denied as it can be affirmed. For as the learned Abbé Guillemet declared before a sympathetic audience, composed of distinguished ecclesiastics and scholarly laymen, at the International Catholic Scientific Congress at Brussels, the theory of special creation, or fixism as he prefers to call it, explains nothing whatever in science. Not only this, "it closes the door to all explanations of nature, and notably so in the domain of paleontology,

¹ According to the theory of special creation as formerly held, everything in the inorganic, as well as in the organic world, was created by God directly and essentially as it now appears. But as at present understood, special creation means rather that the Deity created immediately all the species and higher groups, of animals and plants, as they now exist.

comparative anatomy, embryology and teratology. It affords no clue to the significance of rudimentary organs, and tends inevitably to force science into a veritable cul-de-sac."¹

Again, it may be observed that the objections referred to are based not only on a misapprehension of the significance of the theory of Evolution, as well as of that of the theory of special creation, but also on a misconception of the character of the arguments which are urged in favor of both theories. The misapprehension arises from the fact, that Evolution is regarded as being at best but a flimsy hypothesis, while special creation is represented as a positive dogma, which admits neither of doubt nor of controversy. The truth is, however, that both Evolution and special creation are theories, and no one who is exact in the use of language can truthfully assert that either of them is anything more. Evolution, I know, is oftentimes called a proved doctrine; but no evolutionist who has any regard for accuracy of terminology would pretend that the theory has passed all the requirements of a rigid demonstration, because he knows better than anyone else, that anything approaching a mathematical demonstration of Evolution is an impossibility. The most that the evolutionist can hope for, or that he has hitherto attained, or is likely to attain, at least for a long time to come, is a certain degree of probability; but such a degree of probability as shall give his

¹See *Compte Rendu du Troisième Congrès Scientifique des Catholiques, Section d'Anthropologie*, p. 20.

theory sufficient weight to command the assent of anyone who is competent to estimate the value of the evidence offered in its support. The degree of probability which already attaches to the theory of Evolution is very great, as all who have taken the trouble to investigate its claims must admit; and every new discovery in the realms of animate nature but contributes towards placing the theory on a firmer and more impregnable basis.

Such being the case the question now is: Which of the two theories is the more probable, Evolution or special creation? Both of them, it must be admitted, rest upon a certain number of postulates; both of them have much to be said in their favor, as both of them may be assailed with numerous and serious objections. For our present purpose it will here suffice to repeat the answer of the Abbé Guillemet, who tells us that Evolution, as against special creation, has this in its favor, that it explains and coördinates the facts and phenomena of nature in a most beautiful and simple manner; whereas the theory of special creation not only explains nothing and is incapable of explaining anything, but, by its very nature, tends to impede research, to bar progress, or, as he phrases it, "it forces science into a blind alley—*met la science dans une impasse.*"

Genesiac Days, Flood, Fossils and Antiquity
of Man.

As matters now stand, the case of special creation versus Evolution is analogous to several

other questions which have supplied materials for long and acrimonious controversy. Thus, until the last century it was the almost universally accepted belief that the days of Genesis were real solar days of twenty-four hours each. It was likewise the general opinion that the Noachian Deluge was universal, not only as to the earth's surface but also as to the destruction "of all flesh, wherein is the breath of life, under heaven." And until a few decades ago it was the current belief, that the advent of our race on earth did not date back much farther than four thousand years B. C., and that the only reliable evidence we had for the solution of the problem involved, was to be found in certain statements of the Sacred Text. So, too, from the time of Aristotle until that of Palissy, the potter, we might say even until the time of Cuvier, it was believed that fossils were but "sports of nature," "results of seminal air acting upon rocks," or "rejected models" of the Creator's work.

Now it would probably be difficult, if not impossible, to give an absolute proof of the unsoundness of these views, and that for the simple reason that anything like a mathematical demonstration is, by the very nature of the case, out of question. Rigorously speaking, the theories involved in the above beliefs, with the exception, perhaps, of that regarding the antiquity of man, are susceptible neither of proof nor of disproof. The most we can have, at least for the present, is a greater or less degree of probability, for it is manifest that the Almighty, had He so willed, could have created the

world as it now is in six ordinary days. He could have created it just as it exists at present in a single instant, for He is above and independent of time. The teachings, however, of geology and paleontology are diametrically opposed to the supposition that He did fashion this globe of ours, as we now see it, in six ordinary days, while it is found that there is nothing in Scripture which precludes the view that the days of Genesis were indefinite periods of time. God could have caused the flood to cover the entire earth to the height of the highest mountain, and He could thus have destroyed every living thing except what was preserved in the ark; but did He? Ethnology, linguistics, prehistoric archæology, and even Scripture, supply us with practically conclusive reasons for believing that He did not. It is within the range of possibility, that the four thousand and four years allowed by Usher for the interval which elapsed between the creation of Adam and the birth of Christ, are ample to meet the demands of the case, but it is in the highest degree improbable. If the evidence of history, archæology, and cognate branches of science have any value at all, it is almost demonstrably certain that the time granted by Usher and his followers is entirely inadequate to meet the many difficulties which modern science has raised against the acceptance of such a limited period since man's advent on earth. And so, too, regarding fossils. God could, undoubtedly, have created them just as they are found in the earth's crust, but there is no reason for believing that He did so, while there are many

and grave reasons for thinking that He did not. In the first place all *prima facie* evidence is against it. It is contrary to the known analogy of the Creator's methods of work in other instances; contrary to what is a rational conception of the Divine economy in the plan of creation. It is contrary also to our ideas of God's wisdom and goodness; for to suppose that fossils are not the remains of forms of life now extinct, to suppose that they were created as we now find them, would be to suppose that the Creator would have done something which was specially designed to mislead and deceive us. Against such a view we can assert what Suarez affirms in another connection, that God would not have designedly led us into error—*Incredibile est, Deum . . . illis verbis ad populum fuisse locutum quibus deciperetur*. We see fossils now forming, and from what we know of the uniformity of nature's operations we conclude that in the past, and during the lapse of long geologic eras, fossils have been produced through the agency of natural causes as they are produced at present, and that, consequently, they were not created directly and immediately during any of the Genesiac days, days of twenty-four hours each, as was so long and so universally believed even by the wisest theologians and philosophers.

What has been said of the traditional views respecting the six days of creation, the Noachian Deluge, the antiquity of the human race and the nature and age of the fossil remains entombed in the earth's crust, may, in a great measure, be iterated

regarding the long-accepted view of special creation. It is possible, for there is nothing in it intrinsically absurd; but in the light afforded by the researches and discoveries of these latter days, it is the conviction of the great majority of those who have studied the question with the greatest care, and who are the most competent to interpret the facts involved, that as between the two rival theories, special creation and Evolution, the preponderance of probability is overwhelming in favor of Evolution of some kind, but of just what kind only the future can determine.

Evolution, then, I repeat it, is contrary neither to reason nor to Scripture. And the same may be said of the divers theories of Evolution which, during these latter times, have had such a vogue. Whether, therefore, we accept the theory of extraordinary births, the saltatory Evolution of Saint-Hilaire and St. George Mivart; or Darwin's theory of natural selection, which takes account of only infinitesimal increments; or Weismann's theory of heredity, which traces specific changes to the germ-plasm, we are forced to admit that the ultimate efficient Cause of all the changes produced, be they slow or sudden, small or great, is the Creator Himself, acting through the agency of second causes, through the forces and virtues which He, Himself, communicated to matter in the beginning. Such being the case, it is obvious that Evolution does not exclude creation, and that creation is not incompatible with Evolution.