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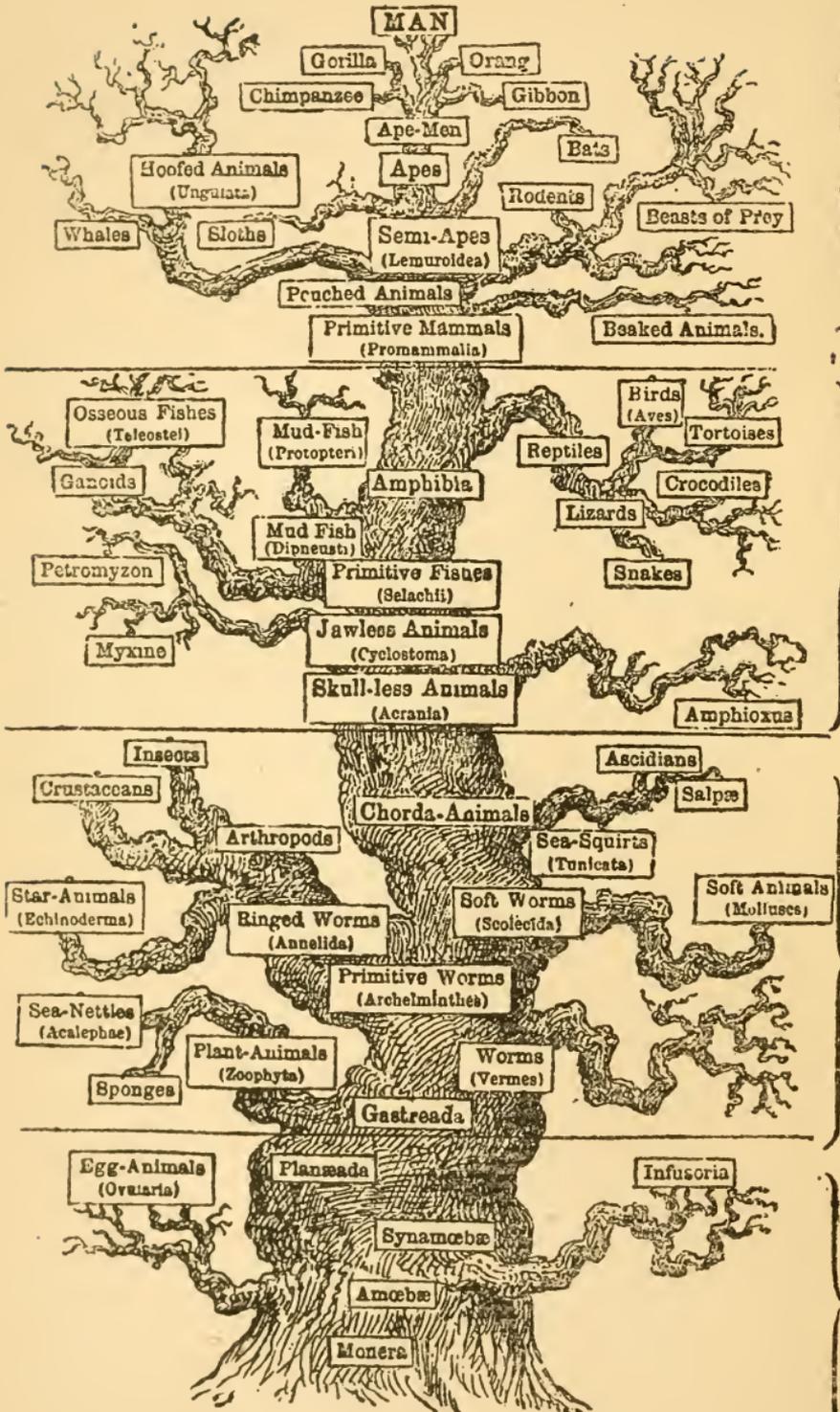
Evolution, and its bearing
on religions

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EVOLUTION, AND ITS BEARING ON RELIGIONS

HAECKEL'S PEDIGREE OF MAN.



Mammals
(Vertebrates)

Vertebrates
(Vertebrates)

Invertebrate Intestinal
Animals

Primitive Animals
(Protozoa)

EVOLUTION, AND ITS
BEARING ON RELIGIONS

BY
A. J. DADSON

WITH FIVE PLATES

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P R E F A C E

UNDER the title, "EVOLUTION AND RELIGION," part of this book was published in 1893. The chapters on Evolution have been revised, to the extent necessitated by fresh discovery and the increased knowledge of recent years. The remainder has been treated in a somewhat different manner, and almost entirely rewritten; so that the present volume, "Evolution, and its Bearing on Religions," is substantially a new book.

The subject of Evolution has been before the world for over two thousand years; but it is only within the last half century that its great and far-reaching consequences have been appreciated. The genius and labours of Darwin shed a great light upon the mind, and created a revolution in thought upon some of the most momentous and serious subjects. It is true that long before his time the theory of gradual development had been accepted by the thinking few; but it was owing to his discoveries that it received wide public recognition, and became incorporated in the body of organised knowledge. Other thinkers had divined the truth that the organic, like the inorganic, has arisen from the operation of an all-embracing mechanical law. It was reserved for Darwin to prove it, by discovering the natural law under the operation of which the living world in all its forms has arisen.

The powerful interests involved in the ultimate consequences of such views becoming accepted by the public, raised a violent storm of opposition which had an educational effect contrary to that intended and hoped for by the opponents of Evolution. It was seen that the truth of the theory was making progress among all classes; and in the hope of saving the great interests from complete wreck, Darwin was appealed to, and

asked to give his great authority to the view that man, at least, was exempt from the evolutionary theory, and had been specially created. Darwin's reply is well known.

He could not regard man's origin as the result of special creation. He, like every other creature, was the product of Evolution, and had arisen through many gradations from lower animal forms. There was, therefore, no escaping the obligation to apply the law of Evolution to man's mental, moral, and religious progress, since it would manifestly be absurd to credit his animal ancestors with these endowments. To thoughtful minds it became evident that this necessitated a readjustment of our mental attitude towards the specific forms of religious belief current among us, the fruits of which are now seen in many directions.

Once establish the truth that man, as a part of Universal Nature, has been gradually evolved, through long ages, from the lowest forms of organic life by the operation of the great mechanical law of Evolution, which embraces all things, and is, in accordance with that law, still progressing to greater and higher degrees of complexity and perfection, and it is seen how deep and far-reaching must be the effect.

The object of this book is to awaken interest in the subject in the mind of the intelligent reading public, and to endeavour to show that every form of belief which is built upon material other than that which is supplied by natural law has no scientific validity; and must undergo modification from time to time, and be finally rejected when it is plainly understood to contradict or disagree with the laws of Nature, which are the supreme arbiters in all human affairs. It is seen to be, not a question as to whether or not we would continue the preservation of forms of belief, with which may be associated some of the happiest elements of our emotional life, past and present, but rather one over which we have little or no control; and, whether we will it or not, that which does not conform to, or is found to be inconsistent with, the advance of scientific culture is destined to fall out of regard, and eventually die. The *rationale* of it

seems to be, that the human path is lighted for us, and guided by the laws of Nature, and in so far as we follow that light we tread on firm ground ; but the moment we abandon that trusty guide and step aside, we are in an unknown region, and may have to retrace every step we take.

History shows how largely the human mind has been engrossed with the problem of its relation to the Universe, and it bears evidence to the melancholy fact that all attempts to solve the mystery on supernatural lines have been rendered untenable by the advance of scientific research. The utterances of some of the best minds of our age express the futility of continuing to base our hopes of enlightenment upon assumptions which have no foundation in the verifiable facts of existence ; and which more and more diverge from, and fall out of co-ordination with, those facts as time goes on, and our knowledge of the orderly course of Nature is increased and strengthened by extended observation and new discovery.

All the explanations of man's place in Nature and his relation to the Unknown Power, which are based on those assumptions, have been discredited, and it is perhaps scarcely an exaggeration to say that they now form but a comparatively small part of the intellectual life of the thinking part of the world. Some of those who recognise the futility of evolving from the imagination inconsistent and meaningless explanations, nevertheless hold that the need to the great majority of some kind of concrete form of faith makes it a duty to refrain from criticising it by the light of positive knowledge.

In reply to this, it may be urged that faith is largely a matter dependent upon early teaching and custom ; and when it is succeeded by reasoned scepticism, the latter will bring its own mental compensation for any emotional loss that may be sustained. Moreover, as truth has for us an indestructible significance, inasmuch as it is the ideal goal and object of all endeavour, to follow it according to our lights, under all circumstances, would appear to override all other considerations ; and to connive at its suppression in the interests of a back-

ward stage in progress is to retard the advance of knowledge, in proportion as the perpetuation of fallacies is thereby secured.

If the only true light is that which is afforded by science, and the verifiable laws of Nature are the only solid foundations on which we can build, no apology will be needed for treating the subject of religion, in its positive forms, by those rational methods which alone we recognise as permissible in all other subjects of inquiry.

Looking back upon past and discarded creeds, on the specific promises of which millions of human beings founded their happiness and hopes, we of a more enlightened age can appreciate the effect of the growth of knowledge in disclosing their unsubstantial and erroneous character, though they were matters of the deepest import to those generations.

We have not reached finality ; indeed, civilised man is only yet in his infancy ; and as we, with our greater and truer knowledge of Nature, look back upon the beliefs of past ages, so will our descendants in a still more enlightened age in the future look back upon those which are current amongst the majority to-day. And so probably will it ever be in the ascending scale of complex human life. To eliminate superstition and supernaturalism as a creed is one of the aids, perhaps the greatest, to intellectual growth and purity of mind, on which welfare and progress depend. This is the justification for seeking to rationalise religious belief, by subjecting it to the judgment of reason, which is the only reliable guide given to man.

ARTHUR J. DADSON.

FARNINGHAM,
KENT.

EVOLUTION, AND ITS BEARING ON RELIGIONS

CHAPTER I

ANCIENT EVOLUTIONARY THOUGHT

ABOUT fifty years ago, the author of "Vestiges of the Natural History of Creation" began that famous work by referring to the *size* of the earth as being familiar knowledge. In like manner we may now say, in regard to the *age* of the earth, it is common knowledge that, so far from being some six thousand years old, we must reckon it by many millions at least. The vast age of our globe few now dispute; and we may fairly assume that the theory of gradual development is now accepted by the majority of thoughtful, educated people.

The Doctrine of Evolution is not an original product of modern science; it was an important feature in ancient Greek philosophy; and we meet with it as far back as 460 B.C., in the writings of Democritus and others. Only a few fragments of the works of that eminent thinker have come down to us; but from them we learn his theory of the Universe. He taught that there is nothing in Nature but atoms and space. Atoms are the ultimate material of all things, including all the faculties and affections of mind or spirit throughout the animal kingdom. They possess, as an inseparable quality of their nature, motion, which, like the atoms themselves, is eternal. Both are self-existent, uncaused, and have existed from eternity. The atoms are

invisible, but solid and impenetrable; and by their infinite combinations all things are produced—mineral, vegetable, and animal.

Not a single atom in the Universe can be at rest for the smallest fraction of time; such a state would destroy its character, which is eternal. Motion imparts to the atoms a tendency to combine in certain aggregates, but under all forms of combination motion persists. Every state of existence, organic and inorganic, is the result of special concurrence of the atoms, appropriate to each state; and as the totality of Nature is due to the atoms, and their infinite variety of combination alone, it follows that what we call life and death are *changes of form* only—distribution and combination of the atoms, reproduction and decay; and every organic existence is continuously passing through one or the other of these states.

The condition known as life is one in which the atoms are combining; that of death in which they are disuniting; but in both conditions, the nature of the atoms remains unchanged. There is no such thing as qualitative change; all growth and decay are merely the compounding and separating of atoms. No organism can possess any powers which are not derived from the motion of the atoms, and their infinite complexity of structure. It follows from the foregoing that at birth no *new force* can be brought into existence, neither can any be annihilated at death. The popular notions, therefore, which regard the human soul as an entity are erroneous, since they presuppose the creation of a new force at birth, and the vanishing of that entity and force from the earth at death. Matter is a constant quantity, so also is force. Both are incapable of diminution or augmentation.

Everything happens from necessity, under the pressure of atomic force; and worlds, infinite in number, are ever in process of growth or decay. By a mechanical necessity, everything that is, is as it is, and could not be otherwise. Democritus would not admit that the formation of worlds and all they contain was in any way due to reason, and absolutely denied the

necessity for presupposing the existence of an ordaining Intelligence. He was, of course, opposed to the popular theology of his day, and was looked upon as an extreme sceptic, and reviled accordingly. The theology has long since passed away, but his philosophy has lived, and is bearing fruit to-day in various departments of Philosophy and Science. "The theory of chemistry, as it now exists, essentially includes his views."

During this period, and down to the time of the Christian era, the intellectual activity of the Greeks was very great; and in the monumental works which those illustrious thinkers gave to the world, the subject of evolution occupies a prominent place.¹ The crude notions of the priests regarding the origin and constitution of the Universe, which satisfied the people, could not, of course, find any favour with men so intellectually endowed as were the sages of Greece.

The prevailing belief of the structure of the world was similar in regard to magnitude and character to that given by Moses. Man was surrounded by all sorts of invisible agencies and supernatural wonders; and his chief object in life was to protect himself against their evil influence. A few miles above the earth was situated Olympus, the abode of the principal god, Zeus, who, surrounded by his inferior gods and their wives and mistresses, indulged in various acts of human crime and passion. The stars were supposed to be the light of heaven shining through the rents in the floor. The gods occasionally came down from their abodes and mixed with the daughters of men, and kings and chiefs, in consequence, claimed celestial descent on the paternal side.

This theological explanation of the Universe was held from time immemorial in great veneration by the inhabitants of the islands of the Mediterranean and the surrounding countries. And great was the wrath of the people, led by the theologians, against the philosophers of Greece for daring to question the religion of their forefathers. Many were despoiled of their goods as a punishment, and others banished or put to death.

¹ See article on "Evolution" in "Encyclopædia Britannica."

Belief in such a system necessarily precluded all inquiry and progress among the people; but the intellectual horizon was widening in all directions when Aristotle appeared, 384 B.C. Before his time Greek philosophy had been purely speculative. He was the first to practise the true method of scientific research by patient observation of the facts of Nature around him. He is called the founder of the Inductive method. He accepted the Evolutionary theory in principle, and by his labours in every known field of inquiry, he collected an immense number of facts bearing upon and supporting the Theory of Universal Development. Dr. Draper¹ truly says all the modern advances in science are due to the Inductive philosophy established by Aristotle. For his fundamental views of Nature, Aristotle was greatly indebted to Democritus, and invariably speaks of him with great respect.

The idea of the organic arising from the inorganic was familiar to him. In his treatise "On the Parts of Animals," he explains the distinction between tissues and organs, and shows how the latter are built up from the former, and the former from the simple elements, heat, etc. "Out of the elements are formed the homogeneous substances or tissues; out of these are formed the organs; out of the organs the organised being." Next he treats of the soul or "vital principle," which he asserts to be common to all living beings, including man. And even what we call inanimate nature is endowed with the same principle. The soul is not a separate entity, dwelling in the body during life, and leaving it for an eternal existence at death, but is rather a part of the universal soul or "vital principle," which, though it lives in the race—the universal, it dies in the individual—the particular.

The Ethical end of man he believed to be happiness, which was to be attained by Justice and Culture. He was acquainted with over five hundred species of animals, and by close observation and dissection had discovered many rudimentary organs and their causes. The germs of the "Origin of Species" are plainly discernible in his

¹ "Conflict between Religion and Science," p. 23.

works. He believed in the gradual development of all things, and rejected the notion that Nature works by fits and starts, or what in recent years have been called catastrophes.

“He concluded that everything is ready to burst into life, and that the various organic forms presented to us by Nature are those which existing conditions permit; should the conditions change, the forms will also change. Hence there is an unbroken chain from the simple elements through plants and animals up to man, the different groups merging by insensible shades into each other.”¹

“With regard to the history of Evolution, it is especially noticeable that Aristotle traced it in the most diverse classes of animals, especially in connection with the lower animals, with several of the most remarkable facts which we have rediscovered only towards the middle of the present century. Some of his theoretical thoughts are of special interest, because they indicate a right fundamental principle of the nature of the processes of evolution.

“He conceives the evolution of the individual to be a new formation, in which the several parts of the body develop one after the other. According to him, when the human or animal individual develops either within the mother’s body or out of it in the egg, the heart is formed first, and is the beginning and the centre of the body. After the heart is formed the other organs appear; of them the interior precede the exterior, and the upper, or those above the diaphragm, precede the lower, or those below it. The brain is formed at a very early stage, and out of it grow the eyes. This assertion is indeed quite accurate. On trying to obtain from these statements of Aristotle an idea of his conception of the processes of evolution, we find that they indicate a faint presentiment of that theory of evolution which is now called Epigenesis, and which Wolff, some two thousand years later, first proved. It is especially remarkable that Aristotle altogether denied the eternity of the individual. He admitted that the kind of species, formed from indi-

¹ Dr. Draper, “Conflict between Religion and Science,” p. 23.

viduals of the same kind, might possibly be eternal, but asserted that the individual itself was transient, that it came into being anew in the act of generation, and perished at death."¹ These are, indeed, grand results to have arrived at nearly 2,200 years ago; and yet only within the present century have they borne any fruit.

The evolutionary idea was present to many of the great minds of antiquity, as may be seen from isolated expressions scattered through their writings. Cicero says, "One eternal and immutable law embraces all things and all times." In this we have the scientific conception of modern times, as opposed to the anthropomorphical ideas of the theologians, that a personal will directly superintends every event, however small.

In the writings of Zeno, the founder of the ethical School of Philosophy in Greece, we find the most comprehensive and advanced views:

"We must remember," he says, "that everything around us is in Mutation; decay follows reproduction, and reproduction decay, and it is useless to repine at death in a world where everything is dying. As a cataract shows from year to year an invariable shape, though the water composing it is perpetually changing, so the aspect of Nature is nothing more than a flow of matter, presenting an impermanent form. The Universe, considered as a whole, is unchangeable. Nothing is eternal but space, atoms, force. The forms of Nature that we see are essentially transitory, they must all pass away.

"We must bear in mind that the majority of men are imperfectly educated, and hence we must not needlessly offend the religious ideas of our age. It is enough for us ourselves to know that though there is a Supreme Power there is no Supreme Being. There is an invisible principle, but not a personal God, to whom it would be not so much *blasphemy* as *absurdity* to impute the forms, the sentiments, the passions of man. All revelation is necessarily a mere fiction. That which men call chance is only the effect of an unknown cause. Even of chance there is a law. There is no such thing as Providence, for Nature proceeds under irresistible laws, and in this respect the Universe is only a vast automatic engine. The vital force which pervades the world the illiterate call God. The soul of man is a spark of the vital flame, the general vital principle. Like heat, it passes from one to another, and is finally reabsorbed or reunited in the universal

¹ E. Haeckel, "The Evolution of Man," vol. i., pp. 27-29.

principle from which it came. Hence we must not expect annihilation, but reunion; and as the tired man looks forward to the insensibility of sleep, so the philosopher, weary of the world, should look forward to the tranquillity of extinction." He further says, however, that "of these things we can have no certain knowledge, since it is not only unphilosophical but futile to inquire into first causes; we can deal only with the phenomenal. Man cannot ascertain absolute truth; we are incapable of perfect knowledge; and even if the truth be in our possession, we cannot be sure of it."¹

It will be noticed that Zeno uses the words "annihilation" and "extinction" in two different senses. No part of us can be annihilated, but simply changed in form. The bodily part at death rejoins the matter of the world from which it was taken and built up, while the vital force, according to him, in like manner goes back to the universal force, and is reabsorbed. This change of form produces extinction of consciousness; and this appears to be the sense in which he uses the word "extinction," or its equivalent.

Everything about the individual becomes reabsorbed in the universal. The Greek thinker here foreshadows the modern doctrine of the Conservation of Energy, supposing the "vital energy" to be a manifestation of general physical force.

So far, then, we see that the universal law of Evolution, by which worlds and all they contain are produced, was known to the ancients. Beginning with matter and force, they had evolved the theory that from these two elements all Nature has arisen in one continuous, unbroken chain, the last link of which is man.

All the forms of Nature have arisen by imperceptible degrees, the higher from the lower, without the slightest break in the whole series of being, both organic and inorganic. This grand and true conception was given to the world in the early days of recorded history. It died like every other great discovery of

¹ Dr. Draper's "Conflict between Religion and Science," pp. 24, 25.

ancient times, and lay buried for over 1,800 years, not a trace of it being discernible during that long period. The rediscovery was reserved for the latter part of the eighteenth century.

CHAPTER II

INORGANIC FORMATION

IN 1755 Kant, the great German philosopher, published his "General History of Nature, and Theory of the Heavens." In this work Kant makes a bold attempt to explain the mechanical origin of the Universe, according to Newton's principles, by a natural course of development, to the exclusion of all miracles. His "Cosmological Gas Theory" has since been fully established by Laplace and Herschel. Kant held that in inorganic nature there was no necessity to conceive of any directing intelligence, that mechanical laws were alone sufficient to account for everything. All phenomena, he maintains, are explicable by mere *mechanism*, and require no intervention of a will or final purpose. That is to say, in the world of not-living matter—as it appears to us—we can explain all phenomena by the action alone of well-known mechanical laws, which act of necessity, under the pressure of persistent force; and that it is needless to introduce into this part of nature at least any intervention whatsoever from a Superintending Intelligence, which people generally call God.

Kant admitted, and indeed insisted on, the all-sufficiency of this mechanism to produce the whole of inorganic nature. But when we come to living, or organic nature, Kant doubted if a Newton would ever arise to reduce the mysterious complexity of living forms to mechanical laws. He could not conceive it possible for the mind of man to penetrate into Nature's workshop, and discover the processes by which a blade of grass, for example, is made to grow otherwise than by an intelligent principle working for the accomplishment of a specific end—or, in other words, by the will of God. He did not deny to human reason the *right* to investigate and explain, if

possible, all phenomena mechanically ; but he believed that the limited power of man precluded all possibility of conceiving of organic nature otherwise than from a teleological point of view.

While, however, expressing his inability to imagine that the mechanical laws of form and growth in organic nature would ever be discovered, if indeed they existed, he is forced by the necessity of thought on the subject into views which plainly foreshadow, if they do not distinctly contain, the *theory of descent*. The most important and remarkable of these passages occurs in his "Methodical System of the Teleological Faculty of Judgment," which appeared in 1790 in the "Criticism of the Faculty of Judgment."

"It is," he says, "desirable to examine the great domain of organised nature by means of a methodical comparative anatomy, in order to discover whether we may not find in it something resembling a system, and that, too, in connection with the mode of generation, so that we may no longer be compelled to stop short with a mere consideration of forms as they are—which gives us no insight into their generation—and need no longer give up in despair all hope of gaining a full insight into this department of Nature. The agreement of so many kinds of animals in a certain common plan of structure, which seems to be visible not only in their skeletons, but also in the arrangement of the remaining parts—so that a wonderfully simple typical form, by the shortening and lengthening of some parts, and by the suppression and development of others, might be able to produce an immense variety of species—gives us a ray of hope, though feeble, that here perhaps some result may be obtained, by the application of the principle of the *mechanism of Nature*, without which, in fact, no science can exist. This analogy of forms (in so far as they seem to have been produced in accordance with a common prototype, notwithstanding their great variety) strengthens the supposition that they have an actual blood relationship due to origination from a common parent—a supposition which is arrived at by observation of the graduated approximation of one class of animals to another, beginning with the one in which the principle of purposiveness seems to be most conspicuous—that is, man—and extending down to the polyps, and from this even down to mosses and lichens, and arriving finally at raw matter, the lowest stage of Nature observable by us. From this matter and its forces the whole apparatus of Nature seems to have descended according to mechanical laws (such as those which she follows in the production of crystals) ; yet this apparatus, as seen in organic beings, is so incomprehensible to us that we feel ourselves compelled to conceive for it a different principle. But it

would seem that the archæologist of Nature is at liberty to regard the great *Family* of creatures (for as a Family we must conceive it, if the above-mentioned continuous and connected relationship has a real foundation) as having sprung from the immediate results of her earliest revolutions, judging from all the laws of their mechanism known to or conjectured by him."

In this passage Kant explicitly expresses himself in favour of the view that the mechanical laws prevailing in the formation of inanimate nature will ultimately be found to be the efficient cause in the production of the organic world. Subsequent research and observation have proved the sagacity and depth of his penetration.

Kant, one of the deepest thinkers of modern times, assumed that the Universe of worlds, suns, moons, stars, comets, etc., was, at an inconceivably remote period, a formless mass of fiery mist—a kind of gaseous chaos infinitely extended, out of which all the heavenly bodies, as far as the mind can conceive of their existence, have been formed by the operation of well-known mathematico-astronomical laws. This Cosmical Gas Theory of the development of the Universe, as we have said above, has since been proved to be true by Laplace, Herschel, and others. It harmonises with all the series of phenomena at present known to us, and is generally accepted by competent inquirers.

It must not be supposed, however, that this theory touches the *real origin* of the Universe, either in regard to matter or motion. We are as incapable of conceiving a *first beginning* to the Universe as we are of a final end; both are alike unthinkable, at least in the present state of our knowledge, and, as it would appear, our faculties of knowing. The late G. H. Lewes said, speaking of the boundary of the knowable set by the conditions of thought, "To know more we must be more." Whether in the course of long ages continuous evolution will ultimately make us "more," and enable us to transcend the present limits, we cannot say. At present the Infinite hems us in on all sides, and we can only deal with the finite in time and space, though under an unavoidable necessity of postulating the Infinite

The sun may in time absorb all the planets, and the whole mass reach a state of complete equilibrium or quiescence; but that it can remain so for ever in a Universe where innumerable other systems are in motion, and acting upon the solar mass, is, we may speculatively assume, impossible. Hence there cannot be Universal Death; while one system is dying, another is slowly emerging from death or quiescence by the action of surrounding motion.¹ On this subject see Mr. Herbert Spencer's "First Principles."

These are subjects, however, too far-reaching and speculative to supply us with data for exact knowledge; and, moreover, such speculations are not germane to our purpose.

Disregarding the question as to the origin of motion, resulting in the formation of the celestial bodies as a whole, it may be assumed that the Nebular hypothesis is true, and that all the bodies in our solar system were at one time a diffused mass of fiery mist, filling the entire space within the circumference of its area. By the action of well-known mechanical laws this fiery mist must have become differentiated into the various planets, etc., forming the solar system, including, of course, the earth. In course of time the mist became denser and denser, until, having passed through the various stages, the outer crust became solidified and hard, and eventually was fitted for the abode and sustenance of life.

The manner in which the sun and all the other bodies composing our system were formed from the fiery mist is not hypothetical, but well established by the known laws of Nature operating to that end. The whole structure, etc., of the solar system is the result of those laws by which the mechanism could have been predicted by man. From the persistence of matter and force the sun, planets, moons, etc., arose from that attenuated gas as a matter of *necessity*, independently altogether of any external power. The inherent forces

¹ We are probably on the eve of new discoveries respecting that mysterious substance ether, which may greatly extend the boundary of our knowledge of this and many other subjects.

of eternal matter are here all-sufficient to produce the mechanical phenomena; and not only is this evident, but the introduction of any other agency becomes an impossibility in thought.

It is sufficient for the purpose in view to state known facts without going into elaborate details, our object not being to teach science.

CHAPTER III

ORGANIC FORMATION

IT is to Casper Friedrich Wolff, who was born in Berlin in 1733, that the world is indebted for the true theory of evolution. Previous to his discovery, it was believed that the germ contained the whole individual, and that it grew by an unfolding, as it were, of the various parts. According to this theory, all the organs are existent in the germ, and as the embryo grows, the organs all undergo a process of development simultaneously. The word evolution really accurately describes this process, and is more properly applicable to it than to the process established by Wolff, and known as Epigenesis. This, which is now known to be the true method of growth, is exactly the reverse of the germ development idea described above.

Wolff discovered that the germ is primitively homogeneous, and grows by additions from without, the various organs becoming formed and differentiated step by step, until the animal or plant is complete in form. The process is precisely similar in both animal and vegetable. The primitive germ is, in plain language, nothing but a tiny speck of undifferentiated matter, too small to be seen by the naked eye; to this speck are added others of similar character, and as it grows in size, the formation and differentiation of the organs go on, until they are all fully formed, and the structure of the animal or plant is completed.

“The special novelty of Wolff's discovery consisted mainly in this, that he showed that the germinal part of the bird's egg forms a layer of united granules or organised particles (cells of the modern histologist) presenting at first no semblance of the form or structure of the future embryo, but gradually converted by various morphological changes in the formative material, which

are all capable of being traced by observation into the several rudimentary organs and systems of the embryo. Wolff further showed that the growing parts of plants owe their origin to organised particles or cells, so that he was led to the great generalisation that the processes of embryonic formation, and of adult growth and nutrition, are all of a like nature in both plants and animals."¹

Wolff's discovery shared the fate of other great discoveries; it was rejected for many years by those whose special business it should have been to investigate and recognise its truth. It was not until sixty years after he first published it that it gained acceptance, and was finally established. The slow growth of knowledge is nowhere more painfully shown than in the fact, that scientific men even will resist and reject for a time new discoveries which upset any theory that they have come to regard as true. Fortunately for progress, however, the scientific man's objection ceases the moment his *reason* is convinced. With him the objection is intellectual rather than emotional; with the theologian it is exactly the reverse. The latter *feels*, the former *thinks*; hence the never-ending conflict between religion and science.

The theory of evolution by Epigenesis was now becoming a subject of inquiry; and in the works of many eminent biologists of this period there are numerous isolated passages which express in more or less definite language a knowledge of the true process. But there was no systematic study of the subject as an organic whole, embracing the unity of Nature, until the great French scientist, Jean Lamarck, appeared. He was born in 1744, and stands at the head of the men of his period as a biologist and a thinker. And perhaps even at the present day no name, except that of our immortal Darwin, stands higher than his. In 1801, he published his theory, but treated it more fully in his "Philosophie Zoologique," published in 1809. Haeckel says:

"This admirable work is the first connected exposition of the Theory of Descent carried out strictly into all its consequences." Cuvier was his great opponent, and in

¹ "Encyclopædia Britannica," vol. viii., p. 165.

consequence of the authority he exercised as a naturalist, Lamarck's discoveries made no progress for nearly half a century. Naturalists were still under the influence of the Biblical History of Creation; and the whole force of social pressure was brought to bear upon Lamarck and his "impious" theory. It is a mere truism to say that had he lived a few years earlier he would have been burnt alive at the stake, as the noble-hearted Bruno and many others had been before him.

The following quotation from Haeckel will enable the reader to judge of the great value of Lamarck's labours:

"According to him, there is no essential difference between animate and inanimate Nature; all Nature is a single world of connected phenomena, and the same causes which form and transform inanimate natural bodies are alone those which are at work in animate Nature. Hence we must apply the same methods of investigation and explanation to both. Life is only a physical phenomenon. The conditions of internal and external form of all organisms, plants, and animals, with man at their head, are to be explained, like those of minerals and other inanimate natural bodies, only by natural causes (*causæ efficientes*), without the additions of purposive causes (*causæ finales*). The same is true of the origin of the various species. Without contradicting Nature, we can neither assume for them one original act of creation, nor repeated new creations, as implied in Cuvier's 'Doctrine of Catastrophes,' but only a natural, uninterrupted, and necessary evolution. The entire course of the evolution of the earth and its inhabitants is continuous and connected. All the various species of animals and plants which we now see around us, or which ever existed, have developed in a natural manner from previously existing different species; all are descendants of a single ancestral form, or at least from a few common forms. The most ancient ancestral forms must have been very simple organisms, of the lowest grade, and must have originated from inorganic matter by means of spontaneous generation. Adaptation through practice and habit to the changing external condition of life has ever been the cause of changes in the nature of organic species, and heredity caused the transmission of these modifications to their descendants."¹

In Lamarck we no longer have glimpses here and there of the doctrine of development, as is the case with the whole of his predecessors, but a coherent and exhaustive exposition of the entire field of evolution, from

¹ "Evolution of Man," pp. 24, 25.

atoms and molecules up to man. The following quotation from his "Philosophie Zoologique" contains a concise statement of some of the most important principles of monistic Biology :

"The systematic division of classes, orders, families, genera, and species, as well as their designations, are the arbitrary and artificial productions of man. The kinds or species of organisms are of unequal age, developed one after the other, and show only a relative and temporary persistence. Species arise out of varieties. The differences in the conditions of life have a modifying influence on the organisation, the general form, and the parts of animals, and so has the use or disuse of organs. In the first beginning, only the very simplest and lowest animals and plants came into existence; those of a more complex organisation only at a later period. The course of the earth's development, and that of its organic inhabitants, was continuous, not interrupted by violent revolutions. Life is purely a physical phenomenon. All the phenomena of life depend on mechanical, physical, and chemical causes, which are inherent in the nature of matter itself. The simplest animals and the simplest plants, which stand at the lowest point in the scale of organisation, have originated, and *still originate*, by spontaneous generation. All animate natural bodies or organisms are subject to the same laws as inanimate natural bodies or inorgana. The ideas and actions of the understanding are the motional phenomena of the central nervous system. *The will is, in truth, never free.* Reason is only a higher degree of development and combination of judgments."

Referring to this passage, Haeckel says :

"These are indeed astonishingly bold, grand, and far-reaching views, and were expressed by Lamarck sixty years ago ; in fact, at a time when their establishment by a mass of facts was not nearly as possible as it is in our day. Indeed, Lamarck's work is really a complete and strictly monistic (mechanical) system of Nature, and all the important general principles of monistic Biology are already enunciated by him ; the unity of the active causes in organic and inorganic nature ; the ultimate explanation of these causes in the chemical and physical properties of matter itself ; the absence of a special vital power, or of an organic final cause ; the derivation of all organisms from some few, most simple original forms, which have come into existence by spontaneous generation out of inorganic matter ; the coherent course of the whole earth's history ; the absence of violent cataclysmic revolutions ; and in general the inconceivableness of any miracle, of any supernatural interference, in the natural course of the development of matter."¹

¹ "The History of Creation," vol. i., p. 112.

In the above quotation from Lamarck, and Haeckel's acceptance of the views therein expressed, there are two points of exceptional importance, viz., the denial of freedom of the will, and the assertion that origination of life by spontaneous generation is still going on. The so-called freedom of the will is, indeed, a scientific impossibility, and the continuous origin of life during the period of organic existence on the earth is necessitated by the Doctrine of Evolution.

If evolution is true, so also is, it would appear, the theory that the development of life from inorganic matter takes place to-day, and has taken place continually and uninterruptedly since the earth first arrived at a condition favourable for the production of life. Masses of structureless matter possessing life are found all over the world, and especially at great sea depths. Evolution supposes that from this primitive living substance the whole of organic nature has arisen, including man himself. It seems unreasonable, if not impossible, to suppose that while some of the simple organisms developed into higher and more complex forms, eventually, through unimaginably long periods of time, producing all the varieties of animals and plants known to us, others should have remained during all these long ages in a stationary condition.

If the lowest forms of life of to-day, the monera, began their ancestral life contemporaneously with man, then the former have made absolutely no progress, while the latter has passed through an infinite variety of forms in the gradual ascent to his present marvellously complex and perfect structure; and yet both have been subject to similar—we might say the same—conditions. The fundamental principle of evolution negatives the possibility of such a theory being true. Either the origin of life from inorganic matter—or what is called spontaneous generation—has occurred throughout organic existence, and is occurring at the present time, or the doctrine of evolution is not true. From this position it appears there is no escape.

The whole history of science and philosophy cannot show a bolder or more uncompromising investigator and

expounder of scientific truth than Lamarck. He makes no attempt, as many, indeed most, scientific men do, to propitiate the popular religious bodies by deprecating continually the idea that any antagonism can exist between the truths of Nature and "revelation." He had the courage of his convictions, and did not concern himself in any way with the latter. Like all his predecessors, he paid the penalty of his devotion to truth by having every path closed against him, and his life was one long and incessant struggle for the bare necessities of existence. He died, in 1829, in the midst of the deepest poverty, having some fifteen years previously completely lost his eyesight. He was pursued and persecuted on all sides for proclaiming his grand discovery of the mechanism and unity of Nature.

The following extract from his writings will show that he did not shrink from carrying out his theory into all its consequences, and proclaiming the kinship of man himself with the lower animals; and that at a time when the so-called scientific knowledge of the age rejected with scorn and contempt the theory as applied to even the lower forms of life.

"It would be an easy task," wrote Lamarck, in 1809, "to show that the characteristics in the organisation of man, on account of which the human species and races are grouped as a distinct family, are all results of former changes and occupation, and of acquired habits, which have come to be distinctive of individuals of his kind. When, compelled by circumstances, the most highly developed apes accustomed themselves to walking erect, they gained the ascendant over the other animals. The absolute advantage they enjoyed, and the new requirements imposed on them, made them change their mode of life, which resulted in the gradual modification of their organisation, and in their acquiring many new qualities, and among them the wonderful power of speech."

It can well be imagined the reception such a bold declaration would meet with eighty odd years ago, when the science of biology was in its infancy, and those possessing the greatest authority were earnestly concerned in making the subject of their study in all respects square with the Bible. There was no one so poor in intellect that he could not sit in judgment on such

“absurdities,” and laugh at the solitary unknown thinker, whose poverty all the more rendered him a safe and easy object of ridicule. Little could the Church foresee the consequences to her which were ultimately to flow from Lamarck’s despised doctrine.

The most celebrated of the Nature-philosophers in France at this time was Etienne Geoffrey de St. Hilaire, who, in all essentials, adopted Lamarck’s theory of descent, though differing from him somewhat in details. He was Cuvier’s most prominent opponent, and a memorable contest took place between them in 1830 in the French Academy.

Cuvier maintained that the earth had undergone a series of catastrophes, or cataclysmic revolutions, which at each occurrence destroyed every form of life; and that each catastrophe was succeeded by an entirely new creation of the vegetable and animal kingdoms. This was an assumption which was supposed to save the credit of the Biblical account of creation; and it met with great favour from all except the very few great thinkers who were capable of understanding the theory of descent.

The audience of scientists was well acquainted with Cuvier’s views in all their details; and it is not at all surprising, therefore, that the verbal victory should have been awarded to him. Geoffrey had not only to break new ground, but the facts with which he had to deal were not so obvious to the eye and understanding as those which were at the command of Cuvier. The induction of facts was too meagre to appeal to the judgment of those who approached the subject for the first time; and Cuvier was able to impress his audience with the conviction that the Nature-philosophers were not justified in drawing such comprehensive conclusions from the empirical knowledge which was then in their possession. Cuvier’s victory over Geoffrey de St. Hilaire on this memorable occasion prevented all further study of the theory for thirty years. Goethe, although in his eighty-first year at the time, took the deepest interest in the discussion, as the following anecdote, related by Soret, shows.

“Monday, Aug. 2, 1830.—The news of the outbreak of the Revolution arrived in Weimar to-day, and has caused great excitement. In the course of the afternoon I went to Goethe. ‘Well!’ he exclaimed as I entered, ‘what do you think of this great event? The volcano has burst forth, all is in flames, and there are no more negotiations behind closed doors.’ ‘A dreadful affair,’ I answered; ‘but what else could be expected under the circumstances, and with such a ministry, except that it would end in the expulsion of the present royal family?’ ‘We do not seem to understand each other, my dear friend,’ replied Goethe. ‘I am not speaking of those people at all; I am interested in something very different. I mean the dispute between Cuvier and Geoffrey de Saint Hilaire, which has broken out in the Academy, and which is of such great importance to science.’ This remark of Goethe’s came upon me so unexpectedly that I did not know what to say, and my thoughts for some minutes seemed to have come to a complete standstill. ‘The affair is of the utmost importance,’ he continued, ‘and you cannot form any idea of what I felt on receiving the news of the meeting on the 19th. In Geoffrey de Saint Hilaire we have now a mighty ally for a long time to come. But I see also how great the sympathy of the French scientific world must be in this affair, for, in spite of the terrible political excitement, the meeting on the 19th was attended by a full house. The best of it is, however, that the synthetic treatment of Nature, introduced into France by Geoffrey, can now no longer be stopped. This matter has now become public through the discussions in the Academy, carried on in the presence of a large audience; it can no longer be referred to secret committees, or be settled or suppressed behind closed doors.’”

In the following quotation from Goethe’s poem, “The Metamorphosis of Animals,” his view of the processes of organic growth is clearly stated.

“All members develop themselves according to eternal laws,
 And the rarest form mysteriously preserves the primitive type.
 Form therefore determines the animal’s way of life,
 And in turn the way of life powerfully reacts upon all form.
 Thus the orderly growth of form is seen to hold,
 Whilst yielding to change from externally acting causes.”¹

Goethe includes man in the series of organic development. Man, he maintained, is a product of a lower animal form, and is the last link in the chain of animal evolution.

While Goethe was thinking out some of the most im-

¹ Haeckel’s “History of Creation,” vol. i., p. 89.

portant laws of evolution, another great German was at the same time engaged in similar studies, and quite independently of each other both arrived at the same results. G. R. Treviranus published "The Biology and Philosophy of Animate Nature," in 1802; and from the following extract it will be seen that the mechanical processes of evolution were well known to him.

"Every form of life can be produced by physical forces in one of two ways: either by coming into being out of formless matter, or by modification of an already existing form by a continued process of shaping. In the latter case the cause of this modification may lie either in the influence of a dissimilar male generative matter upon the female germ, or in the influence of other powers which operate only after procreation. In every living being there exists the capability of an endless variety of form-assumptions; each possesses the power to adapt its organisation to the changes of the outer world, and it is this power put into action by the change of the Universe that has raised the simple zoophytes of the primitive world to continually higher stages of organisation, and has introduced a countless variety of species into animate Nature. . . . These zoophytes are the original forms out of which all the organisms of the higher classes have arisen by gradual development. We are further of opinion that every species, as well as every individual, has certain periods of growth, of bloom, and of decay, but that the decay of a species is *degeneration*, not dissolution, as in the case of the individual. From this it appears to us to follow that it was not the great catastrophes of the earth (as is generally supposed) which destroyed the animals of the primitive world, but that many survived them, and it is more probable that they have disappeared from existing Nature, because the species to which they belonged have completed the circles of their existence, and have been changed into other kinds. . . . Every inquiry into the influence of the whole of Nature on the living world must start from the principle that all living forms are products of physical influences, which are acting even now, and are changed only in degree, or in direction."

Haeckel, from whose "History of Creation" the above extracts are taken, remarks:

"When Treviranus, in this and other passages, points to *degeneration* as the most important cause of the transformation of the animal and vegetable species, he does not understand by it what is now commonly called degeneration. With him 'degeneration' is exactly what we now call *adaptation* or *modification*, by the action of external formative forces. That Treviranus explained

this transformation of organic species by adaptation, and its preservation by inheritance, and thus the whole variety of organic forms, by the inter-action of adaptation and inheritance, is clear also from several other passages. How profoundly he grasped the mutual dependence of all living creatures on one another, and in general the *universal connection between cause and effect*—that is, the monistic causal connection between all members and parts of the Universe—is further shown, among others, by the following remarks in his 'Biology':—"The living individual is dependent upon the species, the species upon the fauna, the fauna upon the whole of animate nature, and the latter upon the organism of the earth. The individual possesses indeed a peculiar life, and so far forms its own world. But just because its life is limited it constitutes at the same time an organ in the general organism. Every living body exists in consequence of the Universe, but the Universe, on the other hand, exists in consequence of it." It is self-evident that so profound and clear a thinker as Treviranus, in accordance with this grand mechanical conception of the Universe, could not admit for man a privileged and exceptional position in Nature, but assumed his gradual development from lower animal forms. And it is equally self-evident, on the other hand, that he did not admit a chasm between organic and inorganic nature, but maintained the absolute unity of the organisation of the whole Universe."¹

Again, Oken, who was perhaps the most eminent of the German Nature-philosophers, says in his "Outlines of the Philosophy of Nature," "Life originates from original slime." . . . "Every organic thing has arisen out of slime, and is nothing but slime in different forms. This primitive slime originated in the sea, from inorganic matter in the course of planetary evolution." . . . "Man has been developed, not created." Neither Oken, nor Goethe, nor Treviranus would admit that man occupied any privileged or exceptional position in Nature, or in any way differed from the rest of the organic world, in the processes of gradual development from lower to higher forms. Even in their day, when biology was almost an unknown science, they saw no justification for such an assumption, opposed as it was to every fact within their knowledge, and to all rational and philosophical thought upon the subject. Man is no exception to the general law of development; he, like the rest of the living world, has come up from that slime,

¹ Haeckel's "History of Creation," vol. i., pp. 94, 95.

which all the foremost biologists, as well as the great majority of scientists and thinkers, are now agreed is the origin of every living thing in existence.

It is perhaps not particularly gratifying to our vanity to have to claim kinship with the animals. For my part, however, I see nothing humiliating in the fact that the superior powers possessed by human beings have been acquired by a series of gradations from lower to higher forms. The question as to whether man owes his superiority to this law or to that is not one in which, as it seems, his dignity is involved. What does it matter to him whether his hand, for instance, which is one of the most important and characteristic organs, has been brought to its present useful state by a long, slow process of natural development from less perfect forms, or has been made, by a single act of creation, in its present perfect condition? The usefulness and value of his hand are the same in either case. A certain result is arrived at, and that result is not affected by the supposition that it has been through this process or through that.

Take, again, the mind, which is, of course, the crowning glory and distinction of man. It is a well-established fact in mental physiology that the quality and power of the intellect are due to the quantity and quality of the brain substance. How is man's dignity, then, concerned in the question as to whether that material substance has been brought to its present condition of complex structure by slow degrees, from lower and less perfect forms of brain, or was made as it is by a special act of creation? The quality and usefulness of mind are the same on either supposition. What he is affected by is the character of the result, and not the process through which that result has been obtained. It is a matter over which he has not the slightest control, and it would be futile and childish to object to a law of Nature, and refuse to recognise it, because in his ignorance and vanity he has been accustomed to regard himself as the special being for whom all Nature has been designed and brought into existence.

At this period there were a good many eminent

inquirers in Germany into the truth of organic evolution, by most of whom it was accepted in principle.

In France the great authority of Cuvier and the verbal victory obtained over Geoffrey repressed, if it did not quite stop, all further study of the mutability and transformation of species, and with the exception of two great naturalists, Naudin and Lecoq, Frenchmen remained for many years blind followers of Cuvier and his doctrines.

The world owes much to German intellect in all departments of human inquiry; but perhaps in none have the Germans done such signal service to science and progress as in the important field of Biology. And yet for fifty years after their great countryman Wolff published his discovery to the world the subject was scarcely mentioned among even the leading German naturalists. Haeckel says:

“As an instance how utterly biologists refrained from inquiries into the origin of organisms, and the creation of the animal and vegetable species, during this period from 1830 to 1859, I mention from my own experience the fact that during all the whole course of my studies at the university I never heard a single word on these most important and fundamental questions of biology. During this time, from 1852 to 1857, I had the good fortune to listen to the most distinguished teachers in all branches of the science of organic nature; but not one of them ever spoke of this fundamental point, or even once alluded to the question of the origin of species. . . . The enormous opposition which Darwin met with when he first took up this question again may, therefore, be understood. His attempt seemed at first to be unsubstantial and unsupported by previous labours. Even in 1859 the entire problem of creation, the whole question of the origin of organism, was considered by biologists as supernatural and transcendental. Even in speculative philosophy, in which this question should necessarily be approached from various sides, no one dared to take it seriously in hand.”¹

With the advent of Charles Darwin the time had arrived to fix for ever, on a *sure basis of scientific knowledge*, probably the greatest and most important truth ever discovered by the mind of man. The labours of all previous workers had resulted in a large mass of

¹ “Evolution of Man,” vol. i., p. 78.

empirical knowledge from which they speculatively divined, as it were, the connected processes of universal growth; he raised it from this empirical condition, and placed it on an imperishable foundation, by *discovering the natural law by which Evolution is really proved*, and which brings it as completely within the field of knowledge as is the most exact of the sciences. He is really the Newton of the organic world, whose advent Kant had declared some seventy years before to be utterly inconceivable, and an impossibility. In time, patient inquiry will, no doubt, discover other factors of Evolution.

“It is quite certain,” Kant said, “we cannot become adequately acquainted with organised beings, and their inner possibilities, by purely mechanical principles of Nature, and much less are we able to explain them; and that this is so much the case that we may boldly assert that it is not rational for man even to enter upon such speculations, or to expect that a Newton will ever arise who, by natural laws not ordered by design, can render the production of a blade of grass intelligible; in fact, we are compelled utterly to deny that it is possible for man to reach such knowledge.”

The manner in which life originated is still shrouded in mystery; but the foremost biologists are agreed that at a certain stage in the condensation of the earth's crust living matter arose, as the natural and necessary result of molecular action. To bridge over in thought the apparently sharply defined contrast between organic and inorganic matter—between living and non-living matter—is, to the mind unaccustomed to think over and follow carefully the inconceivably rapid motions of atoms and molecules, and their marvellously complex chemical combinations, an impossibility.

While it is unavoidable in studying a science to treat it under different divisions, and make use of terms which seem to imply breaks or divisions and starting-points at each section, we must constantly bear in mind that in Nature there are no such breaks or starting-points. Nor even between the sciences themselves are there any such natural divisions. They are necessitated by the limited faculties of man. If we could view

Nature as a whole, instead of only in minute parts— if, for example, we could realise a mental picture of the entire existence of the earth, from its nebulous state to its present multiform condition, we should see the interdependence of all its parts, bound together by a continuous chain of cause and effect running through the whole series, from primitive chaos up to man.

If the minds of all the human units that ever existed could be collected into one volume of intellectual power, it would probably be unable to realise such a picture of our planet's life even. What, then, shall we say of the Universe—of that part only which is within our ken? A faint conception of the stupendous picture may be obtained, if we consider that, if it were possible to annihilate our earth, blot it out of existence, the void created would not be so great in regard to the *known* Universe as the void which would be caused by the annihilation of the smallest particle of sand in regard to the earth! The proportion is greater between the sizes of the earth and the *known* Universe than between the sizes of a particle of sand and the earth!

Whilst, however, we can never hope to attain to such results, we can follow in thought the processes of evolutionary law, by which living substances arise—by which, that is, the property we call "life" results from the complex arrangements of molecular action; as the various other properties of matter arise from the complex chemical arrangements of molecules, producing results altogether unlike in properties to those possessed by the constituent parts before combination takes place. In this train of thought lies the theoretical solution of the problem, which has puzzled, and still puzzles, the heads of so many acute writers and thinkers.

The phrase, "Spontaneous generation," has tended somewhat to obscure the subject, and helped to prevent an adequate conception of the natural processes by which the apparent gulf between living and non-living matter is bridged. It seems to imply an arbitrary, an altogether unaccountable, effort of Nature, divorced from natural law, an effect for which there is no cause. In this sense there is nothing spontaneous in Nature.

We mix hydrogen with oxygen in certain proportions, and the result is water—a substance which bears no resemblance whatever to either hydrogen or oxygen, and which contains properties previously, so far as we know, non-existent in the constituents ; and so on with a multitude of substances, all of which are familiar knowledge. Now, what do we know of the *real* nature of these marvellous changes wrought by molecular arrangement and rearrangement? We know the *mechanical how*, but absolutely nothing of the *causing why* ; nor do we inquire further. The *ultimate rationale* is reached when we have traced the effects to their efficient mechanical causes.

It is sufficient for us, at least in the present state of our knowledge, to *know* that certain combinations always and inevitably produce similar results ; and this is the fundamental basis of all human knowledge. To the powers and inherent tendencies of the molecules, by which the transformations are brought about, we never think of applying the term “spontaneous,” because having reached the physical *processes* producing the results referred to we are supposed to *know*, and are content to accept this as the most certain and ultimate analysis of all possible science.

We have now to inquire if living matter in any form can be traced to arrangement and rearrangement of molecules, however complex ; if what we know as “life” in protoplasmic matter can be shown to result from molecular action in chemical combinations.

It is well known that a perfectly structureless and homogeneous substance, called protoplasm, is endowed with life, and that this undifferentiated, slimy substance is capable of motion, external and internal. A small mass, lying in a quiescent state, may be observed all at once to shoot out very thin, thread-like feelers in all directions, which, as soon as they come into contact with suitable material, close round and draw it into the main body, which then closes over it, extemporises, as it were, a stomach, and feeds on the matter thus secured.

This slimy, structureless matter is the basis of all terrestrial life, both animal and vegetable, and is the

same in both. But for the fact of this "primeval slime" possessing life, we might class it with inorganic substances, since it possesses none of those characteristics of structure which we are accustomed to call organic. Since, however, it is known to possess vital functions, and is always present in all organisms "as the essential and never-failing seat of the phenomena of life," we must assign it to the organic, and not to the inorganic, kingdom.

The question is, How is this shapeless, structureless, unorganised substance produced? By what natural processes has it arisen from the inorganic? Or rather, how has it acquired the properties of "life"?

We know that the plant can elaborate protoplasm from mineral substances. It lies in a bath, as it were, of its own food, and from this inorganic matter imbibes minute particles over the whole surface, which are converted into protoplasm, probably by the molecular arrangement imparted to them by the molecular action of the plant. Be this as it may, we know for a certainty that the plant's inorganic food, derived from the atmosphere and earth, is converted into *living matter*, and that through this means the animal world is supplied with food.

No animal can live on mineral substance; that substance must first be passed through the vegetable, in which it acquires properties fitting it for the food of animals. The plant, in fact, is nothing more than mineral substances converted into vegetable substance by molecular rearrangement, which again, as it passes into the animal, is further converted into animal substance by another most complex rearrangement of the molecules. In other words, all the varieties of animal and vegetable life are nothing more than mineral substances which have undergone infinite varieties of molecular arrangement, producing, as a consequence, all the varieties in the vegetable and animal kingdoms.

Nature's laboratory is probably continually producing this subtle, naked, formless, living matter, and exemplifying the saying of the ancient Greek philosopher, that "everything is ready to burst into life." Not only

is it elaborated from inorganic matter by vegetables, but there is reason to believe that it comes into existence without the intervention of other living organisms, direct from mineral substance. Haeckel discovered it in the shape of small specks, to which he gave the name Monera.

The largest of these minute "creatures of primeval slime" are about the size of a pin's head, and are the most simple of all organisms. They are, in fact, "*organisms without organs*," for, although they are capable of performing some of the functions of organised creatures of primitive structure, they are themselves utterly destitute of anything like organs, and are nothing more than little lumps of irregular, homogeneous protoplasm, or slime.

The Moneron is the connecting link between organic and inorganic nature, and as such it is of the very greatest importance to the doctrine of Evolution. That it comes into existence by chemical arrangement and rearrangement of the molecules, of almost infinite complexity, is, it seems, a postulate, which is necessitated by the condition of evolutionary thought. To prove or disprove what is called spontaneous generation is, it appears, in the present state of science, an impossibility.

We shall not find it impossible to follow, in *thought*, at least, the origin of the property of life from chemical combination of molecules, if we consider that in all such combinations we get properties and results which are just as mysterious and inexplicable as the property we call "life" in its simplest form. We cannot explain *why*, to use our former illustration, eight of oxygen and one of hydrogen, by weight, when mixed, should produce water—a substance so utterly unlike the parts composing it. All that we *know* is that these substances are endowed with properties which never fail to produce water when mixed in the given proportions; and deeper into the *why* or wherefore we cannot go.

The never-failing mechanical law is the ultimate analysis of our knowledge on the subject. And it is no

more reasonable to look beyond the physical action of molecular arrangements which produce life for some other and special force or creative act, than it would be to look for such special creative acts in the mechanical molecular arrangements which produce other equally inexplicable properties of chemical compounds.

Dr. Bastian says, in p. viii. of the preface to his "Beginnings of Life":

"We know that the molecules of elementary or mineral substances combine to form acids and bases by virtue of their own 'inherent' tendencies; that these acids and bases unite so as to produce salts, which, in their turn, will often again combine and give rise to 'double salts.' And at each stage of this series of ascending molecular complexities, we find the products endowed with properties wholly different from those of their constituents. Similarly, amongst the carbon compounds there is abundance of evidence to prove the existence of internal tendencies or molecular properties, which may and do lead to the evolution of more and more complex chemical compounds. And it is such synthetic processes, occurring amongst the molecules of colloidal and allied substances, which seem so often to engender or give 'origin' to a kind of matter possessing that subtle combination of properties to which we are accustomed to apply the epithet 'living.' . . . Both crystalline and living aggregates appear to be constantly separating *de novo* from different fluids, and both kinds of matter now seem to be naturally formable from their elements."

And again, a little farther on, he says:

"Our experimental evidence, therefore, merely goes to prove that such an elemental origin of living matter *is* continually taking place at the present day—that it still comes into being, in fact, by the operation of the same laws, and in the same manner, as the majority of scientific men and a large section of the educated public believe that it must have originated in early days of the earth's history—when 'living' compounds first began to appear upon the cooling surface of our planet. And if such synthetic processes took place then, why should they not take place now? Why should the inherent molecular properties of various kinds of matter have undergone so much alteration? Why should these particular processes of synthesis now be impossible, although other processes of a similar nature still go on?"¹

The experiments which have been made since this

¹ On this subject, see Bastian's "Beginnings of Life."

was written have not resulted in any confirmatory evidence of the truth of spontaneous generation, nor, on the other hand, have they produced any decisive evidence against the theory.

The birth, so to speak, of primitive life has, there is reason to believe, gone on without interruption for immeasurable ages—since, in fact, the earth first attained to the conditions favourable or suitable for its existence. Protoplasmic birth and death are probably as common to-day as birth and death among all the higher forms of life. In every instant of time, particles of matter by their own inherent properties or powers—call them what you will—are arranging themselves in such manner as to produce the properties of “life”; and in every instant of time they are losing those properties by a rearrangement or dissolution of the molecules, necessitated by the external conditions acting upon them. While, however, as we assume, throughout the world, life in its primitive state is continually arising and dying, many of the little gelatinous specks live, and begin to take on the first form of organic structure in the shape of what is called a cell.

This cell is a tiny kernel, and forms, as it were, the building material of the whole of organic nature. It is to the animal and the plant what the brick is to the house, and as the latter is formed by adding brick to brick, so are the former formed by adding cell to cell; and the most elaborate and complex organic structure is nothing but an infinite conglomeration of cells alone.

The Cellular theory marked an epoch in the science of Biology. It was established about fifty-three years ago by Schleiden and Schwann. Previous to this most important discovery, it was believed that the germ of every creature contained the entire organs and parts folded up in it, and that growth to maturity was a process, as we have said, of unfolding or evolution according to the etymological meaning of the word. The truth is something quite different. The cell is the constructive unit of the individual, and is an independent living organism of the most primitive order. Every creature, even man himself, is nothing more than a

community of these cells ; and the vital phenomena of every organism are the collective result of the vital phenomena of the cells composing it. Cell formation and growth is a long and complex study in itself, and we cannot do more than mention the bare facts of the theory without entering into any detail or description whatsoever. Those who wish to understand the subject must consult the works of Haeckel, Huxley, Ray Lankester, and others. It is sufficient for our purpose to know that animal and vegetable growth is by the addition of cell to cell, and that this is the universal process. Between the animal and the vegetable cells there are certain differences of structure, which, however important, we cannot enter into here.

The construction of the organic pedigree from protoplasmic life is a work of stupendous magnitude, and, indeed, before the whole pedigree is complete in all its parts, we must await further research and discovery. Few transitional forms have as yet been found, and many may never come to light ; but sufficient is known to enable us to construct in outline the descent and connection of the main divisions of the entire series. Perhaps it is assuming too much to put it in this way, for I do not suppose anyone expects or hopes that the genealogical tree of Nature will ever be complete ; and we might even go the length of saying that it is quite an impossibility.

Many of the lower forms of animals have entirely disappeared, owing, among other things, to an insufficient stability of structure for preservation in the strata of the earth ; and even among the higher forms it is scarcely to be expected that the labours of man will ever succeed in unearthing all the multitudinous species, scattered as they are throughout the crust of the globe to a depth of many thousands of feet, even if they are all preserved, which is more than doubtful. But this is no barrier to the proof of the doctrine of descent. For example, though we may never find the missing link connecting man with the Anthropoid apes, the proofs of their common origin are so many and so overwhelming that no zoologist of reputation has any

doubt upon the subject; and it is scarcely an exaggeration to say that however interesting such a discovery would prove to mankind in general, and to evolutionists in particular, the confirmatory evidence to the latter is so strong as to be entirely independent of it. (See Huxley's "Man's Place in Nature" and Haeckel's "Evolution of Man.")

The views of Darwin and Lyell exactly coincide on the subject of these geological records. Darwin says :

"I look at the geological record as a history of the world imperfectly kept, and written in a changing dialect; of this history we possess the last volume alone, relating only to two or three countries. Of this volume, only here and there a short chapter has been preserved; and of each page, only here and there a few lines. Each word of the slowly-changing language, more or less different in the successive chapters, may represent the forms of life which are entombed in our consecutive formations, and which falsely appear to us to have been abruptly introduced. On this view, the difficulties above discussed are greatly diminished, or even disappear."¹

We have endeavoured to indicate briefly, and necessarily very vaguely, the natural processes by which slimy matter containing the properties of life, is, we think, continuously being evolved from inorganic matter, viz., by chemical combination of molecules. Those who wish to pursue this subject further must study the works of biologists. It is sufficient here to merely state the facts; and throughout this part we profess to do nothing more than give the conclusions arrived at by the observations and researches of scientific men.

Whilst the mechanical processes of the origin of life are conceivable, the *real* mystery remains untouched, and apparently insoluble. *Why* certain kinds of albuminous matter should arrange themselves by their own inherent powers, under the persistence of force, in such a manner as to give rise to "life" is quite unknown to us, and no scientist pretends to offer the slightest explanation of it.

This cannot be too distinctly stated, in view of the charges continually brought against men of science of

¹ "Origin of Species," 6th edition, p. 289.

pretending to knowledge inscrutable to man. It is sufficient for him to know the mechanical processes, without troubling himself about the underlying and unknowable final cause. It is the man who is ignorant of natural laws who pretends to a knowledge of the unknowable, and solves, without the slightest misgiving, the problem which to the developed and informed mind is absolutely unthinkable and inconceivable.

The man of mediocre intellect and meagre knowledge sees no difficulty in accounting for all things, by attributing them to the work of a man-like being, magnified, it may be, a thousand or a million-fold. The one sees clearly that no power conceivable by him could account for the simplest thing in Nature, and recognises the futility of evolving from his own ignorance a meaningless explanation. The other, ignorant alike of the terms and the difficulties of the problem, sees no mystery, and thinks a perfectly satisfactory solution is reached by projecting his own finite nature and attributes into an imaginary being whom he calls God. It is useless to explain to him the fallacies underlying all such assumptions and "explanations." He is in the position of De Morgan's correspondent, who announced to the great mathematician that he had squared the circle—incapable of understanding the reasoning by which the fallacy is exposed.

Leaving to the theologians, then, the knowledge and explanation of *final causes*, our business is with phenomena only, *i.e.*, natural law as it is seen in active operation around us; with the *causal how*, and not the teleological *why*.

Returning to the primeval protoplasmic life, we found the Moneron to be a structureless little mass of living matter, and the ancestor of every living form in existence, animal and vegetal. By the never-ceasing operation of the inherited activities residing in these minute creatures, and the external conditions to which they are exposed (Heredity and Adaptation), the vast unnumbered species of animals have slowly and gradually arisen, through a period of time so vast that, to our limited faculties, it may well be called infinite.

In the earliest stages of life, it is impossible to say whether these microscopic creatures should be classed as plants or as animals, since they partake of the characters of both. This intermediate kingdom Haeckel calls the *Kingdom of the Primary Creatures* (Protista). There are many known kinds of protista, and many more yet undiscovered. Haeckel has described eight classes of these ambiguous organisms, the lowest of which is the Moneron. They are found in the sea, in fresh water, and on land. Some possess the power of locomotion; some are incapable of movement, and are attached to stones, shells, plants, etc. Naturalists are agreed that many organisms, which they decidedly class as plants, are capable of locomotion, while others, which they class as animals, are not; so that this is no test as to which kingdom they belong. The method of propagation of these primitive forms of life is by division into two parts; there are no sexes.¹

Next to the Moneron in importance comes the Amœba, in the scale of descent. The latter has grown out of the former, and has developed a cell, or the differentiation of an inner kernel, from the surrounding plasma. This cell is an independent individual, and is as distinctly a living creature as man himself. It is the raw material of every organism, which it builds up by the power it possesses of unlimited multiplication, in dividing itself, as it grows in size, by the matter it imbibes and feeds on. The subject is most complex and interesting; but the reader, if he wishes to understand it, must study the technical writings on the subject.

Before we can appreciate the mechanical or physical processes of growth, we must thoroughly grasp the full meaning and significance of the *Persistence of Force*; for unless we can do this we shall utterly fail to realise any mental picture of Nature's manner of working; and, in fact, the whole subject will be meaningless to us.

Force is universal, and is an inseparable property of matter, without which the very conception of existence in any shape becomes an impossibility. This force is the basis of, and underlies, all things; and the motions it

¹ See Haeckel's "History of Creation," vol. i., p. 92.

imparts to the molecules composing a cell persist in that cell, and are inherited by all the cells that grow from it. This inherited power or activity is surrounded by a variety of external forces, and the growth of every organism is the result of the combined action of these forces (heredity and adaptation).

The inherited molecular motion, however, shapes the general characters constituting the creature, whatever may be the nature of the environment, unless, indeed, it be such as to destroy life. But in the course of long ages the external conditions may, and do, modify the inherited tendency to develop on a precise and particular model; and these deviations, imperceptibly small, it may be, at first, being inherited by the offspring, become so great in the course of long ages that entirely new species are produced. "Adaptation, through practice and habit, to the changing external conditions of life has ever been the cause of changes in the nature of organic species; and heredity caused the transmission of these modifications to their descendants."¹

The chief difficulty in realising this great truth is in our inability, as a rule, to make due allowance for length of time. We are so apt to couple the infinitesimal span of our own lives with all our thoughts of time, and to make the few years of our existence the measure of all things in Nature, that it is no easy matter to subordinate the limited personal experience to the almost unlimited ages required by evolutionary changes.

Time, though of great consequence in the life and well-being of man, is of no importance to Nature. Her circle of operations completed in any department, she begins anew; or rather, she continuously travels round the circle, without beginning or end. The individual organism being ended, the material is again served up for consumption to the living world, either as raw material or as dead protoplasm, the former supplying the vegetable, the latter the animal kingdom; and so on, without break or end, from the imperceptible to the phenomenal, from the phenomenal back to the imperceptible.

¹ "Evolution of Man," vol. i., p. 85.

The unthinking opponents of evolution are continually asking for data from human history ; and finding that human history can supply none, they have no alternative but to reject the theory, as incompatible with all that lies within the range of *their* knowledge. The longest periods of history furnish us with little or no evidence of the changes which evolution supposes, for the simple reason that the records of civilised man embrace but a mere fraction of the time required by Nature to work any specific and decided change. But whilst direct evidence from ordinary historical experience fails us, palæontology comes to our aid, and supplies us with the materials necessary for tracing back the history of the changes to the remotest secular times.

This evidence is written in the Book of Nature, which cannot lie, and in characters which cannot deceive us. All mere written records of experience are full of misrepresentation of various kinds : some directly due to wilfully false statements ; others to the ambiguity and ever-changing meaning of language, to the personal standpoint of each individual narrator, to the continuous changes in customs, thought, feelings, and a variety of other causes ; but in the great Book of Nature lie embedded the permanent and, to us, unchanging records of her long history, the same to-day as they were thousands of years ago, and will be thousands of years hence, when the patient student will still be reverently turning her leaves in pursuit of that knowledge and truth which *she alone* contains, and which *she alone* can unfold to man.

“To the solid ground of Nature
Trusts the mind that builds for aye.”

It may be appropriate here to say a few words on the law of growth. It will assist us to a better comprehension of our subject. The late James Hinton formulated the law of growth, as motion along the lines of least resistance. And this is no doubt true of every conceivable form of growth in the organic world. This simple, though important and suggestive, generalisation he put in the form of a syllogism, thus :

“Organic form is the result of motion.” “Motion takes the direction of least resistance.” “Therefore organic form is the result of motion in the direction of least resistance.”

Illustrating this by plants, he says :

“The formation of the root furnishes a beautiful illustration of the law of least resistance, for it grows by insinuating itself, cell by cell, through the interstices of the soil ; it is by such minute additions that it increases, winding and twisting whithersoever the obstacles it meets in its path determine, and growing there most where the nutritive materials are added to it most abundantly. As we look on the roots of a mighty tree, it appears to us as if they had enforced themselves with great violence into the solid earth. But it is not so ; they were led on gently, cell added to cell, softly as the dews descended, and the loosened earth made way. Once formed, indeed, they expand with enormous power, but the spongy condition of the growing radicles utterly forbids the supposition that they are forced into the earth. Is it not probable, indeed, that the enlargement of the roots already formed may crack the surrounding soil, and help to make the interstices into which the new roots grow ?”

The same remarks apply to every part of the growing plant above ground : only that instead of the resisting medium being the earth, it is the air. The inherited inner constructive force of the organism sucks in the surrounding matter, on which it feeds, converting it into cells ; and these being added to the organism, constitute its growth and enlargement. This hereditary power of growth, extending the parts in all directions, is met by the resistance of the atmosphere ; and the direction taken will at all times be that in which the least resistance is offered. It is true certain allowances must be made for gravity.

Now, if all organic forms are determined by the operation of these two factors alone, viz., the transmitted constructive internal force or power of growth and the external conditions, it is certain that the forms will vary as the factors vary. The external conditions of existence are unlimited, and consequently there are no limits to the variations of organic forms.

The morphological changes act upon the inherited tendency to stability of structure, and produce therein

corresponding changes, which become fixed in the organism, and are transmitted to descendants. Between the two there is a never-ceasing interaction; one striving to preserve the specific form, the other to modify and alter it. It is inevitable, therefore, that in the course of long ages many forms must of necessity arise by the constant interaction of these forces; and that these forms, whilst apparently exhibiting marks of design, are in reality the results of purely mechanical causes, the principle of which negatives the idea of all purpose or design.

There is a strong power in Nature to preserve what once has come into existence, and if the external conditions never varied during the life of an organism, there would be no variation in the form, and consequently none to transmit to the descendants. The inner formative tendencies are so strong and persistent that if they were not met by external forces varying in character and intensity from time to time, the species would be preserved in one unvarying form; and, in fact, neither the animal nor the vegetable world could have arisen. It is useless to ask for an explanation of the power of Nature thus to impart within living matter this strong tendency to preservation of uniformity of structure. There is no explanation, beyond the persistence of force, which must be postulated as an inseparable part or property of matter. We cannot get behind this, any more than we can get behind matter itself. We must perforce rest content with the phenomenal fact of existence.

CHAPTER IV

PALÆONTOLOGY

PALÆONTOLOGY is the science of petrifications which are found in the different strata of the earth's crust ; and is, perhaps, the most important, and at the same time the most difficult, branch of evolution. Fossilised remains of animals are embedded in every part of the earth's crust, at all depths, to thousands of feet ; and only occasionally and by chance are we so fortunate as to come upon any.

It is from study of the petrified remains that some of the most convincing proofs of the truth of organic evolution are obtained. As the animals have died, they have fallen through the water into the soft mud, and become petrified in the hardened strata. And, in this way, the different strata of the earth's crust are made to yield for our information the different species existing at the time of each formation. It is true that these remains are of the most imperfect character ; and at no period is it possible to discover more than a mere fragment of the numerous kinds that must have lived at the time. But research has only, as it were, just begun ; and we may hope, as time goes on, that patient labour will bring to light more and more of these petrified remains. Every fresh discovery helps to fill up a gap, and supplies a link in the chain of descent ; and every such discovery has afforded further confirmatory evidence of the great law of evolution. No facts have come to light in palæontology which are not legitimate deductions from the theory of descent ; and they all fit in exactly with the conditions necessary and appropriate to their special period.

The geological record, owing to its historical character, is of the greatest importance. Modern geology

shows that the crust of the earth has been slowly and gradually evolved through long ages. Since the time when the watery vapour was condensed into liquid water, there has been going on a continuous redistribution of land and water all over the surface of the globe. Every foot of the sea floor has been at times dry land, and every foot of dry land has been at times the bed of the ocean. The causes which have produced these redistributions of land and water are going on every instant of time to-day, as they were in the past. Everywhere the sea is either approaching towards or receding from the shore; and it is literally correct to say that the outlines of seas and continents never remain for a minute of time exactly the same. The floors of seas are continuously rising by deposits, whilst dry land is at the same time on the road towards resubmergence, by the action of the waves, as well as that of rain, which washes down the earth from the highest mountains.

We know that in many places the sea has encroached many feet within the lifetime of a man even. The writer was informed by an old inhabitant of Deal that, in his early days, hay was made on the land between the sea and Sandown Castle—a space which is now quite under water. To fully realise the great changes effected by long periods of time, we have but to consider that, if within a century there is a difference in the rise and fall of only an inch or two, in the course of a few million years this would bring about a complete redistribution of land and water over the entire globe. And in the earth's history millions of years are but as days or hours to us. In the course of time, the mountain masses that are carried down to the sea would level the whole earth, and the entire surface would be covered with water, were it not for the volcanic action of the fiery fluid mass in the interior.

This surging fluid, pressing against the hard crust, causes elevations and depressions which counteract the levelling tendencies of the water. And for many millions of years—since, in fact, earth and water first appeared—there has been going on an incessant struggle between the two for mastery; now dry land,

now sea, and again dry land, and so on perpetually. The formation of the earth's crust, and the transformation of land and water, are explained in Charles Lyell's "Principles of Geology." In the different strata thus formed lie embedded the remains of previously living organisms.

Now, if it be true that the earth's crust has been slowly and gradually formed during immense periods of time, and that the remains of animals are found in the deepest strata, the law of descent would require that the deepest strata should contain the remains of the most imperfectly developed organisms; and that as we rise towards the surface, a proportionate increase in development, perfection, and variety of structures should be found. If life on the earth began millions of years ago, at a time when the conditions of condensation were favourable to its production, and all the multitudinous forms have been slowly evolved from structureless primitive creatures, then it is an inevitable necessity that progress in organic development should go on step by step with progress in inorganic formation. *And this is exactly what is found to be the case.* Of course, there are no petrifications of the soft, structureless organisms of the early times, for the simple reason that preservation of such unstable masses was impossible. It is not until some stability of structure is attained that we find fossils.

Regarding these fossil impressions, even as far back as five hundred years before Christ, Xenophanes of Colophon declared them to be remains of previously existing living creatures; and though other great teachers of mankind have from time to time regarded them in the same light, they have, until the present century, been rejected or disregarded by the majority of scientists.

It was chiefly in order to account for these petrifications that Cuvier invented his series of Creations, following upon what he believed to be great catastrophes of Nature, in which whole species of animals were destroyed. Cuvier was far too great a man to give any countenance to the crude notions entertained by many

respecting these important evidences of creation. His theory that from time to time great cataclysms had occurred, which had destroyed whole species, and that the Creator had, at such periods, created entirely new species, accounting for the petrified remains of different species, appearing at different depths of the earth's crust, was put forward, no doubt, to save the Biblical narrative of creation. But when Lyell published his great work, in which he showed how the earth's crust has been slowly formed by imperceptible degrees, Cuvier's theory was no longer tenable, and by common consent has long been abandoned for the true one.

To preserve the Mosaic account, the most incredible theories have found favour from time to time. Many believed that fossil remains of animals were simply "freaks of Nature," whatever that might mean. That Nature should resort to such "freaks" as forming in the solid layers of rocks the various parts of animals, is surely too far-fetched for even the most uninformed and credulous minds. Others believed that they were models made by the Creator in inorganic substances, and afterwards executed in organic substance, into which he breathed the breath of life. Others, again, held the still more absurd and crude notion that there existed in Nature a special "seminal air," which, penetrating into the earth with water, fructified the stone, and produced a kind of "stony flesh." Every explanation which, however remotely, seemed to agree with the Bible, was received and tenaciously held on to, until the common sense of mankind, if not more accurate knowledge, eventually asserted itself, and rendered the continued acceptance of such explanations an impossibility.

Cuvier's theory of catastrophes and new creations could not be refuted scientifically, so long as the true processes of formation of the earth's crust were unknown. But the moment it was proved that the stratified rocks were the results of millions of years of slow and gradual deposits of soft mud, the true nature of organic petrifications became obvious, and no amount of ecclesiastical or other opposition could prevent the

spread of the great truth. It was no longer any use to talk of "freaks of Nature," "seminal air," "rude models," etc.; the advance of knowledge, and the consequent refutation of uninformed dogmatic assertions, produced a revolution in public thought, and such crude notions could no longer be tolerated.

The progress of knowledge brings about those gradual changes which eventually kill every untruth; but the death is always slow and imperceptible. Nothing surely could possibly be more grotesque than to imagine the Creator of the Universe working on this tiny speck of earth like a mere man, modelling his creatures in clay to *see how they looked*, and to enable him to select the most becoming forms before finally constructing them in another and superior substance; and then leaving his rude and imperfect models embedded in the *débris* of each cataclysmic epoch.¹ Such a conception one would think too gross for any enlightened age. And yet, even now, a large number of men, and a greater number of women, are under the moral domination of a class whose ideas are little in advance of these gross, vulgar conceptions of the Infinite, and who persistently proclaim their right to be the teachers and instructors of the public mind. The life of an error is generally proportionate to the greatness of the name of its promulgator; hence every authority, as an authority, should be subject to increasing knowledge. It was owing to the great influence exercised by Cuvier for so many years that the doctrine of Descent made so little progress from the beginning of the present century until the appearance of Darwin, by whose immortal discovery it is really proved.

The science of palæontology proves the theory of evolution in a manner so conclusive, that it is impossible for anyone who has well considered the facts to entertain much doubt on the subject. Only near the surface of the earth are found any remains of highly-developed animals, or those belonging to the mammalian class. And the nearer we get to the surface,

¹ As Burns said, "trying his 'prentice hand."

the more nearly do the fossil remains correspond to the species now in existence. Zoologists have no great difficulty in deriving present species from those now extinct, which are found in the stratified rocks lying near the surface; and the deeper we penetrate, the more primitive and simple in structure are the petrified remains, and the farther removed from the still living kindred species.

These facts were recognised by Cuvier in his work "On the Fossil Bones of Vertebrate Animals," though, as we have seen, he explained them by his erroneous supposition of a series of catastrophes and new creations. Had he lived to benefit by Lyell's labours, he would undoubtedly have recognised and acknowledged the truth of the doctrine of Descent.

"The theory of Descent, according to Lamarck and Darwin, as a great inductive law, and indeed the greatest of all inductive biological laws, is in the first place based on the facts of palæontology, on the modification of species brought to light by the science of petrifications. From the conditions under which these fossils or petrifications are found buried in the rock-layers of our earth, we draw the first sure conclusion that the organic population of the earth, as well as the crust of the earth itself, has been slowly and gradually evolved, and that series of diverse populations have successively appeared at different periods of the earth's history. Modern geology shows us that the evolution of the earth has been gradual, and without total and violent revolution. Comparing the various plant and animal creations that have successively appeared during the course of the earth's history, we find, in the first place, that an increase in the number of species has been constant and gradual from the earliest to the most recent times; and, in the second place, we perceive that the increase in the perfection of the forms belonging to each of the larger groups of animals and plants is also constant. For example, the only Vertebrates existing in the earliest times are the lower Fishes; then the higher kinds of Fishes, later Amphibia appear; still later, the three higher classes of Vertebrates, Reptiles first, then Birds and Mammals. Of these, only the most imperfect and lowest forms appear first; it is only at a very late period that the higher placental Mammals appear, and among the latest and youngest forms of the latter is Man. Both the perfection of forms and their variety originate, therefore, only gradually, and in a period extending from the oldest time to the present day. This fact is of great importance, and can be explained only by the doctrine of Descent, with which it perfectly agrees. If the

various groups of plants and animals had descended one from another, then such an increase in number and degree of perfection as the series of fossils actually exhibits must necessarily have occurred.”¹

And again, in this connection Professor Romanes says :

“The first of these general facts is, that an increase in the diversity of types, both of plants and animals, has been constant and progressive from the earliest to the latest times, as we should anticipate that it must have been on the theory of Descent in ever-ramifying lines of pedigree. And the second general fact is that through all these branching lines of ever-multiplying types, from the appearance of each of them to their latest known conditions, there is overwhelming evidence of one great law of organic nature—the law of gradual advance from the general to the special, from the low to the high, from the simple to the complex.”²

Now, if we could suppose an Infinite mind to have watched from the beginning this process of organic evolution—this building up, so to speak, of the living world from the primitive atoms—to that mind there would appear but one continuous, unbroken activity, resulting in addition and subtraction of the molecules so constant and minute that, from the Moneron up to Man not a single point in the long series would indicate either the beginning or the end of one of all the millions of species that have existed. Not one condition in organic transformation could be pointed to as a distinguishing characteristic of the end of one species or the beginning of another, or of the merging of one species into another. The transmutation has been so gradual, so minute and slow, so imperceptible, that it could only be by separating the process by long periods of time that alterations sufficiently important to constitute new species would be observable.

No part of Evolution is perhaps so important and interesting to man as that which treats of his emergence from his immediate brute ancestors, and the development of speech and reason.

¹ Haeckel's "Evolution of Man," p. 106.

² "Darwin, and After Darwin," vol. 1., p. 162.

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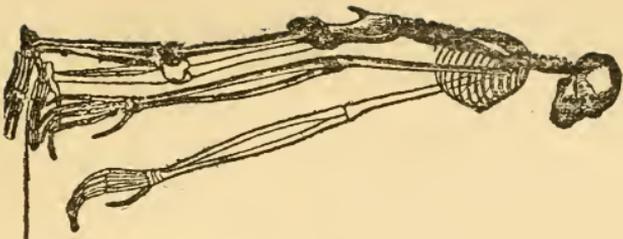
On this point there is much confusion of thought in the public mind; and even writers and others who occupy considerable positions in public estimation are continually demanding proofs, which plainly shows that they have not grasped the meaning and principle of Evolution. It is quite a common belief that Darwinism means the development of man from the existing anthropoid apes, and that in course of time these apes will also develop into men; and they ask that man should be cultivated from the gorilla, orang, chimpanzee, or gibbon. It is needless to say that neither Darwin nor Huxley, nor any other responsible scientist, ever said anything of the kind. On the contrary, they are one and all unanimous in asserting the impossibility of any of these apes being among the ancestors of man.

These four apes and man are all distinct species, and have developed along different lines, from common ancestors. They are cousins to one another, all five having descended from some as yet undiscovered progenitors.

Even for the uninitiated, who possess no anatomical knowledge, it is impossible to study and compare the five figures in the plate without being strongly impressed with the belief that they are all nearly related to one another; and that, if man has been made in the image of his Creator, so also have these four apes. To the anatomist the proofs of blood relationship are conclusive; for a detailed account of them I would refer the reader to Professor Huxley's "Man's Place in Nature," where he will find the whole subject minutely and exhaustively considered, according to the best knowledge we possess. We may, however, briefly mention here some of the most important points of resemblance between man and his ape cousins.

No part of Evolution possesses so much interest for the general public as man's connection with the man-like apes. This is only natural, since, to the most sceptical and unbelieving, the resemblance is striking, not to say startling and impressive; and in spite of all prejudice and hatred, due especially to early theological training, the conviction insensibly and irresistibly steals upon us

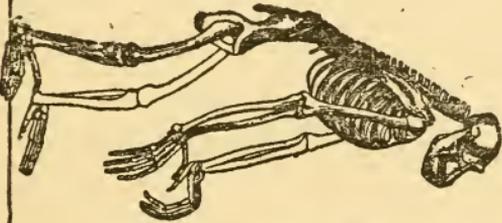
PLATE I.



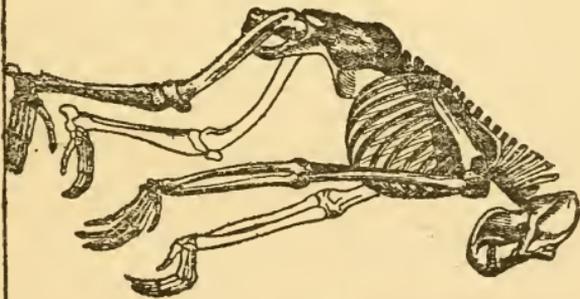
GIBBON.



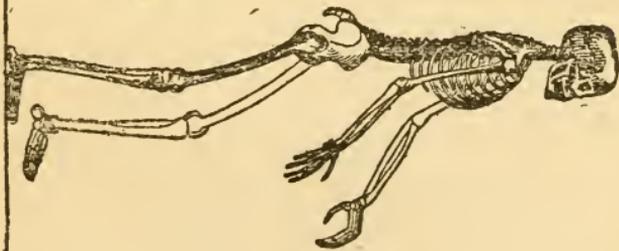
ORANG-OTANG.



CHIMPANZEE.



GORILLA.



MAN.

that between ourselves and the most highly developed of the apes there is indeed some mysterious and close relationship.

Evolution supposes that, far back in the past, there existed a tribe of animals which, in their upward course from lower forms, had approached somewhat towards the human form. They are known as Catarhine, or narrow-nosed apes, and from them have descended, in five different streams, man, gorilla, orang, chimpanzee, and gibbon. Each one, as it developed along its own peculiar line, improved in structure and grew in concomitant *intelligence*—man outstripping all the others in very large degrees. Before the present perfection of structure in man was reached he passed through many modifications; and the same may be said of his ape cousins. The common progenitor has not yet been discovered; but it is not unreasonable to hope that as palæontological research goes on it may yet be brought to light. "The ape-like progenitors of the human race are long since extinct; we may possibly still find their fossil bones in the tertiary rocks of Southern Asia or Africa," writes Haeckel.

In the long and gradual ascent of man from his ape-like ancestors arose ape-like man, with erect posture, more developed brain, and characteristic differentiation between hand and foot. It may fairly be assumed that for some time after the outward appearance and form had been reached man was still without language, and in his habits and mode of life almost as brutal as the gorilla of to-day. It ought not to be at all difficult to realise this, when we reflect upon the condition of the Australian and Papuan of the present time, which is only a few degrees removed from that of the apes. If the three degrees of mental power possessed by the apes, the Australian, and the European, are compared, it will be found that the difference between the intellectual power of the most developed European and that of the Australian is greater than that between the Australian and the anthropoid apes. Between the highest man and the lowest man there is a greater gulf than between the lowest man and the highest ape.

No other animals, besides man and the four apes mentioned above, possess both hands and feet. The resemblance in structure between our hands and feet and those of the apes is very striking, as is also the manner of use. In a less degree they use their hands as we do ; and though they have not attained to perfect mastery in the use of their feet in walking, they still are able to use them, independently of their hands, for the purpose of locomotion, with considerable dexterity. The hands and feet in man have been very great aids to his intellectual development, probably the greatest factors in his evolution towards a speaking, reasoning creature. By the use of his feet he has attained to the perfectly upright posture, the importance of which it is impossible to over-estimate ; and by the use of his hands he has simply become what he is—Man.

The growth of the nervous system and the brain has gone on step by step with the development of the upright carriage and dexterity in using the hands. Between the two there has been a constant interaction, resulting in the gradual evolution of the whole being.

Between man and these four apes there are, indeed, many points of resemblance, proving their common descent and blood relationship ; and among scientific men the question is no longer considered debatable or open to doubt, as, indeed, the whole theory of Descent may now be considered established beyond the possibility of disproof. Even apart from all other proofs, fossilised remains alone would be sufficient to justify the acceptance of the theory of Evolution.

While human skulls of a very low and degraded type have been found, hitherto none have been discovered which may truly be said to have belonged to an animal midway between man and his ape progenitors.¹ We may fairly say, however, that the Neanderthal skull must have belonged to a being considerably lower in the scale of development, and more nearly approaching the apes than any race of men now living. Respecting this skull, which was found in a cavern “unaccompanied

¹ See page 64.

with any trace of human art," Professor Huxley says:

"Under whatever aspect we view this cranium—whether we regard its vertical depression, the enormous thickness of its superciliary ridges, its sloping occiput, or its long and straight squamosal suture—we meet with ape-like characters stamping it as the most pithecoïd of human crania yet discovered." And though it may be, as he says, that "in no sense can the Neanderthal be regarded as the remains of a human being intermediate between men and apes," it is, nevertheless, quite certain that the Neanderthal man was of a type very much lower down and nearer to the apes than any race of men now living. And this fact alone is as convincing in its way as the actual discovery of the "missing link" itself would be.

It is only a question of degree; those who preceded the Neanderthal men, and from whom they were developed, must have been still more brutal, and therefore less developed and nearer to our ape progenitors; otherwise the doctrine of progressive development would not hold good.

"Where, then," asks Professor Huxley, "must we look for primeval Man? Was the oldest *Homo sapiens* pliocene or miocene, or yet more ancient? In still older strata do the fossilised bones of an ape more anthropoid, or a man more pithecoïd, than any yet known await the researches of some unborn palæontologist? Time will show."

It is quite possible that this question may shortly be answered, and that primeval man has turned up in the discoveries quite recently made of three skeletons in a cave near Mentone. These human remains are said to be quite a hundred thousand years old, "and that from the formation of their skulls they were of a decidedly degraded animal nature." "The skulls are of a very animal type, almost resembling that of the ape." These remains carry us still nearer to the pithecoïd form than any yet discovered, but how much nearer is not at present known, as they have yet to be examined by competent authority.

We cannot hope, however, that they will turn out to be the veritable missing link, or sufficiently ape-like and wanting in reason and speech to disentitle them to be classed as *Homo sapiens*; though it would, under all circumstances, be quite impossible to draw a hard-and-fast line of demarcation, and say here the ape ends and man begins. In Nature, as we have said before, there are no such breaks or sharp lines; and Man is, but a part of universal Nature. If it be found, on careful scientific examination, that the skulls of these skeletons really resemble that of the ape more nearly than that of man, it is just possible that they may turn out to be the intermediate link between man and the apes.

Since the above was published in the first edition of this book, in 1893, a most remarkable discovery has been made which, according to the best authorities, is the veritable missing link.

Professor E. Haeckel, in his address delivered at the Fourth International Congress of Zoology at Cambridge in 1898, says: "Three years ago this now famous ape-like man (the celebrated fossil *Pithecanthropus erectus*, discovered in Java, in 1894, by Dr. Eugène Dubois) provoked an animated discussion at the Third International Zoological Congress at Leyden. . . . If we may judge from these fossil remains, the bones of *Pithecanthropus* are not younger than the oldest Pliocene, and probably belong to the upper Pliocene. The teeth are like those of man. The femur also is very human, but shows some resemblances to that of the gibbons. Its size, however, indicates an animal which stood, when erect, not less than 5 feet 6 inches high. The skull-cap also is very human, but with very prominent eyebrow ridges, like those of the famous Neanderthal cranium. . . .

"The final result of the long discussion at Leyden was that, of twelve experts present, three held that the fossil remains belonged to a low race of man; three declared them to be those of a man-like ape of great size; the rest maintained that they belonged to an intermediate form, which directly connected primitive man with the anthropoid apes. This last view is the right one, and

accords with the laws of logical inference. *Pithecanthropus erectus* of Dubois is truly a Pliocene remainder of that famous group of highest Catarrhines which were the immediate pithecoïd ancestors of man. He is indeed the long-searched-for 'missing-link.'" This ape-man was, of course, without speech; and his condition of life probably similar to that of the apes to-day. It is calculated that he lived about 270,000 years ago.

There is not a single race of men that have not some ape-like characteristics in their anatomical structure. Weisbach says, "*The ape-like characteristics of Man* are by no means concentrated in one or another race, but are distributed in particular parts of the body among the different races in such a manner that each is endowed with some heirloom of his relationship—one race more so, another less; and even we Europeans cannot claim to be entirely free from evidences of this relationship."

This result was arrived at from a careful examination of the different races of men by Scherzer and Schwaiz in their voyage round the earth, and is exactly what we should expect from the theory of Descent. In regard to the skull, the variations from the most savage races to the European are very considerable, probably as great as those existing between the four apes above referred to. Neither of these apes can be said to be absolutely in all respects most like man, but each possesses some particular character in which it stands nearer than the others to man. "The orang stands nearest to man in regard to the formation of the brain, the chimpanzee in important characteristics in the formation of the skull, the gorilla in the development of the feet and hands, and lastly the gibbon in the formation of the thorax" (Haeckel). This, again, is quite in accordance with the theory of progressive modification, and is a legitimate deduction from it.

Those who wish to pursue the interesting subject of man's resemblance to the anthropoid apes will find the fullest information in Professor Huxley's "Man's Place in Nature."

A comparison of the structural differences and resemblances between these apes and man, on the one hand,

amply justifies the conclusion that they are all five the descendants of a common progenitor; while, on the other hand, the achievements of man would seem to contradict such common origin. Our knowledge and works seem to place our race in an exceptional and privileged position; and it is this consideration which supplies the strongest arguments against the inclusion of man in the scheme of gradual development of organic nature.

Why has man so distanced the apes in the struggle of life, if at a period, however remote, he and they had a common ancestor, and began the race on equal terms? When the great achievements of the human mind are considered, we are led to ask: Against these, what have the apes to show? Nothing, absolutely nothing. Indeed, so far as organic social development is concerned, they are far below the bees and ants.

Such considerations seem, on the face of them, to point conclusively to the view that man is not merely higher in degree than the apes, but that he is altogether different in kind, and is endowed with an intellectual principle having little or no affinity with the intelligence displayed by the rest of the animal kingdom. And if the power of mind possessed by the *very few*, to whose knowledge and discoveries our superior position is due, were common to the race, it would be extremely difficult to accept the theory of Descent as applied to ourselves. For in that case the gulf between us and the apes could scarcely be bridged in thought.

As it is, the slight remove of the lowest races of men, in point of intellect and social organisation, from the apes, offers additional proof, if any were needed, of the truth of our descent. Let us try and imagine what the world would be to-day if it were peopled only by those races. The apes would still dispute with man the supremacy, and the earth would be a wilderness of forest and swamps, containing no vestige whatever of civilised life. The arts and sciences, even in their most primitive state, would, of course, be utterly unknown; and the heavens would be as meaningless to the human as to the ape mind.

Rising somewhat in the scale of intelligence, and coming to civilised man, what a gulf separates even him from the few great intellects on whose discoveries the fabric of all we possess rests! Nay, we may even take the so-called educated classes, and how many among them possess the gift of mind requisite for advancing, in ever so slight a degree, the progress of the race? Very few indeed. Of all the millions that pass away in a generation, how few leave behind any distinctively valuable work!¹

The potentialities of mind, with slight variations in the educated and the uneducated alike, are nearly equal among civilised men; and perhaps not more than one in every five thousand or so is capable of understanding the great currents of thought which shape progress from time to time; and yet in ordinary speech and outward bearing the master-mind is not to be distinguished from the million. If it had not been for the few great poets, philosophers, and scientists, where would the world be to-day? Probably in a condition little better than that described above.

To the very few great master-minds of the world, then, we owe our knowledge and progress, and consequently our vast superiority over the apes; and yet the aborigines of Australia, who are so near to the apes in intelligence, just as distinctly belong to the family of man as do the greatest of men. Between the condition of the ape-world and that of the lowest races of men, there is, almost beyond comparison, less difference than between the latter and civilised communities.

If the savages are nearer to the apes in intellectual power and endowments than they are to a Darwin or a Shelley, while possessing brains approximating so nearly to those of the latter, and yet differing but slightly from those of the former, surely it is not difficult to understand, if growth in quality and quantity of the brain is the main factor of human development, how the most highly-endowed men may have been slowly evolved from ape-

¹ Galton says only one in four thousand is of conspicuous ability, and one in a million whose abilities will be recognised by future generations.

like ancestors. The great marvel is that such vast results should be dependent upon a few more brain cells conglomerated and more closely packed in that organ. And if the growth of brain goes on in the future as it has done in the past—and why should it not?—the destiny of the human race on the earth is probably infinitely greater than the most far-seeing minds can form any conception of.

Let us picture to ourselves the savage roaming his forests and swamps, and the astronomer in his study mapping out the heavens, weighing and measuring the stupendous bodies away in the infinite depths of space, and calculating their movements and velocities to the smallest fraction in time and space, and then limit, if we can, the possibilities of the human mind in the ages to come !

Such considerations as these effectually dispose of the arguments against evolution supplied by the progressive character and attainments of man, and the stationary condition of the lower animals, so far as man's limited experience in time goes. There is, however, now every reason to believe from the latest researches that, at least, some of the lower creatures progress in communal arrangements. We know that ants have an elaborate social organisation as complete in its way as any human community. Bees have the same ; and if it were possible to observe more closely their daily lives we should, doubtless, find that they discover new methods of attaining their ends, and modify, improve, and progress in many ways. The interesting labours of Sir John Lubbock have made us acquainted with many astonishing facts in the ant-world, the mere mention of which only a few years ago would have been treated with contempt and ridicule.

In contemplating the awful, indefinite immensity of the universe in time, space and numbers, we are led to reflect upon our tiny "mote in the sunbeam," and the brief span of time during which rational man has been its occupant. For an immeasurable length of time before life of any kind appeared, the earth was in process of making. Millions of years must have elapsed before it attained to

the condition favourable for the production of living matter ; and again a period of time, too great for our realisation, must have passed from the first appearance of life to that of speaking man. A sort of rough estimate has been formed of the great periods of rock deposits in which petrifications are found ; but they are necessarily very vague and uncertain as to time, thousands of years being but as minutes in our lives, in the whole organic history of the earth. Of one thing, however, we are quite certain, viz., that the period during which this world has been the home of man is so small that it is almost as nothing compared with the enormous length of time during which life was slowly evolving and building up the organic structure that preceded man, and out of which he has grown.

The oldest discovered organic remains are those of a fish-like creature, found in the Silurian formation, dating back, geologists tell us, over twenty million years. During these twenty-odd million years all the races of animals, with man at their head, have been slowly progressing from that fish-like form. This creature was, of course, the outcome of other organisms, going back many more millions of years ; but no fossils are known of an earlier date than the Silurian.

Taking the nine representative stages from the above fish up to man, viz., *Pithecanthropus erectus* (the missing link connecting man with the apes), Anthropoid Apes, Lemures, Prototheria (first mammals), Theromorpha, Proreptilia, Eotretapoda, Dipnoi Fish, it is found geologically that the sum of the periods and duration of the rock strata in which the fossils are found coincides approximately with the sum of the duration and life of each stage, as determined by biological computation. The duration of life at each stage is known roughly from the geological determination of the age of the rocks in which the fossils are found ; and biology being able to determine the ages and puberty of the animals in each stage, we arrive at the total number of generations through which man has passed since the time of his fish-like ancestor, amounting to over five millions ; and giving the enormous stretch of twenty-one million

years. Thus once again geology and evolution lend support to each other.

As man prides himself upon being the sole object for whose special benefit all things have been brought into existence—sun, moons, planets, stars, animals, and plants—we may, with advantage, reflect upon the undoubted facts that long before he appeared on earth—so long that millions of years are but as short periods compared with our lives—it was a globe, moving round the sun as it now moves, and that for ages before his advent it was the home of animal and vegetable life. And for infinite ages after he finally disappears, together with every form of life, as we know it, it will continue in its course, until it is finally reabsorbed by the sun. If man is the prime object in the Universe, and for him alone all things have been created, no matter how, what is the meaning of his comparatively short occupancy of the home that has been specially made for him? Why was it occupied for all those ages by the lower animals only? And above all, why does it exist in solitary silence, with no living thing upon it, for a series of years compared with which the life of our race dwindles to a small span indeed?

These are questions which should well give us pause in our pride and arrogance, in our assumption that for us alone universal power, unlimited in time and space, should have been put forth. Let man reflect upon the utter insignificance of the small speck of matter he is permitted to occupy in the vast, indefinite Universe; upon the mere moment of the life of his race even, compared with the total of animal life; and, above all, upon the merest fragment of a fraction of secular time comprising his individual life; and then ask himself the questions that, if for him alone Universal Nature exists, what does it all mean? What is the *rationale*? Why this mighty waste of time, power, and material, if creation has been specially and solely designed for him? Why is his home but a mere insignificant speck among countless myriads of vastly superior bodies in the abyss of the Universe? Why the untold ages, during which millions of bodies, the earth included, have existed,

and will continue to exist, without any vestige of life, animal or vegetal? Will man answer these questions by saying, "For *me*, for *me* alone, and my little space of life, the mighty fabric of the Universe exists"? For the thoughtful mind there is surely a different answer.

CHAPTER V

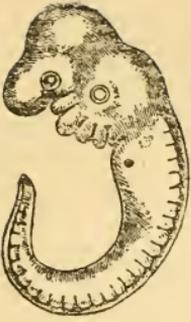
EMBRYOLOGY

EMBRYOLOGY may be called the sister science to palæontology, using the latter in its widest sense as embracing all the morphological changes, constituting new species through which the organic world has passed. It is one of the most important lines of evidence in proof of the doctrine of evolution, which is a simple and natural explanation of what otherwise would be an inexplicable mystery. For obvious reasons, the study of embryology is older and more complete than that of palæontology. It is much easier to study the development of embryos than to search the crust of the earth for fossilised remains, the discovery of which must of necessity be left, in great measure, to chance. It would be more correct to say that embryology, or ontology, is the sister science to phylogeny, which deals with the whole of the organic world from the moneron up to man; whereas palæontology only takes cognisance of petrified remains, which are, of course, those of considerably developed organisms.

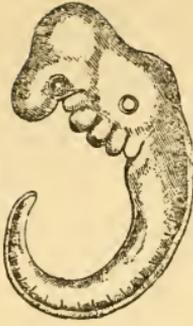
The founder of embryology was Karl Ernst von Baer, born in 1792 in Esthonia. He first discovered the human egg; and in conjunction with his friend Pander, studied the development of the chick. The theory of the germinal layers, from which all the organs arise, was really started by Pander, but completed by Baer, after nine years' research. Ten years before the discovery of the cells, which are the composing units of all organisms, he made the following remarkable statement:—

“Perhaps all animals are alike, and nothing but hollow globes at their earliest developmental beginning. The farther back we trace their development, the more resemblance we find to the most different creatures. And this leads to the question whether

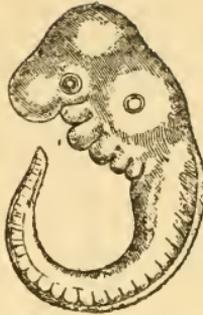
PLATE II.



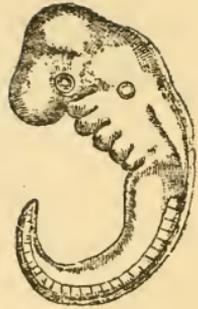
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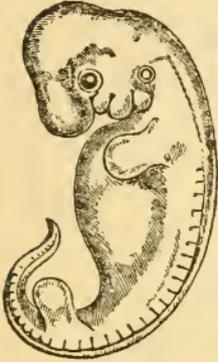
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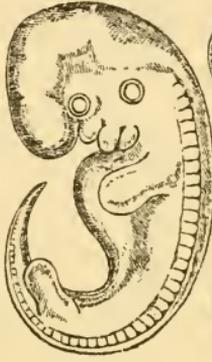
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II



II



II



II



III
HOG.



III
CALF



III
RABBIT

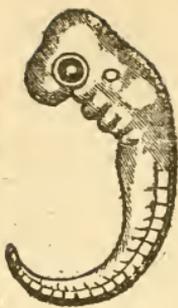


III
MAN.

PLATE III.



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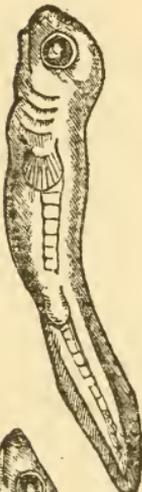
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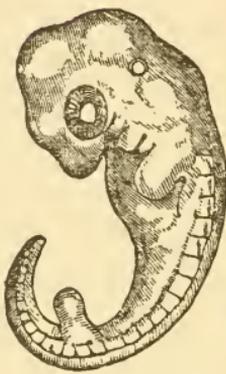
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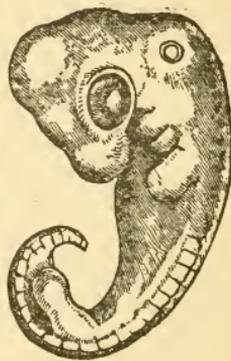
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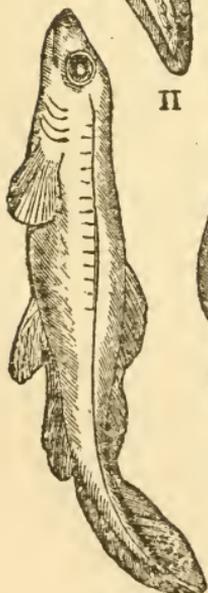
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II



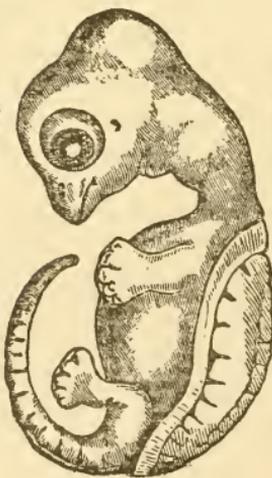
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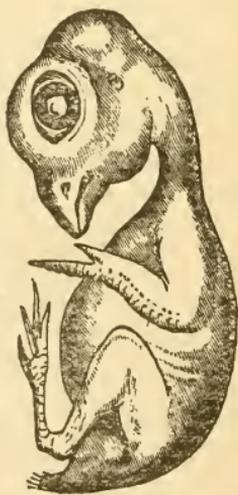
III FISH.



III SALAMANDER.



III TORTOISE.



III CHICK.

at the beginning of their development all animals are essentially alike, and referable to one common ancestral form. Considering that the germ (which at a certain stage appears in the shape of a hollow globe or bag) is the undeveloped animal itself, we are not without reason for assuming that the common fundamental form is that of a simple vesicle, from which every animal is evolved, not only theoretically but historically."

We have seen that in the beginning of organic life on the earth Nature produced from the "original slime" the cell—a minute creature, containing the vital properties of an independent living being, and from which all forms have been developed.¹ The beginning of every individual life is, in like manner, a cell; and as this cell grows by the addition of other cells, it takes on at the various stages of its embryonic growth and formation the embryonic forms through which its ancestors have passed. This does not mean that the embryonic phases in the development of a higher organism necessarily resemble so many adult stages of a lower organism. As Professor Romanes says :

"This may, or may not, be the case, but what always is the case is, that the embryonic phases of the higher forms resemble the corresponding phases of the lower forms. Thus, for example, it would be wrong to suppose that at any stage of his development a man resembles a jelly-fish. What he does resemble at an early stage of his development is the essential or ground plan of the jelly-fish, which that animal presents in its embryonic condition, or before it begins to assume its more specialised characters fitting it for its own particular sphere of life. . . . The comparison, therefore, must be a comparison of embryo with embryo, not of embryos with adult forms."

The embryo of every animal (man included), during its development from conception to birth, passes through those stages or changes of form through which its long line of ancestors have passed, beginning in each case with a minute cell. The embryonic growth is a brief and rapid recapitulation of the historical growth. In Haeckel's words : "The ontogenesis of any given living

¹ For the distinction between Protozoa and Metozoa, *i.e.*, unicellular and multi-cellular organisms, see Romanes' "Darwin, and After Darwin."

organism is a short, condensed recapitulation of its ancestral history, or of its phylogenesis."

When the egg-cell (in man about $\frac{1}{120}$ th of an inch in diameter) has been fertilised by the male element, it begins to grow by the formation and addition of cells. Let us take the case of man's embryonic formation. In the early stages his embryo resembles that of one of the lowest creatures, and could not be distinguished from it; as he progresses, differentiation takes place precisely similar to that which occurs in the embryo of any of the other higher animals—those of the fish, the reptile, the bird, and the beast being exactly the same in appearance as man's, as it passes through those stages. At last it takes on the characteristic features of the mammal, and is finally completed in the human form. To quote Professor Romanes again :

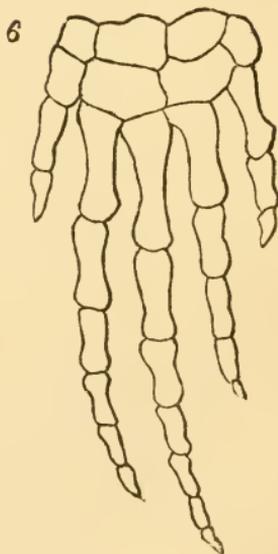
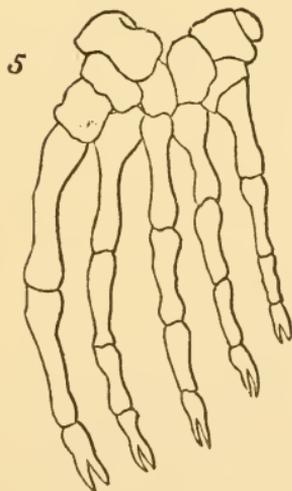
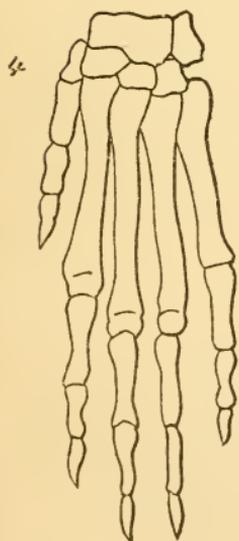
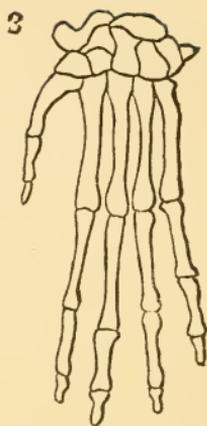
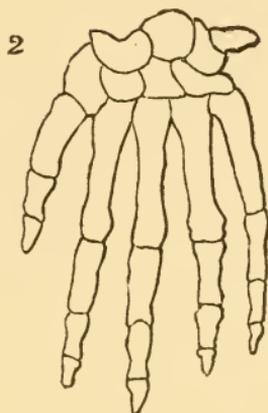
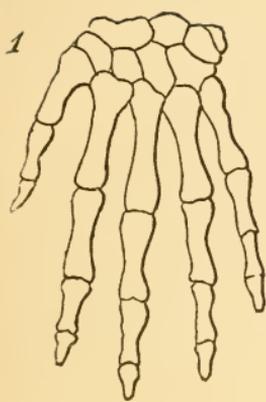
"Now, if the theory of Evolution is true, what should we expect to happen when those germ-cells are fertilised, and so enter upon their severally distinct processes of development? Assuredly we should expect to find that the higher organisms pass through the same phases of development as the lower organisms, up to the time when their higher characters begin to become apparent. If in the life-history of species these higher characters were gained by gradual improvement upon lower characters, and if the development of the higher individual is now a general recapitulation of that of its ancestral species, in studying their recapitulation we should expect to find the higher organism successively unfolding its higher characters from the lower ones through which its ancestral species had previously passed. And this is just what we do find."

This is admirably and concisely expressed.

In the interior of the germ-cell is a nucleus, and around the cell a rind with minute openings or gateways. We shall the better realise and appreciate the marvellous mechanism and operations of Nature if we consider that the whole of the cell containing this complex structure is almost too small to be seen with the naked eye. When fertilisation takes place, the male element, in the shape of microscopic tadpoles, finds its way through the opening or gateway of the cell-rind, and fusing with the nucleus inside, the two form the foundation, as it were, of the future being.

PLATE IV.

HAND OF SIX DIFFERENT MAMMALS.



1, Man. 2, Gorilla. 3, Orang. 4, Dog. 5, Seal. 6, Porpoise.

It is a most remarkable fact that the male pronucleus (too small to be seen without magnifying power) seems to know where to find the gateway leading to the abode of the female pronucleus, and that as soon as he enters her domain she advances to meet him, when they coalesce, and thus supply the two elements—male and female—necessary for the formation of an organic being.

A very important fact to observe is, that in so-called birth and growth the continuity of Nature is unbroken, reproduction and growth being one and the same process. Nature, in the beginning of organic existence on our planet, elaborated living matter from inorganic matter, and has, we must believe, gone on doing so ever since. The unit of construction she has elaborated from structureless protoplasm in the shape of a cell; and as every living thing begins to form and grow from a cell, so does it take form and grow by the addition of other cells merely. So that we are nothing more nor less than a multiplicity of cells; and all the powers we possess are the aggregate of the individual power possessed by the individual cells composing us.

We should notice in this connection, though we make no point of it, and draw no conclusions from it, that it is held to be not an impossibility in Nature for a virgin to conceive and give birth to a child. Whether this be so or not we cannot say. At all events, Professor Romanes and others think it, under certain abnormal conditions of ovulation, quite within the range of possibility. He says:

“It has already been stated that both parthenogenesis and germination are ultimately derived from sexual reproduction. It may now be added, on the other hand, that the earlier stages of parthenogenesis have been observed to occur sporadically in all sub-kingdoms of the Metozoa, including the Vertebrata, and even the highest class, Mammalia. These earlier stages consist in *spontaneous* segmentation of the ovum; so that even if a virgin has ever conceived and borne a son, and even if such a fact in the human species has been unique, still it would not betoken any breach of physiological continuity. Indeed, according to Weismann’s not improbable hypothesis, touching the physiological meaning of polar bodies, such a fact need betoken nothing more than a slight disturbance of the complex machinery of ovulation,

on account of which the ovum failed to eliminate from its substance an almost inconceivably minute portion of its nucleus."

Few species differ more from one another in form than man differs from the hog, calf, and rabbit, for example, and yet the human embryo, as may be seen from Plate II., in the early stages, is scarcely distinguishable from the embryos of those animals. Let the reader carefully compare these four vertebrates in their three stages of evolution.

Plate III. represents the embryos of two of the higher and two of the lower vertebrates in their different stages—a fish, an amphibian (land-salamander), a reptile (tortoise), and a bird (chick). Between a chick and a fish there is certainly very little resemblance indeed; but when they begin their lives, the agreement in all the most important relations of form is almost complete.

These plates, with the explanations, are taken from Haeckel's "Evolution of Man."

These illustrations will perhaps suffice to show that animals the most diverse in form, man included, in germ life have a common origin; and we shall see presently that, though they differ so remarkably in outward form and appearance, the internal resemblance is, to a great extent, preserved.

To those who have not studied the subject, it is quite inconceivable that between the hand of man, for example, and the fore-feet of any four-footed animal there should be a similarity of structure, since in outward formation there is not the slightest resemblance. Between the hand of man and that of the ape we should naturally expect to find very little difference in structure and number of bones, as they correspond so nearly in outward configuration; but the general reader will be somewhat astonished, on comparing the skeleton of the hand and fore-feet of the six mammals in Plate IV., to find how nearly they resemble one another.

By the different uses to which they have been accustomed through long ages, some bones have become longer, others shorter; but the identity of structure still remains, showing most conclusively a common origin.

Throughout the different orders of mammals the similarity of internal structure with that of man is manifest and unmistakable; and, taken in connection with a multiplicity of other facts, we are irresistibly driven to the conclusion that all these orders have come from a common ancestral form.

Of all the numerous facts pointing to this conclusion, there is no possible explanation otherwise of any single one; whereas the theory of Descent is a perfectly natural and simple explanation. With it, every single fact in the whole history of animal economy exactly fits in, and is, indeed, the inevitable and unavoidable result. It would not be an exaggeration to say that nearly every known fact in biological science is a necessary deduction from the law of Evolution; as much so as eclipses and the phases of the moon are deductions from the astronomical laws, though, of course, the former do not admit of the same exact scientific demonstration.

No part of Nature's processes is more instructive, or deserves greater consideration than the embryological formation or development of man, from the single cell through all the ancestral forms, in the short space of forty weeks. His ancestral life, reaching back to the single-cell form, must be computed by *many* millions of years; and the number and variety of forms through which he has passed in his upward course are many and complex. That this immeasurably long process of transformation from the single cell to complex man should be repeated, in the main features, during the short period from conception to birth, is of the most important and extraordinary significance, and is utterly meaningless and unaccountable except on the principle of evolution.

Man, beginning his ancestral life on this earth as a tiny cell many millions of years ago, begins his individual life in like manner as a tiny cell in the womb; and by the time he is completely formed and ready for birth, he has passed, in his formation, through all those animal forms which he possessed at the various stages of his ancestral life, embracing all those millions of years. In the beginning Nature began with the cell, as her unit of

construction for the organic world ; and she has gone on building with cells ever since. She elaborates for her building material nothing but cells, and with these alone contrives to construct the whole living world, with its endless varieties and capacities.

The worm is a combination of cells ; man is a combination of cells. Each cell in the worm possesses a distinct individual life ; each cell in man possesses a similar individual life. The sum total of life, as we see it, is but the sum total of cell life. As by combination of cells alone every variety of form is produced, so by combination of cells alone every degree of life is expressed, from the worm to man.

CHAPTER VI

RUDIMENTARY ORGANS

ANOTHER very strong line of evidence of the truth of evolution is the well-established fact that in nearly all animals and plants there are what are called rudimentary or suppressed organs. In all the higher organisms these disused organs are found. They perform no function, serve no purpose whatsoever, and are perfectly useless. They have always been a stumbling-block to naturalists who believe in the "design" theory of creation.

Among vertebrates the rudimentary organs are numerous, and the only possible explanation of their presence is the doctrine of descent, which not only accounts for their existence where found, but makes such existence in certain stages an unavoidable necessity. It is well known that if you cease to use a muscle it will get weak and dwindle away. Put your arm in a sling, keep it there for a long time without using it, and it will begin to lose its strength and wither, and continued disuse will cause it to become quite powerless. Now, in the gradual process of development, the altered external conditions of life produce modified desires and necessities, and these acting upon the organism bring into more active operation certain organs, while others are relieved of the work in proportion. The former will develop and grow, while the latter will decrease in size, and ultimately vanish altogether.

In man, as well as in all other animals, the remains of organs once performing useful functions, but now doing no work whatsoever, are found in different stages of degeneration. The disuse and slow disappearance of organs no longer required owing to the altered condition of the environment on the one hand, and the development of other organs necessitated by those altered

conditions on the other, are among the factors which bring about the transmutation of species, and are the immediate causes of the most widely divergent animal forms. The gradual disappearance of the no-longer required organs, and the rise of the new, can be traced through various species of mammals up to man. It is a slow, steady, morphological change which is never stationary, and never very rapid, though, in earlier periods of the earth's history, when heat and moisture were greater than at present, and growth was correspondingly more active, the change of structure was probably very much quickened. At those periods the flora and fauna were gigantic as well as numerous.

The subject of rudimentary organs is of the very greatest importance to the theory of Descent. Assuming the truth of the theory, they are natural and inevitable; accepting the "plan of structure" theory, they are useless, unnatural, and altogether unaccountable. Can anything be more futile than the explanation given by the opponents of Evolution—that the Creator made the useless organs "because he saw they were good for the purpose of beauty and symmetry"? They are the very reverse of symmetrical, and as to their "goodness," they are in some cases a source of danger to the organism. The fact that they are gradually eliminated by disuse and structural progress is in itself a refutation of the "symmetry" theory.

If organic evolution had to stand or fall on rudimentary organs alone, they are sufficient in themselves to satisfy every competent inquirer of the truth of the doctrine. We might almost venture to say that *no unbiassed* mind could study the subject long without coming to the conclusion that all rudimentary organs at one time served a useful and necessary purpose; and that their presence in every organism is a convincing proof of structural modification and progress—a living proof, that is, that the organism in which certain disused organs exist is closely allied to that in which they are found performing useful and necessary functions, and that both have sprung from a common ancestor.

“Throughout both the animal and vegetable kingdoms we constantly meet with dwarfed and useless representations of organs, which in other and allied kinds of animals and plants are of large size and functional utility. Thus, for instance, the unborn whale has rudimentary teeth, which are never destined to cut the gums ; and throughout its life this animal retains, in a similarly rudimentary condition, a number of organs which never could have been of use to any kind of creature save a terrestrial quadruped. The whole anatomy of its internal ear, for example, has reference to hearing in air, or as Hunter long ago remarked, is constructed upon the same principle as in the quadruped.”¹

The reader who wishes to study this interesting subject in detail should consult the works of Romanes and others.

¹ “ Darwin, and After Darwin,” p. 65.

CHAPTER VII

DARWIN'S LAW

DOWN to the time of Charles Darwin, organic evolution rested upon observed facts only; and although they formed so large a mass of evidence as to bring conviction of the truth of the theory to the majority of students, it was reserved for this truly great man to discover the actual law of Nature by which organic evolution is proved, and on which it scientifically rests. From the uniform recurrence of observed facts, we may *infer* a regular order of Nature; but until we have discovered the *reason* of that uniformity, we can never be certain that it is necessitated by what we call a law of Nature. In other words, until we know the causes of effects we are ignorant of their laws.¹

To Darwin is due the great and imperishable glory of having discovered the natural causes which are at work in the formation of organic nature. We should not omit to mention here that another great naturalist, Mr. Alfred Russell Wallace, shares this glory with Darwin, inasmuch as he also made the discovery at the same time that Darwin did, and both were published simultaneously. If, therefore, Mr. Wallace is not mentioned again, it is not that we would not render to him the honour which is his due. Indeed, Mr. Wallace's name is well known in other fields of inquiry—notably his contributions to the solution of the great and important problem of Land Tenure.

It was long known to breeders of animals and cultivators of plants and flowers that great modifications and improvements could be effected by careful selection. If a certain peculiarity of form was required in any

¹ In the first chapter of Professor Karl Pearson's "Ethic of Free Thought," the reader will find this subject very ably treated.

animal, the breeder selected for breeding those which exhibited this peculiarity in the most marked degree; and those again of their descendants and others in which it had appeared most pronounced and developed. And this process continued through a number of generations, it was found that the changes which could be effected were practically unlimited.

Similarly, in regard to flowers and plants, the seeds, etc., of those that possessed the required modifications of colour, form, etc., were carefully selected for sowing or planting; and this process continued for a long period, it was proved that almost any results could be obtained. Witness the varieties in size and appearance of the horse, the dog, the pigeon, etc., in the animal kingdom, all due to artificial selection by the breeders. And in the vegetable kingdom, we need mention only one example—the rose. Everybody is familiar with the fact that the immense number and great perfection of the different kinds of roses are due to selection and cultivation. But the subject of artificial selection in breeding animals and cultivating vegetable products is so well known that we need not dwell further upon it.

Darwin knew, even from the labours of his predecessors, that the transmutation of species was brought about by inherited modifications; the *facts* of evolution proved this, no less than the familiar experiences of artificial selection. And the task he set himself was to discover if there were any operative principle or power in Nature analogous in its action, so far as results were concerned, to the selecting process performed by the mental purpose of man, which would account for and explain the origin of species.

He knew that if any such existed it could only be found in activities of the widest and most comprehensive character, *in the mechanical laws of purposeless necessity*. In his quiet Kentish home, in the beautiful and secluded village of Down, after years of deep study and reflection, the great thought took shape and definite form; and the result was the widening of human knowledge by the discovery of a law, the very existence of which had scarcely so much as ever entered the mind of any

human being before; and which Kant, only a few years previously, had declared to be beyond the range of science and conceivability—maintaining that the only possible explanation of organic growth and formation was the direct intervention of an ordaining and Infinite Mind.

In the history of Man, it is perhaps the one grand exception to the ancient saying that "there is nothing new under the sun." The germs of nearly every great discovery can be traced back almost indefinitely, and foreshadowed by previous thought, if not by scientific fact; but the mechanical law of organic formation and growth had no history before it was born in the great and luminous mind of Darwin. Truly we may say, like a god he came upon the earth, and brought a new light to man—a light that has enlarged the boundary of our knowledge, expanded the human mind, and laid the foundations for a departure in philosophy, science, and social progress, so great that no one can estimate the magnitude of the results which will ultimately flow from it. It will permeate with its penetrative influences every stream of thought. Galileo's dethronement of the earth from its central position, Newton's law of gravity, George Stephenson's locomotive, are perhaps small in comparison; and they have done much to emancipate the mind in many ways. Many superstitions that have lain like an incubus upon the soul, paralysing the intellectual energies, and stunting moral and material growth to a degree almost beyond the power of realisation, are destined to be vanquished by the light that Darwin has shed upon us.

"This idea of Natural Selection is unquestionably the most important idea that has ever been conceived by the mind of man."¹

"It was the theory of natural selection that . . . created a revolution in the thought of our time, the magnitude of which in many of its far-reaching consequences we are not even yet in a position to appreciate; but the action of which has already wrought a transformation in general philosophy, as well as in the more

¹ Oscar Schmidt, "The Doctrine of Descent," p. 156.

special science of biology, that is without a parallel in the history of mankind."¹

It may, perhaps, be thought that we are stating the case of *de novo* discovery in too unqualified a manner; inasmuch as Darwin himself has told us that he obtained the idea of Natural Selection, through the struggle for life, from Malthus. But although the population theory propounded by Malthus may have initiated or suggested the train of thought which ultimately led to Darwin's grand discovery, it was not in any sense an anticipation or a foreshadowing of the theory of descent by natural selection. To what extent he was indebted to Malthus may be gathered from his letter to Haeckel, in which he says:

"Having reflected much on the foregoing facts, it seemed to me probable that allied species were descended from a common ancestor. But during several years I could not conceive how each germ could have been modified so as to become admirably adapted to its place in Nature. I began, therefore, to study domesticated animals and cultivated plants, and after a time perceived that man's power of selecting and breeding from certain individuals was the most powerful of all means in the production of new races. Having attended to the habits of animals and their relations to the surrounding conditions, I was able to realise the severe struggle for existence to which all organisms are subjected; and my geological observations had allowed me to appreciate to a certain extent the duration of past geological periods. With my mind thus prepared, I fortunately happened to read Malthus's 'Essay on Population'; and the idea of natural selection through the struggle for existence at once occurred to me. Of all the subordinate points in the theory, the last which I understood was the cause of the tendency in the descendants from a common progenitor to diverge in character."

The natural cause, therefore, of the mutability of organisms, leading to the origin of species, he found to consist in the *never-ceasing struggle for existence which is everywhere going on amongst all living things*. This struggle develops qualities, powers, faculties, and organic changes, which, in proportion to the degree of development, give their possessors advantages in the contest; resulting in what Mr. Herbert Spencer has called

¹ "Darwin, and After Darwin," p. 259.

“Survival of the Fittest,” *i.e.*, the strongest and best equipped for the incessant battle.

The external conditions of life, under which food, pleasure, immunity from danger, etc., are secured, are infinite in number, and are in operation every instant of time ; consequently the changes, though imperceptibly slow and gradual, are infinite and incessant. One animal preys upon another, from the highest to the lowest ; and the whole earth is a scene of slaughter. “Nature is red in tooth and claw.” To pursue, catch, and devour, on the one hand, and to avoid being caught and devoured on the other, are the most persistent activities in animal nature, and the most potent factors in the transformations which are everywhere going on. The weak succumb, the strong survive, and transmit to their descendants the qualities and powers thus acquired, which make them the best fitted to cope with the opposing conditions of their surroundings.

As the needs of animal nature are ever pressing, so are the faculties ever vigilant and active for their satisfaction. And so the struggle goes on, and has gone on, without intermission, from the remotest period of organic existence on the earth, down to the present moment. To the eye that could take in a panoramic view of the great and the small over the entire surface, this world would present an appalling spectacle of ferocity, blood, and carnage. One such comprehensive glance over the human family alone would be sufficient to strike terror and despair into the stoutest heart.

“The struggle for life, this *bellum omnium contra omnes*, is, moreover, an undisputed fact, which we here accept in its widest relations. . . . Organisms live only at the cost of, and for the profit of, others ; and the peace and quiet of Nature sung by the poet is resolved, under the searching eye, into an eternal disquiet and haste to assert and maintain existence.”¹

The organic world is bound together in one continuous whole by a mutual dependence so absolute and complete that the effects of the slightest causes are felt far and wide ; and in many cases the most trivial causes

¹ Oscar Schmidt, “The Doctrine of Descent,” p. 140.

will sometimes lead to the most far-reaching and important consequences, even to the extermination of whole species within the area in which the effects are operative. Darwin has collected an immense number of facts showing this interdependence, and its results for and against the preservation of life. A few examples will suffice here. To the south and north of Paraguay feral cattle, horses, and dogs are very numerous, while in Paraguay itself there are none to be found.

“Azara and Rengger have shown that this is caused by the greater number in Paraguay of a certain fly, which lays its eggs in the navels of these animals when first born. The increase of these flies, numerous as they are, must be habitually checked by some means, probably by other parasitic insects. Hence if certain insectivorous birds were to decrease in Paraguay, the parasitic insects would probably increase, and this would lessen the number of the navel-frequenting flies; then cattle and horses would become feral, and this would certainly greatly alter (as, indeed, I have observed in parts of South America) the vegetation, and this again would largely affect the insects, and this the insectivorous birds, and so on in ever-increasing circles of complexity.”

And again, Darwin says :

“I find from experiments that humble-bees are almost indispensable to the fertilisation of the heartsease (*Viola tricolor*), for other bees do not visit this flower. I have also found that the visits of bees are necessary for the fertilisation of some kinds of clover; for instance, 20 heads of Dutch clover (*Trifolium repens*), yielded 2,290 seeds, but 20 other heads, protected from bees, produced not one. Again, 100 heads of red clover (*T. pratense*) produced 2,700 seeds, but the same number of protected heads produced not a single seed. Humble-bees alone visit red clover, as other bees cannot reach the nectar. It has been suggested that moths may fertilise the clovers; but I doubt whether they could do so in the case of the red clover, from their weight not being sufficient to depress the wing petals. Hence we may infer as highly probable that if the whole genus of humble-bees became extinct or very rare in England, the heartsease and red clover would become very rare, or wholly disappear. The number of humble-bees in any district depends, in a great degree, on the number of field-mice, which destroy their combs and nests; and Colonel Newman, who has long attended to the habits of humble-bees, believes that more than two-thirds of them are thus destroyed all over England. Now the number of mice is largely dependent, as every one knows, on the number of cats; and Colonel Newman says, ‘Near villages and small towns I have found the nests of

humble-bees more numerous than elsewhere, which I attribute to the number of cats that destroy the mice. Hence it is quite credible that the presence of a feline animal in large numbers in a district might determine, through the intervention first of mice and then of bees, the frequency of certain flowers in that district.'"

Hunger is the strongest of all incentives to action ; and, as it is of all necessities the most constant and pressing, it is a permanent factor in the growth of strength, craftiness, skill, and all those advantages which enable their possessors to hold their own against all comers, and measure themselves against rivals armed with any sort of superiority. It is quite obvious that in such a contest, maintained throughout the organic world, and operating without intermission, there would be going on slowly and gradually a development of qualities, powers, and organic alterations, rising ever higher and higher in the scale of fitness and perfection.

The slightest advantage, mentally or bodily, by constant use grows and improves ; and being transmitted to descendants, by whom the process under the same ever-active stimulus is continued, comes in course of time to reach such a degree of divergence from distant ancestors as to constitute entirely new species. There is difference of opinion as to the degree of transmission of acquired characters. The hereditary influence of the stock is held to be greater than that of parents.

We can mentally represent to ourselves this process if we will follow in thought the physical growth which takes place as the natural result of all muscular exertion ; and then consider the infinite variety and complexity of muscular efforts, which are constantly, and without intermission, going on in the organic world, for the satisfaction of the needs of hunger, pleasure, etc., etc. It may be that in several generations only the slightest perceptible alterations will take place ; but multiply these small deviations by some hundreds or thousands of generations, and we see at once that absolutely no limit can be assigned to developmental progress. A slight enlargement of the muscles here, and an imperceptible decrease there, continued through a sufficient number of generations, will carry us on to varieties differing from

one another in outward appearance to almost any degree of dissimilarity.

And with regard to the growth of intelligence, every advance is correlated with physical growth, and they act and react upon each other. Every effort one animal makes to waylay and capture another, and every device to which the pursued creature resorts to elude its pursuer, enlarges and improves the nerve matter of the organism, under normal conditions, and produces a greater degree of intelligence ; which, again, in turn acts upon the nerve and brain substance, producing an ever-increasing enlargement and superior quality.

Enlargement of the physical organs, nerves and brain, to which mind is correlated, acts upon the intelligence, widening its scope and increasing its power ; and the intelligence reacting upon the material organs of mind, causes still further growth of those organs. Whenever the intelligence is exercised, this effect upon the brain is a necessary consequence ; and every such effect increases the capacity of the brain for the expression of greater power and activity. This interaction is inseparable and constant, and the primary stimulus is hunger.

The mystery of mind *per se* is not in any sense touched by the knowledge that the brain is its material exponent. Why the brain cells should give rise to what we know as "mind" is a profound mystery, for which no solution can be found in either philosophy or science. A knowledge of the causal connexion between the two amounts only to a knowledge of the mechanical laws of their co-ordination or harmony of action, the connecting of effects with their causes.

As brain is the material organ of mind, and the latter is, so far as can be ascertained, but a property of the former, we are compelled to regard mind, in all its manifestations, as a mode of physical force ; the ultimate analysis of which is, as in all the other forms of force, *motion*. The peculiar motion of the brain particles gives rise to mind, as molecular motion is known to give rise to light, heat, etc. ; and deeper than this, in the present state of knowledge, we cannot penetrate. Leaving aside

metaphysical speculations, when we have said mind is a property of matter, we have to-day said the last word upon the subject, and have reached even the limits of conceivability.

The selecting influence of the universal struggle for life will be appreciated by considering how enormously procreative power exceeds the means of subsistence, and how few of all the creatures that are born can possibly survive. The slowest breeding animal is the elephant, and yet if the progeny of a single pair were allowed to live and produce, in 750 years there would be living 19,000,000 of their descendants. There is not a species of animal which, if it were allowed to breed freely and could find food, would not in a few years overrun the earth. These are simple facts which are known to most people.

Again, with regard to vegetables. If a species of annual plant produced only two seeds a year, and these were allowed to produce their kind for twenty years in succession, there would be 11,000,000 plants from the one ancestor. These two cases, cited by Professor Romanes, suffice to show how soon animals and vegetables would cover the whole surface of the earth, if allowed to produce uninterrupted by any causes whatsoever. But, as a matter of fact, the two examples mentioned are below the average productive powers of animals and plants, as readers know.

Professor Romanes estimates that, taking organic nature as a whole, not more than one in a thousand of all that come into life is allowed to grow to maturity and propagate; and this is probably an extravagant estimate of the number that survive; but it serves to impress us at once with the magnitude and intensity of the struggle for life which is waged amongst all living things.

That the survivors will be the fittest to live, *i.e.*, the best adapted to the conditions of their environment, and will transmit to their descendants their superior qualities, are facts which few will now dispute. These qualities will be handed down by heredity in unequal degrees; so that in every generation only the strongest, as a rule, will survive and breed. And thus Nature is constantly

selecting, for the continuance of each species, those of its members which are best adapted to succeed in the race.

It will be seen from this that Nature's fostering care is bestowed only on the species; she pays little or no regard to the individual life, except so far as it serves the welfare of the species, which she selects from a thousand others of the kind solely in the interest of the type. "Natural selection preserves the life of the individual only in so far as this is conducive to that of the species. Wherever the life-interests of the individual clash with those of the species, that individual is sacrificed in favour of others who happen better to subserve the interests of the species."¹ And as there is a constant warfare going on among individuals for the preservation of life, resulting in the survival of the fittest, so is there, in like manner, a continuous struggle waged among tribes, resulting in the preservation of the fittest types.

The mechanical laws of necessity kill nine hundred and ninety-nine; the same laws preserve one. In this there is no purpose, moral or otherwise; and as man, in his relations to himself² and to the rest of Nature, comes under the operation of the same *purposeless* mechanical necessity, in this connection may lie the solution of many problems which admit of no satisfactory explanation from any of the great religions of the world, past or present.

In every case the advantages developed by the struggle for life are subservient to the interests of the individual; and in no single instance will any changes occur which are not useful in some way or other. Individually, the struggle is one of pure selfishness, exerted solely for the attainment of personal gain. This fact has appeared to tell against the application of natural selection to the social instincts and the moral sense, and has been seized on to prove that they could not have been gradually evolved by a struggle of a purely selfish

¹ "Darwin, and After Darwin," p. 264.

² Witness the state of the world at present—the greed of nations.

character. The moral sense is altruistic—the very reverse of selfishness—and therefore natural selection, being due to pure selfishness, cannot have given rise to the moral faculties.

This argument has often been used ; and to those who are unacquainted with the full meaning of natural selection it appears very plausible, if not quite convincing. But those who are familiar with Darwin's works know that he did not limit the struggle for life to individuals, but extended it to communities.

The very moment that two persons co-operate together for a common object, the results of each individual's effort in part pass over to the other, and the germ of the altruistic faculty is born. The fruits of their combined labour being shared by both, the individual gain merges in the co-operative, without the individual losing the sense of personal advantage arising from individual effort. These are the first simple elements of the social organism. Every danger that threatens one threatens the other ; every advantage, broadly speaking, that is gained by one is shared by the other. Henceforth a bond has been established—an organic birth, so to speak, has taken place—which will go on growing, by addition of members, analogous to the cell process by which organisms are formed.

And as the formation of the organism goes on by the addition of cell to cell, increasing in complexity in accordance with the structure or type of the being to be formed, so the social organism goes on growing and increasing in complexity and perfection as the members increase in numbers. The growth of a community necessitates a multiplicity of wants, and endless contrivances for satisfying those wants in the easiest, most expeditious, and effective ways, resulting in what we call civilisation and progress. The community, as a whole, will have a unity of interest, and will contend against all other communities for every advantage. And as the social forces grow, the system will become more firmly organised and more completely co-operative, through the identity of interest caused by the never-ceasing interaction of all the members.

The analogy between the individual organism and the community may be extended still further, even to the dissolution of both. When the former has run its course and ceased to exist, it has left behind in the community all the influence for good or bad that it exercised during the period of its existence. No human being ever lived who did not influence, according to his capacity, all with whom he came in contact. Not from written works alone, or the material records of man's superior genius, is the public intelligence formed, but from the interfusion of all the individual influences of the community that ever lived, both great and small. Every single human unit, therefore, bears a part in the evolution of the sentient and intellectual life of a community, although the influence is not always towards the extension and elevation of the moral character.

In like manner, every community influences every other community with which it has dealings, and this in ways far too numerous and complex to specify. During the lifetime of a nation all that is evolved by its genius acts upon the whole civilised world, and even upon the parts that are outside the path of civilisation; and when the nation decays or dies out, it may be that, in addition to the influence it exercised in the world during its lifetime, it may leave behind it monuments of its genius which will serve to instruct and develop the mind of many future generations, as Greece and Rome did, for example. And thus the world, upon the whole, is ever evolving a greater degree of mind, and progressing in those institutions and arrangements on which human happiness and welfare depend. The sorrow is that progress should be so slow.

Considerations of this kind help to explain the development of the co-operative instincts and the intelligent social habits; and from them the moral sense, such as it is, has been evolved. It is the outgrowth of all previous development. As yet, however, the moral conscience, both individually and nationally, is in its embryonic stage, corresponding to the condition of the social organism in all other respects.

Man, socially, has scarcely yet thrown off his swaddling

clothes, and his progress towards that justice and culture which Aristotle says will bring happiness to our race is no further advanced. It is not an easy matter to attempt to explain the evolution of the moral sense. The gulf between the low forms of life and all that is involved in the highest morality is apparently impassable. The connection can only be realised in thought, by adequately appreciating the minuteness of all Nature's operations, and the long periods which are necessary to effect any changes in those directions which we characterise as growth and development. The idea contained in the saying of the German writer, "God sleeps in the stone, dreams in the animal, and wakes in man," carries a faint allegorical analogy, and is both beautiful and suggestive.

Between the lowest and the highest forms of the "brute creation" all men are prepared to admit that the differences are only in degree—all brute action being comprised under so-called *instinct* by those who maintain that there is a radical distinction in kind between instinct and reason. But no one has ever been able to show a *real* distinction. All that has been written in favour of classing them as separate in kind, by analysis, is resolved into mere verbal distinctions, having no foundation in fact.

Man performs certain specific actions for the attainment of certain specific ends, and we call this *reason*. The dog performs certain specific actions for the attainment of certain specific ends—as, for example, when he hides a bone so that it may not be eaten by another dog—and we call this *instinct*. Why? To this question no one has yet given a satisfactory answer. To say that man is *conscious* of his actions, and that the dog is not, is only to beg the question. There is no proof that the dog is not conscious of what he does; on the contrary, there is strong presumptive evidence that he is. It is an arbitrary assumption which is unsupported by facts.

The dog is indeed possessed of moral faculties in no inconsiderable degree. Detected in a wrong action, he at once manifests a sense of shame, especially towards those he loves. When death deprives him of his master,

he is fully conscious of his loss ; and no one can observe him closely without being convinced that he mourns the death of his friend in loneliness and heart-stricken sorrow. Watch the pleasure in his eye and bearing when those he loves speak kindly to him. And, above all, will he not jeopardise his life, and indeed sacrifice it freely, in defence of those to whom he is attached ?

Between man and dog, though the latter cannot use vocal speech, there is *real* converse. Among the moral faculties in man, what is there that the dog does not share in some degree ?

The non-progressive character of animals is now proved to have been an unfounded assumption ; and not only is it inconsistent with evolution, but it is also opposed to observed facts. We may therefore conclude, from a survey of all the facts within our knowledge, as well as on *à priori* grounds, that from the beginning of life in its lowest forms up to man, the evolution of mind has been one continuous, gradual growth, culminating in intellectual power and moral conscience, the material basis of which is chiefly the growth in number, quality, and combination of the brain cells. Probably every cell that is added to the brain increases its power ; and the main difference between the man of low intellect and the philosopher is one of difference in the quality and number of cells composing their brains. If this be so, what infinite possibilities await our race in the future, as the brain cells increase in number ; and all mental activity tends to their growth.

CHAPTER VIII

THE SOUL

EVOLUTION has shown us man's place in Nature ; and he can no longer be regarded as a specially created being, for whose use and enjoyment the world and all it contains have been provided. We now know that he is but a part of the great organic whole, and that his origin and his end are similar to those of every other animal. All the force and matter of his composition come from the earth ; and, we must conclude, at death return to the earth. And throughout the entire circle of his being it is beyond the power of conceivability to grant the creation at birth, or the annihilation at death of the smallest fraction of the matter and force which comprise his whole being. They are a part of the cosmos as we know it, and cannot be separated from it in thought even.

Life, which, so far as we know, is an expression of physical force, as well as the organic character in its fundamental relations, is common to all living things. And as man, in the beauty and perfection of his corporeal structure, is the highest outcome of the latter, so is he, in the combination, range, and power of his intellectual faculties, the greatest and most perfect manifestation and expression of the former. But the *universal* soul animates him, as it also animates everything that breathes ; and the life of the Protista may be as appropriately designated their soul as anything appertaining to man may be called his soul. The mechanical source of life is common to all organic creatures, and the physical structure, as we have seen, is built up on one universal plan, and with the same materials—yes, literally, with the *same* materials ; for the matter that composes every human body may, at dissolution, go towards the formation of other organisms. And, indeed, we know for a

fact that in course of time it *must* do so, since the matter of every organism goes back to the source whence it came, thus completing the organic circle.

The food of life, or organic material, comes from Nature's larder, and when the forms which she builds up have run their course, it goes back to Nature's larder again, ready to be served out in the formation of the endless varieties of the living world. And so on in one continuous circle, without cessation or end. In every instant of time the reciprocal actions of giving out and taking in are going on ; so that the larder, unlike that of the poor toilers of the earth, is never exhausted, but at all times contains a plentiful supply for all needs. Viewed as a whole, the organic world is an integral part of the earth, which takes shape continually in a multitude of forms, through which the stream of matter is constantly flowing ; and may be, not inaptly, illustrated by the simile of Zeno's cataract, mentioned in a former page ; only that instead of the entire matter being changed every few minutes, it takes some years to effect the process. In the case of man, it is said that the whole of the matter of his body is renewed once in seven years.

Viewing *life* on the earth as a whole, it also appears to be an integral part of the globe, a property inherent in matter ; and is, so far as we know, a mode of force, the total quantity of which remains always the same, neither more nor less.¹ When fire in the grate dies out, it means that the force which made fire visible to our senses has been absorbed by the surrounding medium ; but not a particle is lost or annihilated. When life goes out of us it may mean, in like manner, that the force which kept life in us has travelled off in another direction ; that there has been a rearrangement of molecular combination, due to altered molecular motion ; but every particle of the force continues to exist under other modes.

All these forms, we must bear in mind, are only relative to our senses, through which alone we can have any knowledge of the external world. The quantity of

¹ See Sir W. Grove's "Correlation of the Physical Forces."

this life force, under the aspect of intelligence, is regulated by the growth and complexity of the organism throughout the animal kingdom. Comparative anatomy reveals the fact that as the nervous system (brain included) in animals increases in complexity and perfection, so to the same degree do they rise in intelligence; *i.e.*, between complexity of structure of the nervous system and intelligence, there is a direct and constant ratio which holds from the lowest form of life up to man.

If evolution is true, the popular conception of the human soul would appear to be erroneous. To scientific truths we must perforce give our assent, as the most certain of human knowledge; and they point to life in all its phases as identical with what we know as physical force. There appears to be no escape from the conclusion that the soul of man is included in this force, and has, therefore, no separate existence apart from it. Evolution irresistibly forces this upon us, and compels us to regard the soul as in no way differing—except in degree of development—from every other manifestation of life in the organic world.

The soul, according to the doctrine of gradual development, emerges from its environment, and at the dissolution of the organism returns to it, together with the matter of the organism of which it is but a property; similarly, the life or soul of every other animal is a part or mode of general force, to which it returns at death. Anyhow, whatever views may be entertained respecting the nature of life or soul, the ultimate rational analysis must rest in *force*; and the human soul, as well as the life or soul of every other creature, must be regarded as a product of Natural Law—a part of an inseparable whole, embracing, at least, the entire world that we inhabit.

The conservation and correlation of force teach that the sum total of force is an absolutely constant quantity, which can neither be diminished nor augmented by the smallest conceivable fraction. But if it were true that, at the birth of every human being, a soul was *created*, then, with the advent of each child, a new and additional

force would be added to the force already existing, which would be a contradiction of the law of the conservation of force—a denial of the truth of one of the most important laws of Nature.

The question, Will the intelligence or mind that has been evolved in this condition of life survive, and live on in another condition, in a world of its own, here or elsewhere? is a mystery which no religion has touched from any intelligible or rational standpoint. The late Mr. F. W. H. Myers, in his "Science, and a Future Life," seemed to believe that it would survive; and that it would still continue subject to the laws of evolution, and to develop and grow without limit or end.

Ether, when we know more about it, may have something to say about psychical phenomena; but how far it will help to lift "the veil" only the future can disclose. We must bear in mind that *rational* man is in his infancy, that he has lived only a few thousand years as yet, and that, according to science, he has to live on this earth several millions of years. What knowledge, therefore, he may attain to in his maturity is beyond the power of conjecture.

Accepting with unquestioning faith the Bible, men have been driven into many untenable positions; and committed themselves to extraordinary theories, in order to make the Biblical narrative agree with the subjects of their study. Haller, the distinguished physiologist, propounded the theory that in the beginning God created all the souls of the human race—200,000,000,000, he calculated—and placed them in the ovary of our mother, Eve. This conclusion was fully accepted by the famous philosopher, Leibnitz, and embodied in his monadist theory. Absurd as it may seem to-day, it met with wide acceptance, and was known as the "scatulation theory."

We know that the soul is subject, like all organic Nature, to growth and decay. The new-born infant manifests no consciousness of its actions, they being automatic or reflex. The intelligent or conscious principle grows with the growth of the body, and decays with the decay of the body; thereby further proving its

kinship with, and subjection to, the controlling principle of growth and decay on this earth.

In all its manifestations from birth to death it is under the influence of the physical laws of Nature, inasmuch as we know that it is affected by the conditions of the body. So far, therefore, as positive knowledge can prove anything, in regard to so mysterious a subject, we must come to the conclusion that the soul is an inseparable part of this world—can neither be brought to it at birth nor taken from it at death.

Evolution supposes that from the lowest form of life up to man the development of the soul has been a gradual, continuous process, *the same in KIND throughout the long series.*

This is a very important consideration bearing upon the nature of death. It seems to merge the human soul in the mundane soul, and to make it an inseparable part of cosmic force, of which it appears to be a mode. In the economy of Nature it seems to give as distinct and as *important* a personality to the lower forms of life as to man. The claim upon Nature of the tiny creature, too small to be seen by the naked eye, is co-extensive in character with that of man—nay, that of the little speck of living slime is equally so. From these considerations it would appear that the millions of human beings that come and go are of no more consequence to universal Nature than the millions of other organised beings that come and go; that the earth is indeed the great Mother of *all*, and that all things that draw the breath of life are equally her children; to one and all of whom her laws are extended without distinction or favour, from the blade of grass, if you like, up to man.

Averroes, in the twelfth century, believed in the unity of the intellect—that each individual soul was but a part of the universal soul, to which it returned at death. He anticipated the modern theory of evolution, regarding the soul as a part of universal force.

To ascribe to man a “psychical principle” or soul different in *kind* from the intellectual life of animals, while admitting his gradual development through lower

forms, necessitates a superimpregnation of soul in man at some period of his development, which, by breaking the continuity and unity of Nature, is incompatible with the theory of evolution. Moreover, it gratuitously introduces an element of greater complexity and uncertainty; for if we suppose that man is distinguished from the lower animals by the possession of a soul, and grant that he and they have a common origin, the question arises, At what particular period, and how did he become possessed of this soul? Admitting the theory of evolution, the special soul idea has little or no validity; and is not only incapable of proof, but receives no support from any branch of positive knowledge. There appear to be two conceptions of the soul by which human life can be interpreted in terms intelligible to us.

One is the existence of a Universal Intelligence, to which the soul returns at death, as the body returns to the matter of sense. This is cognisable, if we rest content with postulating the Universal Intelligence, without attempting in any way to define it. It is evident that this does not help us much to a clearer idea of the soul; and is tantamount, many will contend, to saying that the soul comes from God and goes back to Him—everything depending, of course, upon our conception of God. As soon, however, as we attempt to define the Intelligence or God, the soul is no longer interpretable in terms of knowledge.

The other is the conception of an underlying or interfusing Force, one property of which is life, in all the grades known to us, from unconscious (if it be unconscious) protoplasm up to conscious man. The existence of this property is made manifest to us by certain molecular arrangements; and disappears from the organism and from our view the moment rearrangements of certain kinds take place, or what we might term a redistribution of matter and force.

The main difference, it seems, between these two ideas is that, whereas the first supposes the existence of a part of the universal intelligence to be located in the human being for the time, and separated from the whole, as a

drop of water from the ocean; the second regards the soul not as separated from the universal force, but as inseparable from it, and merely one of its qualities, which at death is transformed into some other quality, and disappears from our sense perceptions, as a flame disappears when it is blown out, though nothing has been annihilated. The former is Brahministic, the latter Buddhistic, and both rest on postulates which are incomprehensible, and, in their ultimate analysis, indistinguishable from one another. The modern ideas are more in sympathy with the latter, regarding the concept of force as the limit of inquiry. And this idea has pervaded the great minds of the world from the earliest times to the present. Under both ideas *all* animal life is included.

Many have regarded life, thought, consciousness as constituting the soul of man. This appears the most rational view, and best accords with evolutionary thought. But while the soul may be nothing more than these three manifestations, it is certain they differ from one another. Thinking can be very active when the thinker is in a perfectly unconscious state, as Dr. Carpenter has shown in his "Mental Physiology." How these psychical manifestations are created in the brain we shall see presently. While there can be life without thought or consciousness, and thought without consciousness, it does not appear that there can be consciousness without the other two. Thought and consciousness are twin-sisters, and more nearly allied to each other than either of them is to life, being more recent products of evolution. Between life and consciousness, however, there is a deeper distinction, since life continues when consciousness has entirely disappeared, as in sleep. In a perfectly dreamless sleep the functions of the body go on, while, to all intents and purposes, the consciousness is quite dead. When I am perfectly unconscious it matters little to me, for the time being, whether I am alive or dead; and, so far as regards all the states of my mind, I am really dead, being as incapable of feeling pleasure or pain as an inanimate object. The question is, Are consciousness and the soul one and the same thing, and

due to molecular construction and brain organisation? And if so, is consciousness a mode of physical force?

If we regard consciousness as constituting what we term the soul, and due to material organisation, then at the dissolution of its seat of manifestation—the brain—it must disappear; but we know that it disappears under other conditions than those of dissolution of the brain. Is it possible for the consciousness to survive the entire destruction of the organism? If it be, then a future life seems possible; but not otherwise. We know that it is quite easy to produce an abnormal physical condition in which the consciousness ceases to exist for the time, so far as we know.

Suppose a person under the influence of a powerful anæsthetic, in which state for several hours the consciousness has been as dead as a stone, and the human machine has been as near as possible on the point of stopping altogether, is it conceivable that at the exact moment when the heart gives its last faint beat the consciousness will awake in another world? or in this, and take its flight to another place? If so, it must be under conditions entirely beyond the power of science to conjecture; and those who maintain this belief do so as a matter of *feeling* only. There is no disputing the question with them; it can neither be proved nor disproved, nor can they be dislodged from their position by human knowledge.

When we are in profound sleep, where is our consciousness? The activity of the brain is correlated with consciousness, and is a concomitant of dreaming. Here, again, would appear to be a proof that consciousness is a property of the brain activity, and inseparable from it as an entity. In many ways we infer that consciousness is a property of brain matter; but there is not a single instance in human experience of its ever having existed apart from the brain. All experience goes to prove that it is a property of organic matter. Are we to suppose, then, that it will still continue to exist after the organism has been completely destroyed and resolved into inorganic matter? Science, experience, analogy offer no

warrant for such a supposition ; feeling alone is the only warrant for it, such as it is.

It is now *known* that the actions of the mind are located in certain parts of the brain, and that they are entirely dependent upon the healthy condition of that organ. Physiologists and psychologists are agreed that all the phenomena of mind are functions of the brain, and that "even that special part of the mental life known as the moral realm cannot exist but as a concomitant of special changes in the brain."¹ No mental process whatever can occur without a corresponding molecular change in the brain matter. All mental activity is absolutely dependent upon the physical activity of the matter composing the brain.

"Physiological observation and experiment determined twenty years ago that the particular portion of the mammal brain which we call the *seat* (preferably the *organ*) of consciousness is a part of the cerebrum, an area in the late-developed grey bed, or cortex, which is evolved out of the convex dorsal portion of the primary cerebral vesicle, the fore 'fore-brain' . . ."

The most important development is the discovery of the *organs of thought* by Paul Flechsig, of Leipzig ; he proved that in the grey bed of the brain are found the four seats of the central sense-organs, or four "inner spheres of sensation"—the sphere of touch in the vertical lobe, the sphere of smell in the frontal lobe, the sphere of sight in the occipital lobe, and the sphere of hearing in the temporal lobe. Between these four "sense-centres" lie the four great "thought-centres," or centres of association, the *real organs of mental life* ; they are those highest instruments of psychic activity that produce thought and consciousness. In front we have the frontal brain or centre of association ; behind, on top, there is the vertical brain, or parietal centre of association, and underneath the principal brain, or "the great occipito-temporal centre of association" (the most important of all) ; lower down, and internally, the insular brain or the insula of Reil, the insular centre of association. These four "thought-centres," distinguished

¹ Dr. McKim, "Heredity and Human Progress."

from the intermediate "sense-centres" by a peculiar and elaborate nerve-structure, are the true and sole organs of thought and consciousness. Flechsig has recently pointed out that, in the case of man, very specific structures are found in one part of them; these structures are wanting in the other mammals, and they, therefore, afford an explanation of the superiority of man's mental powers.

"The momentous announcement of modern physiology that the cerebrum is the organ of consciousness and mental action in man and the higher mammals is illustrated and confirmed by the pathological study of diseases. When parts of the cortex are destroyed by disease their respective functions are afflicted, and thus we are enabled, to some extent, to localise the activities of the brain. When certain parts of the area are diseased, that portion of thought and consciousness disappears which depends on those particular sections. Pathological experiment yields the same result; the decay of some known area (for instance, the centre of speech) extinguishes its function (speech). In fact, there is proof enough in the most familiar phenomena of consciousness of their complete dependence on chemical changes in the substance of the brain. Many beverages, such as coffee and tea, stimulate our powers of thought; others, such as wine and beer, intensify feeling; musk and camphor reanimate the fainting consciousness; ether and chloroform deaden it, and so forth. How would that be possible if consciousness were an immaterial entity, independent of these anatomical organs? And what becomes of the consciousness of the 'immortal soul' when it no longer has the use of these organs?"¹

That the faculties of the mind are located in different parts of the brain seems to be corroborated by well-known instances of people possessing extraordinary intellectual powers in some directions, while being almost entirely deficient in others. Newton's brain-power in all matters appertaining to physical science was unequalled; yet on questions of theological dogmas the critical faculty was almost non-existent. Several "calculating"

¹ Professor Haeckel, "Riddle of the Universe."

youths, while possessing prodigious memories for figures, and aptitudes for complex calculations, have been, in all other respects, in no way remarkable for superior intelligence. Many instances of like character will occur to the reader, illustrative of the physiological doctrine. If the *full* power of the mind acted on all subjects presented to it, the presumption is, these phenomena could not occur. If Newton could have turned his unrivalled mathematical faculty upon the Bible, he never would have believed in creation in six days.

It is, moreover, scientifically certain that we do not possess the power of free will, but that all our thoughts and actions are determined by preceding conditions. In the mental as in the material world, cause and effect rule us. If we could trace it, we should find that every thought is linked to some preceding thought, by which it was necessitated; every action is the result of preponderating motives; and what we call our *will* is apparently nothing more than our *consciousness* of our physical and mental activities. If the will is free, the basis of scientific reasoning, that for every effect there is an efficient cause, is false; but we know that it is not false, as certainly as we know that we exist. In the chain of cause and effect there is no beginning and no end; and all that appertains to human life is held, like everything else, in the universal nexus. Paradoxical as it may seem, freedom of the will is only conceivable on the inconceivable postulate of infinite, unconditioned, absolute existence; and certainly no man will claim for himself such existence.

Inasmuch as consciousness and will appear to be identical, it would seem that the recognition of consciousness is the same as the recognition of will; but the recognition of consciousness would necessitate another conscious self within us; and therefore the recognition of the will would also necessitate the existence of another consciousness, which is absurd. This brings us to the insoluble problem of what consciousness is in itself. We know some of the physical

conditions under which it comes and goes, and there we reach the limit of our present knowledge.

Whatever views may be held in future respecting another life, the Christian doctrine of the resurrection of our bodies can no longer be accepted. One consideration alone would prove the physical impossibility of such a thing. It is admitted that the *matter* of which we are composed belongs to the earth—that every particle of our bodies comes from the earth, and returns to it at death and dissolution. The available material, therefore, is limited and fixed; and it is an obvious fact that, if we assign to the existence of man anything like the scientific age, the whole of that available material will not be sufficient for all the human bodies that will have to take their departure at the end of the world.

As an argument against the resurrection of the body, it has often been pointed out that, in the course of years, the matter composing any human being may be scattered over the earth; and if the body is to rise again at the last day, millions of particles will have to be recollected from all parts. This argument, however, is only one of improbability; it supplies no proof against the doctrine of resurrection. It is quite otherwise with the question of the *quantity* of the human material. If all the human beings that have ever existed in the world have to rise again in their bodily form at the “day of judgment,” it is certain that they cannot appear unless all the matter of their bodies can be found; and it is equally certain that the mass of matter composing the whole human race from first to last would exceed many times over the total quantity of matter on this earth of which the human body is composed. We saw in a previous chapter that organic matter is used over and over again in the formation of living bodies; so that, in raising the dead, it will be found that the same matter has gone towards the formation of countless human and *other* creatures. *Neither the same bodies, nor an equal number, can, therefore, ever exist again.* That is obvious; and it effectually disposes of the doctrine of the resurrection of the body.

From every reasonable argument, we may conclude that the planets of our own and other systems are inhabited; and that life and death have been going on indefinitely in the past, and will go on indefinitely in the future. What, then, is to become of the infinite number of existences when they enter into their immortal life? When this world has run its course, it will have produced so great a number of human creatures, that if they were all to reappear, there would not be standing room for them; and the same may be inferred of every other world in the Universe.

Is this universal and infinite process of birth and death a rational ground for belief in personal immortality? Or is it not rather a strong argument against it? Hume long ago wrote: "How to dispose of the infinite number of posthumous existences ought also to embarrass the religious theory. Every planet in every solar system we are at liberty to imagine peopled with intelligent mortal beings; at least, we can fix on no other supposition. For these, then, a new universe must every generation be created beyond the bounds of the present universe, or one must have been created so prodigiously wide as to admit of this continual influx of beings. Ought such bold suppositions to be received by any philosophy, and that merely on the pretext of a bare possibility? . . . There arise, indeed, in some minds some unaccountable terrors with regard to futurity; but these would quickly vanish were they not artificially fostered by precept and education. And those who foster them, what is their motive? Only to gain a livelihood, and to acquire power and riches in this world. Their very zeal and industry, therefore, are an argument against them."¹

Again, what do we mean by a future life? The only thing about us that can be annihilated is consciousness. Matter and force remain indestructible. It matters not to me here whether or not I had a previous existence, inasmuch as the continuity—if I had a past life—was broken, and I am, therefore, like two different persons. By a future life, for the same reason, we must mean a

¹ David Hume, "On the Immortality of the Soul."

prolongation or survival of our consciousness, a carrying with us to the next world of all our knowledge and remembrances of this, so that we may meet and know again those whom we knew in this life. This presupposes an indestructibility of consciousness, by the terms of the argument ; but we know from experience that the consciousness is temporarily destructible. Is that temporary destructibility, then, only possible while the brain is a living organ, and impossible the moment it ceases to be a living organ? Such an assumption seems almost a *reductio ad absurdum*.

Science and experience offering no warrant for a belief in a future life, we must fall back again upon feeling ; and what does this amount to? We desire, passionately long, many of us, to live beyond this life, to meet again those who are gone from us, and whom we loved ; we shrink from the thought of annihilation, *eternal nothingness*, when this life of disappointments and sorrow is ended. We think of our parents, of our wives and children, of our friends, and the *heart* repudiates the justice of any divine ordinance which has brought into being so much love and affection only to be destroyed for ever in the grave.

In every human life a tragedy is enacted, and we instinctively yearn for a better and happier home hereafter, where the soul's hunger shall be satisfied, and all the weary unrest shall be ended ; when brotherly love shall take the place of strife, and the heart shall know no more sorrow.

We look into this vast fabric of Nature, with all its solemn grandeur, until the mind becomes bewildered and lost in the awful immensity ; and we ask ourselves in fear and dread if there is never, in all the ages to come, to be any explanation of the great mystery. Eternity behind us, eternity before us ; our lives a mere speck in the everlasting, illimitable void ! The thought appals us, the intellect is distracted, and the soul takes refuge in emotional aspiration.

Philosophy interposes, and in the higher regions of thought declares that *explanation* is an inconceivability, that the conditions of our mental constitution and pro-

cesses of thought confine us absolutely to the human circle, beyond which the mind is impotent to act. Strive as we may to penetrate the "hereafter" in search of some satisfaction to the eternal craving for a solution of the mystery, those conditions inexorably draw us back to this finite life; and dissolve the fabric of every *intellectual* aspiration which we build with the materials of experience. And what other materials have we for even the highest and most abstract flights of the mind? A future life is unthinkable, God is inconceivable, and yet, as George Eliot said, duty remains as the most imperative of all calls upon us in our social relations. It is a profound mystery about which science and philosophy must be silent, and the emotional cravings confined to each individual.

CHAPTER IX

EVOLUTION OF RELIGIOUS IDEAS

To understand the genesis of religions, we must trace them back to the origin of the religious ideas. Each religion claims for itself an independent and supernatural origin, while to all others it ascribes a *natural* origin only. It is evident, then, that to investigate the subject with an unbiassed, impartial mind, the investigator must himself be free from the dominating influence of any particular religion. Where faith exists, the reason is necessarily non-existent. "Where faith begins, knowledge ends."

At the same time, while claiming the right to treat the subject of religion as a branch of human knowledge, and by those methods of investigation which we apply to every other subject of inquiry, I am not unmindful of the obligation which is imposed upon us all to hold in respect those opinions and beliefs in which many generations of men have lived and died. I am fully impressed with all that is expressed and implied in the beautiful words of Dr. Draper: "No spectacle can be presented to the thoughtful mind more solemn, more mournful, than that of the dying of an ancient religion, which in its day has given consolation to many generations of men."

However untenable to us may appear many of the religious beliefs of the past, we must bear in mind that they were matters of solemn and deep concern to those who held them; and that as we, with our greater knowledge, look back upon those religions, so will our descendants in a still more enlightened age regard the faiths of to-day. Religious conceptions in all ages are relative to intellectual progress, and to this law there is no exception.

Another great truth which modern research has brought to light is, that no religion has, properly speaking, a *de novo* beginning, but all are derived more or less from pre-existing forms. In this respect religions, like everything else, obey the great law of evolution; they are all unfolded from and built up upon previously existing elements. They are all more or less derivative, and the chief doctrines may be said to be common to most of them. From the earliest attempts of human reason, so far as we can trace them, to account for the mysteries of Nature and of life, down to the present moment, all that is included under the name of religion has been a long, continuous series of growth and development, under the evolutionary law of inheritance and adaptation.

In early times, when, so far as we know, man was unacquainted with any of the laws of Nature, or, at all events, had but the most primitive knowledge of them, it was a necessity of his ignorance that he should ascribe natural phenomena to beings similar in Nature to himself, but endowed with far greater powers, as savages and barbarous peoples do to-day in many parts of the world; and, indeed, as we ourselves did only a few generations back. In the infancy of his mind man had no guide within himself either for the regulation of his material concerns or for those inward necessities of thought and feeling which exist even in the earliest and most backward races of men. And, consequently, external Nature had for him a direct, close, and personal significance.

The vastness of the Universe was a thought that never entered his mind, and one which he was as incapable of entertaining as would be the child just learning to lisp its mother's name. The uninformed, undeveloped mind looked through its senses out upon its surroundings, and the information they conveyed was neither more nor less than the mind was capable of receiving and assimilating. His mind was able to receive and assimilate very little, indeed; and hence his natural habitat appeared to him a simple thing of very small dimensions. His helplessness being great and his conscious-

ness of power very small, he was peculiarly susceptible to outward impressions; and he possessed an inherent tendency to personalise all natural phenomena, especially those from which he could suffer in any way, and to project into them the attributes with which he himself was endowed.

The continuity of mental sequence receives a remarkable illustration in the parallel processes of the mental activities of early man, and those of some thinkers of modern times. As early man endowed external Nature with his own personal attributes, so do the thinkers referred to make the law of their own conceptive faculty the law of Nature. Only the thinkable is possible. "I perceive," says the thinker, "the order of Nature occurring in the only manner in which I can *think* the succession possible." And he concludes: "It is human thought which dictates the laws of the Universe; only what man *thinks* can possibly *be*. . . . Nay, paradoxical as it may seem, there is much truth in the assertion that it is the mind of man which rules the Universe."¹ Across the long ages primitive man and the philosopher may, therefore, shake hands. The categories are different, but the unity is complete. The real mystery is as great to us as it was to him.

For the most primitive form of the historical religious idea we must go to Egypt; not that Egypt was the birthplace of religion, but because it contains for us the oldest germs on record. The Egyptians themselves, as Herodotus tells us, probably looked back upon much older civilisations, which have completely passed away, and left behind them no monumental vestiges of any kind whatsoever. If this were so, probably the earliest Egyptians derived their ideas from still older peoples; and we may almost conclude from comparative sociology that this was so to some extent.

In reality, we cannot get to the origin, *i.e.*, the absolute beginning, of the religious ideas. So far as is known, the glimmering consciousness of the anthropoidal apes may be imbued with a dim conceptual feeling, and a vague, unformulated perception of the mystery of their

¹ Karl Pearson, "Ethic of Freethought," p. 31.

being. But we need not go beyond man in the early stages of reason for the ideas we are in search of. A wide range of induction, extending over several thousand years, and in all parts of the world, is at our service, supplying us with innumerable facts as to the mental processes by which all races have evolved their supernatural beings, or gods. As some of those processes of primitive times survive in forms which have come down to us, and are still in use, so in like manner we may see them operating at the present time among uncivilised races in many parts of the world.

There are chiefly two groups of facts from which man originally created his gods, though they meet and coalesce in many points in the mental and emotional processes of manufacture. One is the apotheosis of the material objects of sense; the other the apotheosis of chiefs and other great personages, and the subjective states of dreams, etc., giving rise to a belief in the existence of an incorporeal double or ghost. These are apparently the chief elements out of which *all* the religions of the world—the dead, the dying, and the living—have been evolved; and there is not *one* religion which, in its chief dogmas, does not contain proofs of its origin.

It will help to an understanding of the workings of the intellect, through which the idea of a deity has been obtained, if we keep before us the important truth that the mind cannot be reached or acted upon, can receive no impressions or ideas, except through the medium of the senses. Whatever mind in itself may be, it is quite certain that all our knowledge of the external world is derived through the intermediate agency of the senses; and this is the basis of *all* ideas. This fundamental law is irresistible in destroying whole hosts of religious myths in all creeds. Indeed, I think we might go the length of saying that, if rigidly and logically applied, it would dissolve the whole fabric of theological dogmas. This, however, though I believe it to be literally true, is a wide generalisation, and is as easily denied as affirmed. Its truth, I hope, will appear manifest as we proceed.

The two most powerful agents in man in giving birth

to religious ideas are *Fear* and *Hope*. In early ages, when men were struggling painfully and slowly out of savage and barbarous conditions, and when little, if any, progress had been made in combating the forces of Nature and making them subservient to their use, they were the helpless victims of such forces. The thunder appalled them, the lightnings scared them, and the wind and rain produced suffering and misery in many ways. Inundations swept away their homes, destroyed their crops, flocks and herds—in later, though still comparatively early, stages—and wrought devastation and ruin to themselves and those they loved.

The activities of Nature could only be paralleled in the mind of early man by personal activity. Inanimate Nature around him could not move except by the action of living agents ; and he came, by the force of analogy, to look upon the elements as living beings like himself, only much more powerful. The elements injured him, and the spectacle of oppression being familiar enough to him in all his human relations, analogy again directed him, and he supplicated the elements with prayer and propitiatory offerings, as he did the powerful human beings who controlled him, and very often made him suffer. A deafening clap of thunder bursting suddenly over his head, accompanied by a flash of lightning, rifting and blasting great trees, and dealing death and destruction around, were to his simple mind irresistible and awful portents of the wrath of mighty celestial beings, before whom, in his fear, it was the most natural thing that he should prostrate himself, and offer up prayer.

In time these malevolent gods grew into a hierarchy of many grades, and became as numerous as the ills and misfortunes of life. In every religion known to man the evil gods have had their place. These supernatural beings have played in the Christian religion, as everyone knows, a prominent part ; and it is only comparatively recently that belief in numerous devils has given place to a belief in one only. And possibly his Satanic Majesty is now on his way to follow the rest of his brethren.

Concurrently with belief in evil gods arose belief in good ones. After the raging elements have subsided, the genial sun comes forth to warm and cheer the poor victim, producing a sense of comfort and happiness. The sun was a very real and beneficent thing to early man, as, indeed, it is to all of us. He felt its benign influence in a hundred ways. In its absence reigned the evil influences which worked him mischief; and when it reappeared the whole aspect of Nature was changed, and his fear gave way to confidence, love, and hope. And he looked upon the sun as the chief among the good gods, whose mission it was to chase away the evil ones, and minister to his comfort and happiness in an endless variety of ways.

So with the moon: it drove away to some extent the darkness, which to the mind of primitive man was a real presence, giving shelter to a host of evil ones. The calm light of the moon had no terrors for him; on the contrary, its mystic splendour entered deeply into his dark, clouded soul, and produced a soothing effect, which perhaps helped greatly to unfold and develop his dawning intelligence.

We may, in imagination, transport ourselves back into the early part of man's life, and picture him regarding wistfully, and with feelings of wonder and admiration, not unmixed with some awe, the bright full moon shedding its peaceful light over the hushed and quiet landscape. Such scenes must have exercised considerable influence over the mind in the earliest stages. And even to us now a bright moonlight night is not without its influence in developing the intellect by intensifying thought and emotion. The moon, therefore, was regarded as one of the good gods.

“The sun and moon move as living gods in the heaven, or at least are drawn or driven by celestial powers, while the presence of living beings in the sky seems peculiarly manifest in eclipses, when invisible monsters seize and swallow the sun and moon. All this is very natural; so natural, indeed, that more correct astronomy has not yet rooted it out of Europe.”¹

¹ E. B. Tylor, “*Anthropology*,” p. 332.

The stars, in much more complex ways, influenced the minds of the early Egyptians in evolving their multitudinous gods. The configuration of the country, the climate, and especially the annual overflowing of the Nile, were in great measure answerable for the initiatory processes. Those who are desirous of believing that man has *degenerated* from the perfect condition of the inhabitants of the "Garden of Eden" would have us believe that the gods of Egypt were symbols of the attributes of one god, and that in the earliest times the Egyptians worshipped one deity only. But this appears to be a gratuitous assumption, and as void of foundation as the myth about the Garden of Eden itself. The deified animals, etc., bore incidental relations to the stars, and hence came to be identified with them and their supposed influences. The simple, untutored mind, having noticed that certain stars were invariably visible at times when certain animals were most in evidence, formed such groups of stars figuratively into the animals in question, and gave to each group the name corresponding to each animal. In this way the constellations were formed, and both came to be regarded as gods.

It is surely paying the Egyptian character a poor compliment to assume that after having arrived at the advanced conception of the unity of the deity they should have symbolised his attributes in all the animals of the country, and offered to them the homage and worship which they formerly bestowed on their one God only. Those who accept this view are landed in this paradox, viz., that while the intellect of Egypt progressed in every other respect, in that of theology alone it retrograded and became demoralised. While it was making great strides in all the arts and sciences of life, and growing into a powerful nation, it was at the same time becoming enfeebled in intellect in the matter of religion.

Necessity is ever the source of invention. And when the first tribes of Egypt turned their attention to agriculture, they found it necessary to establish means by which to calculate the recurrence of innumerable events; such, for example, as the duration and succes-

sion of the seasons, months, and years, the periodic return of similar operations of Nature, etc. For this purpose it was necessary to study the motions of the heavenly bodies—sun, moon, stars, and planets—which, by their reappearance at fixed intervals, enabled them to measure regular periods of time ; and so regulate by them their agricultural operations.

All motions in those days were associated with life, and accordingly the heavenly bodies were believed to be powerful celestial beings, and in some cases the bright abodes or palaces of those beings. They were looked upon as the governing powers on earth, and soon a hierarchy of grades grew up among them, to each of which were assigned special functions. And thus the simple worship of the stars grew up among the ancient Egyptians. How they came to be identified with the animals is ingeniously shown in that most remarkable work, Volney's "Ruins of Empires," in which he traces the origin of all religions to nature myths.

For the genesis of deity, then, under every conceivable form, as also for the origin of the belief in the survival of the soul after death, we must go back to uncivilised man, though it is true many races have existed, and do exist at the present moment, without the slightest idea of God, soul, or a future state. It is well known, from a wide induction of experience, that there are many primitive people who do not possess any religious conceptions whatsoever. It is also known that among civilised peoples those minds which through defective senses have been cut off from instruction have no religious ideas.

The universality argument therefore falls to the ground, since it is proved conclusively that the ideas of a deity and of a future life are not innate in the human mind ; but, as we shall see, are arrived at, as every other item of knowledge is reached, through the experience of the senses. Those who wish to know how absolutely non-existent among many races are all religious ideas should consult Sir John Lubbock's "Prehistoric Times," and his "Origin of Civilisation." In these works will be found ample evidence that religious ideas cannot have that supernatural origin which is commonly claimed for them.

The following conversation, which took place between Sir Samuel Baker and a chief of the Latooki, a Nile tribe, is instructive in many ways. I have taken it from Mr. Herbert Spencer's "Ecclesiastical Institutions," a work to which I am much indebted.

"Have you no belief in a future existence after death?"

Commoro (loq.).—'Existence *after* death! How can that be? Can a dead man get out of his grave unless we dig him out?'

'Do you think man is like a beast, that dies and is ended?'

Commoro.—'Certainly; an ox is stronger than a man; but he dies, and his bones last longer; they are bigger. A man's bones break quickly—he is weak.'

'Is not a man superior in sense to an ox? Has he not a mind to direct his actions?'

Commoro.—'Some men are not so clever as an ox. Men must sow corn to obtain food; but the ox and wild animals can procure it without sowing.'

'Do you not know that there is a spirit within you more than flesh? Do you not dream and wander in thought to distant places in your sleep? Nevertheless, your body rests in one spot. How do you account for this?'

Commoro (laughing).—'Well, how do *you* account for it? It is a thing I cannot understand; it occurs to me every night.'

'Have you no idea of the existence of spirits superior to either man or beast? Have you no fear of evil, except from bodily causes?'

Commoro.—'I am afraid of elephants and other animals when in the jungle at night, but of nothing else.'

'Then you believe in nothing—neither in a good nor evil spirit? And you believe that when you die it will be the end of body and spirit; that you are like other animals; and that there is no distinction between man and beast; both disappear, and end at death?'

Commoro.—'Of course they do.'

Baker then repeats St. Paul's argument about the decaying seed, to which *Commoro* replies:

"Exactly so; that I understand. But the *original* grain does *not* rise again; it rots like the dead man, and is ended; the fruit produced is not the same grain that we buried, but the *production* of that grain: so it is with man—I die, and decay, and am ended; but my children grow up like the fruit of the grain. Some men have no children, and some grain perish without fruit; then all are ended.'

It will be seen that though this chief had no belief in a future life, and no idea whatever of any distinction between man and beast after death, he yet had very correct knowledge of the natural laws of generation and decay; and in this respect showed himself, as Mr. Spencer says, "to be more acute than his questioner." There is matter for reflection in this conversation. The highly civilised, cultured, Christian gentleman, on the one hand, and the uncivilised, uncultured savage on the other, stand upon the same level as regards all positive knowledge of the subject of the Christian's interrogatories. The question is, How did man first come to believe that he had a soul which survives his body?

At the earliest dawn of intelligence the mysteries of death, sleep, and other unconscious states necessarily force themselves upon the mind. The uncivilised man lies down, and becomes for several hours oblivious of the actions of his senses and all around him, and, when not dreaming, quite unconscious of his very existence. Under the influence of some fits he appears quite lifeless, and those around him are unable to say whether or not he is living or dead. And when death has really taken place, the body is rarely disposed of until decomposition renders it absolutely necessary. During the unconscious state of sleep he sometimes dreams, and on awakening he remembers, with more or less vividness, having performed certain actions, held conversations with certain people, and travelled about to different places. In short, he is quite convinced that during the hours his body lay in one place motionless, helpless, unconscious, some other part of him was awake and active, and going through the ordinary routine of daily life. In his waking hours these dreams bear a close resemblance to his remembrance of actual events in his life; and the conclusion seems irresistible to him that, in addition to his bodily self, he must possess another and unsubstantial self.

This belief would be strengthened in many ways. Does he not frequently see this "double" of himself following him about in the shape of his shadow, and vanishing and returning in the most unaccountable

manner? Mental visions are familiar to him, as they are to man in every stage of civilisation. Many of his nervous states would impress him with a feeling, amounting to conviction, that he was surrounded by unseen living agents. And how could he account for such existences, other than by ascribing them to the doubles, ghosts, spirits, or souls (they all mean the same to him) of those whose bodies were quiescent for the time being in death or otherwise? Manifestly the ghost theory is the simplest and most natural that could possibly occur to the untaught mind. Nay, does not the belief in ghosts hold its own to-day among millions in the civilised parts of the world?

Along with belief in the existence of the double which survives the bodily life goes the belief that this spirit possesses supernatural powers for good or for evil. And it is worthy of note, as significant of the purely natural genesis of the spirit idea, that the influence ascribed to the dead is in proportion to the power they exercised while in the bodily life, and the propitiatory offerings the same in both conditions.

In Australia, when a chief or other notable personage dies, the medicine-man—who, according to Mr. Herbert Spencer, corresponds to our clergyman—sits beside the grave praying to and praising the deceased, and listening for his replies. The medicine-man is the mediator between the superhuman spirit of the departed chief and his tribe; and he takes care that the spirit shall be very peremptory and precise in his injunctions to the tribe to bestow abundance of worldly goods on the medicine-men.

The supernatural power ascribed to the spirits of the dead causes them to be worshipped as gods. The Japanese say “that the spirits of the dead continue to exist in the unseen world, which is everywhere about us, and that they all become gods of varying character and degrees of influence. . . . The gods who do harm are to be appeased, so that they may not punish those who have offended them; and all the gods are to be worshipped, so that they may be induced to increase their favours.” From this we conclude that the Japanese gods have been

derived from the spirits of the dead. In India, also, divine honour is paid to the spirits of departed chiefs. Again, among the early Greeks, down to the time of Plato, the belief strongly prevailed that it was necessary to avert the wrath of the departed by the observance of prayers and rites. Mr. Herbert Spencer says: "We get from this kinship of beliefs among races remote in time, space, and culture, strong warrant for the inference that ghost-propitiation is the origin of all religions. . . . That religions in general are derived from ancestor-worship finds proof among all races and in every country."

The doubles of the dead are with all peoples the same as the living in their appetites and passions; and there is a close parallel between the imagined occupations of the spirits of the other world and their life in this. Even among advanced peoples the social arrangements here are believed to be repeated hereafter in heaven, where the gods are pictured seated on their thrones in their palaces, administering justice, receiving the homage of their subjects, and otherwise re-enacting the scenes of this life.

That the early English claimed for their great men some sort of approach towards equality with their gods is curiously shown by a passage Kemble quotes from King Alfred, relating to compounding for crimes by a money payment in all cases, "except in cases of treason against a lord, to which they dared not assign any mercy; because Almighty God adjudged none to them that despised him; nor did Christ . . . adjudge any to him that sold him unto death; and he commanded that a lord should be loved like himself."

The burning of incense is a very old custom among some savage races, and is still, as every one knows, an important part of the ritual of Roman Catholicism. So also is the making of grave-heaps. "Along with the development of grave-heaps into altars, and grave-sheds into religious edifices, and food for ghosts into sacrifices, there goes the development of praise and prayer.

"The mind of the savage, unable to distinguish between semblance and reality, invests the rude images

of the departed with the properties of the living ; and to such an extent is this carried that idols are actually fed and prayed to." Livingstone says, referring to the idols made by the people west of Lake Nyassa: "They present pombe, flour, bhang, tobacco, and light a fire for them to smoke by. They represent the departed father or mother, and it is supposed that they are pleased with the offerings made to their representatives. . . . Names of dead chiefs are sometimes given to them." With the Bhils: "Their usual ceremony consists in merely smearing the idol, which is seldom anything but a shapeless stone, with vermilion and red lead, or oil ; offering, with protestations and petition, an animal and some liquor."

In this manner the fetichism which invests every rude likeness to the human form with the ghost of the dead is developed, until the idol is really supposed to be inhabited by the spirit of the dead man whom it is taken to represent. Out of this rude beginning has been evolved the whole elaborate system of idol manufacture and worship, which is still seen all over Christendom.

The serpent that tempted Eve is a very old and widespread religious symbol. There is something about the serpent which seems to lend itself readily to typifying the cunning and the wily. The quiet, gliding motions, the cold glitter of the eye, without the faintest ray of intelligence or expression, the beauty and symmetry of form, and deadly nature of the bite of some, altogether produce in the mind an unusual feeling of dread and repugnance. It was probably the recognition of these qualities which caused the serpent to be selected to represent the spirit of evil.

Some snakes are given to visiting houses, and they have been known to frequent the same house for many years, where the inhabitants regularly placed food for them. It is supposed that ghosts often return to their former homes, and this gives rise to the belief that snakes are embodiments of them. A multitude of Indo-European peoples regarded snakes as domestic divinities, and would have

been in the greatest despair if any harm came to one of them.

The rattlesnake was regarded as an evil god. Snake-worship forms a cult, which is very widespread even at the present time. But though there are many forms of belief connected with it, the principle is the same in all, viz., that the snake is believed to be a material embodiment of a spirit, it may be of an ancestor, or of a chief, and as such is looked upon as a god. In Egyptian theology the serpent is represented as the spirit of evil, whence the idea was borrowed by the Christians.

Mr. Herbert Spencer says: "Nature-worship is an abnormal form of ghost-worship." Sun, moon, stars, etc., being names applied to certain chiefs and others, came in time to be personalised phenomena; and when the sun-chief has disappeared from the earth, the identification of his spirit with the sensible object bearing his name is a simple and natural transition. The sun, being in all ages the great emblem of power and life, kings and chiefs are likened unto him, and bear the name of sun. Egypt affords many such illustrations. An inscription from Silsilis runs: "Hail to thee! King of Egypt! Sun of the foreign peoples! . . . Life, salvation, health to him! he is a shining sun."

Influences of very complex character assist in the creation of gods, and we cannot draw a hard-and-fast line around any group of facts, and say through these alone this or that conception of deity was arrived at. Apart from the naming of great personages after the sun, and the tendency to which this would give rise to transfer the worship of the spirit of the departed to the sun himself, there must also have been a numerous and complex group of influences always at work, impressing the mind of uneducated men with the belief that the sun was a great living god. The sun's apotheosis has been due in measure, no doubt, to his own attributes, as well as to the confusion of metaphor with fact.

"In their normal forms, as in their abnormal forms, all gods arise by apotheosis."¹ The Greeks and the

¹ Herbert Spencer, "Ecclesiastical Institutions," p. 687.

Romans both made gods of their great men, and emperor-worship became a developed cult. "In every one of the Gaulish cities a large number of men, who belonged to the highest as well as to the middle classes, were priests and flamens of Augustus, flamens of Drusus, priests of Vespasian or Marcus Aurelius. The statues of the emperors were real idols, to which they offered incense, victims and prayers." The same ideas leading to such cults were familiar to other European peoples.

In the popular mind the existence of spirits was an unquestioned fact; and as they were believed to possess all the parts of living mortals, it was not an unusual thing for "virgins" to give birth to spirit-begotten children. In Navigator's Islands "they have an idea, which is very convenient to the reputation of the females, that some of these *hotooa pow* (mischievous spirits) molest them in their sleep, in consequence of which there are many supernatural conceptions."

The Babylonians, as well as many other peoples, held similar beliefs; and even in Europe, down to comparatively late times, there was a wide-spread belief in incubi and succubi. The Virgin Mary and the Holy Ghost idea was, therefore, by no means original; on the contrary, it was paralleled in innumerable instances among different peoples in different parts of the world. Among the Greeks, as is well known, there were many god-descended men, Æsculapius, Pythagorus, Plato, and others. Nebuchadnezzar, the Assyrian king, was said to have been god-begotten. Almig Goa among the Mongols, having herself had a spirit-father, gave birth to three children, all of whom were spirit-begotten. A virgin of the sun in ancient Peru had but to declare that her pregnancy was due to the sun-spirit, and she was believed, unless there was proof to the contrary. The great god Tangaron, among the inhabitants of Mangaia, is credited with being the father of the two sons born by Ma-Ani-Via. Similar cases might be cited almost without number of ghosts or spirits having had intercourse with virgins, and producing, as the fruit of such intercourse, offspring differing in no respect in their mode of life and death from other mortals.

Compare these cases with that of Mary and Jesus. Christians habitually speak of the story of their God-descended person as though it were special to their religion, and the only one known to history; when the fact is, it was common to the world years before the birth of the carpenter's son of Nazareth. There is nothing exceptional about any one of them; they all bear the same family likeness, and are *all* due to similar causes. They were the products of unenlightened ages; and to-day they are impracticable, solely because the mind of man has reached a stage in development which renders the acceptance of any so-called supernatural events an impossibility. It is true, jugglers still seek to impose upon the ignorant and credulous by asserting that what they call miracles still occur. They are not, however, of a very momentous character, being confined chiefly to the facial antics of statues.

Again, in regard to the Trinity. Perhaps of all the elements of religious faith common to man, there is none so widespread and so deeply rooted as this. From the earliest times to the present, Trinities in some form or other have formed essential parts of religious systems. Sometimes they appear in the form of personalised gods, at others under the characters of principles, and again as expressing productive and other active powers of Nature. Each great centre of Egypt had its trinity. In Thebes it consisted of Amun, the superior god; Maut, the mother; and Chous, the son, who, like the son in the Christian Trinity, is confounded with and inextricably mixed up with the father. The trinity of Memphis was composed of Phtha, Pasht, and Mouth. These three beings were held to personify the powers of Nature, and, like the first-named triad, are father, mother, and son. Mouth, with his consort Ritho, and their son Harphré, formed the trinity at Hermonthis. But the most widespread and popular of all the Egyptian trinities was Osiris, the father; Isis, the mother; and Horus, the son. This trinity was revered throughout Egypt.

The ancient Persians had their trinity, which they worshipped under the form of three principles. The

Hindoos have their Brahma, Vishnu, and Shiva; while the religion of Buddhism is also pervaded by trinitarian conceptions, bearing a strong resemblance to that of Christianity. Among the Greeks the same ideas under various forms are to be found. Plato's divinity is a tripartite conception which admits of a variety of interpretations.

Referring to the Christian Trinity, the Rev. James Gardner, in his "Faiths of the World," says: "But so many traces of it are found in the religions of all heathen nations that many have been led to consider it as a doctrine of the primeval religion, and handed down by tradition." The Christian Trinity is but a variation of the others, and differs from them chiefly in being more mystical, and requiring in its believers, perhaps, a greater degree of faith. In the representations of Horus we find a halo around his head, as we see it in those of Jesus; and Isis, the mother, corresponds in all respects with the Virgin Mother, Mary. While the attributes of the father have a kindred relationship in all religions, they are neither more nor less than the exaggerated passions of man—war, hatred, bloodthirstiness, revenge, etc. The Christian's God is still a god of war, vengeance, and jealousy, as well as of love. The historical and natural evolution of the Christian Trinity is as well established as most other facts of history.

If we consider this subject from the point of view of human progress, we shall find that all the facts connected with trinities and other gods are congruous with such progress. All god-makers have necessarily been men of crude, uncultured mind—men in the early stages of intellectual development; and they could not rise above their own level in their conceptions of their gods, any more than in their conceptions of other things. And, therefore, it was a natural consequence that their self-evolved gods should be endowed with the qualities of their prototypes. Every man-conceived god, from the lowest to the highest, must of necessity possess human attributes only—must of necessity, *i.e.*, be an anthropomorphical being, finite and conditioned. And so long as man will persist in defining his God, so long must

that God be in *every conceivable attribute* nothing more than a *magnified man*.

No person of unbiassed mind can consider the description which Christians themselves give of their God without coming to the conclusion that his genesis has been, like that of all other gods, a purely natural process. Nor can the student of genealogical religious history ascribe to the Christian Trinity an origin different from those of other trinities. It is undoubtedly derived from older triads, as every other element in the religion current among us is also derived from older or contemporaneous religions. These are plain matters of history, which the ingenuous mind in search of truth, and open to its reception under all forms, cannot any longer continue to doubt; any more than it can doubt other well-authenticated facts of history or proved truths of science. All the religions of what is called the heathen world had their trinities in some form or other, as well as a multiplicity of other-gods. And even Islamism, which professed as the principal if not the sole object of its existence the promulgation of a faith in one god only, implies in some respects the existence of more gods than one.

No doubt Egypt exercised considerable religious influence over both Greece and Rome. Indeed, in the time of the Ptolemies, the worship of the bull Apis, or Serapis, as the Greeks named it, became the religious bond between the old Egyptians and the Greek colonists. No two peoples, whose civilisations represent a near approach towards each other in general progress and culture, can mingle much together without being influenced considerably by each other's religious beliefs. And that this has been so throughout history, all *independent* testimony goes to prove; while, on the contrary, we have ample evidence that when two civilisations, differing very widely in character and development, come together, the religious views of the one will exercise little or no influence over the religious views of the other.

In proof of this, we need but point to our connection with East India. We have held the country for more

than a century ; we are masters of the lives and fortunes of its teeming population ; we have spent millions of money in erecting places of worship, and sending out missionaries to all parts ; and yet we have made little or no impression upon the people of India by way of converting them to Christianity. India swarms with missionaries, and all they can show for their labour are a few converts here and there among the poor outcasts of the population, who, for the consideration of a few rupees, would profess their belief in any religion which the missionaries chose to put before them. These may appear sweeping assertions, but I believe they will be corroborated by all *independent* evidence from India.

The more closely we inquire into the elements of the Christian religion, the nearer we get to their *natural* origin, and to their kinship with religions in general. In no respects can it be shown that the religion prevalent among us differs from all others in its origin ; and in its elaboration and growth, beyond all doubt, it has followed the natural laws of social and intellectual evolution. It is historically true, as Mr. H. Spencer has shown beyond question, that Christian priests are the modern representatives of the weather-doctors and medicine-men of savage races ; and in many ways the duties of the Christian priest are similar to those of his barbarous prototype.

A satisfactory distinction between priests and medicine-men is difficult to find. Both are concerned with supernatural agents, which in their original forms are ghosts.¹ The medicine-men prayed to their gods to send them fine weather ; our clergymen do the same. The medicine-men prayed for victory in battle ; our clergymen offer up prayers for like results, regardless of the justice of their cause. Witness the following prayer, directed by the Archbishop of Canterbury to be read on the occasion of the late war in Egypt :

“ O Almighty God, whose power no creature is able to resist, keep, we beseech Thee, our soldiers and sailors who have now gone forth to war, that they, being armed with Thy defence, may be preserved evermore from all

¹ H. Spencer, “ Ecclesiastical Institutions,” p. 705.

perils, to glorify Thee, who art the only giver of all victory, through the merits of Thy only Son, Jesus Christ our Lord. *Amen.*"

In this connection do we not still see rude man's primitive chief god, as well as the Hebrew's "god of battles," "the man of war," "the strong one," whose assistance is to be obtained by supplication and prayer, as of yore? Do we not see in the Christian's God of to-day, as portrayed in the prayer of the head of the Christian Church in England, a family likeness to his prototypes, to whom all savage peoples have prayed for similar assistance under similar circumstances? Wherein does the Archbishop of Canterbury differ from the medicine-men of the savages? or his God from those of the medicine-men?

We have seen that in uncultivated man the supposed reality of dreams gave rise to a belief in the reality of ghosts, and that from ghosts arose the belief in supernatural beings of every description. This is the subjective side of the origin and development of *all* gods. How far it has been assisted by the deification of natural objects, and the interaction of the two groups of factors, we need not here inquire. That *both* have played a prominent part seems conclusive, on *à priori* grounds. Seeing the heavenly bodies move, and believing that motion of every description was due to living agents, it was as natural to ascribe life to them as it was to believe in a double or ghost from the supposed reality of dreams.

In the religion of the Hebrews we find the same ghost-theories as elsewhere. The dead were believed by them to hear and answer questions, and food and drink were supplied to them. The spirit was supposed to haunt burial-places; and the demons, by entering into men, caused all the maladies and sins of life. Like the present savages, the Hebrews were addicted to charms, amulets, exorcisms, etc., and had their functionaries who corresponded to medicine-men. "Familiar spirits," "wizards," seers, and prophets were consulted on various subjects. Samuel was a weather-doctor, and was believed to have power over rain and thunder,

Many Hebrew traditions are similar to those of other peoples. The legend of the Deluge is paralleled by those of the Hindoos and the Accadians, from the latter of whom it was probably taken. We read that Manu was directed by Vishnu to build an ark to escape the flood, and that it came and swept away all living creatures except Manu. So with regard to the birth of Moses; its counterpart is found in an Assyrian story of the birth and adventures of King Sargina. "My mother," he said, "brought me forth in a secret place; she placed me in an ark of bulrushes, she threw me into the river," etc. Again, with regard to the Sabbath and its observances: "The Assyrian months were lunar . . . the seventh, fourteenth, twenty-first, and twenty-eighth days being the Sabbaths. On these Sabbath days extra work, and even missions of mercy, were forbidden. . . . The enactments were similar in character to those of the Jewish code."

Between Egyptian and Hebrew theology there is also a close resemblance. With both, as with other peoples, a god simply meant a strong person, to whom it became customary to offer worship. "Abraham was a demi-god, to whom prayer was addressed." "They sacrificed unto devils, not to God; to gods whom they knew not, to new *gods that* came newly up, whom your fathers feared not" (Deut. xxxii. 17). That the Hebrews believed in more gods than one is proved by Solomon's sacrifices to them, and by the denunciations of prophets.

As the Scriptures show that Jahveh was a God among many, who eventually became supreme, so also they show us what was his nature. He came down and conversed freely with men, and inspected their work—the city and the towers "which the children of men had builded." We are told that he walked in the garden of Eden, and talked in human fashion. We are further told that Jacob actually wrestled with the Christian's God; and that Moses spake to him face to face, as one friend speaks to another. Would it be in keeping with this character to picture the Christian's God coming down among us now, and wrestling with men? I can as readily picture him wrestling with a man to-day as

with Jacob a comparatively few years ago. Why not? Is his nature altered since he came down and wrestled with Jacob? Or are the circumstances of man's life and the world so greatly changed?

"The God of Israel" was clearly but a local god, and one among many others. He commands the Israelites to worship none but himself, implying thereby that there were other gods. This is further shown in the language of the Hebrews, where they speak of "one" God, to distinguish him from others. The Hebrews recognised in their God limitations of power; he is said to have failed in his attempt personally to slay Moses! The Israelites, fighting under his instructions and with his assistance, were beaten by the Philistines, when "the ark of God was taken" (1 Sam. iv. 3-10). We are also told that though "the Lord was with Judah we could not drive out the inhabitants, because they had chariots of iron!" This God repents of what he has done, boasts of his glory, and describes himself as jealous and revengeful, and declares that he will mercilessly destroy his enemies. He confesses that he is a false, deceitful, and lying god; as when, for example, he directs a prophet to prophesy falsely, intending then to destroy him (Ezekiel xi. 9); when he hardens men's hearts that he may punish them for their deeds. He prompts David to number Israel, suggesting an imaginary sin, that he may punish those who have not committed it. Offerings of various kinds are made to this god, such as bread, meat, fat, oil, drink, fruits, etc.; and he is said to enjoy the "sweet savour" of burnt offerings, "like the idol-inhabiting gods of the negroes."

Of all the offerings to the Christian's God, *blood* was the most acceptable. The blood of sacrificed men and animals was offered alike by the ancient Mexicans, Central Americans, Egyptians, Greeks, and Hebrews to their gods. The Hebrews, Greeks, and Peruvians were commanded by their various religions to offer to their gods in sacrifice unblemished animals only. In Leviticus certain parts of the animals are reserved for God, while other parts are given to the priests.

The story of Moses bringing down the tablets from

Mount Sinai, alleged to have been given to him by God, is paralleled by the legend that, from Mount Ida, in Crete, Rhadamanthus first brought down Zeus' decrees. The councils held by the Christian God for various purposes are similar to those held by the gods of the Greeks and the Egyptians.

As the Hebrews allege the fulfilment of certain prophecies, so do the Greeks, who similarly took them as evidence of the truth of their religion. Mr. Herbert Spencer says: "The working of miracles, alleged of the Hebrew god as though it were special, is one of the ordinary things alleged of the gods of all peoples throughout the world." In all religions of early times gods are familiar personages; they move among the people, converse with them in a friendly way, and in other respects behave exactly as the Hebrew god is said to have done. It does not matter to which part of the Christian religion we turn, we find its prototype in some other and older religion.

Our sacred wars to obtain possession of the sepulchre are paralleled by the sacred war of the Greeks to obtain access to Delphi; and as, among Christians, part of the worship consists in reciting the doings of the Hebrew god, prophets, and kings, so the religion of the Greeks consisted, in great measure, in reciting the deeds of the Homeric gods and heroes.

Wealthy people among the Greeks subscribed large sums for the building and decoration of their places of worship, as offerings to God for his favour and forgiveness, as rich Christians give large amounts for the erection of churches and cathedrals for a similar purpose. We read in Grote: "The lives of the saints bring us also back to the simple and ever-operative theology of the Homeric age." In common with Christianity, many religions in the new and old worlds show us baptism, confession, canonisation, celibacy, the saying of grace, and other observances.

"What are we to conclude," Mr. H. Spencer asks, "from all this evidence? What must we think of this unity of character exhibited by religions at large? And then, more especially, what shall we say of the family likeness existing between the creed of Christendom and other creeds? . . . The worships of the supposed

supernatural beings, up even to the highest, are the same in Nature, and differ only in their degrees of elaboration. What do these correspondences imply? Do they not imply that, in common with other phenomena, displayed by human beings as socially aggregated, religions have a natural genesis?

“Are we to make an exception of the religion current among ourselves? If we say that its likenesses to the rest hide a transcendent unlikeness, several implications must be recognised. One is that the cause, to which we can put no limits in space or time, and of which our entire solar system is a relatively infinitesimal product, took the disguise of a man for the purpose of covenanting with a shepherd-chief in Syria. Another is that this energy, unceasingly manifested everywhere, throughout past, present, and future, ascribed to himself under this human form not only the limited knowledge and limited powers which various passages show Jahveh to have had, but also moral attributes which we should now think discreditable to a human being. And a third is that we must suppose an intention even more repugnant to our moral sense. For if these numerous parallelisms between the Christian religion and other religions do not prove likeness of origin and development, then the implication is that a complete simulation of the natural by the supernatural has been deliberately devised to deceive those who examine critically what they are taught. Appearances have been arranged for the purpose of misleading sincere inquirers, that they may be eternally damned for seeking the truth.

“On those who accept this last alternative no reasonings will have any effect. Here we finally part company with them by accepting the first; and accepting it, shall find that ecclesiastical institutions are at once rendered intelligible in their use and progress.”

Those who wish to understand fully the origin and progress of the Christian religion, and its kinship with other religions, should consult Mr. Herbert Spencer's *“Ecclesiastical Institutions.”* In this work every detail is traced to its origin, and every so-called supernatural element is shown to be connected with, and to have sprung from, similar elements in other religions. The pretensions of Christianity to a supernatural origin are proved to be without the slightest foundation; and no one with an unfettered mind can read his analysis without coming to the conclusion that this religion, like all others, is a purely human product, both in its origin and growth. Many thinkers before Mr. Spencer have, as is well known, come to the same conclusion; but few have so exhaustively proved in detail the origin and evolution of every item of Christianity

CHAPTER X

JESUS

WHEN David Strauss first published his great work, "The Life of Jesus," Christendom was still under the influence of the Church to such an extent that few, among even the great thinkers, dared to breathe a suspicion against the divinity of the so-called founder of Christianity. For more than a thousand years the religious power, in alliance with the civil authority, had been supreme; and the way that power was exercised against all who dared to question, or were suspected of doubting, the truth of any of the dogmas of the Church, might well cause the boldest to shrink with fear from the consequences of giving expression to the lightest words of dissent. It is true that when Strauss wrote, the power of the Church to enforce obedience to her dictates had for some time ceased; but the social influence still brought to bear upon unbelievers in his day can scarcely be overstated.

He boldly faced, in the interests of truth, the odium and social persecution to which he was subjected on all sides; and the services he rendered to freedom of thought and progress was at once recognised throughout Europe and America, by the expressions of approval which were bestowed upon his work by those to whom it had given courage to speak out their inward convictions. Men began to breathe more freely, and henceforth the divine character of Jesus, and even the question of such a person ever having existed, became subjects of controversy.

When Renan, some few years later, brought out his "Life of Jesus," the views of Strauss had made great headway, and it was received with universal approval

and enthusiasm. These works were the outward expression of the inward thought and belief of thousands of the best minds; and Renan, while being honoured abroad, received the highest literary recognition in his own country.

The Christian religion had long been accustomed to see its dogmas one by one recede before the advance of rational thought and science; but to dethrone its founder from his godhead was to strike at the very foundation of the creed. And we can well understand the natural indignation with which the Church and its followers received the above-mentioned works, especially the latter, which, from its more popular style and great celebrity of its author, was read far and wide. Take away the divinity from the carpenter's son, reduce him to his natural human conditions, and the basis of the Christian religion is gone; and this is what Strauss and Renan have done.

No amount of scientific or logical reasoning, no induction of facts showing the natural origin and evolution of Christianity from other religions, would strike the public mind so forcibly as the calm and deliberate assertion of two very eminent writers that Jesus was merely a man, the child of his father and mother, as every other human being is; and that from his birth to his death the events of his life were those of a mortal man merely, possessed undoubtedly of much insight, great courage and ability, a warm heart, and a great soul—qualities which thousands of men and women, too, have possessed before and since his time. To the simplest mind the fact must be obvious that if this poor man, who was ignominiously put to death as a malefactor, were not God, then there is no foundation for the divine character claimed for the Christian religion.

The study of astronomy and other subjects, having impressed the mind with the majesty and immensity of the Universe, the idea of the Infinite Power being represented by, and incarnated in a mortal man, is fading from, and gradually losing its hold over, men's minds. The background of our perspective of Nature is now too vast for continued belief in such a possibility,

and readjustment to the expanding outlook follows as a necessary consequence.

From all we know about Jesus, he was what we should call to-day a Socialist reformer, and taught the equality and brotherhood of man, much in the same fashion as the Socialists are now teaching these disquieting doctrines. The words ascribed to him are similar in import to those used by great-hearted, far-seeing reformers in all ages. He preached against not only the narrow religious prejudices of his time, but also against the injustice which the poor were made to suffer at the hands of the rich and powerful.

In those distant times he stands out a truly sublime human figure, denouncing and defying the whole power of the Sanhedrim, as he is hunted from pillar to post, preaching in the market-place, by the wayside, and wherever he could get together his fellow-men, that eternally perennial truth which grows as man grows, and under all vicissitudes has never failed to keep its hold over the human heart, viz., the brotherhood and equality of men. Little could he foresee that around his name was to grow up a gigantic power, which for centuries was to paralyse the mind, stop all progress, quench the light of learning which had arisen in Greece and Rome, and plunge the world into almost barbaric ignorance and darkness. From the warmth and passion of his heart he denounced injustice and oppression; and in the grandeur of his soul he sought to raise men's minds to the perception of the true dignity of human nature. In every creature of human mould he saw the image of his maker; and he recognised no distinction between man and man, except those arbitrary and unjust distinctions which avarice and power had created, and custom had crystallised into a social system.

The poor and the lowly were under the iron heel of oppression; and having himself been born in the ranks of the people, he became their champion. But independently of the accident of birth, Nature had endowed him with the true reformer's fearless impatience of the arrogant assumptions of those who, in their brief day of advantage, lord it over their unfortunate brethren. He

saw clearly the true circumstances under which men were enabled to hold and wield power; and he never lost sight of the fact that the most worthless of men, the poorest in character and genius, could, under the operation of those circumstances, attain to the highest positions in the State, in virtue of which they subjugated the mind and obtained the slavish submission of the people.

He spent his brief life in trying to open men's eyes to these truths; and, like many ardent, generous, enthusiastic reformers since his time, he thought that to proclaim the truth was to ensure its immediate acceptance. In the earnestness of his nature and singleness of purpose, he did not recognise the complexity of human nature in all its fulness. He could not, therefore, make sufficient allowance for the melancholy truth, that when an error is strongly rooted in the feelings, reason is powerless to extirpate it until those feelings relax their hold. The vast amount of human emotion that has gathered around the figure of Jesus has enclosed him in such a halo of divine sanctity, that even those who regard him in his true light feel, to some extent, the influence of the almost irresistible spell.

If Jesus lived in the flesh, and is not merely the representative of a principle, an aspiration, he was probably some such man as briefly depicted above. The miracles attributed to him are, of course, myths, as are all those attributed to the founders of other religions, and innumerable other persons. Volney's saying, that it would be easier for the whole of the human race to be in error than for the smallest atom to change its nature, is an answer to every so-called supernatural event. Hume effectually disposed of miracles, and few now regard them in a serious light.

It matters not to the world whether a man named Jesus, to whom is attributed the foundation of the Christian religion, ever lived or not. Jesus the man, or Jesus the myth, is all one to-day. The ideas that are attributed to him were reinfused into men's minds and hearts at that time; and this is the important point to us. For the promulgation of such ideas no man in those days would have escaped crucifixion. If he impeached

the authorities, they undoubtedly crucified him, a mode of execution which was in use then as hanging is now. In this there is nothing unusual. Thousands were crucified for less offences than his against the governing powers of the time, and thousands have been crucified since. Alexander crucified two thousand prisoners in revenge, and a Roman emperor crucified four thousand victims in one day.

At the time when Jesus is supposed to have been born, the Jews were in subjection to the Roman power ; and the accumulated forces of social discontent, engendered by the contemptuous treatment and tyranny of the conquerors and other causes, filled men's hearts with a passionate longing for social revolt of some kind or other. They were days of religious fervour and excitement ; and the nervous condition of the public mind was such that it was prepared to accept, and was indeed on the look-out for, portents and signs of a supernatural character, in fulfilment of certain alleged prophecies. The mind was filled with expectations of the advent of a Messiah of some kind or other, whether in the shape of a king, a leader, or possibly the promulgation of those ideas of liberty, which should fire men's hearts for the accomplishment of great deeds. The people were tired of the Roman yoke, and the human spirit probably aspired to take another step in that upward progress towards the ideal goal.

Humanity had, in fact, arrived at one of those crises through which every now and again it bursts the bonds of the old order, and enters upon the succeeding new. And if the germs of this social revolution had had natural growth and development, probably the whole course of subsequent history would have been very different. If, instead of becoming a mind-enslaving creed, it had allied itself with the learning of the Greeks and others, civilisation and progress, instead of having been arrested and put back for 1,200 years, would have gone on, we may reasonably assume, with greater rapidity than ever ; and the world would have been spared that backward course which we lament as the Dark Ages.

Unquestionably some of the teachings of Jesus, or

those which go under his name, were in advance of the general state of the public mind of his day; but there was nothing in them which had not been known for centuries to the thoughtful few. The religions of Greece and Rome were never seriously believed by the intellectual Greeks and Romans; nor, indeed, is any religion the faith of the enlightened few among the people professing it. The unity of God, as taught by Jesus, was rather behind than in advance of the conception held by the philosophers, which approached nearer to the present scientific conception of the unity of nature.

The anthropomorphic attributes of the God of Jesus were, long before his time, discovered to be inapplicable to the Infinite cause, the Supreme Power; but Jesus does not appear to have had any knowledge of the higher philosophy, judged by which his assertions respecting the Infinite furnish their own disproof. The Greek aphorism that "the highest of all knowledge is to know that you can know nothing," would have been to him quite unintelligible. So far, therefore, as greatness of mind is concerned, Jesus was, undoubtedly, inferior to many other men of his time. A greater power of intellect than he possessed had been attained by man hundreds of years before he was born. In point of intellectual power, Gotama, the founder of Buddhism, who lived nearly a thousand years before his time, was greatly his superior.

This, however, is no disparagement of the man Jesus. His work in life was not to teach intellectual truths, but to rouse men to a sense of their degraded condition, and to impress upon all the knowledge and conviction that the inequalities of social conditions, with all the misery, poverty, and vice which they entailed, were due to human institutions, which were founded on injustice, avarice, and selfishness. Sell all you have and give to the poor, was his injunction to the rich; thereby plainly implying that riches and poverty were both abnormal states, relatively to the state that he advocated as the right and just one, viz., that which existed in "the kingdom of God." If Jesus lived to-day, he would, we may safely affirm, either be a Socialist agitator among

the poor in the East End of London, or a fearless and scathing denouncer of the corruptions, gluttony, and vice of the dwellers in the West End; and probably both would receive a share of his attention.

The Sanhedrim, the governing body of the Jews, hated him with a holy zeal, and determined on his destruction as a "dangerous disturber of the public peace." The Roman governor, Pilate, looked upon him as a harmless enthusiast, and would have spared his life; but the clamour of the Jewish people for the blood of the man who had dared, among other things, to call himself the son of God, was so great that Pilate had to yield to their demands. What, indeed, are we all but the children of the Infinite power, call it "God," or by any other name we please?

The influence that he exercised over the Jewish people was not very great; and when he was seized and tried, his followers all deserted him. "His few adherents, mostly unarmed peasants, had fled at the instant of his capture; not the slightest tumultuary movement had taken place during his examination before the High Priest, and the popular feeling at present seemed rather incensed against him than inclined to take his part."¹

The astounding and audacious claims put forth by the far-reaching and overshadowing power which subsequently grew out of that humble beginning has invested the subject with a paralysing influence; and men shrink from giving voice to their innermost thoughts, under the dread of social disapproval.

Whilst denying the divinity claimed for him by his followers, they give a half-willing assent to his being invested with the character of Christ, and so contradict himself from the rest of mankind. And surely every man or woman who takes a prominent part in setting before the world higher and better ideals, leading to nobler conduct and purer aspirations, partakes in some measure of the character of the human Christ. Jesus was one of these; and if the organisation that was founded upon his name became the embodiment of much that is bad in human conduct, he was not, in any degree,

¹ Dean Milman, "History of Christianity," vol. i., p. 320.

to blame for it. We know that he taught the equality of men, which in itself, in those days, was no slight service to render to the world ; and which, to-day even, constitutes the noblest and most valuable teaching that men can give to their age. Whatever may have been the character of the man, whether he laid claim to divinity or spoke only in the mystical language of a high and fervid religious enthusiasm, matters little now ; we are concerned, not with the man, but with the results of his teaching, and their bearing upon progress and welfare.

CHAPTER XI

PRE-CHRISTIAN CIVILISATION

LET us now briefly consider what was the state of the civilised part of the world, in regard to learning and progress, at the beginning of the Christian era.

The previous history of the world shows, from such records as we possess, that civilisation and intellectual evolution for many centuries had, upon the whole, steadily advanced, in spite of, and in some respects in consequence of, the ambitious and aggressive wars that were waged almost incessantly by a few great conquering powers, which in turn overran the world, culminating eventually in the supremacy of the Romans.

The great problems of speculative thought—God, the soul, the government of the Universe—had occupied the mind of man for centuries in India, Greece, and elsewhere ; and the ability displayed in the consideration of these questions indicates a power of abstract thought which probably is not surpassed by any thinker of the present day. Witness Buddhism, for example, which was founded about three thousand years ago in India by Gotama, who, like Jesus, is supposed by his followers to have had a divine origin.

At the age of twenty-nine he voluntarily abandoned all the advantages of his royal birth and wealth, and retired from the world to live a life of philosophical meditation and self-denial. From the light of his own intellect he evolved his theory of Nature and life ; and it is remarkable that after three thousand years of labour in the accumulation of knowledge, both scientific and philosophical, the tendency should be strongly in favour of Gotama's views. Probably the majority of thoughtful men are now in intellectual sympathy with the deep and profound philosophy taught by Gotama, under the pepl

trees of India, at a time when Europe was peopled by hordes of barbarians. While, since his day, all other religions which have arisen have either declined and perished, or are on the downward grade, his alone has grown with the growth of human reason, and become more deeply rooted in the mind with every fresh discovery in the realm of natural law.

In every other religion yet given to the world, the articles of faith or dogmas have receded one by one as knowledge has advanced; Buddhism, on the contrary, receives additional support at every step taken in the onward progress. And it is especially in connection with those great intellectual revolutions, which are brought about by the discovery of far-reaching natural laws—such, for example, as Newton's mechanical laws of inorganic construction, and Darwin's discoveries, reducing the world of life to laws of the same mechanical necessity—that the teachings of Gotama become infused with deep and lasting meaning. In him we recognise, to a very great extent, the spirit, form, and substance of the monistic philosophy.

Buddhism, as taught by Gotama, is more a system of ethics or philosophy than a religion. Like Jesus, he taught the absolute equality of all men; and to this doctrine is due, more than to anything else, probably, the astonishing progress and enduring success of both systems.

Gotama, like Zeno, believed in a supreme power, but not in a supreme being; and, like Aristotle, he denied the immortality of the individual or the soul. He contemplated the Universe as a vast automatic machine, and all phenomena as resting, in their ultimate analysis, on pure force. This force was to him an eternal, plastic, self-impelling principle or existence, and beyond the grasp of human thought to formulate. From its multitudinous activities, as from an inherent necessity, arise all phenomena known to us; and even if the systems composing the Universe were to be destroyed, the persistent activity of force would renew them.

The so-called modern discovery of the persistence of force was familiar to him, though not perhaps under its

various correlations. Through his luminous and profound mind passed most of the deepest philosophical thoughts of the present time. He understood the limited character and conditions of human thought and knowledge, as well as the nature of reproduction and decay. In his view, every existence known to us is the result of the operation of mechanical laws; or, in other words, the persistent activity of universal force—a truth which science has quite recently established. Even intellectual and moral phenomena were all reducible to the same basis as material phenomena, viz., pure force. Force was to him the ultimate possible conception, the last resting-place of the mind in its contemplation of perceivable existence. And is not this still the ultimate point reached, the deepest outcome of science and philosophy?

He was conscious of the immensity of the Universe, and the innumerable worlds it contains, and believed that these worlds were in a constant state of instability—some in process of formation, others of decay. He looked upon life and death, formation and dissolution, whether in the organic or in the inorganic, as completing the circle of Nature; but to this circle there was no beginning and no end, except so far as individual consciousness was concerned.

The end of life was extinction of consciousness, perfect rest—Nirvāna; but it is said that he believed this was not always to be attained at the end of the present life. I think, however, if I may hazard an opinion, that on this point Gotama has not been rightly understood; and that the misconception has arisen through the doctrine, attributed to him, of the transmigration of the soul. Gotama could not have believed in the transmigration of the soul in the literal sense, *i.e.*, the actual transference of the soul at death to another creature, for the simple reason that he did not believe in the existence of the soul at all apart from the body. The Ego, he says, has no personality, no separate existence; it is a nonentity. "All sentient beings are homogeneous." The soul is a property of the material organs, and disappears when they are dissolved, as the flame disappears when the

candle is blown out. "Buddhism does not acknowledge the existence of a soul as a thing distinct from the parts and powers of man which are dissolved at death, and the Nirvāna of Buddhism is simply extinction."¹ How, then, could it be transferred to another organism?

May we not say, in the light of the doctrine of descent, Gotama's meaning becomes clear? *All* life is homogeneous throughout Nature, and the superior intelligence possessed by one animal, say man, over another is due to the superior organism. The principle of vitality in man (as explained in a former chapter) is homogeneous with the principle of vitality in all other animals; and inasmuch as the molecules of the mind or brain-cells in man may at his dissolution help to form brain-cells in other animals, it may be said in this sense that man's soul undergoes transmigration. I do not mean to imply that Gotama arrived at his conclusions from any consideration of the cellular theory, which we may safely conclude was unknown to him. Probably it was from speculative thought concerning the life-principle; for in many of his grand speculations he anticipated modern science to a great extent. Professor T. W. Rhys Davids says, referring to Buddhism: "In its principles it anticipates much that modern science has proved."

The reader will see from the foregoing brief sketch of this remarkable man how profoundly he had thought about many of the greatest problems of our life. And if he did not find the solution of any, he at least traced them to their physical causes as far as any man has done yet.

Respecting the time when Gotama lived, there are many accounts, ranging from the sixth to the fourteenth century B.C. If we take a mean of these, as Dr. Draper, in his "Intellectual Development of Europe," appears to have done, the principles of Buddhism must have become the intellectual property of millions of people, covering a large surface of the earth, some two or three centuries before the rise of Greek philosophy, beginning with Thales. And though the philosophical speculations of Gotama could not be understood by the majority

¹ "Encyclopædia Britannica," vol. iv., p. 434.

of his followers, there would yet be a sufficient number in all the countries professing Buddhism, by whom his principles would be appreciated, to mark a very high level of general intellectual attainment and development.

When Greek philosophy, therefore, first appeared, the world was already in possession of some of the principal ideas contained in the early speculations of those philosophers. Whether or not they were indebted to the East we cannot say; but it has been suggested that art, religion, and civilisation may have been carried from the East through Asia Minor to the *Ægea*, and thence to Greece.

We know that the early Greek thinkers were greatly indebted to Egypt, which for centuries, and indeed we may say for several thousand years before the intellectual Greeks were heard of, had attained to a very high state of culture and civilisation. Egypt is now the historical storehouse of the ancient world, in which are preserved the oldest relics of man's history; and every fresh discovery impresses us more and more with the conviction that in Egypt everything that indicates and characterises human progress was very far advanced.

In the art of building, the Egyptians have never been surpassed, if, indeed, they have ever been equalled. Some of the grandest and most perfectly constructed buildings in the world are in Egypt. The pyramids, palaces, and temples are the wonder and admiration of all men; and apparently they are likely to remain so. The social system was as complex and developed in its way as the social system of Europe is at the present time. The arts and refinements of social life were cultivated to a high degree of perfection; and they must also have been acquainted with a wide range of scientific principles, as attested by their great engineering and other works. In intellectual endowments, as well as in material prosperity, they had reached a high level.

In one point alone they were in a state of barbarism, as were all the peoples of the ancient world, no matter

how far advanced in all other respects—the altruistic faculty, the moral conscience, had scarcely been born, and man had little regard for the happiness and well-being of his fellow-man.

“In ancient days Egypt had its gardens, orchards, and vineyards; vegetable productions in great variety gave easy sustenance to the people; and the growth of corn was so vastly in excess of what the natives required for their own food that the valley of the Nile was regarded as one of the granaries of the world.”

Herodotus tells us that the Labyrinth, which was built by twelve Egyptian kings as a monument to commemorate the greatness of their reign, exceeded even the Pyramids, and cost more in labour and expense than all the great works of the Greeks put together. In this stupendous structure “the art exhibited in its design and execution is beyond description.” In Egypt, wherever we turn, we have evidence of the high state of its ancient civilisation. Buildings of such colossal proportions and grandeur of design could never have originated among a people who had not reached a very high level indeed. “Man grows as greater grow his aims.”

Speaking of the Catacombs at Thebes, Mr. Edmund Ollier says :

“All is massive, superb, and regal. . . . Pillars, corridors, halls, staircases, sculptures, frescoes, give splendour and dignity to this sepulchral realm. They who would reproduce the vanished life of Egypt must study it beneath the wings of death. . . . Many of the refinements of civilised life were known to these children of a bygone age. Embossed leather, stained with various colours, has been found there (in the tombs). The mummies are wrapped in linen cerements. Gilding and varnishing were employed with excellent taste and skill. Glass was used both for articles of utility and for personal adornment. Copper was cast in various forms, and sometimes rolled into sheets. The dresses of the richer classes were ornate and splendid, the head was frequently covered with a wig, and a great deal of finely-wrought jewellery was worn. The art manufactures of these people were often in admirable taste; in many respects they seem to have anticipated the luxurious inventions of modern times. The practice of medicine was divided into as many branches as there were maladies. Eggs were hatched by artificial means. The mechanical appliances by which enormous

masses of stone were transported from distant quarries must have been elaborate and powerful ; the execution of so many works at once massive and delicate argues the possession of a great variety of tools."

Again, in regard to the buildings :

"Thebes might have been a city of the giants, so enormous was the area covered, so vast were the buildings, so Titanic the sculpture, the gateways, the towers, the columns, and the approaches. Even in its desolation, the part now called Karnak is astonishing in its grandeur and its colossal dimensions. An irregular avenue of sphinxes extending 2,180 yards connects the southern termination of the locality with the northern entrance to the temple of Luxor ; and at every point are the remains of numerous edifices of the most extraordinary splendour and majesty."

Homer, in the *Iliad*, describes Thebes as the hundred-gated city. Thebes was at one time the capital of Egypt, and, according to Herodotus and Aristotle, gave its name to the whole of the country.

We boast, and not without reason, of our Suez Canal ; but as an engineering work, it was probably surpassed by that cut by Rameses II. from the Nile to the Red Sea, and which "cost 120,000 lives and countless treasures of money." This grand canal was allowed to become filled up with sand, and was several times at different periods cleaned out.

While the Egyptians took the lead in Mediterranean civilisation, other peoples were scarcely, if at all, behind them. The Assyrians were a highly civilised people, and many of their great buildings could vie with those at Thebes even ; while in the arts and sciences they are known to have made no inconsiderable progress. In music, sculpture, ivory-carving, metallurgy, modelling, mythology, lexicography, grammar, mathematics, astronomy, astrology, history, natural history, legends, geography, topography, and law they were well versed ; and even in the matter of currency they are said to have used bank-notes. Callisthenes, the Greek, found in Babylon a series of Chaldean astronomical observations, covering a period of 1,903 years, which he sent to Aristotle. This carries us back over 4,000 years from

the present time, so that we know that at that distant date astronomy had not only been studied for a considerable time, but must also have made very great progress; for much preparation is required before accurate observations can be taken and recorded.

Certain facts connected with the construction of the great Egyptian Pyramid prove that the Egyptians possessed, even 5,000 years ago, accurate and finely-constructed astronomical and other instruments. The Egyptian astronomer, Ptolemy, had in his possession a Babylonian record of eclipses, extending back 747 years before the Christian era. The Babylonians knew the length of a tropical year to within twenty-five seconds of the truth; and their calculation of the sidereal year was barely two minutes in excess of the exact time.

They had correct views of the solar system, and "knew the order of emplacement of the planets." In fact, their knowledge of astronomy was both extensive and accurate. The Persians were also a great and highly-civilised nation centuries before our era; so also, as is well known, were the Chinese.

Such was the advanced condition of the ancient world about 600 B.C., at the time when we first hear of Greek philosophy. Just about this time an event occurred which was of the very greatest importance to the spread of knowledge, and occasioned, as Dr. Draper says, the first grand impulse in the intellectual life of Europe.

Psammetichus, on the death of his father, who was one of the kings of Egypt, fled into Syria, and returning to Egypt with foreign aid, established himself as one of the twelve kings. Having been informed by an oracle that he who should make a libation of brass would rule over the whole of Egypt, he fulfilled that condition by pouring metal, in a molten state, out of a brazen helmet. By the aid of Greek mercenaries he obtained supreme power; and by the necessities of his situation he overthrew the time-honoured policy of all the old dynasties.

Down to this time Egypt had been practically a closed

nation to the world, but with a large infusion of foreign elements, especially Greek, it was no longer possible to maintain the old policy of seclusion; and the Egyptian ports were thrown open to the world, making the country accessible for commercial and other purposes. Psammetichus encouraged the Greeks to settle in Egypt by bestowing land upon them, and by fostering the study of the Greek language. He contracted alliances with the Athenians, and it may justly be said that through him, chiefly, the world was enriched with Egyptian civilisation.

“Under the shadow of the Pyramids,” Dr. Draper says, “Greek philosophy was born.” But with greater truth it may be said, under the shadow of the Pyramids the germ of European civilisation first started into life. The spread of commerce carries with it other advantages besides those of material gain; and the Greeks and Italians were not slow to avail themselves of the hitherto inaccessible results of Egyptian civilisation. With the opening of the Egyptian ports an active commerce at once sprang up between Greece and Egypt, and the open-minded, observant Greek was not long before he had established a link between the ancient world and his own.

In the magnificent buildings of Egypt are to be found the prototypes of the Greek architectural orders, which, under various combinations, now cover Europe and America. Much of Greek ornamentation and design can be traced to the same source, as can also the models of the Greek and Etruscan vases. In the matter of their religion, the Greeks borrowed largely from the Egyptians.

The noble and enduring edifices erected to the gods, the majestic granite statues, the solemn sphinxes, the stupendous and beautiful temples, the gorgeous ceremonies, made a deep and lasting impression upon the Greek mind in the early days of its evolution. Not only, however, in Greece was Egyptian influence felt; the towns of Italy participated in the light that was reflected across the Mediterranean, and contemporaneous with the rise of philosophy and the arts in Greece,

the study of philosophy arose in Italy. And thus in Greece and Italy the progress of the world was continued, and handed down to future generations.

The Greek mind, eminently receptive and reflective, was greatly influenced for the next two centuries by Egyptian civilisation. On the shores of the beautiful Mediterranean the Greek meditated in wonder and astonishment on the marvellous things he had seen on the banks of the Nile; and his keen perception of beauty, strength, and majesty of form, for which the Grecian statues are unrivalled, received no little inspiration from his contemplation of Egyptian architecture and sculpture. The sight of "the most stupendous works ever accomplished by the hand of man" raised and enlarged the minds of the Greeks; and the hoary antiquity of the nation, which seemed to go back to the very morning of the world, whilst it filled them with emulous admiration, extended at the same time their intellectual horizon.

Thus for a period of over two hundred years preceding the Macedonian conquests, the Greeks had been brought into contact with the advanced civilisations of Egypt, Mesopotamia, and Persia; and when Alexander appeared upon the scene they had pretty well mastered and assimilated the greater part of what those peoples had to teach.

It is scarcely an exaggeration to say that with the close of Alexander's conquests Greece was practically in possession of most of the valuable knowledge of the world; and no peoples who have ever lived were better qualified to extend and hand down that knowledge to future generations. It is a fortunate circumstance for the world that Alexander had for his tutor that great epoch-making man, Aristotle. He never forgot the lessons of his youth; and in all his schemes of conquest his old master's influence for the acquisition and extension of human knowledge was ever actively at work within him. His unbridled passions, atrocious, wholesale massacres, and foul murders of his friends, have earned for him, from those who have not been blinded by the brilliancy of his achievements, the title of an inhuman

monster. But he was essentially a *human* monster—the *natural* product of all uncontrolled, irresponsible authority in man, in all ages.

With Aristotle the Greek intellect enters upon a new phase of development. The long and illustrious line of thinkers had exhausted merely speculative thought, and investigation of objective existence became a necessity of further advance. Patient investigation of natural law was entered upon by men equipped with the most highly polished and fashioned intellectual instruments; and the result was, that in an incredibly short space of time the peoples round the shores of the Mediterranean were as famous for their scientific as for their philosophical knowledge.

Greek intellect was radiating light in all directions, and knowledge was spreading with marvellous rapidity wherever Greek influence extended. Much of this was due to Alexander, who, in his expeditions, was invariably accompanied by a whole host of learned men, by whom every item of knowledge that they came into contact with was carefully recorded. He furnished Aristotle with a large sum of money, and placed at his disposal a well-equipped party of searchers for specimens required in the preparation of his great work, the "History of Animals."

"The times were marked by the ushering in of a new philosophy. Greece had gone through her age of Credulity, her age of Inquiry, her age of Faith; she had entered on her age of Reason, and, had freedom of action been permitted to her, she would have given a decisive tone to the forthcoming civilisation of Europe."¹

The campaigns of Alexander had brought the Greeks into contact with some of the grandest and most beautiful scenery in the world; and the staff of specialists had appropriated most of what was of value in Egyptian and Oriental philosophy and religion. Humboldt has observed that "an introduction to new and grand objects of Nature enlarges the human mind." The unparalleled development of both the Greek and the Roman mind,

¹ Dr. Draper, "Intellectual Development of Europe," vol. i., p. 174.

during their wars of conquest, bears testimony to the truth of this remark.

Of all Alexander's conquests, that of Egypt was by far the most important to the future of the world ; for it was in the city of Alexandria, which he founded, that the great museum was established, which may be truly called the Mother of European Science. It was in this magnificent and unrivalled institution that accurate scientific study was first begun in that regular and orderly method of induction laid down by Aristotle, and which is the foundation of the scientific knowledge of our own times.

This grand institution was established by Ptolemy Soter, half brother to Alexander, and one of his generals, who became King of Egypt after the death of the Conqueror. He established his seat of government at Alexandria, and made it, not merely the capital of Egypt, but the most important and the wealthiest city in the whole world. It was the *entrepôt* of the East and the West for commerce as well as for learning. Ptolemy was a man of large and liberal views, with a great love and respect for knowledge of every kind ; and he conceived the magnificent idea of founding and endowing a State institution on so grand a scale that within its spacious walls could be collected the whole body of knowledge then known to the world. His object was to collect, increase, and diffuse knowledge, and for this purpose he invited men from all parts who were most eminent in the various branches of philosophy, science, and art. In addition to the large number of Jews imported by Alexander, Ptolemy, after his siege of Jerusalem, took 100,000 men to Alexandria ; and Philadelphus, his son, who succeeded his father, redeemed from slavery two hundred thousand of that people, paying their Egyptian masters a just equivalent in money for their release.

Greeks and Egyptians flocked to Alexandria, and, as might be expected, men of superior attainments were attracted by the advantages it offered for study and the acquisition of every kind of knowledge. It is impossible at this distant date to do justice to the great and en-

lightened man who planned and, with the aid of his son, carried out this grand idea, or to estimate the influence it has had upon the progress of Europe. In the museum there was no distinction of nationality or creed. Greeks, Egyptians, Jews, all fared alike, and learning, in whomsoever found, was a sure passport to honour and distinction. In this emporium of enlightenment the distinctions of birth and titles were unknown; they were relegated to an inferior order of men. The king himself was accustomed to mix and converse freely with the professors and students, and frequently joined them at the dinner-table in social and friendly intercourse, without any of those assumptions of unapproachable superiority on the one side, and degrading adoration and subservience on the other, which too often distinguish modern entertainments and social gatherings. All these nice gradations and distinctions of birth, title, and wealth, so dear to the heart of the modern Philistine, the Alexandrians cast aside as unworthy the consideration of those who had attained to the stature of men; and, in the exercise of their just and sober reason, had learnt to appraise all human life at its proper value.

Greek engineering and architecture had made Alexandria a city second to none in the world for beauty. It was filled with magnificent palaces, temples, theatres, baths, obelisks, fountains, and gardens; and in the heart of the town, where two great avenues, 200 feet wide, intersected each other, a beautiful mausoleum was erected for the reception of the gold coffin containing the embalmed remains of Alexander, which had been brought from Babylon, a journey taking two years to accomplish.

The museum was built of marble, and we gather some idea of the extent of this extraordinary structure from the fact that at one time there were no fewer than fourteen thousand students, besides professors, attendants, servants, and others, within its enormous enclosure. It was surrounded with a spacious piazza, in which the inhabitants, without distinction, could meet and converse together at their leisure. For the collection of books a regular staff of travellers was kept, who went out in all directions in search of works on every conceivable sub-

ject; and the librarian had permission to purchase, without limit, at the expense of the State, all books and manuscripts containing any useful or curious information. If the owner of any book or manuscript was unwilling to sell it, he was required to lend it to the museum, where a large staff of transcribers was employed; and after it had been carefully transcribed, the copy was deposited in the library, and the original returned to the owner, with a money payment for the use of it.

In cases where the books were bought, copies were made and sent to the owners, so that they still retained possession of the information contained in their books. In such a wise and just proceeding we see the solicitude of the Alexandrians for the spread of knowledge. Whilst the library was the means of preserving whatever was of value, no man was the poorer in intellect or in money for his contributions.

There were eventually two distinct libraries in the museum, containing altogether seven hundred thousand volumes, holding the totality of human thought at that time. The apartments of the library were crowded with the choicest pictures, statues, and other works of art; whilst decorative ornamentation and design were superbly beautiful. Attached to the museum were botanical gardens for the practical study of plants; also a menagerie for those who were interested in the study of zoology. A school of anatomy provided instruction in this most important subject.

The anatomical section was connected with the medical college for the education of physicians, the practical study of anatomy being a part of the necessary course of instruction. The school of anatomy is, perhaps, a truer index than anything else of the greatness of the Alexandrians. It shows that they had surmounted the superstition and ignorance which, descending almost to our own times, has retarded the cultivation of a branch of knowledge on which, more than on any other subject, human comfort and happiness depends. It would be difficult to name a science more useful and valuable than that which supplies us with the means of alleviating suffering.

In the astronomical observatory astronomers were engaged in the study and observation of the heavens; they used many instruments of the same kind as those now in use. "On the floor a meridian line was drawn for the adjustment of the instruments." In a similar manner we lay down on the floors of our public buildings, for preservation and reference, our units of measurement. They used an equinoctial and a solstitial armil, the graduated limbs being divided into degrees and sixths, stone quadrants, astrolabes, dioptras, etc.

In this noble institution were gathered together men engaged in the study of every branch of knowledge, literary, scientific, philosophic, and artistic; and in spite of the deadly opposition to all learning, which obtained supreme power in subsequent ages, their influence has, to some extent, shaped the modern world.

"There went forth from them," as Dr. Draper says, "a spirit powerful enough to tincture all future times." Nothing to equal the Alexandrian Museum has ever been called into existence in the history of the whole world. There is not a single university in Europe which can be compared with it in magnitude of construction and comprehensiveness of design.

Between the scientific men of Alexandria and the scientific men of the present time there is, indeed, a close parallel, though twenty centuries lie between them. To think that over 2,000 years ago the intelligent few were engaged in combating powerful militant superstitions, similar in character to those against which the intelligent few to-day are bravely struggling, is surely almost enough to make one doubt that the truth will ultimately triumph. In those days the mass of the people was under the influence of theological dogmas; and every scientific thought or discovery ran counter to long and deeply-cherished religious beliefs.

All thoughtful men had outgrown the national creeds, and between religion and science the eternal feud was waged, with patient perseverance on the one side, and bitter persecution on the other. In Alexandria the cruel spirit of persecution was tempered and held in check by the enlightened minds which were in authority;

and other circumstances combined to moderate the zeal of religious fanaticism ; but in Greece, and elsewhere, some of the foremost men suffered death and persecution for their learning.

In all but the power to inflict punishment, the religious bodies to-day occupy a similar position towards scientific and other thoughtful men to that which their prototypes, twenty centuries ago, occupied towards the enlightened of that time. There is, however, this significant difference, that whereas the humblest classes of ancient times were of all grades the most completely under the influence of their national religions, the working classes of our time are among the most emancipated.

About the period of which I am writing—the third century B.C.—great things had been achieved. Some of the greatest monuments of human genius had been given to the world. The most certain, the most perfect, the most enduring, the most valuable of all the written thoughts that have ever proceeded from the brain of man is, I venture to think, the work known as Euclid. Everybody knows something about Euclid, and the important part it plays in scientific research. As the representative of truth for all time, and for practical construction, it stands at the head of all the works of man. As true to-day as when it was first written, it has outlived, and must continue to outlive, every phase of thought, every change of system, whether philosophical, scientific, social, or religious ; and it is quite unthinkable that a time will ever arrive when a single proposition of Euclid will be found to be *untrue*. Relatively to thought, the truths of Euclid are unchangeable, absolute, and final. Supposing the whole of the propositions (or even the greater part) to have come from Euclid, is there any other product of a single mind of which the same can be said ?

Euclid taught in Alexandria, besides geometry, various other subjects, and wrote on Fallacies, Conic Sections, Division, Porisms, etc., but owing to the vigilance exercised by the Christian Church in subsequent ages over writings, “prying into the secrets of God,” and other causes, they have all perished, except his geometry, and

part of that even shared the same fate. It is to the enlightened Arabs that we owe the preservation of Euclid; they translated and preserved the immortal work when every vestige of it had disappeared wherever Christian influence prevailed. If we may judge of the value of the lost works of Euclid by his geometry, it is almost impossible to estimate the magnitude of the mischief wrought by the ignorant bigots who destroyed them.

The influence Aristotle has had upon the world is enormous. He was the greatest of all the pioneers of early science, and his works have been the source of no inconsiderable portion of our knowledge; and yet only about one-fourth of his writings have been preserved. In like manner we owe chiefly to ecclesiastical authority the destruction of three-fourths of the works of that great man.

The Alexandrian Institute was the Alma Mater of Aristotle's writings; and considering the great number of copies that must have been made both of his and of Euclid's works—for they were in use all over Greece and Italy, and subsequently in other parts—the zeal of the Church must have been very great indeed; especially as here and there would be found a student to whom such priceless works would be very dear, and who would naturally try to hide and study them in secret. In later ages some of the fathers interpreted Aristotle in accordance with their religious dogmas, and claimed him as a supporter of some of their views.

The name of Archimedes is almost as well known as that of Euclid. He was born B.C. 287, and his connection with Alexandria is testified by the discovery of the screw, which bears his name, for the purpose of raising water from the Nile. Everybody has heard of the Archimedean screw, and the many purposes for which it has been used; but this great man was the author of many other discoveries and mechanical contrivances scarcely less valuable than the famous screw, which are not so well known to the majority. It was he who invented a method for the determination of specific gravity, by the thought occurring to him as he stepped

into his bath that the cubic contents of any irregular body could be ascertained by immersing it in water.

The anecdote of King Hiero suspecting that he had been robbed by the artisan to whom he had given a certain weight of gold to be worked into a crown is familiar to us, as the incident which directed his mind to the train of thought resulting in the valuable discovery.

From this discovery many others of minor importance, though still very valuable, were made, especially those connected with the equilibrium of floating bodies. He is generally credited with having discovered the theory of the lever—a discovery second, perhaps, to none in the whole field of mechanics. The saying attributed to him, "Give me a fulcrum on which to rest, and I will move the earth," indicates the popularity of his mechanical genius. He laid the foundation of Hydrostatics and Hydraulics, and established the science of engineering upon a solid mathematical basis. At the siege of Syracuse, his native town, by the Roman general, Marcellus, he is said to have invented a machine with which the enemy's ships could be seized, as they lay near the wall of the city, lifted high into the air, and suddenly dropped into the water, to the destruction of both ship and crew. He is also credited with having constructed burning mirrors which set the Roman fleet on fire within a short distance of the besieged town. The intellect of this one man was more than a match for the whole force of the Romans. His inventive genius devised engines of war which frightened them, and protracted the siege for three years.

His discovery of the relation between the volumes of a sphere and its circumscribing cylinder he himself considered his greatest achievement. And in fulfilment of his desire, his tomb was marked with the figure of a sphere inscribed in a cylinder. It was this circumstance that enabled Cicero, when quæstor in Sicily (B.C. 75) to discover the tomb of Archimedes, which he found overgrown with thorns and briars. The following treatises from his fertile brain have come down to us:—"On the

Sphere and Cylinder," "The Measure of the Circle," "Conoids and Spheroids," "On Spirals, Equiponderants and Centres of Gravity," "The Quadrature of the Parabola," "On Bodies Floating in Liquids," "The Psammites," "A Collection of Lemmas." About a dozen of his works are known to have been lost, and probably there were others that shared the same fate.

The world is fortunate in the preservation of so many of the writings of this illustrious man, which, no doubt, is owing in great measure to the fact that the Church saw in them no contradiction of any of her dogmas, or danger to her teachings. A modern mathematician has said of him that he came as near to the discovery of the Differential Calculus as was possible without the aid of algebra. At the end of the siege of Syracuse, a Roman soldier ran his spear through him as he was engaged in tracing some mathematical figures on the sand; and so perished one of the most glorious intellects of ancient or modern times.

I cannot give more than a bare outline of some of the principal labours of a few of the illustrious men who flourished at Alexandria; but I hope it will be sufficient to show the high level to which our race had attained, and serve to mark the contrast of the decline which accompanied the rise of Christianity. Let different writers account for it as they may, there is no disputing the historical fact that as the Christian religion rose to power the learning of the world declined; and from a most enlightened and civilised condition man relapsed into ignorance and semi-barbarism; and the darkest and most hopeless period of this backward movement was shortly after Christianity had reached its zenith of power.

It is also a matter of history, which admits of no disproof, that not until the civil power had severed itself from religious domination did learning begin to revive; and in proportion as the power of the Church decreased, civilisation prospered. The historical sequences proving the logical connection of these movements are matters of history. As we proceed, we shall have an opportunity of comparing the audacious ignorance and presumption of the fathers and heads of the Church, who controlled

the power of the world during the dark ages, with the wisdom of those whose works they destroyed wherever they could lay their hands on them, and whom they frequently tortured and burnt alive.

The principal stars of the zodiac were determined by Aristillus and Timocharis, who lived at Alexandria about 300 B.C. Following these, though not in time, Hipparchus made the important discovery of the procession of the equinoxes. Aristarchus wrote a treatise "On the Magnitudes and Distances of the Sun and Moon." In this treatise he explains an ingenious method for ascertaining the relative distances of two bodies. He also calculated the magnitude of the sun's diameter, within a little of the truth. This involved very difficult observations.

The fame of Eratosthenes, who was appointed keeper of the royal library, has descended to us. By means of armillary spheres which he invented, he observed the distance between the tropics to be to the whole circumference of a great circle as 11 to 83. He was the first to attempt, on correct principles, to determine the size of the earth. In addition to astronomy, Eratosthenes made great contributions to mathematics, geography, and history. The geological submersion of lands; the elevation of sea-beds; the articulation and expansion of continents; the formation and position of mountain ranges; the relations of the Euxine Sea, and many other subjects too numerous for detailed account here, occupied his attention. He discovered that terrestrial gravity is not constant; composed a work descriptive of the earth—physical, mathematical, historical—illustrating it with maps of all the parts then known. He solved the problem of two mean proportions. Scholars to-day appreciate the fragments of his chronicles of the Theban kings which have come down to us. Eratosthenes was also a writer of poetry, and composed a poem on the terrestrial zones. His views of the way history ought to be written have only quite recently been appreciated; and even now many historians think that the principal subjects of history should consist of the lives of kings, statesmen, soldiers, wars, and such like. At the age of

eighty, the burden of life becoming wearisome and oppressive, he calmly sought his rest by quitting it.

Few educated persons, at the time of which we are speaking, entertained any doubt about the globular form of the earth; and the arguments then used in proof of the fact are still resorted to by us. The nature of eclipses was well known, and their recurrence could be calculated. They were familiar with the motions of the earth, its poles, axis, the equator, equinoctial points, arctic and antarctic circles, colures, horizon, solstices, the phenomena of the moon's phases, and many other facts of similar character far too numerous to specify. Respecting the climatic distribution of heat and cold, they had very clear ideas; their principles were correct, though the degrees of heat in the torrid zone, and those of cold in the frigid, were exaggerated. This was due, not to want of knowledge, but to the imperfection of the instruments, in the construction of which we in the nineteenth century have attained to such marvellous proficiency.

The successors of the great men we have mentioned worthily carried on the scientific movement, and the sciences continued to be studied and enlarged. In the mathematical and physical department, Apollonius Pergæus, some forty years after the time of Archimedes, even excelled most of those who had gone before him. His greatest and most valuable work was on Conic Sections, in which the first mention of ellipse and hyperbola appears. Competent judges consider his fifth book on Maxima and Minima to be one of the highest efforts of Greek geometry. He invented a clock, among other ingenious things.

Following Apollonius, about 160—125 B.C., we meet with another great name—Hipparchus, mentioned above. Besides his astronomical discoveries, he is famed for the methods he gave for solving problems connected with triangles, plane and spherical, and the table of chords which he constructed. His discoveries in many subjects were numerous and valuable. Even Newton availed himself of the aid of Hipparchus's theory of epicycles and eccentrics in his "*Principia*."

Next come the astronomers, Geminus, Cleomedes,

and the great Ptolemy, the author of the celebrated work "Syntaxis," or the mathematical construction of the heavens. Space will not allow us to go into the numerous discoveries and labours of Ptolemy. His name, in connection with astronomy, is almost as well known as that of any modern astronomer; and his work on geography was used in European schools down to the fifteenth century. His commanding genius was the outcome of all that had preceded him in those departments of knowledge with which his name is connected. As an astronomer, he was unrivalled in the history of the world, until the appearance of the illustrious Copernicus at the beginning of the sixteenth century. Many great astronomers succeeded him at Alexandria and elsewhere, until intellectual darkness set in; but not one could be compared with him for mightiness of genius or multitudinous achievements.

Astronomy, however, still continued for some time longer to be studied; and its boundaries were steadily enlarged by the patient labours of men, who, though they had not the genius of Ptolemy, were still in possession of the learning of their age. For over sixteen hundred years no man arose to dispute the supremacy of Ptolemy; and after the annexation of Alexandria by the Romans, scarcely an astronomer is worth mentioning until we get to modern times.

Let us pause for a moment at this great and important epoch of the world's history. We have arrived at the Christian era. We have not yet mentioned the condition of the Roman world at this time, which was far advanced in material and intellectual progress. We shall come to that presently. The establishment of Alexandria, as we have seen, had been the means of forming a centre of learning, in which all the knowledge of the world had been collected together; and from which scholars and professors went forth in all directions, many finding their way to Rome and other great cities, where their influence was felt in the spread of the knowledge they had acquired in Alexandria. From the descriptions of Alexandria, which is said to have been the most beautiful city in the world—and

there were many noble, beautiful cities at that time—we may fairly conclude that there is scarcely to be found its superior in Europe in modern times.

The two chief avenues which intersected each other were each, as we have said, 200 feet wide; one was three, the other one mile long. Is there a city in Europe to-day with such noble roadways? These avenues were adorned with the most beautiful and majestic palaces and other buildings. After the taking of the city by the Arabians in 640, following a siege lasting fourteen months, the general wrote to his master, the Caliph Omar, that he had taken a city containing “4,000 palaces, 4,000 baths, 12,000 dealers in fresh oil, 12,000 gardeners, and 400 theatres or places of amusement.”

Ptolemy Soter began the erection of the famous lighthouse, Pharos, near the city, which was finished by his son, Philadelphus. It cost 800 talents, equal to £248,000, an enormous sum in those days. This grand structure was 400 feet high, and a magnificent monument of engineering skill. Elegances and refinements, equal to those of modern times, were enjoyed, not only by the Alexandrians, but also by the inhabitants of numerous other cities in those days. The towns of Greece were scarcely, if at all, behind Alexandria in point of architectural beauty and grandeur of design; and they were the homes of civilisation and learning of a very high order—especially Athens, as all the world knows. In their systems of government they had overcome some of the difficulties that confront us to-day. Lycurgus is said to have solved the problem of capital and labour by abolishing poverty in Sparta. Under the system which he devised, and the laws he made for carrying it out, it was impossible to accumulate riches, and for the same reason poverty became an impossibility. There were no poor, *because there were no rich people* in Sparta.

From all these facts we get a picture of the high state of civilisation of the world at the beginning of the Christian era. To what, then, are we to attribute the decay of all this learning, civilisation, and general

progress, and the centuries of stagnation which followed? Dr. Draper strikes the true keynote when he says :

“The talents which might have been devoted to the service of science were in part allured to another pursuit, and in part repressed. . . . In the very institutions by which she had once been glorified, success could only be attained by a conformity to the manner of thinking fashionable in the imperial metropolis, and the best that could be done was to seek distinction in the path so marked out. Yet even with all this restraint, Alexandria asserted her intellectual power, leaving an indelible impress on the new theology of her conquerors. During three centuries the intellectual atmosphere of the Roman Empire had been changing. Men were unable to resist the steadily increasing pressure. Tranquillity could only be secured by passiveness. Things had come to such a state that the thinking of men was to be done for them by others ; or, if they thought at all, it must be in accordance with a prescribed formula or rule. Greek intellect was passing into decrepitude, and the moral condition of the European world was in antagonism to scientific progress.”¹

Dr. Draper plainly refers, in this passage, to the power exercised by the Christian Church. The “decrepitude” of the Greek intellect was due, not to any natural decay, but to its suppression by force chiefly, and in part to the allurements offered to men of intellect by the Church. The Church became the only avenue to emoluments, power, and distinction ; and in time she was able to effect her purpose most completely by obtaining control of the education of the young, for which she has, in all ages, fought strenuously ; and it must be admitted that she has succeeded in retaining this most effective of all her weapons against progress and enlightenment, even down to the present day.

She has never lost sight of this irresistible power, or, in all her long history, failed for one moment to estimate to the full its influence. Witness her daily contests with the secular tendencies of the age in all matters where the education of the young is concerned, and her appeals to the ignorant and bigoted of all classes to rescue the children from the “godless” teaching of the Board Schools. The Church is now, as she has always been, the bitter and uncompromising enemy of education.

¹ “Intellectual Development of Europe,” vol. i., p. 205.

She knows well what it means to her; and with the instinct of self-preservation, she has consistently opposed the spread of knowledge. In nearly all other educational establishments the clergyman reigns supreme. Let the Church have the forming of the tender and impressionable minds of the young, and she can afford to laugh for many years to come at educational and other Acts of Parliament.

If the Greek intellect had been permitted, it would have controlled the civilisation of Europe, and there would have been no dark Middle Ages. All the glorious results arrived at by Ptolemy, and the great men who preceded and followed him, would have been handed down in an ever-increasing volume to all succeeding generations; and our Copernicuses, Galileos, Keplers, and Newtons would, in all probability, have appeared in the early part of this era, instead of during the last four centuries.

And may we not reasonably conclude that had it not been for the victory obtained by the Crescent over the Cross in Egypt in the seventh century, when what was remaining in Alexandria fortunately fell into the hands of the Arabs, there would probably have been no Copernicus, Galileo, Kepler, or Newton for some centuries yet to come? It was the Arabians who preserved the works of the philosophers and scientists which they found in the conquered city, and it is to their enlightenment we owe it that they have come down to us. The tale told of Caliph Omar ordering his general Amrou to destroy the great library is said to have been an invention of the Christians to saddle their opponents with their own bad conduct. Long before this period it had been destroyed by the Christians themselves.

“When Theodosius the Great consented to allow the Christians to destroy all the heathen temples in the Roman Empire, the magnificent temple of Jupiter Serapis, which contained the library, was not spared. A mob of fanatic Christians, led on by the Archbishop Theophilus, stormed and destroyed the temple, together, it is most likely, with the greater part of its literary treasures, in 391 A.D. . . . The historian Orosius, who visited the

place after the destruction of the temple by the Christians, relates that he then saw only the empty shelves of the library."¹

Let us now turn to imperial Rome; we are still under the influence of the legacy that she bequeathed to us.

¹ "Chambers' Encyclopædia," article "Alexandrian Library."

CHAPTER XII

DECADENCE OF ROME

FOLLOWING the conquests of Alexander, and while the Alexandrians were peacefully extending the empire of knowledge, the Roman Republic was steadily pursuing that policy of conquest and annexation which eventually left Rome mistress of the world. Sagacious, active, unscrupulous, and heartless, the Roman character exemplified the selfish instincts of man in all their naked hideousness. The beginning and end of all Roman policy, whether under the Republic or the Empire, were conquest and material aggrandisement, regardless of the rights and sufferings of the people whose territories they invaded, plundered, and annexed.

They were not hampered in their dealings by any scruples of conscience or pity. It is well to bear this in mind; it is the key to the policy and conduct of the powerful spiritual organisation which, growing at first under the fostering care of the Empire, eventually seized the reins of authority and exercised supreme control.

Rome early turned her covetous eyes towards Greece, and under pretext of assisting the Athenians against a threatened Macedonian enemy, obtained a footing in the classic land. Just previously to this she had conquered Carthage, compelling the Carthagenians to pay a fine of two millions of pounds. The war with Antiochus, king of Syria, resulted in that monarch having to cede to Rome the whole of his possessions in Europe, and those of Asia north of Mount Taurus, together with a money payment of three millions of pounds.

The Greeks fought bravely against the encroachments of the Romans, but they were no match for the legions which now poured in upon them, and it ended in the annexation of Epirus and Illyricum. Subsequently, on

the occasion of a revolt against the tyranny of the Romans, Corinth, Thebes, and Chalcis were sacked and burnt, and all the art treasures carried off to Rome. Spain next fell into the hands of the rapacious Republic, and was annexed as a province; the greater part of Asia Minor followed, and Rome became completely glutted with wealth. At the time of Julius Cæsar, Rome was practically mistress of the world, and, as it was significantly said, all roads led to Rome.

At the beginning of the Christian era, the Romans had for some time been masters in Greece. They now turned their attention to Egypt, and Alexandria became a Roman town, the ill-fated Cleopatra being the last of the Egyptian monarchs. The spirit which chiefly animated the Romans was war and conquest; extension of dominion was the ruling passion, and in all cases with them the end justified the means. If it were necessary to sacrifice any number of lives for the attainment of an object, they were sacrificed without compunction or hesitation; but they were not, as a rule, wanton destroyers, nor did they interfere with the manners and customs of the conquered races more than was necessary for establishing the permanence of their rule and the carrying out of their system of government. The religions of the different peoples subject to the Roman power were respected; or rather, they were treated with contemptuous indifference, but were not interfered with by the conquerors. Such was the uniform conduct of the Romans towards the vanquished.

Their vigorous and able minds led them to utilise and benefit by all they saw and heard in the many countries over which they held sway; and their beloved city of Rome was the constant object of their care and attention. To make it a city fit to be, as it really was, the capital of the world, no exertions and no expense were spared. How they succeeded is testified by the fact that for centuries Rome has been one of the great show-places of the world, as much on account of the magnificence of its remains as having been the theatre of the most momentous events in European history.

Here and there in the Italian peninsula were to be found men of great attainments in various subjects, but in Rome itself all branches of learning were studied in the schools, and great proficiency had been attained by the upper classes. Some of the great names at this period are second only to the greatest names of Greece and Alexandria. Between Rome and Greece there had long been going on that interchange of advantages which always takes place between two peoples who are in touch with each other; and constantly Greek teachers found their way to Rome, where they were invariably received with open arms. Rome, therefore, at the time of which we are writing, was in possession of the most advanced civilisation; and her foremost men were quite capable of extending the boundaries of knowledge, and handing it down to future generations.

Long before Christianity had obtained much power and influence, polytheism in all its forms had lost much of its vitality, even with the mass of the people. For centuries it had been gradually dying around the shores of the Mediterranean; from the time, in fact, when the commercial activity began between Egypt and the Mediterranean nations. Intercourse between the peoples brought their innumerable gods together, and set up a rivalry between their various pretensions, which had the effect of opening the minds of their devotees.

In Rome, which was a small world in itself, and contained the elements of all nations, there were about twenty thousand gods, and no man possessing any intelligence could long be a spectator of such a marvellous assemblage of the gods of the different nations without having his faith in them weakened. The progress of philosophical thought, physical discoveries, and other forms of intellectual activity were doing their work, and penetrating the minds of the masses, producing gradually those changes in the public mind which lead to the acceptance of new ideas. Moreover, many peoples had witnessed the impunity with which their gods could be insulted, maltreated, and destroyed by the enemy; thus conveying the impression that men with whom they

themselves could contend were more powerful than their gods.

The religions of the Greeks and Romans never had any great hold over the intellectual classes ; they were all followers of some school of thought or other.

Christian writers have generally pictured the world as sunk in the most miserable and abject superstition and ignorance, from which it was rescued by the teachings of Christianity. Nothing could be wider of the truth. It is true that the gods were still worshipped in all those parts where early Christianity spread ; but they were fast losing their influence, and had become objects of derision in many places, almost as much as objects of veneration. The forms of worship remained long after life had departed. This is always the case in all social institutions, but in none are the forms so tenacious of life as those of religion, especially when it has struck its roots deeply through the growth of ages.

The idols were shattered, not by the teaching of Christian doctrine, but by those innumerable influences under the incessant operation of which the transformation of thought and feeling is effected both in individuals and in societies. Indeed, it would be within the actual facts to maintain that the Christian Church prolonged the existence of paganism by the alliance that she subsequently contracted with it. By this is not meant a prolongation of the *forms* of paganism, which, as we know, still constitute a great part of the ritual and doctrine of the Church ; but the essence and substance of polytheism, which gathered new life and additional strength as it became amalgamated with the rising religious power.

It is true that when in Rome the new creed was establishing itself, and making converts, the inhabitants of the city had reached a low stage of debasement ; but it is also true that the degradation went on step by step with the rise of Christianity. And so far from the new teachers arresting, or assisting to arrest, the downward course, they were engulfed in the whirlpool of demoralisation which embraced the whole of the society of Rome ; and the simple teaching of the noble-hearted

founder was overlaid by, if not entirely lost in, the mass of corruption which soon went under the name of Christianity.

Where now were the communism and the equality of men which Jesus taught—those parts of the Christian creed to which it owed most of its vitality, and probably its very existence? Roman Christianity purify rotten Rome! Before that great mass of debased humanity began to emerge from its seething cauldron of debauchery, Roman Christianity had become a part and parcel of it; and when, in a subsequent age, the civil power in the Eternal City died, the hierarchy became heir to all its crimes, without one single feature of its redeeming virtues! And under the cloak of religion, with her hands folded in mock humility and piety, the Roman Church became a greater scourge of the human race than ever the Romans had been in the very worst days of their conquests. No heart to-day could bear the burden of reading a full history of her crimes. "Vicegerents of God on earth," indeed!

The corruption of Rome was the inevitable consequence of her enormous wealth, and was in no sense connected with the religious element, Christian or pagan. Demoralisation keeps pace with the increase of riches wherever men are collected together in the contagious atmosphere of cities; and we must bear in mind that the city of Rome was practically the receptacle of the riches of the world. Nothing demoralises men and societies so completely, and so rapidly, as unbounded wealth, unless it be abject poverty. Few men can long remain virtuous who are subject to either.

In considering the condition of the Roman world, we must guard ourselves against confounding it with Rome itself. The city of Rome, whilst becoming the metropolis of the world, and by far the wealthiest and most important city, was yet but one town; and in point of magnitude and number of inhabitants was but a fraction of the Roman world, which embraced within its wide area thousands of towns, peopled by different races. These towns, not being subjected to the demoralising influences which destroyed society in Rome, escaped her

fate for the time being, though they were destined ultimately to fall under the shadow of another power equally deadly to the healthy growth of society.

For the present they shared in the general progress which was stimulated by several causes, but more especially by the activity and spread of commerce, all the provinces of the empire being in close trading relations with one another. This was not only conducive to material prosperity, it facilitated the spread of knowledge; and soon the provinces participated in much of the civilisation and the arts and sciences for which the cities of Greece and Rome itself were so famous. The Adriatic and the Mediterranean were covered with ships laden with merchandise, and every vessel carried the seeds of social growth. Wherever the Roman soldiers conquered, there they settled, and introducing the knowledge they had acquired, the most distant provinces were in possession of aqueducts, bridges, noble roads, grand buildings, and useful engineering works. "Arts, science, improved agriculture spread among them."

Rome was an empire, probably the greatest and most powerful ever known, but it was not a nation; the Romans had no country though they ruled the world. Their only country was the city of Rome. They settled down peacefully amongst the peoples they conquered, and in time became merged and lost in them. To the conquered nations they carried their civilisation, and while they disappeared as Romans they emerged as Europeans; and the people who swallowed them up and transformed them partook of their advanced knowledge and capacities.

From being hordes of little better than barbarians they soon, under the civilising influence of the Roman element, entered upon the highroad of progress. And while the Roman Empire was disappearing, the nations of Europe were forming and growing; and had they been permitted to develop their resources, under the guidance of all that they had acquired from their conquerors, probably there would have been no stagnation of hundreds of years to record in their history. While,

therefore, the pandemonium within the great city itself was consuming the inhabitants, sapping all authority, and preparing the downfall of the empire, the rest of the world was making great progress; and there is reason to believe that superstitions of every kind were on the fair road to extinction.

Tacitus laments the decline of religion. "The holy ceremonies of religion," he says, "were violated." From this we gather that the superstitious observances, which went under the name of religion, were not only neglected, but had become the subjects of jest and ridicule. The sacerdotal order, with all the ceremonies and beliefs, was falling into decay and losing influence with all classes.

The causes of change in public sentiment and thought are subtle and numerous, and never cease to operate for the smallest fraction of time.

Besides the causes already mentioned of the decline of the authority of the gods, another powerfully disintegrating factor was their removal from place to place, necessitated by the aggressive wars of Rome. The influence of the gods was local, and their habitation could not be disturbed without lessening their authority, and creating disastrous confusion in the minds of their followers. But the glorious results of Greek and Alexandrian genius were capable of universal diffusion, and gathered strength as they spread. Natural truths are confined to no particular locality; they appeal to the reason under all circumstances of time and place.

The application of physical discoveries to the necessities and comforts of life is perhaps the most impressive of all the instruments of social progress among the people at large; and has proved, especially during the last three or four centuries of our time, quite irresistible in combating the "spiritual" threats of the churches of all denominations.

In the early periods of European civilisation there had gone forth from those great centres of knowledge, Greece, Alexandria, and Rome, an intellectual impulse which had stamped itself upon the nations, and was gradually moulding their progressive development. And there can be little doubt that, as it assisted in destroying the

reign of the multitudinous idols, it would have taken the lead in transforming religious sentiment and thought into higher and purer ideals. I have endeavoured, though very inadequately, to give a bare, brief outline of the condition of the world at the beginning of the rise of Christianity.

Let us now turn our attention to the rise and progress of Christianity, treating only of those important facts on which the subordinate series depended. We have no true history of Christianity, and never can have now. The Christian historians have so distorted the facts, and taken for granted the falsehoods of the fathers who destroyed, as far as possible, the means of detection, that there is now not sufficient material available for a truthful history.

CHAPTER XIII

FROM THE RISE OF CHRISTIANITY TO CONSTANTINE

IN ancient times, as we have seen, it was a common occurrence for "virgins" to give birth to god-begotten children; and without adopting any particular theory respecting the rise of the divine origin attributed to Jesus, we can understand that Joseph and Mary might be induced, by the awful punishment awarded to the crime of unchastity, to shield themselves under the story about the Holy Ghost. The expectation of a Messiah was at that time filling the Jewish mind, and the story would therefore be all the more easy of belief.

Be this, however, as it may, mankind is asked to believe that God came upon earth in the form of a man, and after having led a wandering life for a few years, without producing any very great impression upon the people, he was put to death for preaching doctrines not approved of by the Jewish authorities.

With the life of Jesus, however, we are very little concerned. He ran the course usual with most founders of new religions—obtained a few adherents to whom he transmitted his ideas, hopes, and fears; and ended his life, as all other mortals do, without any supernatural manifestation. The doctrine of a future life, the immortality of the soul, which he is said to have taught, was not by any means a revelation to man; it was familiar to the world long before he was born, and was a subject of widespread speculation during his time. Indeed, as Dean Milman says, "in a certain sense, it was already the popular belief among the Jews."¹

After the death of Jesus his few followers continued to preach his doctrines; and in time the sect grew in numbers and influence, and spread over Palestine and

¹ "History of Christianity," vol. i., p. 340.

Greece, finding their way to Rome and Alexandria. The varying degrees of success which attended the spread of Christianity were similar in their general character to those in the growth of every new religion. The Galilean preachers, leaving their homes and means of livelihood, and proceeding to Jerusalem, had to be supported by alms or contributions from their converts.

In time these contributions grew into a very considerable fund; and after supplying the needs of the preachers, the overplus was distributed among the poor. This came to be one of the most powerful proselytising elements in the Christian religion, and was one of the earliest causes of dissension arising among them. Accusations of unfair distribution of alms are met with among the earliest records of the religion, before even it had extended the boundary of its operations beyond Palestine. In religion, as in everything else, money makes the wheel spin round; and it is no reproach to any religion that it has to avail itself of this purely mundane element. No god has ever yet found for his servants any other means of support; he leaves those who do his work to be fed and clothed from the labour of other men, many of whom are in a state of semi-starvation.

The contest between Christians and pagans in Greece, Rome, and Alexandria began very early, and was sometimes carried on with great bitterness on both sides, especially in later times by the Christians. The ancient religions, as has been said, were crumbling in all directions, and this fact made the introduction of Christianity much easier than it otherwise would have been. It is no exaggeration to say that except in Palestine, as a rule, the opposition offered by individuals was more of a passive than of an active character.

The persecutions of the Christians under some of the Roman emperors would seem to contradict this, as would also the frightful contests, often resulting in massacre and bloodshed on a large scale; but the fact remains that the ancient superstitions had lost their primitive vitality and hold over the majority. Had this not been the case, we may reasonably infer that Christianity would

have died in the land of its birth, probably in the first half century of its existence.

It is well that we should bear this in mind, because Christian writers have invariably maintained that their religion made its way in early years by the force alone of its divine character, in opposition to every kind of hatred, superstition, and the civil power of nations arrayed against it. It requires but little reflection to convince us that this was not the case. An insignificant sect, such as the Christians were in the first century, could never have made headway except by the indifference and toleration of the Roman powers. It was quite another matter in after years when it had grown to great numbers and power, and had made numerous converts among the ruling classes, who were influenced chiefly by political considerations, as we shall presently see. Christianity has, in fact, always been more of a political than a purely religious organisation.

The many forgeries and falsehoods in which early Christian writers have been detected should make us receive with caution their statements respecting the treatment they received from the Roman authorities; and when we have no testimony from the other side we can only use reason as our guide in accepting or rejecting their statements. In so doing, we shall naturally seek for motives for the conduct attributed by the Christians to their religious opponents; and if we find that conduct to be altogether at variance with their habitual proceedings under similar circumstances, without any assignable motives for such deviation, we shall feel ourselves justified in treating those assertions of wanton cruelty as a part of the system of pious fraud which we know the Christians pursued in furtherance of the interests of their religion.

As a rule, the governing classes at Rome had no strong personal feelings on religious subjects; and the exigencies of their position compelled universal toleration of all forms of belief. It was the policy of Rome, alike through the personal inclination of the governors and from the necessities of the situation, to afford protection to the numerous religions of the peoples under their

control ; and it is well known how inflexible the Romans were in pursuing, at all hazards, any line of policy which was deemed to be in the interests of the empire.

Reason is at a loss to account for the persecution to which the Christians allege they were subjected. They were only one among a thousand sects ; they were, they tell, a peaceable, law-abiding community, and taught obedience to the people. Why, then, should they have been singled out from a thousand others for punishment and cruel persecution by the mighty power of Rome ? The presumption is that the Christians have invented many of these tales of persecution, and greatly exaggerated others, for the purpose of enlisting the sympathies of posterity ; and to give the impression that Christianity grew so rapidly in power and numbers that the jealousy, hatred, and fear of Rome was excited.

A word from either of the emperors who have been accused of torturing the Christians would have crucified every living soul among them in the city of Rome within a few hours of the promulgation of the order. It is more than probable that those who were executed met their death for the violation of religious laws and disturbing the public peace, for which the Christians in after ages became very famous.

That the Emperor Nero was guilty of the most atrocious cruelties to the Christians we have on the authority of Tacitus ; but it was not the result of Roman policy, or fear of the obscure sect. Nero was suspected of being the author of the great fire of Rome, and to turn the attention of the people from himself, he accused the Christians of the crime ; and tortured and burnt them in the gardens of his palace, in the presence of the assembled Romans, who pitied the sufferings of the unfortunate people. On the spot where the first Christians were burnt, the popes, in after years, built their gorgeous palace, from which went forth papal decrees which rivalled the doings of Nero himself in cruelty.

It may, from the human point of view, seem an extraordinary thing that in their hour of trial they

derived no succour from the God whose work they were performing, and in whose honour they suffered ; while yet it was a common thing for him to interpose his power for the accomplishment of all sorts of unimportant, insignificant events, at times and places invariably hidden from the eyes of unbelievers. If their God was constantly performing miracles, and otherwise assisting his devout servants in spreading those truths, on the acceptance or rejection of which the everlasting happiness or misery of man depended, and to teach which he himself came down to earth in human form ; surely it would be but reasonable and just to expect that among his many acts of grace he would vouchsafe his assistance to man in those moments of agony when, in his helplessness, his enemies were triumphing over him and the cause for which he suffered.

To convert a jailor, an earthquake is made to burst open the prison doors ; but when Paul, the great preacher and expounder of religious doctrine, to whose exertions probably more than to those of all others who preceded him the spread of Christianity was due, is in dire peril in the hands of his enemies, no assistance is forthcoming ; and his head is chopped off without any sign whatever from the supernatural source whence so many had appeared in connection with infinitely smaller matters.

On this subject Gibbon, in his famous fifteenth and sixteenth chapters, is very caustic. He says : " During the age of Christ, of his apostles, and of their first disciples, the doctrine which they preached was confirmed by innumerable prodigies. The lame walked, the blind saw, the sick were healed, the dead were raised, demons were expelled, and the laws of Nature were frequently suspended for the benefit of the church. But the sages of Greece and Rome turned aside from the awful spectacle, and, pursuing the ordinary occupations of life and study, appeared unconscious of any alterations in the moral or physical government of the world. Under the reign of Tiberius, the whole earth, or at least a celebrated province of the Roman empire, was involved in a preternatural darkness of three hours. Even this

miraculous event, which ought to have excited the wonder, the curiosity, and the devotion of mankind, passed without notice in an age of science and history !”

Speaking of Seneca and Pliny, who wrote on natural phenomena, being in ignorance of this greatest of all wonders, the historian says: “Both the one and the other have omitted to mention the greatest phenomena to which the mortal eye has been witness since the creation of the globe.”

The conversion of Paul was by far the most important event in the early life of Christianity. He was the first among the preachers who possessed any education to speak of, and even he does not appear to have been very successful in making converts, except amongst the illiterate: The “commanding eloquence” with which, we are told, the illiterate preachers overawed great multitudes is repeated in our time by the preachers of the Salvation Army; and their converts were, no doubt, from similar classes.

Christian writers declare that the polished intellects of the Greeks enabled them to appreciate the “high and sublime truths” that Paul preached to them on the Areopagus at Athens. Secular history tells that the educated Greeks treated Paul and his doctrines with supreme indifference. Even the one or two conversions of people of some position that Dean Milman says he made on this occasion there appears to be some doubt about; but it is certain that if he met with any considerable success, it could only have been with the untutored mob, many of whom had long since shaken off the influence of their gods. To the end of the first century Christianity was confined chiefly to the poor and lowly, to whom it strongly appealed. But numbers, no matter from what class, become powerful, especially when organised. “The slight and contemptuous notice excited by Christianity during the first century of its promulgation is in strict accordance with this ordinary development of the great and lasting revolutions in human affairs.”¹ Even so; but where was the un-

¹ Dean Milman, “History of Christianity,” vol ii., p. 1.

paralleled influence said to have been exerted by Paul wherever he went?

He travelled over the whole area of the Christian field, "from the borders of Syria, as far as Spain, and to the city of Rome"; and in every place he visited he left Christian colonies—communities of poor men and women, who now learnt that in the eye of the Supreme Power they were of as much importance as the high-born, rich, and powerful; and that when their earthly trials and sorrows were ended they would, by joining this sect, go to a place of everlasting bliss. No religion had hitherto appeared among men so calculated to win the hearts of the poor as the Christian religion; and if it had maintained its early comparative purity, and taught only the permanent and ever-vital truth, the equality of men, it might have been a blessing for all time.

While, however, it was so eminently adapted to enlist the sympathies and affections of the poor and untaught, it was of all known religions the one most likely to be rejected by the sages and educated classes of Greece and Rome. So far from Christianity presenting to the Greek world "high and sublime truths," it asked men to believe in what appeared to them incomprehensible contradictions.

To bring the matter more forcibly home to our minds, we might assume, as a parallel case, some preachers from the Salvation Army asking Professor Huxley, Mr. Herbert Spencer, and Sir Robert Ball to discard all their "notions" of science and philosophy, and believe in the simple creed founded upon a literal interpretation of the Bible. If these gentlemen were further asked to believe that a companion of the preachers, who had been travelling about with them preaching socialism, and inciting the people to riot and disorder, and who had just been hanged for the commission of some capital offence against the laws, was really the great God of the Universe, the author of all their science had taught them, and that he was also his own son, may it not be fairly asked, would the "polished intellects" of these gentle-

men qualify them for the acceptance of such "high and sublime truths"?

The cultured minds in the time of Jesus were as capable of forming a correct judgment upon such matters as the eminent men mentioned above; and the latter would be just as likely to reject as untrue all their knowledge of science and philosophy, at the bidding of the ranters, as the former would be to forswear the grand achievements of Greek intellect for the "sublime truths" of the untaught preachers of Galilee. In the first century, at least, the Christians were in little danger, for even their own historian has put on record that they excited little notice, and that was of a contemptuous character. If, therefore, Paul was beheaded, it was not because he was a Christian, but because he had by his conduct rendered himself amenable to the law which awarded the death penalty for his offence. As a pagan, he would have been similarly dealt with for the same crime.

Towards the end of the second century, Christianity had spread over the whole extent of the Roman Empire, and there were few, if any, towns of importance where it had not obtained a footing. Unlike the Hebrew religion, it was essentially a proselytising creed; it opened its arms wide to all, without distinction. It offered, with no uncertain voice, an eternal future of happiness to all who embraced its doctrines with *unquestioning faith*. It spoke with a voice of authority in which there was no hesitation or doubt.

Men who believed that the eternal God had come to earth to teach them the ways of salvation to life everlasting beyond the grave would speak with all the power and earnestness of conviction; and it is well known the influence speakers exercise over their audience when they truly believe what they preach, and have the ability to enforce their teaching in fervid, if rugged, language. To believe that he was doing the work of the eternal Power might well give to every Christian, however humble and ignorant, unbounded courage to persist in spreading the precious knowledge, in spite of dangers and difficulties. He was in direct personal touch with

his God, who looked with an eye of approval upon all he did, and what to him, under such circumstances, were any dangers which threatened merely his "worthless" body, in comparison with the salvation of his everlasting soul? Their master was but a little distance above them in the heaven that he had prepared for them; and had he not told them that he would shortly come again in his wrath and destroy the whole earth by fire?

There was not a soul among them, who had *really* embraced Christianity, who did not literally believe that the end of the world was close at hand; and that Christ would a second time appear amongst them to reward the good—the Christians—and punish the bad—all who were not Christians—with the awful torments of eternal fire. To the believer in Christ, a home in heaven transcending all conceptions of human happiness; to the unbeliever, a lake of living fire, in which the damned were to burn without consuming for ever and ever, through all eternity; and one of these two alternatives was near at hand; there was no possible escape from the awful doom except by becoming a Christian and believing in Jesus.

With their minds constantly filled with such thoughts, we can understand the zeal with which they pressed, in season and out of season, the priceless boon upon the pagans. If they were in error, they were grimly unconscious of it; and no earthly power could have enlightened them, for the reason that they had not the understanding to which reason alone could have appealed. The opponents of Christianity, who represent the early Christians as impostors, are either insincerely unjust or know little of the subject. It was very different in after years, when it had attained to sovereign power. The horrible lives of many of the higher ecclesiastics during several centuries forbid the belief that they had any faith whatever in the doctrines of their church—in the godhead of its founder, or in the life hereafter which he promised them.

In these considerations is to be found an explanation of the "persecutions" of the Christians under some of

the emperors. With a few exceptions of monstrous conduct on the part of emperors who were fiends in human shape, the Christians suffered little *persecution*. This word has been abundantly used by Christian writers for describing the punishments awarded to Christians for breaking the laws. One of the most stringent of Roman enactments forbade the formation of organised societies, or secret gatherings of any kind. To this prohibition the Christians paid no heed; and owing to such violation of the laws under which they lived, and which as good citizens they were bound to obey, they were incessantly in conflict with the Roman authorities.

Organisation was the essence of progress in Christianity, and for this the Christian possessed the greatest genius. From the earliest times methodical arrangements were made for propagating the faith and making converts; and wherever they went they organised themselves into regular bodies, the focus of which was the church, where they assembled and held their meetings. They sternly held aloof from the pagans, and refused all communication with them, even in the daily offices of life, in which, however minutely, were blended any of the forms or ceremonies of paganism. And since the pagan religion permeated the whole of social life, it was impossible for the Christians to form any part of the community, except as a distinct and separate body. This brought them into conflict with the established customs; and it was for breach of law that they suffered punishments, and not because they were Christians *quâ* Christians. Every government in Europe to-day would act similarly towards any bodies of men who should persist in setting at defiance the laws of the land in which they live.

So far as the pagan populace was concerned, the Christians met with little opposition or molestation. It was a matter of supreme indifference to them what god or gods the peculiar sect worshipped; they were too much accustomed to varieties of gods to pay any heed to either the worship or to the gods of their neighbours. Not so, however, with the Christians; they were commanded by their God to extirpate all other gods. He

could not brook a rival; and in the belief of his worshippers, no duty was so sacred or so acceptable to him as the destruction of his rivals.

They went about, therefore, uprooting what they called idolatry, which means that they outraged the feelings and susceptibilities of their neighbours on every occasion. Whenever they had an opportunity, they violated the temples, and destroyed the gods that they contained. They interfered in all the religious ceremonies of their fellow-townspersons, brandishing a great wooden cross before their faces, and thrusting it in between processions of worshippers; they shouted eternal torments as they went through the streets to all who refused to listen to them, and to accept the doctrines of the new creed. Their intolerance, arrogance, and audacity knew no bounds; and it is a most melancholy fact of history, that as soon as they gained sufficient strength they deluged the streets of every town of the empire with blood. They were the first to resort to violence; and they never ceased until the consolidation of their power with that of the empire was effected, when the victims of the church were handed over to the civil power to be burnt alive, with the pious formula, "Deal mercifully, and shed no blood!"

But it was not always with the pagans that these scenes of carnage were enacted. The Christians soon became split up into numerous divisions over trifling points of doctrine; each sect being distinguished by an appellation. Concerning the nature of Christ, creed after creed arose. To the Ebionites he was merely a man; to the Docetes, a phantasm, and so on. There were the Gnostics, the Donatists, the Arians, the Pelagians, the Nestorians, the Eutychians, the Monothelites, the Mariolatrists, the Trinitarians, and a host of others, all of whom fought desperately among themselves. Some idea may be gathered of the mass of contradictory beliefs constituting the Christian religion from the fact that the Gnostics alone were divided into fifty sects! They were the most intelligent of the lot. In the incomprehensible language of the Trinitarians,

human reason reached its lowest depth. Never before or since in the history of the world was such a melancholy spectacle witnessed, or the intelligence of man so completely degraded. "High and sublime truths," indeed, to teach to the sages and intellectual classes of Greece, Rome, and Alexandria!

So far as Rome itself is concerned in the progress of art, science, philosophy, and general civilisation, it must be regarded during the third century as a city that had reached the zenith of its prosperity and influence, and which contained the seeds of its own dissolution, apart from the incursions of barbarians, or other external causes. Unbounded wealth had undermined the foundations of its former greatness, and led to those scenes of disorder and civil discord which proved so favourable to the Christian cause. Rome had lost her moral supremacy in the empire before Diocletian removed his court to Nicomedia.

The decline of Rome, as given by historians, begs all description; it would serve no purpose, however, to repeat here the well-known tale.

It is the fashion to represent the followers of Christ as pure and uncontaminated by the demoralisation that was going on around them, and as labouring for the purification and conversion of the degraded populace. Perusal of contemporary history disproves this; and though we may discount a good deal of the mass of accusations that was brought against the Christians from time to time, we cannot escape the conviction that they also were infected with the dissoluteness and immorality which reigned supreme in all ranks of society. This conviction is further confirmed from a consideration of the nature of the papacy which grew out of the disintegrated and rotten mass. It was not a foreign element superimposed upon it, but a part of itself, born and nurtured in Rome, and composed of its different classes. It drew its life-blood from the same source, and during the whole of its existence it never belied its origin; but, on the contrary, it excelled in infamy even the very worst periods in the life of its progenitors.

It is impossible to imagine a soil more fertile for the growth of the papacy than was Rome at this time. The ancient religions discarded by the great majority, satiated with riotous living and weakened by general demoralisation, the native vigour of mind which had carried the Romans on from victory to victory until they had become masters of the world had entirely deserted them. By this time the Christians were a strong, numerous, and well-organised body in Rome, and were to be found in all grades of society.

The bishop had become a very important personage, and had assumed the position and authority of a secular lawgiver to his churches and people, in addition to being their spiritual head and guide. In proportion as Rome declined the religion flourished; and step by step the bishop fought his way to supreme power, until the cross was planted on the Capitol of Rome. The awful contests that were carried on between the three bishops of Rome, Alexandria, and Constantinople for supremacy, eventually resulting in the triumph of Rome and the creation of its pope, are well known.

Bribery and corruption were the most harmless agencies used by the higher ecclesiastics for compassing their ends. Murder on the largest scale was freely resorted to, and one of the bishops of Constantinople, Macedonius, had three thousand people slaughtered to get possession of his episcopal throne.

The Christians were no longer an obscure sect; they had made converts in the very highest quarters, the wife and daughter of Diocletian, the great emperor, being among them. In the army there were also many Christians, and grave consequences were likely to ensue from their refusal to join in the pagan rites which were universally observed by the Roman soldiers. It was not so much their numbers, however, as their aggressive attitude which made the Christians so formidable at the beginning of the third century, at the time when the power of the Roman authorities was considerably weakened by the wars that raged between the emperors for a number of years, culminating in the defeat and destruction of one after another, until the Roman em-

pire was once again united, in the person of Constantine the Great, under a single ruler.

We can scarcely realise the effect upon the Roman Empire of Christian aggressiveness at this time, their doctrine of passive obedience notwithstanding. There was not a town, and scarcely a village, in the whole of the vast dominions under Roman sway that did not contain an organised proselytising body of Christians, who incessantly attacked, not only the pagan religions, but also learning of every description. And although they did not and could not succeed in making much impression upon the intellectual classes, they found the means of harassing them considerably with their incessant importunities and the continued public disturbances which everywhere took place. Notwithstanding all this, however, it is doubtful if Christianity would have become the religion of Europe, had it not been for the civil power adopting and forcing it by sword and faggot upon the world.

The question may reasonably be asked: Since the world was fast outgrowing its faith in Polytheism—and the majority of men need a religion of some kind, for it is one of the strongest elements in human nature—what was there which could succeed Polytheism? It will be generally admitted that the current religion among us is a different thing now from what it was a century or two ago; that many of the doctrines have been quietly dropped and allowed to fall out of use in the churches. Among thoughtful people Christianity has become more a system of ethics than a dogmatic creed. And if civilisation had not been arrested, and the learning that was in the world in the early centuries of our era had been allowed to spread and grow, may we not reasonably assume that if Christianity had taken the place of paganism, it could only have done so under some such form as that in which it is now regarded by many, viz., a purely monotheistic creed, shorn of the dogmas which constitute the bulk of technical church or state Christianity?

The dogmas which are now discarded could never have found their way among, or at all events have been

accepted by, people whose civilisation had been formed by Greek learning. The Christian faith is nothing without the godhead of its founder, but it is quite certain that this would never have been incorporated in any belief which grew up upon the continuity of Alexandrian philosophy and science. And we may even go to the length of saying the same with regard to future reward and punishment—heaven and hell. The intelligence of the ancients would never have allowed them to believe in such doctrines.

We might almost say in proof of this that we need but remember their great knowledge of astronomy, their true conceptions of the immensity of the Universe, and the multitudinous suns and worlds composing it. Shelley has eloquently and truly said: "The plurality of worlds—the indefinite immensity of the Universe—is a most awful subject of contemplation. He who rightly feels its mystery and grandeur is in no danger of seductions from the falsehoods of religious systems, or of deifying the principle of the Universe. It is impossible to believe that the Spirit that pervades this infinite machine begat a son upon the body of a Jewish woman, or is angered at the consequences of that necessity which is a synonym of itself. All that miserable tale of the Devil, and Eve, and an Intercessor, with the childish mummeries of the God of the Jews, is irreconcilable with the knowledge of the stars."

As to most of the minor tenets and ritual forms, they are too childish ever to have been seriously considered by the intellectually advanced peoples fifteen or sixteen centuries ago. We do not mean to maintain that the majority of the pagans at that time were intellectually superior to accepting the whole of the dogmas—undoubtedly they were not; but the sages and the superior classes were; and inasmuch as *they* would have given the direction and tone to the forthcoming civilisation of Europe, the grosser forms of Christianity could not long have survived, even if they ever obtained a footing.

The decadence of Rome at this time, about 300 A.D., was peculiar to that city. It was not a sign of the times, except so far as the papal shadow was deepening; the

general progress had not yet been arrested to any appreciable extent. The enormous wealth of the ancient capital had reduced the population to two classes only—the very rich and their retainers. The middle classes had entirely disappeared, and with them the arts and sciences, and nearly every form of industry. It was no longer the home of genius, virtue, or talent of any kind ; and when a triumphal arch had to be erected for one of the emperors, who took up a temporary residence in the city, it was necessary to dismantle the ancient structures of their ornaments for the adornment of the new building, as Rome contained no sculptors equal to the occasion. This great city, from which had proceeded for many centuries armies that conquered and laws that governed the whole world, was sunk to a population of inebriated gluttons on the one side, and parasites and slaves on the other.

CHAPTER XIV

CONSTANTINE THE GREAT

AN event was now about to happen which is regarded as one of the most momentous in its consequences that has ever taken place in the history of the world, and from which Christianity dates its rapid growth to real power and sovereignty. That event was the conversion to Christianity of Constantine the Great. As to the motives which induced Constantine to embrace the new faith, we need not waste time in inquiring too closely. Volumes have been written on the subject to little purpose, and without much edification. But we may, having regard to the character of the man, dismiss the theory put forth by Christian writers, that his conversion was owing to his perception of the "holy and sublime" character of the faith, and the awe with which it inspired him.

In the first place, the "holy character" of the Christian faith as then practised was abundantly manifested in Rome, in Alexandria, in Antioch, and in every town of the empire, by the intolerant attitude of the Christians towards the pagans, and also towards one another. He had many a time been an eye-witness of these contests, and had marked the uncompromising and vigorous spirit with which the Christians maintained their cause. He had seen how those Christians marshalled themselves round their respective leaders, the rival bishops, scowling upon one another like men possessed rather of demons than of those holy influences which were supposed to have captivated the pagan emperor. He was not likely to stand in much awe of anything which Christianity had to present; on the contrary, he found in it much that was congenial to his own nature.

And in the second place, we have but to consider the deeds of this dark-souled man of blood to convince us that he was quite incapable of appreciating, or of being swayed in his conduct by, any system of religion which contained a sublime truth or an exalted principle. Apart even from his savage nature, he had waded through too much blood and slaughter to entertain a very fine perception of the higher phases of moral conduct. The gratitude of every succeeding generation of Christians since his day has enlisted a host of writers in his behalf; but the facts of history cannot be expunged, and they are such, with regard to this man, that all his pious apologists and defenders cannot white-wash him, or palliate ever so slightly the dreadful crimes of which he stands convicted.

The wife to whom he had been allied for twenty years, and who was the mother of his three sons, he foully murdered in the private apartments of his palace. This deed alone, were there no others proved against him, would be sufficient to place him beyond the pale of humanity; but it was only one of a series of monstrous crimes which contemporary history lays upon the soul of this great Christian hero. He ordered the murder of his own son, Crispus—the unfortunate child of the unhappy wife; and Licinius, his nephew, met the same fate, in spite of the heartrending supplications of his mother, who was Constantine's sister. He had his father-in-law, the Emperor Maximian, who in past days had been his father's benefactor, put to death. His royal captives, the princes of the Franks, he had torn limb from limb by wild beasts in the amphitheatre at Treves. He executed the two sons of the Emperor Maxentius, together with every living soul of his race. Great numbers of his personal friends were executed with his son and nephew. The son was guilty of no crime, and no attempt was ever made to prove him guilty of any. Informers were invited to come forward and pour their accusations against the son into the ears of the father; and, of course, enough were ready to hand.

Such was the character of Constantine, the first Christian emperor, whom the Christians have styled

“the Great.” He was an unlettered soldier, but possessed undaunted courage, quick apprehension, and a powerful, comprehensive mind. His was a heart that knew neither fear nor love, and was more akin to that of the savage beast than to man’s. If, then, a motive be sought for in such a monster’s change of religion, it will surely be no compliment to the creed of his choice to attribute his conversion to his perception of the affinity of his character with the spirit of his adopted faith.

It is very reasonable to suppose that he was conscious of the decay of paganism, and knew that, for the purposes of using it as a binding element in the Roman empire, its vitality had departed. He had become master of the world, and recognised, with his quick intelligence and profound political insight, as well as from past personal experience, the impossibility of long holding together under his sole sovereign control so heterogeneous a mass as the Roman world by the power of the sword alone. He knew that the Christians were getting numerous, and were spread over the whole extent of the empire; and although they incessantly wrangled amongst themselves, it would be a comparatively easy matter for the head of the empire to reconcile their dissensions, create a bond of real fellowship between the jarring sects, and probably within a very short time bring over, by fair means or by foul, the majority of the Roman world to the Christian fold.

One god, one creed, would do more towards establishing on a firm, permanent basis *one emperor* than many legions could effect; and there can be little doubt that a wily, unscrupulous man like Constantine would not fail to see this, and act accordingly. And may it not be said that his success justified the sagacity of his choice? As to his pretence of having seen a shining cross in the heavens, with the inscription, “By this, conquer,” and his assertion that when he fell asleep Jesus appeared to him, and directed him to make a banner of the sign, and go forth and conquer, with the cross carried at the head of his armies, the tale may be dismissed as the deliberate fabrication of an unscrupulous man, and it has long been regarded as such.

Probably many considerations combined to induce Constantine to remove his capital from Rome to Byzantium. In Rome, owing to his detestable crimes, he had become hateful even to the Roman people; and a pasquinade having been affixed to the palace gates, he was on the point of taking revenge for the insult by a general massacre of the people; but his brother, whom he consulted, it is said, advised him to degrade the city by creating another metropolis elsewhere. Byzantium was fixed upon for the new capital, and was named Constantinople, after its founder. His reasons, whatever they were, are not of importance to us; but he probably knew that Rome was no longer fit to be the capital of his vast dominions. Her degraded condition was past redemption; and Constantine was, no doubt, fully aware of this.

Gibbon tells us that in building the new capital the cities of Greece and Asia were despoiled of their most valuable ornaments. Rome, Sicily, Antioch, Athens, and many other cities were laid under contribution for the embellishment of Constantinople. The historian laments the necessity for this, in the extinction of the genius of Phidias and Lysippus; but such great masters are not to be found in every age, however eminent for genius in other walks of life; and the impatient emperor, who detested Rome, and was anxious to shake her dust from his feet, would not be likely to hesitate about appropriating the masterpieces of art, wherever they were to be found, in preference to the more slow and costly process of creating more, even if such creations were still possible.

On the remark of the historian Cedrenus that nothing seemed wanting except the souls of the illustrious men, whom those admirable monuments were intended to represent, Gibbon says: "But it is not in the city of Constantinople, nor in the declining period of an empire, when the human mind is depressed by civil and religious slavery, that we should seek for the souls of Homer and Demosthenes." The religious cloud, even before the days of Constantine, had begun to oppress the mind; combined with his tyranny, it now became a formidable

foe to liberty and progress. The doctrine of eternal torments denounced against all unbelievers resounded through the length and breadth of the land, and was not, as we know from experience of later years, without its due effect.

But it is distinctly and emphatically with the reign of Constantine that the dark ages begin. Draper says: "To the reign of Constantine the Great must be referred the commencement of those dark and dismal times which oppressed Europe for a thousand years." The Christian Church is now and henceforth a power in the land, not in virtue of her holy character, or of the omnipotence of her founder, but through her alliance with the civil power, which placed at her disposal the persuasive influence of the authority and wealth of the master of the world.

The sword of Constantine did in a few years what the cross of the young Jew carpenter could never have effected, notwithstanding the contagion of enthusiasm and religious superstition, gathering strength in a geometrical ratio from age to age. The acts of the emperor showed at once the state of his mind on the subject of religion. He did not blindly or injudiciously fall into the arms of the Church, and accede to all her clamorous demands. Had he been a much weaker man, he would have deluged every town of the empire with the blood of his heathen subjects, by acceding to the importunities with which he was beset on all sides. Instead of this, he proceeded cautiously; and while he rewarded the Christians, he steadily refused, for the present, to commit those wanton acts of outrage on the pagans to which he was incessantly incited.

Constantine had none of the bigoted zeal of the Christians, and all his actions go to prove that he was a Christian through policy rather than conviction. That policy was in unison with the spread of the religion of his adoption, and he soon began to exercise the same sagacity for the conversion of his empire that he had previously manifested in winning it from his rivals. He took upon himself the office of advising, in the disputes that convulsed the Christian sects, about the nature of

the relationship of the three gods composing the Trinity. And he did not hesitate to decide with the stronger, and denounced, in no measured terms, the *heresies* of the weaker. Court females have in most ages been an insidious power in Church diplomacy, and through their intercession Constantine was induced to recall the Donatists from banishment, and Arius he denounced as "the very image of the devil." He was an apt pupil, and soon learnt from the instructions of his bishops the choicest language of Christian denunciation.

He exempted the clergy from civil offices; gave to the bishops immense sums of money for the restoration of churches; made the imperial treasury reimburse the clergy for many of their losses; supplied money from the same source for building new churches; forbade any Jew to possess a Christian slave; *enforced the decrees of Church Councils by means of the power of the State*; forbade all schism in the Church, constituting himself the judge, under the guidance of those ecclesiastics who happened on the occasion to be in his confidence and friendship. In all these matters, and a thousand others besides, he was guided by policy chiefly. The great Trinitarian controversy which raged at Alexandria in his time occupied a good deal of his attention, and in consequence the disputes spread among all classes. The glorious seat of philosophy and science was fast becoming a bear garden of wrangling ecclesiastics, fighting over such questions as to whether the son was equal to the father, whether he existed before he was begot, whether he was the father of himself, the son of himself, or both in one.

That such disputes should ever occupy the serious attention of sane men is hard to account for; but that they should have found a home in Alexandria is the most significant illustration of the intellectual degradation of that once famous seat of learning. It is true that the Museum had as yet but heard the faint echoes of the wrangling that disgraced the city; but it could not long maintain its high intellectual character amid such surroundings, and gradually it became infected, more or less, with the heated controversies which were everywhere going on.

The intellectual classes have been blamed for not taking the lead at this period, and directing the mind into higher and healthier channels ; but the blame is unjust and unreasonable. The number and power of the disputants carried all before them, and they were, moreover, quite incapable, from passion and want of intelligence, of listening to the voice of reason and sober argument. How was it possible for science and philosophy to make any impression upon men who were ready to shed their blood in defence of doctrines which were a direct contradiction of one another ; and in the advocacy of which they made a boast of outraging human reason, on the ground that they were mysteries which only God could understand ; and that he had purposely given them to man to try his faith, and thereby his fitness for heaven or for hell ?

Respecting those interminable disputes on every conceivable point of doctrine countless volumes have been written ; and in the Church libraries throughout Europe the ponderous tomes fill no inconsiderable space, where they repose in dust and undisturbed solitude.

On Constantine, who was dyed with every crime, the bishops conferred the title of god, which, together with a monogram of Christ, was impressed on a medal struck for the purpose. The sun, the Saviour, and the emperor were mingled together as a sort of Trinity, and adorned one of the highest columns in Constantinople. Between Constantine and the Christians there was a bond of sympathy. They were powerful enough at the time of his accession to have kept the purple from him ; they used their great political influence in his favour ; and gratitude, as well as policy, led him to favour them at the expense of the pagans on every occasion, as far as prudence permitted. But he was not a Christian at heart any more than he was a pagan, and he often gave offence to the former by the slight concessions—mostly of a negative character—which he made to the latter.

The word “heresy” in those days, and for many centuries subsequently, became a term of frightful and appalling import. It embraced a catalogue of almost

every known crime, and exceeded them all in the intensity of its heart-crushing, soul-subduing influence. Between the contending parties it was freely bandied from one to another, and was at all times a signal for strife and bloodshed, until the papal power had subdued all rivals, and tumult and passions were hushed in the presence of the black accusers who did the work of the Inquisition; when to lay an information of heresy against man or woman was equivalent to a sentence of death, preceded by the most excruciating tortures. Constantine had all his work cut out to hold the balance evenly between the different parties. He and others endeavoured to pacify them by the Councils which were held from time to time at Nicea, Rome, Arles, Milan, etc.; but such was the fierce character of the superstitious sects that the slightest concession made to one party was sure to provoke jealousy and enmity in another.

The Donatists, who thought that their rivals obtained more of the ecclesiastical spoils than fell to their share, fiercely demanded of the emperor what right he had to meddle with the Church, and pronounced eternal damnation against all who denied the right of Donatus to be bishop of Carthage. In those early days their uncontrollable zeal foreshadowed the approach of that absolute supremacy which brought kings and emperors to their knees before the chair of St. Peter. They denied the right of the emperors to interfere in Church matters, and they censured the rival bishop for holding communication with the Court.

“Already the Catholic party, in preparation of its commencing atrocities, ominously inquired, ‘Is the vengeance of God to be defrauded of its victims?’”¹ It was in this reign that the Church obtained the right to receive bequests in land, and this proved to be one of her most powerful possessions. The gentle persuasions of the power which claimed to hold the keys of heaven and hell soon had the effect of diverting many a rich estate from the lawful heirs to the Church Corporation; and in time the wealth of the world again poured into Rome as in days of old, producing also

¹ “The Intellectual Development of Europe,” vol. i., p. 282.

the same results as of old. But a mightier rule had taken possession of the Eternal City than ever reigned in Rome in the most powerful days of the empire; and, in consequence, a deeper degree of infamy was reached under the reign of the popes than under that of any of the emperors. The Protestant writers delight in attributing the unspeakably infamous lives of the Roman pontiffs and the high ecclesiastics of the Catholic Church to the influence of degrading doctrines. But with the same opportunities, would the Protestants, or any other order of men, have been much better? It was not religion that demoralised them, but *unbounded wealth and irresponsible power*—the destroyers of human virtue in all except the god-like few who appear at long intervals to guide the destinies of man.

It was customary for the different sects to assume that they were under the special protection of God; and they, in consequence, styled themselves God's elect. We are not told in history the means by which their deity communicated to them the knowledge of his especial favour, as we are in regard to other portions of the Christian religion. But the precise manner in which they particularise the minutest points of doctrine, and their unhesitating faith in the accuracy of the details, lead us to infer that they were under the impression that they had been the recipients of divine inspiration in those matters.

The origin of the famous Trinitarian disputes was a quarrel between Alexander and Arius, two ecclesiastics who both coveted the bishopric of Alexandria. Arius numbered amongst his followers seven hundred virgins, while Alexander was also supported with a goodly number. The impious and gay Alexandrians caricatured the two holy leaders and their parties on the comic stage, and the city soon assumed a lively aspect. The points in dispute between those two churchmen had reference to the nature of the relationship between God, the Son, and the Holy Ghost.

Arius maintained that in the nature of things the father must be older than the son. Alexander and his followers looked upon this as degrading the son from

his godhead, and they denounced Arius and his party as impious blasphemers, for whom hell itself was too good. The son, they agreed, was begotten by the father and the other god, the Holy Ghost; but they also asserted that he existed before he was begotten, and that he was made out of nothing, and yet that he was not made at all.

The Trinitarian disputes in Alexandria were a perpetual subject of amusement to the Jews and pagans, whose mocking derision did not tend to calm the passions of the Christians. To settle the controversy, Constantine summoned a Council at Nicea, which has since played so great a part in Church history. The result of this Council was the production of the famous Nicene Creed, in which was embodied the wisdom of the Church. The last clause ran as follows:—

“The Holy Catholic and Apostolic Church anathematizes those who say that there was a time when the Son of God was not; and that before he was begotten he was not, and that he was made out of nothing, or out of another substance or essence, and is created, or changeable, or alterable.”

The passions that were engendered by this memorable quarrel did not cease until they were quenched in blood by the stern Saracens, who conquered Egypt some three centuries after its outbreak, and silenced for ever the voice of Christian contention in that ancient land. It is said that there was not a Christian man or woman in all Egypt who did not proceed to settle the nature of the unity of God.

It was the desire of Constantine to make religion a branch of politics, so that he could use the power of the Church for political purposes; and while he lived, ecclesiastical authority was kept in due subordination to the power of the State. But shortly after his death the Church became sufficiently strong to throw off all restraint, and to assert her entire independence of any earthly power.

Athanasius, the bishop of Alexandria in the time of Constantine, opposed the emperor, and became his personal antagonist in the Arian heresy. Constantius, like

his father, pretended to have had a vision, and laid claim to divine inspiration ; but as the divine revelation did not happen to accord with the views of the dominant party, it was rejected by them. In the contest which now ensued between the Church and the State, Athanasius went to Rome, and laid his case before the bishop there. This is important, as being the first act on the part of the Alexandrian bishop implying, in some measure, his subordination to the bishop of Rome.

The Christian Church began now to repudiate her subjection to the laws of the empire, asserting that she was responsible only to God ; and that as her bishops held the keys of heaven and eternal life, they were superior to any earthly potentate, whose power could only be exerted over the body. The emperor might kill the corporeal part of man, but that was of no consequence in comparison with the eternal torments of the indestructible soul. Here was a power greater than that of all the legions in the world.

If a man comes to believe literally in heaven and hell, and persuades himself that a fellow-mortal has the power to send him to either place, no earthly considerations will weigh with him against the wishes of such a master. That the Christians implicitly believed that their bishops possessed this power, and that heaven was their destined portion hereafter, is amply proved by the unflinching, not to say cheerful, manner in which many of them met torture and death. They were in turn the oppressors and the oppressed, and themselves suffered the agonies that they inflicted upon others.

Constantine had been playing with Christianity during the whole of his reign ; but as he was approaching his end he prepared for baptism, "in the hope that the sins of a long and evil life might be washed away." He had consolidated the power of the Church, and converted it from a more or less heterogeneous mass into an organised body. And though the rivalry between the bishops continued for a long time after his death, supremacy set steadily towards Rome. He had succeeded in his object of making the Christian religion, or rather the Church,

the great object of men's ambition. The ecclesiastical appointments became as much sought after as the high military positions had been a few years previously. Many of the emperor's personal friends were churchmen ; they filled the Court, kept up large establishments themselves, were honoured guests in patrician and wealthy families, and throughout the social grades were looked upon as men of authority and position.

Gradually the great overshadowing power of the Church subdued and absorbed the intellectual activity of the empire ; and little by little the aspirations for knowledge gave way to the encroaching religion, backed by the power and wealth of the State. The Christian's knowledge was in his Bible ; henceforth *that was to be the criterion of truth*, as interpreted from time to time by those who happened to be in authority. And the time soon came when it was death to a person to be found in possession of any book or writing of any description whatsoever which contradicted, or seemed in the eye of the Church to contradict, a single word of the Scriptures.

CHAPTER XV

FROM CONSTANTINE TO THE CRUSADES

THE removal of the capital to Constantinople was the indirect cause of the ultimate supremacy of the bishop of Rome. While the emperor and his court resided in the city, the bishop could not be otherwise than a subordinate personage; and all his actions were under the jealous eyes of the emperor and those of the great men who surrounded him. With the Court and all its prestige at Constantinople, the bishop had a free hand; and as events showed, he made the most of it. It is beside our purpose to enter into the fights that disturbed the peace of Rome for a long time—they would fill volumes. The following, from Riddle's "History of the Papacy," may be taken as a fair sample. It occurred on the occasion of the assumption of the title of Pontiff by St. Damasus, who was opposed by Ursinus (366-384):

"After some deadly conflicts between the followers of the two rivals, Ursinus was banished from the city; and a similar sentence was about to be carried into effect against seven presbyters of his party when the people interfered, and lodged them for safety in one of the churches. But even here they found no shelter from the fury of their opponents. Armed with fire and sword, Damasus, with some of his adherents, both of the clergy and of the laity, proceeded to the place of refuge, and left no less than a hundred and sixty of their adversaries dead within the sacred precincts."

We can readily understand the effect which such a state of perpetual tumult, contention, and bloodshed (which was almost the normal condition of the chief towns of Christendom at this and subsequent periods) would be likely—nay, would be certain—to have upon progress and civilisation, upon the study and cultivation

of the arts and sciences of life. The social atmosphere of a community is determined by the prevailing influences in that community. If peace and quiet reign, the mind will be predisposed to reflection and study, and *vice versâ*. No community could receive, enlarge, and transmit the accumulations of preceding ages under such social conditions as those which were brought about by the incessant unrest and aggressive proceedings of the powerful, dominant organisations which filled every town and village that was subject to the authority of the emperor.

Such a state of social turmoil would not only render the fruits of past labour barren and useless, but it would inevitably sap the intellectual energies, and bring about a condition of universal deterioration. The intellectual collapse which overtook Christendom under papal domination would still have been accomplished, without the aid even of the rack, thumbscrew, and stake; though perhaps it might not have been so complete. There was no contending against the weapons of torture and death which the Church used so mercilessly. Against the former influence only, possibly early civilisation might have survived to some extent, and impressed itself upon the rising nations of Europe.

It may appear to some readers that we have too deeply coloured the contentious attitude of the early Christians, bearing in mind their doctrine of passive obedience. To those who believe in their peaceful, in-offensive, meek, and lowly conduct in the third century, we would recommend the consideration of some of the clauses of their creed, as established by the first great Council, held in 325 A.D. Three hundred bishops assembled at this Council, and before it broke up they unanimously decreed the penalty of death for heresy; and when Constantine ratified the Nicene Creed he issued an edict in which this sentence appears:

“This also I enjoin, that if anyone shall be found to have concealed any writing composed by Arius, and shall not immediately bring it and consume it in the fire, death shall be his punishment: for as soon as ever he is taken in this crime he shall suffer capital punishment.”

So that at this early period it was not only death to

believe otherwise than as they were directed by the Church, but for concealing the writings even of a so-called heretic capital punishment was the penalty. And when it is considered that this same heretic was recalled into favour some ten years after his banishment, we are at liberty to form our own opinion as to the divine character of the creed, for non-compliance with which a person was executed.

In the third reign after Constantine the Great, Julian occupied the throne. It was in his reign that St. George, the patron saint of England, lived. Emerson, in his "English Traits," says: "George of Cappadocia, born at Epiphania, in Cilicia, was a low parasite, who got a lucrative contract to supply the army with bacon. A rogue and informer, he got rich, and was forced to run from justice. He saved his money, embraced Arianism, collected a library, and got promoted by a faction to the episcopal throne of Alexandria. When Julian came, A.D. 361, George was dragged to prison; the prison was burst open by the mob, and George was lynched as he deserved. And this precious knave became, in good time, Saint George of England, patron of chivalry, emblem of victory and civility, and the pride of the best blood of the modern world." Gibbon is equally severe on England's darling, St. George.

The character of Julian is admitted by all, even by his enemies, to have been noble, generous, just, and elevated. In his early years, and while imprisoned by Constantius, he was compelled to conform to the Christian religion; but being a man of singularly powerful and well-informed understanding, he soon revolted against the doctrines of his new religion. He forbade all persecution, while trying to restore the religion of the pagans, and forgave a number of Christians who had conspired against his life. He is termed by the Christians "Julian the Apostate"; but, as Dean Milman admits, he was no apostate, for as soon as he had attained the age of reason he declared his disbelief in Christianity. His only weapons were logic and reason, as opposed to the Christians' bludgeons—they were forbidden to use the sword, so used large clubs instead, with which they beat

out the brains of one another; as in after years they burnt men because it was against their creed to shed blood.

Julian tried to stem the tide of Christian progress; but he might as well have tried to force back the advancing waves of the ocean. It is said that now religion became lost in theology, and that theology had gone mad; but if theology is not another name for religion, what is it? Step by step religion had been evolving along the natural lines of its growth, and at every stage the result was the unavoidable outcome of all the preceding stages. The various developments of Christianity at different periods were the inevitable consequences of Christian doctrine. The more indefinite the foundation of a creed, and the greater the call upon its followers to diverge from the more elementary experiences of human life, the greater will be the variety of interpretations over which the mind will range in its efforts to formulate that creed. And it will be admitted that the Christian religion is the greatest example on record, both in regard to the extra-human character of its basis, and the resultant variety and wide range of interpretation in which its followers have indulged during its long history. Not only were the hundreds of sects into which Christianity was split up at the end of the third century inevitable, but the faggot and stake in due time were bound to follow the cross, as its natural sequence.

A student of Greek philosophy, the disciple of Plato and Aristotle, Julian early recognised the paralysing influence that the Christian religion was exerting over learning, and therefore over the progress and welfare of man. Few men were so well able to form just judgments as he, who had imbibed in the schools of Athens the spirit of Greek enlightenment, and whose mind was informed with the culture of that highly intellectual and civilised people. The nobility and greatness of his character was such that gross impertinence and personal insult could not provoke the master of the world to retaliation. Few instances are to be found in history of such forbearance as he exercised on many occasions. "While he was employed in sacrifice, he was interrupted

by the remonstrances of Maris, the Arian bishop of Chalcedon, to whom age and blindness had added courage. 'Peace,' said the emperor, 'blind old man, thy Galilean God will not restore thine eyesight.' 'I thank my God,' answered Maris, 'for my blindness, which spares me the pain of beholding an apostate like thee.' Julian calmly proceeded in his sacrifice."¹

Contrast the conduct of this pagan emperor with that of the three preceding Christian emperors. What pagan would have dared to intrude upon the presence of either of these men for any purpose whatever, let alone to use the language of personal insult? The greatness of his conduct is unparalleled almost in the history of the world.

Christian writers have striven very hard to reduce his great merits, by attributing to him a belief in the most miserable of the pagan superstitions; while unconsciously at times making admissions here and there, which, when taken together, form almost a perfect character. Milman says: "Julian himself is perhaps the best, because the plainest and most perspicuous, writer of his time." To be "the best writer of his time" is no small praise to bestow on any man; and in itself would go far to constitute him, if not *the* greatest, at least one of the greatest men of his time. And that Julian was in every sense a great man, contemporary history proves. Against the writings of subsequent ages, respecting the nature and tendency of Julian's conduct, I would oppose that of men of his own time. The following, though somewhat exaggerated in style, is significant in many ways: "Thou, then, I say, O mightiest Emperor, hast restored to the public the expelled and banished virtues; thou hast rekindled the study of letters; thou hast not only delivered from her trial philosophy, suspected heretofore and deprived of her honour, and even arraigned as a criminal, but hast clothed her in purple, crowned her with jewels, and seated her on the imperial throne. We may look on the heavens and contemplate the stars with fearless gaze."

From this we learn that the study of letters, philosophy,

¹ Milman, "History of Christianity," vol. iii., p. 5. *Ibid.*, p. 3.

and astronomy had suffered severely from the triumphs of Christianity. Writers whose works live reflect the spirit and conditions of their age; and we know from many sources that the above quotation only too truly signified the decay of learning under the three Christian emperors who preceded Julian. The Christians were extremely illiterate, and hated learning. History may be defied to produce any instances of the Christians manifesting, at this period, the slightest acquaintance with learning of any description; while contemporary works teem with proofs of their bitter hostility to everything that savoured of refinement and culture.

The illiterate men who held the appointments of bishops condemned every kind of study as an impious prying into the secrets of God; asserting that he had given to man, in the Bible, all the knowledge he intended him to possess; and that while belief in the Scriptures was necessary to his salvation, all other kinds of study would certainly lead to his eternal burning in hell fire.

Profoundly ignorant of Nature and the magnitude of the Universe, they still believed that Jesus was a little way above them, and would shortly fulfil his promise, and reappear in all the majesty and glory of omnipotence, when the earth would be dissolved, and the human race would depart a short distance hence, to their respective places of heaven and hell. Every Christian at this, and at preceding times, lived in daily expectation of the great consummation; and from the time of Jesus until the present day fanatics have never ceased to prophesy the near approach of the end of *all* things; as though the destruction of this less than grain of sand that we inhabit carried with it the annihilation of the inconceivably stupendous Universe, with its untold millions of worlds and countless myriads of sentient existences!

To them there was little Nature to speak of; everything was so simple and plain that there was nothing to study. The Bible contained all knowledge, and the fathers of the Church became in consequence the depositaries of all that it was possible or lawful to know,

When one thinks of such teachings superseding the grand and sublime achievements of Greek intellect, it is difficult to write with that sobriety of language becoming the subject of historical narrative. We express the natural sentiments of indignation at the destruction of the beautiful cities of Greece and Rome by the barbarians ; but their havoc was for the most part reparable by industry, and had comparatively little effect upon social progress. The repression and destruction of the fruits of centuries of intellectual toil is of far more serious consequence to man.

To so great and learned a man as Julian, the degeneracy of the times, and the contrast between the ignorance of the Christians and the enlightenment of the pagan sages, would be obvious and unmistakable. No man knew better than he the consequences to future generations of universal Christian domination. The results were already but too plainly visible in the dark cloud that was overshadowing the once joyous life, and paralysing intellectual activity. Surely it is only a reasonable conclusion to come to that such a man as Julian would be fully conscious of this ; and would do all in his power to avert the awful destiny that awaited his country, and which, in spite of all his noble efforts, was not even retarded in its onward course to darkness and stagnation.

From the known scepticism of the cultured minds of the pagans of those times, we cannot believe that Julian's powerful intellect was infected with the gross absurdities of the popular belief. His encouragement of paganism was no doubt intended as a counterpoise to Christianity ; he probably thought that the spread of the light of reason and knowledge would ultimately kill the superstition ; and as his subjects were fast outgrowing the old faith, the reign of philosophy and science was about to be inaugurated among the people. He was much attached to the speculations of Plato and the investigations of Aristotle, and it seems beyond doubt that he looked forward to a time when the knowledge of the Greeks should become the guiding influence in progressive civilisation. To depict such a

man as examining the entrails of a goose in the hope of finding an infallible guide to his conduct, or the means of foretelling future events, is a libel on his acknowledged intellectual greatness.

What was the outcome, so far, of Christianity, and its influence upon the world? Julian reigned two years; and though he exerted all the power of his great and influential position to stop the advance of the Christian faith, he was unable to make any impression upon it. He strictly forbade all persecution, and worked hard with tongue and pen to effect his purpose. Mr. Robert Buchanan in his poem, "The Wandering Jew," makes Julian say that by setting his foot upon the viper he could have crushed the life out of it. But it is doubtful if the strongest measures could at that time have extirpated the rapidly spreading religion. It had taken too deep and widespread a hold upon the people. Possibly if Julian's reign had been a long one he might have been more successful, as he was gradually obtaining the co-operation of the educated classes, and some of the best intellects of Greece.

In the intellectual strife of the schools the question, What is truth? had long been debated, but no satisfactory answer had been forthcoming. Truth to the Greek mind was what it is to us to-day—a dream of the soul, a phantom hovering around the things of sense and the subjects of thought, a vanishing semblance of the reality which we vainly strive to determine and fix in time and space, but which eludes our grasp by becoming engulfed in the Infinite. Christianity now, for the first time, presented to the world a criterion of truth which, with the aid of the Church, was intelligible to the meanest understanding. *That criterion of truth was the Bible.* And herein henceforth consisted the power of Christianity. The Bible in future was to be the standard of truth, and the ultimate appeal on all questions of knowledge. Everything which could not be justified by reference to this criterion was condemned as pernicious and unlawful.

A crusade was begun throughout Christendom against writings of every description; and books which could be

construed into a contradiction of any part—even of a single sentence—of the Bible were condemned to be burnt. In time the awful Inquisition was established; and in addition to the destruction of books and manuscripts which contradicted Holy Writ, every person in whose possession such publications were found was seized by the officials of the Inquisition, and subjected to the most horrible tortures, frequently resulting in death. The victims in thousands, after having been crushed and maimed in those awful infernal machines, were fixed to the stake and burnt alive, to the glory of the Christians' God.

And now for many centuries the earth indeed became a dreadful home for those who dared to think otherwise than as the Church dictated. The popes obtained supreme power throughout Christendom; emperors and kings became their subjects, and trembled at the thunders of the Church and the threats of excommunication. The subjects of every monarch owed allegiance first to the pope, and dared not disobey a papal mandate, even though it enjoined disloyalty and treason to their lawful sovereign. Every monarch held his crown by favour of the pope, and his ecclesiastics filled all the most important political positions in the world. No man could call his soul his own, and no man or woman was safe from the accusation of heresy.

Under the constant pressure of terror virtue fled from the human heart, and every feeling of love and tenderness was crushed and destroyed. Parents informed against their children, children against their parents; and the holy Church completed their pious deeds of inhumanity by appointing them to assist at the torture and burning of one another. We need not dwell upon the well-known and awful deeds of the Church during the Middle Ages. No purpose would be served; and the feelings are shocked almost beyond endurance at the bare recital of those deeds.

The terror of the Church became so great that people were careful to scrutinise every book in their possession, to see that it did not contain anything which contra-

dicted the Scriptures; and great numbers burnt their libraries rather than run the risk of harbouring, however innocently, "heretical" writings. Under such a widespread, vigilant, and destructive influence, it is no wonder that learning died out, and civilisation decayed. To have arrested such a natural and inevitable backward course would have required a series of miracles which would have thrown into the shade even those related of Christianity itself. Keen supervision was exercised over all the schools of Europe, and great care was taken to crush the aspiring intellect, or to utilise it, wherever found, in the interests of the Church. Occasionally a monk might be found in his solitary cell poring over a cherished volume of one of the ancients. The human intellect can never be entirely crushed; here and there it will shine forth even in the darkest ages, and brave all dangers and persecutions. Every age has its Brunos, who can calmly walk to the stake, and vindicate by their heroic death the inherent grandeur and irrepressible character of the human mind.

It is quite common to read in our histories that during the Middle Ages the lamp of learning was kept alight by the Church; and we are gravely told that, had it not been for a few ecclesiastics and solitary monks, all learning would have died out in Europe. We must presume that those historians were unaware of the fact that the suppression of all learning, in the first instance, was due to the religious power, of which these solitary students formed a part, and that the same power was answerable for the continuation of the darkness. To credit the Church with having prevented the entire submersion of civilisation, by having kept alive a ray of light and learning here and there, is perhaps the most ironical compliment that history ever paid to any institution. "The Church had cursed the human intellect by cursing the doubts that are necessary consequences of its exercise. She had cursed even the moral faculty by asserting the guilt of honest error." ¹

Towards the end of the fourth century Theodosius the

¹ Lecky, "Rationalism in Europe," vol. i., p. 49.

Great established *Inquisitors of Faith*, and certain laws were passed whereby the performance of specified pagan rites subjected the pagans to the penalty of death. "Those who presumed to celebrate Easter on the same day as the Jews he condemned to death. The Greek language was now ceasing to be known in the West, and true learning was becoming extinct."¹ Referring to this period, Gibbon says: "The conflict and fermentation of so many opposite interests and tempers inflamed the passions of the bishops: and the ruling passions were the love of gold and the love of dispute."² The Catholics, as the orthodox party was called, were now quite strong enough to defy the powers of the State, and they assumed the control of temporal as well as of spiritual matters. The Catholic Church was now practically the supreme power in the world, and the emperors were little better than her servants. The sword and wealth of the State were at her disposal, and she used both without stint or mercy.

Early in the fifth century the famous and beautiful Hypatia, daughter of Theon, the mathematician, lectured in Alexandria on the abstruse subjects of Greek philosophy. She was in every way a most admirable woman, and possessed of the virtues and learning of the early Greeks. The episcopal throne of Alexandria was occupied at this time by a monster—unusually depraved even for that depraved age—named Cyril. Among the many fanatics which Christianity had produced must be named the monks and nuns who overran Egypt at this period. Alexandria was full of them, and their dark superstitions made them at all times ready for the commission of the worst crimes. Hypatia's learning had roused the bigotry and hatred of Cyril, and by his instructions a mob of howling monks waylaid her. "On a fatal day, in the holy season of Lent, Hypatia was torn from her chariot, stripped naked, dragged to the church, and inhumanly butchered by the hands of Peter the Reader and a troop of savage and merciless fanatics; her flesh was scraped from her bones

¹ "Conflict between Religion and Science," p. 54.

² "Decline and Fall of the Roman Empire," vol. ii., p. 523.

with sharp oyster shells, and the quivering limbs were delivered to the flames."¹

"So ended Greek philosophy in Alexandria; so came to an untimely close the learning that the Ptolemies had done so much to promote. The 'Daughter Library,' that of the Serapion, had been dispersed. The fate of Hypatia was a warning to all who would cultivate profane knowledge. Henceforth there was to be no freedom for human thought. Everyone must think as the ecclesiastical authority ordered him, A.D. 414. In Athens itself philosophy awaited its doom. Justinian at length prohibited its teaching, and caused all its schools in that city to be closed."²

The learning which had been cultivated in Athens, Alexandria, and Rome had found its way into all the chief cities of Europe; and it would undoubtedly have grown, and have guided the civilisation of the European nations. But in all those cities the influence of Christianity became all-powerful; and, as we have seen, its power was exerted to extirpate every kind of true learning, and in its place the Bible was substituted as containing the sum of all possible knowledge.

The early Europeans were endowed with a fine physique, with noble qualities of heart and mind; and would soon have imbibed a love for the arts and sciences, and the social institutions of Greece and Rome. Let anyone regard the broad-browed, fearless-eyed men who more than once asserted their love of liberty by teaching imperial, aggressive Rome a lesson which she never forgot; and say if they would not have been, under the civilising influences of Greek culture, fitting recipients of all that was best in the social state of the times.

Gibbon bears testimony to the appreciative intelligence of the so-called barbarian:

"Our fancy may create, or adopt, a pleasing romance that the Goths and Vandals rallied from Scandinavia, urgent to avenge the flight of Odin, to break the chains, and to chastise the oppressors

¹"Decline and Fall of the Roman Empire," vol. iv., p. 341.

²"Conflict between Religion and Science," p. 55.

of mankind ; that they wished to burn the records of classic literature, and to found their national architecture in the broken members of the Tuscan and Corinthian orders. But in simple truth, the northern conquerors were neither sufficiently savage nor sufficiently refined to entertain such aspiring ideas of destruction and revenge. . . . And though incapable of emulating, they were more inclined to admire than to abolish the arts and studies of a brighter period."¹

They were simple-hearted in all matters appertaining to religion, and had no strong views of their own apart from their princes and chiefs. To convert a whole clan, it was frequently only necessary to convert the head and his family ; the rest followed as a matter of course. We may believe, for many reasons, that the conversion of whole nations to Christianity was effected without the intervention of either thought or feeling on the part of the converts. It would be an outrage on the manly character of the northern conquerors to believe that they would seriously embrace any religion which taught that the whole of their ancestors were in hell, if it involved any consideration of the intelligence or searching of the heart.

Those men were rough and warlike, but they were brave and loyal to one another, and were not destitute of the generous virtues of love and friendship. The Christian religion enjoined upon them the belief that their parents and friends, and all who had died without the saving grace of Christianity, were suffering the most cruel torments in hell fire, where they would burn for ever and ever without the slightest alleviation of their sufferings. Radbod, one of their kings, taking the matter to heart more seriously than his followers, drew back his foot after he had entered the baptismal font, and refused to accept a religion which taught such a doctrine. Towards the end of the "Decline and Fall of the Roman Empire," Gibbon gives an account of the conversion to Christianity of the northern nations ; and the wholesale manner in which it was invariably effected by the kings and rulers is positive proof that it was purely a matter of form.

¹ "Roman Empire," vol. iv., p. 417.

Everybody has heard the story of Pope Gregory the Great, in the sixth century, being struck with the noble bearing of the Saxon boys that were offered for sale as slaves in the market-place at Rome, and sending Augustine and forty monks to Britain to convert the heathens. In less than two years after they landed, Augustine wrote that he had baptized the King of Kent, with *ten thousand of his Anglo-Saxon subjects!* and that they were armed only with spiritual and supernatural powers. The powers with which they were armed were really presents and bribes to the king; and the conversion of the ten thousand subjects simply meant the acceptance of baptism by the king in return for a certain sum of money and other presents. And in this way Christianity became the religion of Britain.

Profoundly politic in all her dealings, after power and wealth had been attained, the Church in all cases directed her attention to the rulers of peoples, whom her large revenues enabled her to convert without much spiritual persuasion. The rest was easy; the people followed the example of their chief. Christianity, or any other religion, having once become the faith of a nation, is imbibed by succeeding generations with their mother's milk, and becomes interwoven with the life of the people. It is the most indisputable of all historical facts that religions are handed down from sire to son without the necessity, on the part of the latter, of submitting their doctrines to the examination of reason. With the great majority of people the teachings of childhood—on the emotional side of our nature—last to the end of life.

It is with a full knowledge of this fact that the dogmatists of all persuasions, but more especially the Roman Catholic, never fail to inculcate the great duty on the part of the parents of bringing up their children in strictly "religious principles." They know that it is only in the tender years, when the mind is, like wax, prepared to receive any impression we choose to imprint upon it, that their teaching will have effect. Let the intelligence develop and reason exert her power, and the opportunity is lost for ever.

In this respect the Church is much wiser and more vigilant than her opponents; the latter wait until years of discretion are reached, and they can appeal to what they vainly think is the reason, as though men or women were ever really guided by reason in such matters. The former knows better, and asks only to have the moulding and shaping of the young emotions; the reason may look after itself, or be left to the guidance of her enemies, for all the Church cares.

Robert Owen, who knew the young mind well, said: "Neglect a child in its tender years, and the devil will have got there before you."

To the contention that the dark ages were due to the destruction of learning by the Christians, Gibbon bears emphatic testimony in the following passage:

"The favourites of Heaven were accustomed to cure inveterate diseases with a touch, a word, or a distant message, and to expel the most obstinate demon from the souls or bodies which they possessed. They familiarly accosted or imperiously commanded the lions and serpents of the desert, infused vegetation into a sapless trunk, suspended iron on the surface of the water, passed the Nile on the back of a crocodile, and refreshed themselves in a fiery furnace. These extravagant tales, which display the fiction, without the genius, of poetry, have seriously affected the reason, the faith, and the morals of the Christians. Their credulity debased and vitiated the faculties of the mind; they corrupted the evidence of history, and superstition gradually extinguished the hostile light of philosophy and science. Every mode of religious worship which had been practised by the saints, every mysterious doctrine which they believed, was fortified by the sanction of divine revelation. And all the manly virtues were oppressed by the servile and pusillanimous reign of the monks. If it be possible to measure the interval between the philosophic writings of Cicero and the sacred legend of Theodoret, between the character of Cato and that of Simeon, we may appreciate the memorable revolution which was accomplished in the Roman Empire within a period of five hundred years."¹

This is a very remarkable passage, the truth and justice of which history proves beyond a doubt. This revolution, effected by Christianity, from learning to ignorance, from light to darkness, from civilisation to barbarism,

¹ "Decline and Fall of the Roman Empire," vol. iii., p. 358.

within a period of five centuries from its commencement, while it is evidence of the great power it had acquired, is at the same time an unanswerable proof of its baneful influence in the past upon the happiness, character, and destinies of mankind. It would be an easy matter to augment the evidence from a hundred sources in proof of the contention; but further evidence could not add to the weight of testimony already supplied from the course of history. No writer with any regard for truth can deal with the first five centuries without admitting the decay of learning and civilisation, and the growing power of the Church. During that period Christianity was mainly concerned in manufacturing the most effective of all her weapons, viz., the infallibility of the Bible as a criterion of truth.

With the Bible on one hand and the instruments of torture and the stake on the other, no wonder that the intellect was paralysed, and civilisation at a standstill. For a thousand years and more the mind of Europe lay prostrate at the feet of the pope, until at last the long-suppressed force found voice and action, as it was bound to do sooner or later. During all that dreary time there is very little to record; generations came and went without producing much change for the better; and Europe may be said to have remained practically in a stationary and stagnant condition.

There was little learning outside the Church, which exercised a jealous control over the teaching in the schools and the private studies of individuals. The studies of the Church consisted almost entirely of theological subjects, and were as barren of any fruitful results as they were interminable and incomprehensible. Words were everything, facts counted for nothing. There was no attempt to study the laws of Nature. The Bible was the criterion of truth, and contained all the knowledge that God intended to impart to man; everything, therefore, was referred to the Bible for explanation, wherever explanation was deemed necessary or expedient. If the consequences had not been so serious, it would afford amusement to read the explanations of natural phenomena given by the writers and fathers of the Church.

The most absurd nonsense it is possible to imagine is gravely, and with an air of infallible wisdom, set forth in hundreds and thousands of ponderous volumes. It is no excuse to say of them that they wrote in a pre-scientific age. They were the inheritors of the science and learning of the Greeks and Romans, or might have been; but they suppressed and killed the knowledge of previous ages, and set up their own ignorance in lieu thereof.

St. Augustine is perhaps the greatest authority in the Church. For many centuries nearly all theological and "scientific" disputes were referred to his writings for settlement. As his authority was greater than that of any other saint or father, so has he done more than any other writer in placing theology in a position antagonistic to science. We can give only a few samples of the "learning" which superseded the philosophy and science of Greece and Rome. Augustine's unanswerable arguments against the rotundity of the earth were, that those on the other side could not see the Lord on the Day of Judgment descending through the air; and that no such race is recorded by Scripture among the descendants of Adam. He asks how people can be so ignorant as to think that men can walk with their heads downwards without falling away from the earth, as they must do if there were such a place as the Antipodes.

The saint waxed wroth over the folly of such unheard-of perversity. Angels, it was asserted, moved the stars, and carried up water from the sea, which they sent down again as rain. Physicians were stigmatised as atheists for presuming to think that they could cure disease; which could only be effected by prayer at the shrines of saints, and before the mouldering bones of holy men and relics. Islands were peopled by "spontaneous generation." A work on "Christian Topography," written for the purpose of refuting the heretical notions of the globular form of the earth, and which may be taken as a sample of the knowledge of the Christians in the sixth century, contains, among other marvellous scientific expositions, the following:

"That the earth is a quadrangular plain extending four hundred days' journey east and west, and exactly

half as much north and south ; that it is enclosed by mountains, on which the sky rests ; that one on the north side, larger than the other, by intercepting the rays of the sun produces night ; and that the plane of the earth is not set exactly horizontally, but with a little inclination from the north : hence the Euphrates, Tigris, and other rivers running southward are rapid ; but the Nile, *having to run uphill, has necessarily a very slow current !*"

It would answer no purpose to dwell at greater length upon the ignorance of Christendom in the Middle Ages. It is a subject that can be studied in every history, and is one about which there is no doubt.

It was not altogether the preaching of Luther that released the mind of Europe from the bonds of the Catholic Church ; he was but a factor—a prominent one, no doubt—in the great social movement which eventually led to the destruction of papal supremacy, and enabled men to breathe a freer intellectual atmosphere. Luther was as narrow, intolerant, and bigoted in his way as the pope himself ; and had the times not passed away for religious autocracy, he would have established a little popedom among his followers, with himself as pope. His writings show that he would have had no mercy for those who differed from him on religious dogmas. The burning of Servetus by Calvin and his party of reformers is ample proof of what they would have been capable of doing had they possessed the power. That hideous tragedy was approved of by Melanchthon, Bullinger, and other leading reformers of the time.

The secession from the Roman Catholic Church had long been in preparation throughout Christendom. Kings occasionally had chafed under the autocratic domination of the popes ; and open ruptures between the spiritual and temporal powers were not of infrequent occurrence, from which the popes, however, invariably emerged the victors. Every such contest enabled them to rivet more firmly the ecclesiastical chains of servitude around the necks of kings and peoples alike, until the pope virtually became the ruler of Europe. But however absolute the papal authority may have become, it was

not possible to preserve an uninterrupted adjustment of the kingly and the papal power in every country. Pope Gregory VII. compelled King Henry of Germany, in the winter of 1077, to stand for three days, clad in a thin white raiment, before his palace gates without food, supplicating the pope's forgiveness! This was not, however, before Henry had measured his strength with the pope. His submission was not due to his own religious fears, but to the power which the pope possessed of compassing his utter ruin. In order to make it clear that the pope was supreme in Christendom, Gregory summoned a Council in 1076, and laid it down :

“That the Roman Pontiff can alone be called universal; that he alone has the right to depose bishops; that his legates have a right to preside over all bishops in a general council; that he can depose absent prelates; that he alone has a right to use imperial ornaments; that princes are bound to kiss his feet, and his only; that he has a right to depose emperors; that no synod or council summoned without his commission can be called general; that no book can be called canonical without his authority; that his sentence can be annulled by none, but that he may annul the decrees of all; that the Roman Church has been, is, and will continue to be, infallible; that whoever dissents from it ceases to be a Catholic Christian; and that subjects may be absolved from their allegiance to wicked princes.”

It would be difficult to form a resolution asserting more absolute power than the pope claimed in this constitution.

The quarrel again breaking out between King Henry and Gregory, the latter summoned to his aid his Norman allies, and within a short time Rome was once again in ruins; streets, palaces, churches, were reduced to a heap of smoking ashes; men, women, and children, were massacred in thousands; matrons, young women and nuns were violated, and then slaughtered. It was an awful scene, this home of the “Vicar of Christ.”

CHAPTER XVI

CRUSADES TO REFORMATION

THE contest between pope and kings had reduced the papal finances; and there was some fear that if these contentions were allowed to go on, papal supremacy would in the end suffer. Just about this time an enthusiast, named Peter the Hermit, returned from the Holy Land, and travelling through the towns of Europe, so inflamed by his harangues the passions of the people by the accounts he gave of Christian sufferings at the hands of the infidel Mohammedans, that a burning desire to rescue Palestine from their possession passed like a wave of wild-fire from one end of Christendom to the other.

The pope saw his opportunity of not only bringing every Christian man and woman under the direct control of the Church, but also of replenishing the papal finances. He accordingly gave his sanction to the formation of an army for the purpose of rescuing the Holy Land from the infidels. It is said that the preaching of Peter roused the people to such a frantic state that many thousands of men, women, and children assembled from all parts and marched eastward, determined to obtain possession of the holy places. This was the beginning of the famous Crusades. And it was also the beginning of the intellectual movement which led to the Reformation.

The stagnant condition in which Europe had been sunk for many centuries was now, for the first time, disturbed; and barbaric Europe was now brought in contact with the high civilisation of the Mohammedans. Every man who fought in the Crusades was enlisted under the banner of the Church, and money again flowed into Rome. The religious enthusiasm was

intense, and people in every part of Christendom gave all they possessed to the Church. During the continuance of the Crusades, the Church became possessed of a great part of the land of Europe.

People gave their estates as freely as they gave their portable wealth. Weak-minded sinners gave immense domains to the Church, in the hope of obtaining salvation for their souls. The Crusades proved a grand haul for the Church, but they also sowed the seed of her dissolution. The Crusades lasted about two hundred years, and during that time the progress of Europe was very rapid indeed, notwithstanding the millions that perished in the rash and fanatical enterprises.

A comparison of Christian Europe at this time with the East is not very flattering to the former. The Europeans had scarcely emerged from a condition of barbarism. Their only clothing was the skins of animals, which they wore until they dropped from sheer rotteness; round their legs they wore wisps of straw; their hair was unkempt, and their bodies unwashed. Their houses were merely mud hovels, with no windows or chimneys, and even the castles of the great barons were destitute of anything approaching to comfort. It was considered a mark of luxury to indulge in the spread of rushes over the uneven mud floors. The carriages of the kings were rough waggons drawn by bullocks.

These untaught barbarians had been led to believe that the Mohammedans were a savage race of people, who were in an infinitely worse condition than they themselves were. Their surprise, therefore, can be imagined when they were brought face to face with the Arabs, and the beautiful cities of the East. It could only be paralleled to-day by hordes of Africans coming for the first time to the capitals of Europe.

It is most remarkable that the enthusiasm for the holy war should have been kept alive so long after the disastrous and miserable failure after failure which overtook the hordes that were continually pouring out of Europe. The waysides were said to have been strewn with the bleached bones of the poor crusaders. Millions

perished through hunger, pestilence, and the sword. And the sufferings they both endured and inflicted were incalculable. It is marvellous that the Christians should not have lost heart and faith in a God who permitted them to be slaughtered in their tens of thousands, while trying to do honour to him in striving to rescue the holy places from the defilement of the infidel. The atrocities committed by the crusaders are beyond the power of language to describe.

“The brains of young children were dashed out against the walls; infants were thrown over the battlements; every woman that could be seized was violated; men were roasted at fires; some were ripped open to see if they had swallowed gold; the Jews were driven into their synagogues, and there burnt; a massacre of nearly 70,000 persons took place; and the pope’s legate was seen ‘partaking in the triumph.’ Ecclesiastical vengeance rioted in luxury. The soil was steeped in the blood of men—the air polluted by their burning. From the reek of murdered women, mutilated children and ruined cities, the Inquisition, that infernal institution, arose. . . . Four hundred poor creatures were burnt in one pile. Such atrocious deeds were done by the crusaders as the sun has never before or since shone upon.”

Dr. Draper, in his “Intellectual Development of Europe,”¹ gives an admirable descriptive account of the learning, civilisation, and refinement of the Arabs at the time of the Crusades. It is impossible to over-estimate the influence which contact with such a high state of civilisation must have had on the minds of the Europeans. The peasants were no longer content to live the life of slaves, and revolts against the feudal system soon became common. The peasant revolt in Kent and Sussex in 1372, we may fairly infer, was influenced greatly by the spirit engendered by the Crusades.

In England the Church was in possession of over one-third of the land, and, in conjunction with the barons, held the peasants in a state of legal bondage, which compelled them to work for their masters on terms established by law. If they ran away, they were brought

¹ Page 62.

back and branded on the forehead with a hot iron. Throughout Europe a fermentation of unrest was going on among the labouring classes, while the more intellectual were beginning to throw off the heavy yoke that had oppressed them for so long.

It must be borne in mind, on the subject of national progress, that a century in the life of a nation corresponds to only a short space of time in the life of an individual. In a hundred years, therefore, we must not look for any very great progress in the evolutionary life of Europe, even in the most favourable ages. For many centuries preceding the Crusades, the social forces of Christendom had been suppressed by the influence of the Church, but they had not been annihilated; they had been gathering greater intensity and power from age to age: and hence the vitality displayed by Europe for so long a period under unexampled misfortunes and defeats.

Social forces may be held in subjection by superior force, but they cannot be annihilated; and the time must come when explosion is inevitable, and terrible are the results to suffering humanity. It is almost certain that in the twelfth and thirteenth centuries there would have been some awful upheavals throughout Europe had the Crusades not offered an outlet by turning the tides towards the East. Whether the popes and their advisers saw this or not, we cannot say; but the rulers of Europe to-day are conscious of the explosive nature of social force. The great French Revolution was a lesson which has left its impress upon the minds of rulers; and they dread, above all things, the accumulation of discontent among the masses of the people.

Mohammedan Spain had been for a long time in a high state of civilisation. The Arabs were in possession of the learning and social arts of the Alexandrians. It was chiefly from Spain that civilisation found its way to Germany, Italy, France, and England. Even at that distant time, the Spanish Arabs had, in some respects, reached a stage of progress beyond which Europe has to this day scarcely advanced. We are indebted to them for many of our personal comforts. The society of Cordova was polite and refined; and in addition to imparting

their manners and customs to their neighbours, the French, it was from the Arabs that the love of the horse was imbibed by the nobles of Europe. The polite literature of modern Europe had its birth in Spain.

The Arabs held that learning is of far more consequence to a man than the belief in any particular form of religion. The number of Arabic words in the English language is an indication, though not a measure, of our obligations to the Saracens. Those people had the intelligence and the genius to profit by the remains of Greek learning which they found in Alexandria when they conquered that famous city. They took means for the spread of education and enlightenment among the people; libraries were established in all their principal towns, the streets of which were well lighted with lamps. It was seven hundred years from this period before a single lamp appeared in the streets of London.

We have no space to describe in detail the condition of Mohammedan civilisation; it was probably nearly equal to that of Europe at the present time, with certain exceptions arising out of recent discoveries and inventions. The Saracens had not by any means the same opportunities that the Christians had of benefiting by the learning of the ancient world. The latter came in contact with Greece and Rome many centuries before the former, and at a time when the intellectual activity was at its highest. Notwithstanding this, and though the Mohammedans drew their chief inspiration from what remained of Greek and Roman learning, in the eleventh century they were highly civilised, learned and polite, while the Christians were ignorant, barbarous, and churlish. It cannot be said that the native genius of the Arab was superior to that of the European; subsequent history proved the contrary. The explanation is to be sought in the difference between Christianity and Mohammedanism. While the latter encouraged every kind of learning and freedom of inquiry, the former did its utmost to suppress learning and destroy the powers of the intellect.

Christianity not only kept Europe stationary for a thousand years, but it destroyed the learning and

civilisation of the early times by burning the great masterpieces of Greek and Roman intellect, razing to the ground many of the most beautiful buildings, and forbidding all studies, except the barren subjects of theology and the Bible. It thereby effectually prevented Europeans from participating in the knowledge which would undoubtedly in a few centuries have civilised those healthy, vigorous, intelligent races. In proof of this we have but to consider the prodigious strides that were made within a hundred years or so at the Renaissance. A short time previous to this epoch the peoples of Europe were little in advance of their condition in the fourth or fifth century; and yet as soon as the oppression and mind-destroying power of the Roman Church was removed, the intellect grew with marvellous rapidity, bearing fruit in every department of human inquiry and activity.

The main foundations on which the Arabians built up their grand social structure consisted of the meagre remnants of ancient learning which they found in Alexandria and elsewhere, after the Christians had done the greater part of their work of destruction. Surely nothing could better or more forcibly illustrate the respective merits and demerits of the two religions. One is almost inclined to express regret that the Arabian conqueror did not carry out his famous declaration, that he would preach the unity of God in the Vatican.

The vast political machine of Rome—religious it no longer was, if indeed it had ever been—became altogether unmanageable in the thirteenth century. To pressure from without was now added defection from within. The mendicant friars, who had been among the most ferocious bigots, had fallen under the influence of the intellectual upheaval, and began to question the pretensions and dogmas of the Church. Many of these men were now professors in the university of Paris and elsewhere, and were among the most enlightened of their times. They revolted against the mass of superstition which went under the name of religion; and occupying many of the chairs of theology in the University, their

influence was more formidable to the Church than that of the swords of heretical and recalcitrant kings had been. A ray of knowledge was more destructive to the Roman Church than a thousand swords, and she never made any pretence of hiding her knowledge of this fact. She was bold, outspoken, and uncompromising, being firmly seated, as she thought, on a permanent throne of power.

It required all the vigilance and repressive power of Rome to detect and meet the growing influence of intellectual inquiry in the thirteenth century. A desire to know something of the works of the ancient Greeks was springing up, and the writings of Aristotle were gradually taking their place in the course of study. Innocent III., A.D. 1215, forbade the study of Aristotle's physical and metaphysical works and their commentaries in all the schools of Paris. Gregory XI., 1231, interdicted those on natural philosophy until they had been purified by the theologians of the Church. Clement IV., in 1265, instructed his legate to exercise a close supervision over the schools, and not to allow the study of any subject which dealt with facts of Nature. Dialectics, or the art of wrangling, was the only subject of study permitted.

The quarrel between Frederick II. of Germany and the popes led to far-reaching consequences to the papacy. Frederick was educated in Sicily among the enlightened Arabians and Jews, and being a man of exceptional intelligence, he soon drew upon himself the condemnation of Pope Gregory IX. He passed many wise, liberal, and just laws, which were far in advance of his time; and he ventured to rebuke the Church in the face of all Europe, for which act of temerity there was, of course, no forgiveness. He was excommunicated, and his body delivered over to Satan for the good of his soul; his subjects were absolved from their allegiance, but the spell by which the Church had held Europe in bondage was broken. Frederick appealed to all the sovereigns of Christendom, and, although in the end he was defeated, it was not before he had shaken the papacy to its foundation.

The conflict was maintained for thirty years, and the

amount of freedom of thought which it engendered gave an impetus to intellectual inquiry which found effectual expression in the Renaissance. Frederick marched an army to Rome, determined to arrest and chastise the aged pontiff who sat in the chair of St. Peter; but the pope saved himself by flight to France. The revolt spread in all directions, and the Church outdid herself in the atrocious measures which were taken to put it down.

Thousands of men and women were confined in the dungeons of the Inquisition, and were subjected to indescribable torture, until they were driven mad by their unendurable sufferings. Hundreds were put into pens made of stakes and filled with straw and burnt alive; and while the flames encircled them, the Christians drowned their piteous cries by loud prayers to God that he would "send their souls straight to everlasting hell fire!" Before the Archbishop of Rheims and seventeen other prelates, on one occasion, one hundred and eighty-three persons of both sexes were burned alive.

The philosophical writings of Averroes, a Mohammedan of Cordova, in the twelfth century, exercised considerable influence over the whole of Europe. He was a commentator of Aristotle and other Greek writers. His maxim was that "all religions are false, although all are probably useful." The Christians attributed to Averroes the whole of the infidelity of the times. Some, even of the Christian sects, inclined to his views. Throughout Christendom he had many followers.

A well-known living writer speaks of his "error" in confounding force with the "psychical principle"; but he is probably nearer the truth than the modern writer, and certainly more in accordance with the trend of modern philosophy and science.

Averroes was deeply versed in Greek philosophy, and from his time to the appearance of Luther there was a revival all over Europe of Alexandrian philosophy and science. In this revival, however, Luther himself did not participate; but it prepared men's minds for the reception of his protest against the pretensions of the Roman Church. A more liberal spirit of enlightenment was abroad. The Arabs had shown Europe, through a

variety of channels, the inestimable value of the learning which the early Christians had laboured so assiduously and successfully to suppress. In the Church herself many learned men arose who chafed under papal dictation ; and though no one had the courage or the spirit of self-sacrifice sufficiently strong to openly expose to the people the true nature of Roman Christianity, and thereby defy the Church, thousands nursed in secret a bitter hatred and contempt of the whole system, which was ready at any moment to manifest itself in outward action. Hence it was that when the brave and fearless Luther appeared and boldly proclaimed to the people from the house-tops that *Rome was a fraud*, the spirit of revolt could no longer be kept down.

The news of his burning the pope's bull of excommunication in the market-place, before the whole world, was magical in its effects. The enthusiasm which such an unheard-of act of daring courage evoked was immense, and the fierce outburst struck terror to the heart of Rome. For the first time in her long career of despotism she trembled and stayed her hand. Fortunately for the happiness of mankind, she never recovered her former power.

The treatment of the great astronomer, Galileo, is one of the most melancholy incidents recorded in history. Most readers are acquainted with the history of the conflict between religion and astronomy. Copernicus, Kepler, and Galileo, three of the most illustrious men of the Renaissance, and indeed we might almost say of all times, very nearly escaped being burnt alive for their grand and immortal astronomical discoveries. Galileo was seized and compelled, under pain of being tortured and then burned, to recant his "heresies" on his knees before the ecclesiastics of the Roman Church. When the sublime old man rose from his humiliating posture, and still more humiliating recantation, before his holy tormentors, he is said to have passionately reaffirmed the truth that the earth does move round the sun.

Galileo was accused of imposture, blasphemy, heresy, atheism, and denounced as an enemy to God and man. With his hand on the Bible, he was made to curse and abjure the doctrine that the earth moves round the sun,

which the churchmen said was contrary to the holy Scriptures, and therefore a blasphemous falsehood. This venerable and illustrious man was then thrown into prison, where he was kept for sixteen years, until he died, and was treated in the most cruel manner.

Geology also helped to give the death-blow to the Bible as a criterion of scientific truth. Poor Hugh Miller blew his brains out because he could not reconcile his geological researches with the Bible. Had he lived a few years later, the companionship of sympathy with his views would have preserved the balance of his mind. In the days of her power the Church forced the intellect into compliance with the Bible; in the days of her weakness she strives to force the Bible into compliance with the intellect, and in both she has signally failed, as every attempt to perpetuate untruth must sooner or later end in defeat and disgrace.

All true knowledge is antagonistic to dogmatic religion, but the most deadly of all is, perhaps, that of astronomy. Religious myths cannot live in the light of astronomy. It is, for obvious reasons, one of the oldest subjects of study; it engaged the attention of the leading minds of the ancient world, as we have seen; and it was the greatest disintegrator and destroyer of the religions of those days. Historically and intellectually, it is the most important of all the sciences, as the friend of man in his long contest with the dark, superstitious side of the human mind. All formulated religious creeds have had to give way before the advancing disclosures of the true mechanism of the heavens.

How, for example, could a religion continue to live which taught that the earth was the largest and most important body of the Universe; and that at a short distance above it the controlling powers resided, whose time was occupied in the consideration and conduct of the affairs of man? For astronomy and Olympus to exist in the same mind was a moral impossibility. The Olympian divinities, and those of the Bible, have a like origin; they have all sprung from the vain attempts of man in unenlightened ages to account for himself and his surroundings. And astronomy and the Bible are as incompatible as astronomy and Olympus.

CHAPTER XVII

MODERN CHRISTIANITY

THE literature of the Reformation is so voluminous that it is not necessary to dwell upon the events which were said to be the immediate causes of Luther's protest. There is ground for believing that he was actuated by other motives than those of a purely religious character. The sale of indulgences for the commission of sins was a source of revenue to the popes and bishops. Every sin could be freely indulged in, and wiped out by a money payment. The popes, perceiving how lucrative the system became, withdrew the power of sale from the bishops and appropriated it entirely to themselves. The mendicant orders were employed as agents for the sale of these indulgences; and as it was a money-making business, there was a strong competition among the orders, each boasting of the superior value of its indulgences, owing to its greater influence in the court of heaven, and its more familiar acquaintance with the Virgin Mary and the saints.

This traffic, it seems, had been withheld from the order to which Luther belonged, and conferred upon some others, which gave great offence to the German monk. There are also other motives of a personal character attributed to Luther, which are said to have influenced him in the course he pursued; but whether they existed, or are only the inventions of his enemies, we cannot say. Whatever may have been his motives is of little consequence now; it is certain that he rebelled against the pretensions of the Roman Church, and that he took the most effectual means for making known the grounds of his uncompromising attitude.

He was not the first who protested against papal

pretensions ; but the times in which he lived were ripe for the reception of accusations against the Church, and his preaching was listened to by sympathetic audiences. It was not altogether that he exposed flagrant frauds in the Church, which procured for him such widespread sympathy ; he touched a chord in the heart of Europe which had long been trembling on the verge of strong vibration, and he released the pent-up feeling of ages.

The Church had become an intolerable outrage upon the understanding of the age ; and when Luther proclaimed and denounced the most glaring abominations, he appealed to minds already predisposed to echo his denunciations. But neither Luther nor those who worked with him, nor those who followed him, were in a strict sense *religious* reformers. They were the expositors of Catholic frauds, but they did not touch the dogmas of religion ; on the contrary, Luther denounced with all the choice language at his command the "pretensions" of science and philosophy.

The fundamental idea which lay at the bottom of the controversy between Luther and the papacy was as to whether the Bible was to be considered as owing its authority to the Church, or the Church her authority to the Bible. Luther maintained that the Church was subservient to the Bible, and that he had a right to exercise his private judgment in the interpretation of the holy Scriptures. But although he denied the right of the Catholic Church to interpret the Scriptures for *him*, he jealously claimed for himself the right to interpret them for others ; and the Protestant Church was as dogmatic in this, and in other respects, as the Roman Church had been. Every man was at liberty to read the Bible only as Luther himself read it ; but no one was at liberty to criticise it by the light of science, or to question in any way the truth of a single sentence.

The Bible, according to the Reformers, was still the criterion of truth, still contained the sum total of human knowledge ; and was accepted by all the Protestant Churches as an infallible and sufficient guide for every Christian.

The great service which the Reformers rendered to

mankind consisted in opening the Bible to private judgment; *another* right than that of Rome to construe the Bible was established; and it was impossible that they could long prevent that criticism of the Scriptures which science forced upon intelligent men. But Luther and Melancthon both exerted themselves to the utmost to prevent the intrusion of science and philosophy into the Protestant Church.

Luther declared that science was quite unnecessary, and that the Scriptures contained all that it was essential or proper to know. He reviled the great thinkers in the coarsest language. The illustrious Greek philosopher, Aristotle, he says is "truly a devil, a horrid calumniator, a wicked sycophant, a prince of darkness, a real Apollyon, a beast, a most horrid impostor on mankind; one in whom there is scarcely any philosophy; a public and professed liar, a goat, a complete epicure, this twice execrable Aristotle." The schoolmen, he said, were "locusts, caterpillars, frogs, lice." Calvin shared these views.

Those who look upon the Protestant Church as the friend of progress should remember that the Protestants roasted Servetus, a good man, *over a slow fire*, because he had said that he believed the Holy Ghost animates the whole system of Nature like a soul of the world. Can there be any doubt that, if such ferocious bigots had possessed the power, the worst brutalities of papal Rome would have been enacted over again? Draper asks: "Was there any distinction between this Protestant *auto-da-fé* and the Catholic one of Vanini, who was burnt at Toulouse by the Inquisition in 1629 for his 'Dialogues concerning Nature'?" There can be little doubt that if the Reformed Church had begun its career a thousand years earlier than it did, it would have run a course very similar to that through which the Latin Church passed. How can the cruel murder of the inoffensive Servetus be explained otherwise than by that spirit of persecution which seems to be inherent in dominant religions?

If the Roman Church became a mass of corruption, it must not be forgotten that Rome was not the birth-

place of the system; it was but an offshoot of the Byzantine ecclesiastical organisation, which, from its very nature, was destined to culminate in the papacy, whether in Rome or Constantinople.

The seed of the papal crop came from Byzantine policy, as that policy had been the outgrowth of still earlier sowing. The nature of that seed we have already seen to some extent. Draper summarises it in the following passage:

“Scarcely were the Asclepians closed, the schools of philosophy prohibited, the libraries dispersed or destroyed, learning branded as magic or punished as treason, philosophers driven into exile, and as a class exterminated, when it became apparent that a void had been created which it was incumbent on the victors to fill. Among the great prelates, who was there to stand in the place of those men whose achievements had glorified the human race? Who was to succeed to Archimedes, Hipparchus, Euclid, Herophilus, Eratosthenes? Who to Plato and Aristotle? The quackeries of miracle-cure, shrine-cure, relic-cure, were destined to eclipse the genius of Hippocrates, and nearly two thousand years to intervene between Archimedes and Newton, nearly seventeen hundred between Hipparchus and Kepler. A dismal interval of almost twenty centuries parts Hero, whose first steam-engine revolved in the Serapion, from James Watt, who has revolutionised the industry of the world. What a fearful blank! Yet not a blank, for it had its products—hundreds of patristic folios filled with obsolete speculations, oppressing the shelves of antique libraries, enveloped in dust, and awaiting the worm.

“Never was a more disastrous policy adopted than the Byzantine suppression of profane learning. It is scarcely possible now to realise the mental degradation produced when that system was at its height. Many of the noblest philosophical and scientific works of antiquity disappeared from the language in which they had been written, and were only recovered, for the use of later and better ages, from translations which the Saracens had made into Arabic. The insolent assumption of wisdom by those who held the sword crushed every intellectual aspiration.”

This was the first-fruit of Christian *power*. Those who maintain that early Christianity, previous to its alliance with the State in the time of Constantine, was meek and lowly, and contained the seed of future progress and civilisation, need to be reminded that not only was the religion from the earliest times inherently uncompromising, unyielding, and intolerant, but, as we

have seen, it was also the deadly foe to learning of every kind, without which civilisation can, of course, make no progress.

Persecution was a logical necessity of their belief, if the soul could not be saved otherwise. Those who would not accept their faith were enemies of God ; and to persecute and punish them was for the good of their souls, as well as pleasing to the Deity. What were the sufferings of the worthless body, or a few years of life on earth, compared with the soul's eternal bliss in heaven? These principles were inseparable from Christianity. They are in evidence right throughout the history of the religion, and every step in its development was the natural outcome of preceding steps, from the death on the cross to the papal fires.

What is the position of the Christian Church to-day? We have seen how she stands at the bar of history. She is mainly responsible for that long stagnation known as the Dark Ages ; and if this be true, then she must be charged with having been instrumental in arresting progress, and throwing back civilisation for more than a thousand years. A terrible record, indeed, to add to the torture and the stake !

Roman Catholicism and the Anglican Church, as well as all other religious denominations, claim to-day, as they have always claimed in the past, to exercise great moral and civilising influences. That they do a large amount of good, especially among the very poor in the slums of all great towns, is undeniable ; but it is now generally recognised that efforts to improve the lives and conditions of the very poor, to meet with any measure of success, must be of a secular character.

There are many kind-hearted, self-sacrificing clergymen engaged in this good work of charity, all of whom are entitled to esteem and respect. It has not, however, necessarily any connection with religion.

The Church has in all ages been, more or less, a friend to the poor, in the sense of distributing alms among them, most of which, through her intercession, has been subscribed by the well-to-do classes. Indeed, in times

gone by, the Church was a greater benefactor of the poor than she is to-day, for two reasons: her revenues were comparatively larger, and her influence was much greater.

Human progress, however, is little dependent upon charity, which, no matter how profuse, is but a drop in the great ocean of poverty and misery. If poverty and all the evils arising therefrom are ever abolished in this world, it can only be by the free exercise of unfettered intellect in the service of man, which in time will evolve a juster and better social organisation. No amount of theological disquisition can advance this good work, but may, and must, retard it by the waste of energy so employed, and in many other ways too numerous and recondite to specify.

The conflict between science and supernaturalism has passed through many phases during its long continuance; and at every step the former has grown in strength, while the latter has declined. More and more, as time goes on, men come to recognise that Reason is their only guide, and that every subject of thought must be controlled by that supreme arbiter. Man's perception of the orderly course of Nature, as disclosed by science, constitutes the most certain and indisputable of all facts; and wherever these facts come into conflict with "mysteries," interpreted by "faith," it is only a question of time for the latter to lose their hold over the public mind. Belief in the laws of Nature is imperative in every educated person; and disbelief in miraculous interference with those laws at any time, or in any part of the vast universe, is an absolute necessity of every scientific mind. And so far as the intellectual are concerned, the time has indeed arrived when "Faith must render an account of herself to Reason."

The late Professor Mivart spent a large part of his intellectual life in the service of Roman Catholicism. Just before his death, a few months ago, he recorded some of the doubts that assailed his mind, among which occurs this significant sentence: "The energy of the universe, as disclosed by science, differs profoundly from the God worshipped by Christians." The Church,

true to her character, refused him Christian burial. Another branch of the Church has just excommunicated one of the foremost of living writers, Count Tolstoy. The *Daily Chronicle* says: "It reminds us of so many other stages of Christian history from the very earliest of its days."

Christianity, having lost her power to coerce, has developed some of the more beneficent elements of the religion, and as these are more in evidence now than the objectional dogmas, the impression prevails that the old antagonism has died out.

There is, however, ample material at hand to-day by which to test the spirit in which churches of all denominations still regard the advance of science. The disintegrating processes of time, combined with the growth of knowledge and freedom, have altered the character of the contest; but the spirit is little assuaged, while foreboding fear of impending consequences has been added to it.

Within our own day there have been several events in the Christian churches which have stirred to its depth the heart of all Christendom; and evoked declarations on points of doctrine and dogmas from the heads of religious bodies, as well as from laymen, which are quite unprecedented in modern times. Notably, the Œcumenical Council, held at the Vatican in 1870, proclaiming the infallibility of the pope; the prosecution of Bishop Colenso; the publication of "Essays and Reviews," and other events.

A consideration of the views still held by the religious bodies, which were called forth by these great events in the Churches of England and Rome, leaves us in no doubt as to the continuance of that domineering and imperious spirit which religion has ever maintained against science and freedom of thought generally.

The Mother Church of Rome is still the most powerful and widespread of all the religious organisations in Christendom; and while she "neither forgets nor learns," she never ceases her efforts to arrest the progress of modern thought; by which she hopes again to enslave the mind and conscience, and regain a portion of her

lost power. In this she is aided directly and indirectly by many powerful reactionary forces, which, to all thoughtful minds, are much in evidence to-day. Her large revenue, collected from the faithful all over the world, enables her to maintain an army of skilled diplomatists and highly educated men, who mix with the governing classes throughout Europe and America; and are ever vigilant and active in all political matters in which the interests of their Church can be served. With great ability she spreads her network so as to embrace all classes of the community; and each class is appealed to in a manner best calculated to effect the objects of the governing power at Rome.

The history of this "mortal enemy of human liberty" is a sad satire on human intelligence, which future ages, emancipated from supernatural thralldom, will look back upon with wonder and astonishment. Undeterred by her terrible history, and with an unshaken reliance upon the credulity and dark, superstitious side of our nature, she still has the audacity to proclaim herself the representative of God on earth, to whom has been committed the welfare of man here, and the keys of heaven and hell for his reward or punishment hereafter.

While all other denominations of the Christian Church have been influenced by the progress of science, and the altered condition of the public mind towards religion arising therefrom, she alone has remained stationary; and obstinately maintains her right to control modern society, and limit the natural growth and development of the human mind.

Men of high rank and great wealth, some of whom occupy responsible public positions, are actively engaged in a propaganda which has for its object the reinstatement of the papal power in Europe and America. At the head of this movement in England, as is well known, is the Duke of Norfolk, Earl Marshal, and late Postmaster-General.

In this there is nothing unusual in the conduct of the Catholic Church. It is in accordance with her steadily-pursued policy to regain her lost supremacy, and exercise, as of old, that political power which has been

so baneful to human liberty and welfare. That this is entirely a political move with that object in view all intelligent people know. And secure in this knowledge, and the belief that the volume of public intelligence is now too great to permit Rome ever again to succeed in her designs, they remain passive spectators of her schemes, forgetful of the aphorism: "The price of liberty is eternal vigilance."

If upward social progress kept steady pace with increase of knowledge, it would be sufficient to point to the history of this "scourge of man," and rely on that alone to unmask the purpose of the present pretended religious movement. But experience proves that while the leaders of thought may be steadily increasing the sum of knowledge, reactionary forces may for the time render nugatory such increase; and even throw back very considerably social progress and civilisation—indeed, submerge it for centuries. The Dark Ages, to wit.

Knowledge is the only effective weapon with which to combat the powerful and widespread Romish organisation. If the enlightenment of the few were common property, there would be no danger to our liberties from any supernatural organisation. But it is not, and herein lies the danger—a danger at which many who believe in the destiny of the race to go steadily forward will laugh; but let the great religious body once again bring the political powers of the world under her foot, and it will be no laughing matter to those who come after us.

Reason has never played any great part in religion, which is almost entirely under the emotional influences. Masses of people are easily moved by sentiment. The Church of Rome knows this, and uses an elaborate ritual, specially adapted to appeal to the emotions. St. Augustine wrote that he had baptized a chief, with ten thousand of his people. Is it so certain that the infection of high example would not still have a powerful influence over us in the matter of religion?

If it were possible for the King and Queen to be converted to Roman Catholicism in our day, would not such exalted example have an immediate and far-reaching effect among all classes? The contagion of sentiment is

well known, and the Romish Church is a persistent and untiring worker in such fields.

Moreover, there is more than a suspicion that the clergy of the Church of England are deeply infected with Roman Catholicism, and long, many of them, to return to that ecclesiastical organisation which has played so great a part in the history of the world; and which they hope may again return to power, and dominate over the mind and conscience.

Many observant people believe that Rome is destined to reabsorb all forms of dissent, and there are not wanting signs which seem to justify that view. Sacerdotalism will then be confronted with Rationalism only; and though there can be little doubt as to the final triumph of the latter, an enormous amount of suffering may have to be endured before the great enemy of man is again laid by the heels.

Consider the pretensions of this religion, and the declaration of its head: "We are no mere man—we are God on earth." Only a few years ago an Œcumenical Council was held, which reiterated and emphasised this *monstrous* claim by proclaiming the pope infallible. It is notorious matter of history that among these same men who claim to be "God on earth" have been some of the most abandoned of human beings—men who have descended to the very lowest depths of infamy; whose lives have been stained with every crime. And though the present occupant of St. Peter's chair is a man of blameless life, it must not be forgotten that he accepts all the traditions of his office; and endorses all the pretensions, past and present, appertaining thereto.

A recital of these pretensions is enough to stagger the man whose mind is at all tinctured with the love of liberty and the spirit of inquiry. He may repudiate with indignation such insolent pretensions to cripple and control the activities of his mind in the pursuit of knowledge. But let brute force once again get the ascendant, and he will be as powerless to strive against it as were the great thinkers and workers of old.

Free inquiry is the enemy of all reactionary powers, and

instinctively they array themselves against it. These powers are numerous and militant at the present time; but the Catholic Church is the most widespread, vigilant, and powerful among them; and she works now, as ever, with a definite aim—the destruction of all liberty.

The pope claims, in virtue of inspiration from God, to be infallible, and the supreme ruler of the whole world, political, moral, intellectual. As such he demands the right to control the entire course of human life. God has given him a book of instruction, in which is set forth for all time all the knowledge of Nature which he intended should be made known to man; as well as a code of ethics for his guidance and control in all his human and superhuman relations. To the pope alone, as his representative on earth, he has given the necessary knowledge for the right interpretation of the message, and the authority to enforce it on all men, under the most awful penalties for disobedience, the award of which is left to the discretion of the pope.

He is, therefore, as vice-God on earth, the supreme arbiter of human destiny; not merely to the end of time, but for all eternity, since, according to the message, man is an eternal being.

Man is endowed with an inquiring nature, and a mental capacity for research into the mechanism of his surroundings which develops and grows as time goes on; enabling him to progress in the discovery of the constitution of the mechanism, and the laws by which it is worked or governed. These laws of Nature he has come to regard as the most certain of all facts of human existence, as the basis upon which the whole fabric of civilisation rests, and by which his daily life is regulated and controlled.

The message contains a precise exposition of the history and construction of the world, which is to be communicated to man by the pope, and received as truth without question or doubt. Now, science records that, as man with his penetrative mind has from time to time investigated various parts of Nature, and discovered the laws operating therein, he has found that

they are, one and all, entirely at variance with the expositions of them given in the message—are, in fact, absolutely contradictory and irreconcilable. These discoveries constitute the sum of science, the great bulk of human knowledge, and distinguish civilised man from the savage. To ask him once again, as of old, to discard all the great achievements of the human mind in favour of the pope's message and its consequences, is to ask that civilisation may be again submerged, and the world revert to ignorance and barbarism. No intelligent man of unfettered mind in the exercise of his sober reason will hesitate between the two alternatives.

This is, in effect, what the Catholic Church, through her popes, cardinals, and bishops, is continually insisting on. She declares that faith is superior to reason; and that in every case in which reason and experience contradict the message they are to be discarded in favour of faith, as errors inseparable from the human mind.

At the Œcumenical Council held at the Vatican in 1870, the pope, with seven hundred and four bishops from all parts of the world, "and the Holy Ghost sitting therein, and judging with us," had under consideration the whole subject of the relation of religion to science; and formulated the results of their deliberations in what is known as "The Dogmatic Constitution of the Catholic Faith." This Constitution deals exhaustively with all forms of intellectual inquiry and liberty of thought generally, in relation to religion and the Bible message. It curses all "who shall say that human reason is in such wise independent, that faith cannot be demanded of it by God," *i.e.*, practically by the pope. It claims, in fact, to control the whole course of social and intellectual activity, and to forbid every kind of study except that which the Church herself sanctions. In the maintenance of its opinions and furtherance of its objects by coercion, the Catholic Church declares that "the Inquisition is an urgent necessity in view of the unbelief of the present age."

Intelligent men and women, secure in the strength of their own intellectual condition towards such claims,

will feel inclined to treat them with contemptuous indifference ; and think it no part of their duty as social units to actively interest themselves at all in the matter. Such appears to be the attitude of the thinking part of the public to-day towards all religious pretensions, however extravagant. A change has come over the spirit of controversy ; reactionary forces are doing their work ; and since the days of Huxley, theology has been allowed to labour unopposed in that large and prolific field of humanity which is incapable of thinking for itself on subjects lying outside the ordinary course of daily routine.

In this connection we might call to mind Galton's estimate of the public intelligence, which is corroborated by other students of the subject. Only one in four thousand possesses conspicuous ability, *i.e.*, only one in four thousand of the whole community is acquainted with the great currents of thought which shape the direction of the social forces, and able to think for himself and form correct judgments thereon ; while the remaining 3999 are more or less passive recipients, and, to that extent, indifferent to their social and intellectual environment. The practical concerns of daily life will, no doubt, lead their activities, in a measure, in the paths of progress ; but their natural condition of intelligence will render them more amenable to reactionary than to progressive influences. And in proportion as the former grow in strength and volume will the latter be retarded, and decline.

From these and other considerations, it appears to be just within the range of possibility that intellectual collapse and social ruin may once again overtake civilisation, and our posterity have to lament another period of dark ages.

It may be said that the attitude of the Protestant division of the Christian Church towards science and modern thought differs very materially from that of the Roman Church. And no doubt this is so ; but it has been necessitated more by the exigencies of her position than by her love or recognition of the truths of science.

Most of the fundamental dogmas of Christianity are

common to both Churches ; as, indeed, they are to all churches embracing the Christian faith. And the practical unanimity with which they combat and oppose the acceptance and spread of every great discovery of natural law shows the kinship by which they are all united. The reason is obvious. They all take their stand on the Bible message ; and as every new discovery more and more falsifies that message, when interpreted in plain language, such as we use in all other matters, they feel that the progress of science means eventually the dissolution of the fabric of their profession. The feeling is now very widespread that the friction engendered by progressive thought, even more than by direct falsification by fresh discovery, is slowly but surely wearing away the supernatural character of the Bible message.

From time to time within the Church of England, some member, carried away by the spirit and enlightenment of the age, breaks away from the traditions of his office ; and startles the religious world by the advocacy of views, chiefly on minor points, which are, in their way, as great a revolt against established orthodoxy as are the most direct attacks of scientific research upon fundamental doctrines or dogmas.

And if we take the views held by independent Christian preachers who are still members of the English clergy, we shall find that they constitute a body of teaching which assails, directly or indirectly, every important article of the Christian faith. One preacher refuses to accept articles hitherto looked upon as essential to the faith in its entirety ; another discards other articles from his belief ; and so on, until the whole thirty-nine articles of the Christian faith are eliminated. And yet these clergymen belong to the Church of England ; and preach, many of them, to large and fashionable congregations.

Many will remember the excitement and consternation caused by Bishop Colenso's criticisms of certain parts of the Scriptures, and the large amount of disbelief to which they gave rise, even in the Church. The bold, outspoken expression of doubt, and ultimate

rejection of the divine character of parts of the message was, in its way, another revolution of thought in the interests of rationalism. It helped to lift the oppressive weight of supernaturalism from many a thoughtful, doubting mind, which otherwise might have lain paralysed under the load.

The bishop spoke with an authority to which few men in the Church could lay claim. To ripe scholarship as a churchman, he added the great scientific attainments of a mathematician, whose works were studied in the universities and colleges; and whose name as a teacher was, therefore, well known to most of the young of his generation. By these he was looked up to and respected as an accurate thinker; and this fact gave great additional weight to his authority as a bishop, when he declared that he could no longer reconcile faith with reason; and that, in consequence, the former must give way to the latter. View this incident in whatever light we may, it must be regarded, together with its consequences, as another solvent in the edifice of supernaturalism.

As an object lesson, it was further valuable to rational thought, in that it enabled us to gauge the tolerance and attitude of the Church of England towards freedom of inquiry and intellectual advance. The bishop was prosecuted and persecuted to the full extent of ecclesiastical power, and no efforts were spared to bring him to condign punishment, and ruin him financially as well as morally in public estimation. With a weaker and less-known man, the Church, in all likelihood, would have succeeded in the struggle; and the bishop would have been a ruined, and probably a disgraced, man in the eyes of a large part of the public.

As it was, his life was made a burden to him. It is melancholy to reflect upon the incessant persecution and personal insult that this great and good man had to endure at the hands of his enemies; all of whom, no doubt, acted in good faith, and according to their light, in the interest of what appeared to them of paramount importance. So, in like manner, did the inquisitors of old.

The judgment of the Privy Council in favour of Colenso was denounced by the Colonial metropolitan, Bishop Gray, who had previously excommunicated him, as "a masterpiece of Satan," and "the great dragon of the English Church." Bishop Wilberforce regretted "the devotion of the English people to the law in matters of this sort." John Keble "lamented that the English people no longer believed in excommunication."

Excommunication was threatened against every clergyman and layman in Natal who should befriend the bishop; in addition to which, the former were terrorised by the threat that they would be deprived of their salaries, and themselves and families brought to starvation, ruin, and disgrace. "The vicar-general of the Bishop of Capetown met Colenso at the door of his own cathedral, and solemnly bade him 'depart from the House of God, as one who has been handed over to the Evil One.' The sentence of excommunication was read before the assembled faithful, and they were enjoined to treat their bishop as 'a heathen man and a publican.'"

"The greatest efforts were now made to humiliate Colenso, and to reduce to beggary the clergy who remained faithful to him. . . . But the zeal of the bishop's enemies did not end with calumny. He was socially ostracised—more completely even than Lyell had been after the publication of his 'Principles of Geology,' thirty years before. Even old friends left him." Some whom he had befriended under like circumstances turned against and attacked him. "A large part of the English populace was led to regard him as an 'infidel,' a 'traitor,' an 'apostate,' and even as an 'unclean being'; servants left his house in horror. The outcry was deafening. Churchmen and dissenters rushed forward to attack him."¹

Here and there an eminent churchman, like Dean Stanley or Bishop Thirlwall, tried to stem the tide by counselling moderation; but their voices were lost in the roar of the fierce river of theological hatred which poured forth from churches of all denominations, and ran like poison through the healthy streams of life. All

¹ Dr. A. D. White, "Warfare of Science with Theology."

the power of the Church of England, exerted through convocation, and her innumerable social channels, was brought to bear against a man of blameless character; who was the author of various valuable text-books in mathematics, and had been a highly esteemed master of Harrow, and fellow and tutor at Cambridge, because he had dared to be guided by the light of reason in preference to the darkness of faith.

The law courts re-instated Colenso, rendering null and void the condemnatory decision of convocation, and the whole body of theological authority. The secular power was stronger than the religious; and once again light and reason triumphed in the struggle against darkness and faith.

The baneful influence of theological pretensions receives a remarkable illustration in the fact that Mr. Gladstone, who was the author of the assertion that the Roman Catholic Church is "the mortal enemy of human liberty," was one of the leaders in preparing the legal pleas of the committee against Colenso.

The publication of "Essays and Reviews" a short time previously, following closely on Darwin's discoveries, had helped to broaden and liberalise thought; and no doubt Colenso drew some of his inspiration and support from that source, when he decided upon publishing his critical examination of the Pentateuch and the Book of Joshua. The fermentation in the religious world, occasioned by that event, had scarcely subsided when Colenso's far more popular and destructive criticism appeared. He dealt with definite facts and figures, which plain people could understand and examine for themselves; and the results have been correspondingly permanent and valuable, in assisting to undermine still further the great citadel of formulated dogmatic supernaturalism.

The writers of "Essays and Reviews" also dealt with plain matter-of-fact subjects, about which, however, there had been controversy from time to time; and concerning which many able, emancipated writers and others had come to definite conclusions. The great service Colenso rendered consisted in applying the plain meaning of

languages to the interpretation of Scripture. The essayists, on the contrary, knowing that science had established such a position, that it was no longer useful but detrimental to the interests of the Anglican Church to continue insisting on a literal interpretation of the Scriptures, advocated another kind of interpretation, and rejected the literal plain meaning of the Bible language.

Dr. Temple, one of the writers, says: "What can be a grosser superstition than the theory of literal inspiration? But because that has a regular footing, it is to be treated as a good man's mistake, while the courage to speak the truth about the first chapter of Genesis is a wanton piece of wickedness."

Modern research, no less than the plain, evident truths of science, had rendered untenable the theological positions which were attacked by the essayists and reviewers; and they could, therefore, be doing their Church no greater service than by suggesting and advocating another method than that of literal interpretation. If the inspiration was not literal, then, accordingly, literal interpretation was not incumbent or necessary; and man was at liberty to construe the account of creation given in Genesis, for example, as his ingenuity or fancy might dictate.

The doctrine of eternal punishment had become so repugnant to the conscience that hell had lost its hold over men's serious thought, and was fading from the mind like a worn-out myth. The Rev. H. B. Wilson, in his essay, took the view that "the ultimate pardon of the wicked who are condemned in the Day of Judgment may be consistent with the will of Almighty God." This was taken by the archbishops, bishops, and others as tantamount to a denial of the doctrine of eternal punishment. But this also, it will be seen, was but another device by which the divine character of the Bible message could be made still to harmonise with the altered condition of feeling and thought on the subject of eternal punishment.

These writers really helped to give a new lease of life to a decaying edifice. They were wise in their way, though their wisdom was not apparent *at the time* to

those who were chiefly concerned, and in whose interests they laboured. A storm arose, and on all sides demands were made for the prosecution of the seven essayists and reviewers. It raged with particular violence in the Convocation of Canterbury. Archdeacon Denison insisted on their punishment, "for the sake of the young, who are tainted and corrupted, and thrust almost to hell by the action of this book," declaring, "of all books in any language which I ever laid my hands on, this is incomparably the worst; it contains all the poison which is to be found in Tom Paine's 'Age of Reason,' while it has the additional disadvantage of having been written by clergymen."

The Church authorities deemed it wise not to proceed against them; but the tumult and clamour becoming so great, the Bishop of Salisbury and another clergyman were put forward as prosecutors of the Rev. Dr. Williams and Rev. H. B. Wilson. Notwithstanding the clerical power and influence brought to bear upon the judges, which disregarded every principle of law and justice,—Dr. Pusey wrote a series of letters to one of the judges beseeching him to convict them, if only on the ground of expediency—the prosecution failed; whereupon the Convocation of Canterbury passed an act of condemnation, which was as futile as it was unwise, since it further emphasised in the public mind the false position in which the Church stood, both in regard to the law of the land and the spirit of the times, which was averse to prosecuting men for writing according to their knowledge and convictions, even on religious subjects.

An alliance was formed between High and Low Churchmen, with Dr. Pusey at their head; and within a short time a declaration which they issued dissenting from the judgment was signed by eleven thousand clergymen, and by a deputation representing one hundred and thirty-seven thousand laymen, who waited on the archbishops to thank them for dissenting from the judgment of acquittal. Bishops Tait and Thirlwall were the only two high ecclesiastics who kept their heads amid the rage and confusion which reigned all around them. Thirlwall said he viewed the eleven thousand

names headed by that of Dr. Pusey "in the light of a row of figures preceded by a decimal point, so that, however far the series may be advanced, it can never rise to the value of a single unit."

Thirlwall was not the man to be carried away by the noise around him. He probably took a just estimate of the matter; the wisdom of which is now felt and acknowledged by the Church, at the head of which is one of the principal offenders, Dr. Temple, Archbishop of Canterbury.

His Grace has lived to see some of the fruits of his earlier work, and to reap very substantial rewards. It would be interesting, as well as instructive, to know how far, and in what direction, his mind has moved along the groove of change since he wrote his famous essay. Since then some great and important discoveries have had time to do their work in the public mind, and alter still further the complexion of the theological outlook. The immediate effect of the efforts of Dr. Temple and his co-workers was to divert the attention of active opponents of Christianity from the main issues, by supplying new views of old subjects of controversy; and in this channel much of the defensive literature on the subject has since run; while many of the active opponents have subsided through sheer weariness from belabouring what they look upon as a dead horse.

"Essays and Reviews" gave currency to, if they did not inaugurate, a new method of warfare for the Church; and she no longer wasted her strength in defending the old positions. Indeed, it was not, and is not, necessary, owing to the altered state of the public mind, and the indifference with which dogmatic doctrines which were once considered of vital importance are now regarded. To what extent the writings in question may have assisted, in conjunction with the decaying influences of time in all systems of supernaturalism, to bring about the indifference, we cannot say; but it seems only reasonable to suppose that when, in deference to the growth of scepticism, they advocated the recognition of human error in the Bible message, they were preparing the way for the secession of large masses of people who, possibly for many years

to come, might have continued to receive the literal interpretation without question.

On the other hand, in view of the popular study of science, it is possible that those dogmas which diametrically contradicted what the people had come to regard as incontrovertible truths had seen their day; and, under any circumstances, were bound to release their hold over public belief.

While, however, the Anglican Church no longer fights for her dogmas, and has in fact no opponents with whom to fight, both having by common consent dropped the subject, she, nevertheless, pursues a course which is as much opposed and detrimental to progress as her action in the past was to liberty. In all local government bodies, and especially on school boards, the clergyman is to be found, and is, in most cases, a reactionary force to be reckoned with. Since the introduction of the Board School system of education, it is well known that the power of the Church, through all her members, clerical and lay, has been ranged on the side of the enemies to education. This fact is notorious, and is daily in evidence in the press, and at meetings of various kinds throughout the country.

The Archbishop of Canterbury, speaking at a diocesan meeting a short time since, said: "The School Board system did not satisfy the Church, and until the children were taught religion of a kind which the Church approved, they would maintain the present dual system of education."

The archbishop is a moderate man—so moderate, indeed, that in earlier days he was stigmatised by his brethren and others as an "infidel," an "atheist," and the countenancer of Tom Paine's "Age of Reason." The moderate tone of his language in condemnation of Board School education, therefore, is not to be taken as a sample of that which is daily poured forth by clergymen of most denominations. The morning papers supply them in abundance; the keynote is regard for the rate-payer's interests. In consequence, all who recognise the pressing necessity for vital energy in matters of education are compelled to regard the Church and its members

as enemies to the cause, and range themselves accordingly in the opposite camp.

The bishops, as a body, appear to have quietly accepted the inevitable, and are not very prominent now. Their social influence and sympathies are with the rich; so far as is known to the contrary, they are unacquainted with the great currents of modern thought; and take little or no interest in the labour and other popular movements, except feebly to oppose them. They live in an atmosphere of their own; in the modern world they have no place, so far as its busy, material, or moral life is concerned. Their impress on the public mind is rather that of vague curiosity than living interest-echoes, as it were, of the dead past, fossilised remains of the early fathers.

The Rev. H. Handley, vicar of St. Thomas's, Camden Town, in his book, "The Fatal Opulence of Bishops," thinks the falling away of the working classes from Christianity is mainly due to the aloofness and wealthy pomp and state in which bishops live. They take no interest in the life of the masses, and the latter have in consequence come to look upon the Church as "nothing to do with them." Sir Edward Clarke asked at the Church Congress: "How was it that they had to face the fact that . . . the greater number by far of the hard-working toilers of the land never entered a temple of Christian worship?" Says Mr. Handley: "Among almost the whole working class of the country public worship in church has been seen to be falling into desuetude. Of this religious decline episcopal opulence has been shown to be a tributary cause." The Bishop of London appears to share these views.

Whatever may be the shortcomings of the bishops, not many intelligent observers will, we think, endorse Mr. Handley's explanation of the decline of Christianity among the working classes. The bishops are but a part, and, so far as the decline of Christianity among all classes is concerned, only a very small part of that great organisation of human belief, which, in accordance with the law of progress in all things, is passing out of the life of man.

The operation of the law of growth and decay is seen here, as elsewhere; and bishops cannot, any more than any other part of the organic whole, escape the fiat of Nature. But being, as heads of the Church, the most conspicuous objects, they attract the greatest amount of notice; and thereby emphasise in public view the decay that is going on. One of the greatest writers of this age makes a character in one of his books, the window of whose lodging commands a view of the crumbling walls of a Christian place of worship, look out on "four centuries of gloom, bigotry, and decay."

The late Lord Beaconsfield said "the spirit of the age was sometimes to be resisted." We may resist it, as we may the avalanche, but it will sweep us away.

The opposition which clergymen, as a whole, are offering to the spirit of the times, the spread of education and enlightenment, has another side than that of the speculative or the ethical. It has an immediate and very practical bearing upon our national interests. Men of responsible position, who have studied the subject, and speak with all the weight of authority, tell us that one of the main factors in the decline of our industries, which the papers daily announce, is that we are falling behind other nations in the matter of education.

The nation has not yet awoken to the fact that the old order is passing away, and we are entering upon the new, in which clergymen, by tradition, temperament, and education, are unfitted to be the instructors of youth. The clerical influence, while brought to bear against the education of the humbler classes, still dominates the middle and high-class schools and colleges; and instruction in religion and theology is regarded as one of the important functions of the educational staff. The dead past is, indeed, in a very material sense, a living factor among us, and holds us in its clutches.

New methods of utilising the forces of Nature are transforming the industries of the world; and the clergyman, who has not yet been brought even to recognise these forces, is about the last man to whom should be entrusted the instruction and equipment of the rising generation, who will have to compete against the better

taught of other countries. These facts have for some time appealed to the British mind; they will soon appeal to the pocket, in which place, our enemies say, the former chiefly resides.

To continue wasting the intellectual energies of youth, by teaching a system of theology which the thoughtful of all classes have come to recognise as erroneous, and useless for all purposes, is to put ourselves out of touch with modern requirements. Old and worn-out methods and systems in other departments of life, however useful they may have been in their day, we eliminate in favour of newer and better methods. It is difficult to understand what useful purpose can be served by teaching that which no longer has any practical bearing on our lives, moral or material; and which can only hamper us in the struggle that is now going on between nations for supremacy in the various fields of industrial enterprise.

As time goes on, it is to be feared that the character of the struggle may alter from one of supremacy to that of bare existence; and the hard facts of necessity will compel us to recognise the unwisdom of permitting an enormously wealthy and numerous body to use a large part of the national resources in frittering away youthful energy, by teaching that which even they themselves, many of them, feel to have no foundation in truth.

The working classes have fallen away from Christianity; so also have the upper and intellectual classes; and church attendants now are mostly of the middle classes. The lament of empty churches is heard on all sides; and no inducements that they can hold out appear to have any effect in helping to bring back the people. To ascribe this state of things to the bishop's wealth and pomp, or to the clergyman's social pretensions, is to form a very inadequate estimate of the whole subject.

The Anglican Church has lost her most effective weapon. The fear of eternal punishment may have exercised in times gone by a deterrent effect, and helped to keep men in the paths of rectitude; but the shock the idea of hell has given to the modern conscience,

the growth of intelligence consequent on the spread of knowledge, the ever-increasing volume of life's interests, and a variety of other causes, have obliterated the fear of hell from the mind ; and it is doubtful if it now exercises much influence over men's conduct. With the loss of this, the Church is bereft of her greatest, if not, indeed, her only power.

Some will say religion must be taught for the sake of its moral influence, even though every dogma be found to be untenable. This feeling is deep and widespread, but it is also very vague and indefinite ; few ask themselves, or know precisely, what they mean by the term religion. The conception entertained by Mr. Herbert Spencer and others appears to consist of all the feeling and thought of man about his relation to the Unknown Power. So that, however much he may learn of the laws of Nature, inasmuch as he can never reach finality and know the grand secret, religion in this respect is a permanent element in human nature, and must ever remain so.

But this is not what Christianity, or any other creed, teaches, or means by religion. Authorised formularies of doctrine, consisting of thirty-nine articles, constitute the religion current among us ; these articles are all strictly and precisely defined, and are modified from time to time to meet the exigencies of the growth of knowledge. The mysteries they contain consist chiefly of human elements, introduced apparently for the purpose of contradicting human reason. That three are one and one three, is made up of human characters, put together in a manner to contradict reason and experience. Anyone is at liberty to accept it and to call it a "mystery," but in so doing he must discard reason, and rely on what is called faith. The common sense of mankind, however, will eventually decide the question between the two, bolster it up as we may.

Evolution, the conservation and correlation of force, and other discoveries of recent times, have enlarged the boundaries of knowledge, and brought a great accession of light to the mind. We learn from these all-embracing

laws that nothing is permanent, everything is in a state of flux, mental and material; and that every form of existence runs through a course of formation and dissolution, growth and decay, life and death. With every increase to the stock of human knowledge comes a corresponding change in the thought and outlook on our environment, necessitating a like readjustment. These are the disintegrating elements in every religious creed, and can never be eliminated.

Every explanation which man formulates in precise terms of his relation to God will in time die; every god he makes, he will in due course unmake; God is inconceivable. As we cannot transcend the finite, or penetrate to the substance of visible things, the Infinite is, and must ever be, beyond the power of human thought. The subjective tendency of mind may contain a verity surviving this life, and extending beyond, into that "behind the veil" of Tennyson; but no certain knowledge that we possess will enable us to say one way or the other. It is not given to man to *know*.

The everlasting problems, "What are we? Whence came we? Whither are we going?" still confront us, and the solemn mystery is as impenetrable as ever. The future may be to us as dark as the past, and life a purposeless phase in the growth and decay of the world; as the latter seems to be a purposeless necessity in the wider sphere of universal being. Eternal darkness enwraps us in the past, and may engulf us again, when our brief and unquiet day is ended. Such appears to be the teaching alike of profoundest thought, and the greatest and most far-reaching laws that have yet illumined the human mind.

Notwithstanding, we need have no fear that religion, in its highest and best sense, will die. Mr. Herbert Spencer's view will live for ever—as long, at least, as man is a tenant of this planet. The Infinite will never fail to form the subject of his highest and most reverent thoughts and aspirations. The indefinite vastness of space and time; the awful majesty of the universe, with its unnumbered worlds; the impersonal character of all we

see and know of Nature; the solemn tragedy and mystery of life: these and like subjects will never cease to engage the highest faculties of the best and noblest minds for all time.

THE END

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