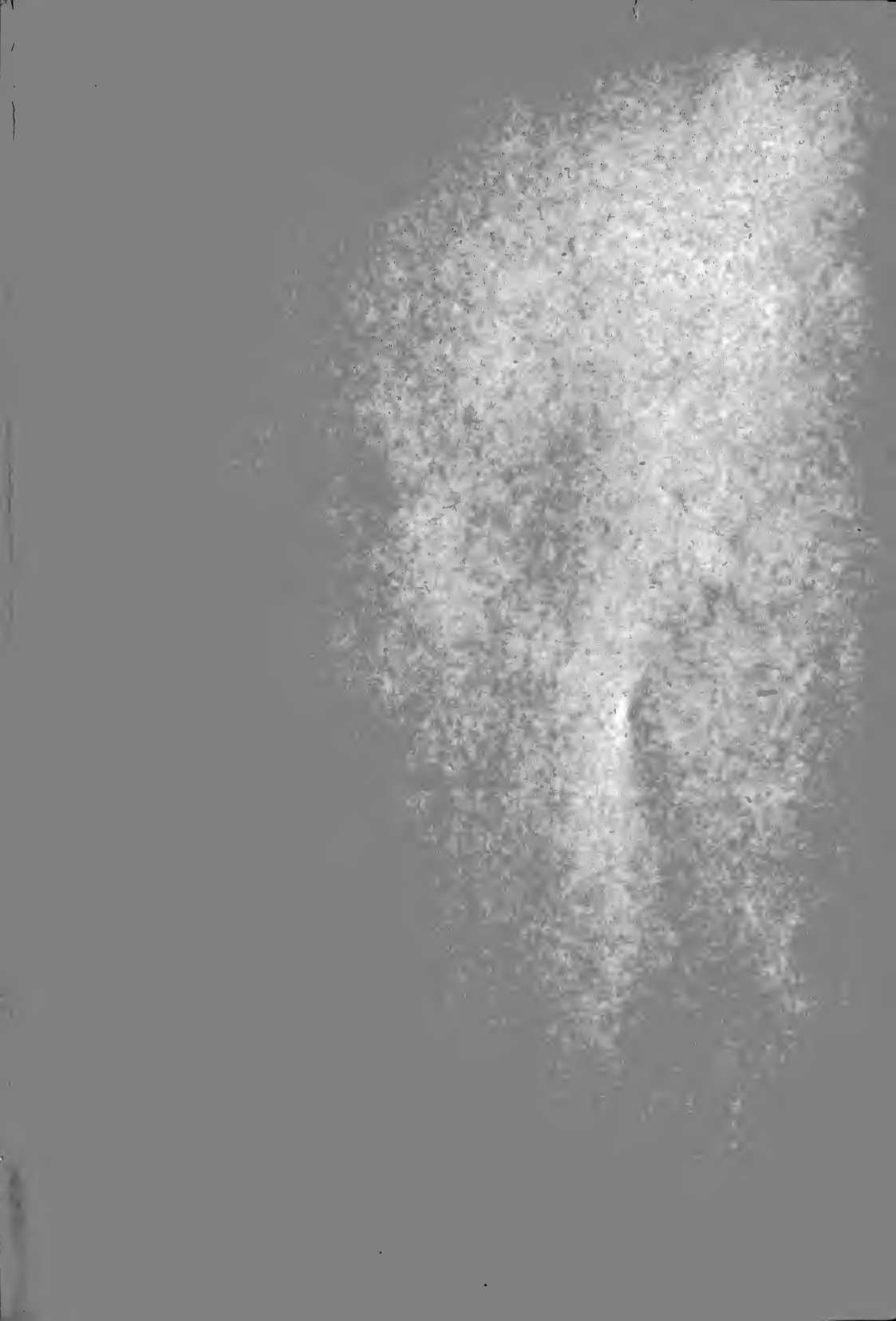

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THEOLOGICAL UNREST:

DISCUSSIONS IN

SCIENCE AND RELIGION.

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THE CONFLICT OF RELIGION AND SCIENCE.

By Rev. Edward A. Washburn, D.D. 45

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NOTE.

The following brilliant essays present the most forcible arguments that have lately appeared on both sides of the questions at issue between Science and Religion. They are now offered collectively for the first time, in the hope that so concise a statement of the whole case as is here given will be appreciated by all fair-minded people.

ATLAS SERIES OF ESSAYS
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SCIENCE AND RELIGION.

AN ARGUMENT.

CHAPTER I.

SCIENCE AND THEOLOGY—ANCIENT AND MODERN.[1]

EACH generation of mankind thinks highly of its own importance and inclines to believe that it will mark an epoch in human history. All of us who live out our seventy years witness impressive changes. If we add to our personal experience the accounts which we hear from our fathers of the state of things which they remember in their own childhood, the individual recollections of each of us extend back over nearly a century; and every century brings with it alterations of action and sentiment, which are depressing or exhilarating according to the constitution of our minds, but are always on a scale to force upon us a sense of the instability of all opinions and institutions, and of the complicated influences which control the fortunes of our race. The revolutions may be intrinsically less violent than they seem to those who have borne a part in them. Events which at the time of their occurrence appear of world-wide moment, are seen afterward to have been without real significance. As we look back over history we perceive long periods apparently level and unbroken. Then, as now, perhaps old men drew contrasts between past and present, spoke eloquently of national degeneracy, or warmed into enthusiasm over a better time that had set in. To us, as we survey these periods from a distance, there will appear to have been few changes either for good or evil,

[1] From the *International Review.*

and each generation will seem extremely like its predecessors. The English of Shakespeare or Swift were not essentially different from the English of to-day. The accidents of life alter rapidly. The inner nature alters very slowly. We feel acutely the alterations which we have witnessed, because they are close to us; but at least half the impression is due to changes in ourselves rather than in what is round us. We grow old; we look back on the past with affectionate regret, as when we were young we looked to the future with hope and enthusiasm. We do not see the sordid details of vulgar reality; we are unconscious poets and idealize without being aware of it.

Nevertheless there are times when change is really rapid, so rapid that the character of it cannot be mistaken; times when a Rip van Winkle who went to sleep in his youth would wake in manhood to find himself in a world remade, all habits altered, all the most cherished opinions swept away as in a whirlwind. Some violent convulsion may have done it—a reformation or a French Revolution shaking society like an earthquake—or the same effect may have been produced more quietly by a swift, silent operation, as if mankind had broken suddenly from the anchorage and were hurried away by some irresistible current from all their bearings and associations.

Allowing for the tendency to exaggerate our self-importance, there is reason to think that we are ourselves living in one of these exceptional epochs; that we have been launched into a current which has already carried us out of sight of most of our old landmarks, and is rushing forward with us with accelerating velocity. For the last fifty years science has conferred upon us new and extraordinary powers of rapid communication. Ideas are interchanged, productions are interchanged, the human inhabitants of the globe can move to and fro with an ease and speed never before known or dreamed of; and we are surrounded with vast political catastrophes, empires rising and falling, races forming new combinations, prejudices breaking down, whole continents opened out for the formation of new and mighty nationalities, a universal levelling of all old distinctions, as if mankind had been resolved into a thousand million units to reorganize in fresh combinations, suited to an altered order of things. Look alone at Great Britain. At the close of the French war Great Britain had but half of its present population and a fifth of its present wealth. Lancashire was still an agricultural county. Our manufactures were but as the lading of a Thames barge compared to the freight of an ocean steamer.

Colonies we had few, and those valued by us but as markets for our uncertain commerce. Ships crawled to and fro across the Atlantic, spending six weeks upon the voyage. As many months were consumed on a voyage to India or China. The landed aristocracy ruled in St. Stephens, and "use and wont" in the length and breadth of the island. Stage-coaches rolled sleepily along the unmacadamized high-roads. The impatient traveler, who was not afraid of fatigue, might reach Edinburgh from London in two days and nights. The magnate, who preferred his own carriage and his own horses, was a fortnight on the way.

Each neighborhood supplied its own necessities and its own amusements. The weaver made cloth at his solitary loom for the tailor to cut into clothes in the adjoining village. The old wife in the cottage spun her own yarn, and knitted her own and her husband's and children's stockings. The gentry confined their visits within a circle of ten miles. Their daughters depended for their larger acquaintance on the balls and races in the county town. Schools there were none, except for the well-to-do. The village boys and girls learnt their catechism at the parish church, and were bound apprentices for the rest of their education. All the country over, from the expense and difficulty of movement, each family was rooted to its own soil, and the summer migrations of the squires and parsons were confined, like that of the Vicar of Wakefield, to a change from the blue room to the brown.

Under these conditions, we who are now turned middle age began our existence; our hopes modest, our ambition limited to one or other of the three black graces; our horizon bounded, at furthest, by the limits of our own island, and our knowledge of the rest of the globe extending but to names upon maps, huge portions of which remained blank, or to books of travels which were not accurately distinguished from the voyages of Gulliver or Robinson Crusoe or Sindbad the Sailor.

Our spiritual state was the counterpart of our material state. We learnt what our fathers had learnt before us: Greek and Latin, and arithmetic and geometry, Greek and Roman history, and, in some favored instances, little English history, conceived from an insular point of view. Modern languages we despised, and of modern European literature we knew nothing. Physical science was regarded rather as an amusement of dilettanteism than as an occupation for serious men. Of astronomy, we were taught the general results. We knew, in words, that the earth was round; that it

travelled round the sun as one of its planets; and that the solar system was perhaps but one of an infinite number of such systems. But the knowledge had not penetrated beyond our memories. For practical purposes, we still believed that our own earth was the most important part of the universe, and man the central object for which all else had been made. Electricity was a toy, geology a paradoxical novelty. Critical history had not commenced its massacre of illusions. Schoolboys were taught to believe in the Seven Kings' Rome. British antiquarians could insist modestly that Brute of Troy need not be a fable. Chemists still talked of the four elements. The keen, piercing process by which traditionary teachings on all subjects have since been brought to the bar to answer for themselves, was still unheard of in any single department of human study.

A condition so stationary, so controlled outwardly and inwardly by habit, corresponded to the stable character of the English nation. Below the outward life and the intellectual cultivation lay a foundation of morality based upon authority. We must all live. Children must be taught that a certain conduct is required of them; that there is a rule of duty to which they must conform. In a wholesome condition of society no questions are asked as to what duty means, or why it is obligatory. The idea of duty lies in the constitution of things, and the source of it is the will of the maker of the world. Sixty years ago speculations on the origin of the universe were confined to a few curious or idle people; the multitude of us believed without the slightest conscious misgiving that the world was made by God —that he had made himself known in a revelation which had been guaranteed by miracles, and had himself declared the law which we were required to obey—and that in the Bible, further, we had a history of God's actions and intentions toward us, every word of which was indisputably true.

Such a conviction was for all practical purposes universally received throughout England and America, at least during the first half of this century. Of course we know that there were persons who did not believe; but we were satisfied that in Christian countries disbelief was caused by moral depravity. There were infidels in religion as there were monsters in crime; but infidelity, we were assured, was not a mistake, but a sin. It was the result of a culpable misuse of faculties, which if fairly employed could arrive only at an orthodox conclusion. I remember that when I was a

little boy, there was a family in the corner of the parish supposed to entertain eccentric opinions on these subjects. They were harmless and respectable, but they did not go to church, and naturally were called atheists. We looked at them with a vague terror. If we passed their door, we hurried by as if the place were haunted. At last the old mother died. The husband asked that the body might be buried without being taken into the church. It would, I believe, have been illegal. At any rate the request was refused, and I recollect, when the matter was talked over, hearing it said that people who did not believe in God believed often in the devil, and that inside the church the devil had special power to take hold of an atheist. Some months after, one summer evening, I saw the husband stealing down to the churchyard to visit his wife's grave. His look was gentle, sad, abstracted, full of human sorrow and human sensibility. I recollect a sense of startled pity for the poor old man, mixed with doubts whether it was not impious to entertain such a feeling.

We were under the influence of the remnants of a superstition which in other days lit the fires at Smithfield, and of course it was absurd and horrible. Yet when a creed has been made the base on which moral convictions and moral conduct are rested, it can not be questioned without grave consequences. We can not build our lives on a balance of probabilities; and unless we take for granted the essential principles of duty, we can make nothing out of an existence at all. The clerk in Eastcheap, as Mr. Carlyle says, can not be forever verifying his ready-reckoner. The world, when it is in a healthy state, will always look askance at persons who insist that the ready-reckoners require revision.

Yet times come when the calculation becomes so terribly wrong that the revision can not be put off any longer. It is but necessary to describe such a condition of feeling to be aware how far we have been driven from it—far as the era lies of railroads and telegraphs and ocean steamers from the era of stage-coaches and Russells wagons. Whither these material changes may be carrying us, it is idle to conjecture. Nothing of the same kind has ever been witnessed on the earth before, and there is no experience to guide us. The spiritual change is not so unexampled. Phenomena occurred most curiously analogous at the time of the rise of Christianity; and from the singularly parallel course in which at these two periods the intellect developed itself, we may infer generally what is likely to come of it.

That we have been started out of our old positions, and that we can never return to positions exactly the same is too plain to be questioned. Theologians no longer speak with authority. They are content to suggest, and to deprecate hasty contradiction. Those who doubted before, now openly deny. Those who believed on trust have passed into uncertainty. Those who uphold orthodoxy can not agree on what ground to defend it. Throughout Europe, throughout the world, the gravest subjects are freely discussed, and opposite sides may be taken without blame from society. Doctrines once fixed as a rock are now fluid as water. Truth is what men trow. Things are what men think. Certainty neither is nor can be more than the agreement of persons competent to form an opinion, and when competent persons cease to agree the certain has become doubtful—doubtful from the necessity of the case. This is a simple matter of fact. What is generally doubted is doubtful. It is a conclusion from which there is no escape. The universal assent which constitutes certainty has been dissolved into the conflicting sentiments of individual thinkers.

First principles are necessarily assumptions. They can not prove themselves. For three centuries all Protestant communities assumed as a first principle the infallibility of the Bible. They regarded the writers of the various books as the automatic instruments of the Holy Spirit; and pious and simple people held in entire consistency that if the Bible was a rule of faith where each person, learned or unlearned, could find the truth, the translations must be inspired also. These positions were safe so long, and so long only, as it was held to be sinful to challenge them. Wisely do men invest authority, whether of writing or person, with a sacred character. The mass of men can only be made to feel the superiority of what is higher than themselves when it is surrounded with a certain atmosphere of dignity. It is essential to society that princes and magistrates shall be regarded with respect, for they represent not themselves only, but the law which they administer. The sovereign function is gone if every intruding blockhead may take his sovereign by the hand and examine with his own eyes of what matter kings are composed. The blockhead can not be made to understand for himself why authority ought to be obeyed. He is therefore properly placed when he can not reach to measure himself against it. The outward protection taken away, the illusion is gone. The judge without his robe may retain his intellectual supremacy, but his intellectual supremacy will inspire no awe in the vulgar crowd. Stripped of robe and ceremony he appears but a common man.

The spell of sanctity once broken, the Bible once approached, examined, and studied, as other books, an analogous result has followed. The critic has approached tenderly and respectfully, but the approach at all implies an assumption of a right to question the supernatural character of the object of his investigation. Certainty passes into probability, and the difference between certainty and probability is not in degree but in kind. A human witness is substituted for a divine witness, and faith is changed into opinion. The authority of the translation was the first to be shaken. Then variations in the MSS. destroyed the confidence in the original text. If the original language was miraculously communicated, there was a natural presumption that it would be miraculously preserved. It had not been miraculously preserved, and the inference of doubt extended backward on the inspiration.

The origin of the different books was next inquired into, with their authorship and antiquity. At each step the uncertainty became deeper. The gospel history itself was found to be a labyrinth of perplexities. The divine sanction for accuracy and authenticity once obscured, the popular sense which had cleared the modern world of superstition, and had driven the supernatural out of secular history, began to ask on what ground the Bible miracles were to be believed if all other miracles were to be rejected. Geology forced itself forward, and declared that the history of the creation in the Book of Genesis was irreconcilable with ascertained facts. Along the whole line the defending forces are falling back, not knowing where to make a stand; and materialism all over Europe stands frankly out and is respectfully listened to when it affirms that the war is over, that the claims of revelation can not be maintained, and that the existence of God and of a future state, the origin of man, the nature of conscience, and the meaning of the distinctions between good and evil are all open questions.

No serious consequences, at least in England and America, are as yet outwardly apparent. We are a law-abiding race; the mass of us are little given to unpractical speculation. We are too earnest to tolerate impiety, and the traditions of religion will retain their hold with the millions long after they have lost their influence over the intellect. Intellect we know is not omniscient. Emotion has a voice in the matter, which is always on the side of faith, and women in such subjects are governed almost wholly by their feelings. The entire generation at present alive may probably pass away before the inward change shows itself markedly in external symptoms.

None the less it is quite certain that the ark of religious opinion has drifted from its moorings, that it is moving with increasing speed along a track which it will never retrace, and towards issues infinitely momentous. What are these issues to be? "The thing that hath been, that shall be again."

Once before the civilized nations of Europe had a religion on which their laws were founded, and by which their lives and actions were governed. Once before it failed them, and they were driven back upon philosophy. Allowing for the difference of times, the intellectual phenomena were precisely the same as those which we have ourselves experienced. The philosophic schools passed through the same stages, and the latest of them arrived at the same conclusion, that the universe of things could be explained by natural causes; and as no symptom could be discovered of any special divine interference with the action of those causes, so there was no occasion for supposing that such interference had ever been or ever would be. The scientific triumph, as it was then regarded, was proclaimed as a new message of glad tidings to mankind. It was believed by politicians and philosophers, by poets and historians. It was never believed by the mass of simple-minded people, who held on in spite of it to the traditions of the old faith, till Christianity rose out of the dying ashes of paganism, restored conscience to its supremacy, and made real belief in God once more possible.

Human nature remains what it always was. The nature of God, and the relation in which man stands to God, are the same now as they were when man first began to be. The truth of fact is what it is, independent, happily, of our notions of it. We do not make truth by recognizing it; we can not unmake truth by denying it. So much of it as it concerns us practically to know we learn by experience, as we learn every natural lesson; and if man is not permitted to live and prosper in this world without an acknowledgment of his Maker, the scientific experiment will fail as it failed before. The existing forms of religion may dissolve, but the truth which is the soul of religion will revive more vigorous than ever. The analogy is the more impressive the more closely we compare the details of the two periods.

No one knows distinctly how the pagan religions began. Some say they were corruptions of patriarchal traditions; some trace them to fear and ignorance; some to consciousness of responsibility; some to the involuntary awe forced upon the mind by the star-spangled sky and the majestic motion through it of sun, moon, and

planets. All these influences probably were combined to excite each other, the last, as was most natural, giving shape and form to the emotion of piety. The number 12 and the number 7, occurring, as they do, in all the old mythologies, point unmistakably to the twelve months and to the seven celestial bodies visible from the earth, which have a proper motion of their own among the stars. However the idea was generated, it seized on the minds of men as soon as born with an irresistible fascination, and took direction of their whole being. The nobler nations assigned to God, or the gods, the moral government of mankind. The will of the gods was the foundation of their legislation. Law was to be obeyed because it was so ordered by the maker and master of the world. The early Greek or Roman directed his whole life by the reference of every particle of it to the gods as entirely as the most devout of Catholic Christians. Meanwhile fancy and imagination wandered in the expanse of possibilities, giving these airy creations a local habitation and a name. The law was stern and severe. A brighter aspect was given to religion in music and song and sacrifice, and legends, and heroic tales; and poets watched the changing phenomena of days and nights, and summer and winter, and heat and cold, and rain and thunder, and human life, and wove them all into a mythology, till there was not a river without its god, a grotto without its nymph, a wood without its dryad, a noble, heroic man without a deity for his father. All went flowingly so long as the world was young. The vast fabric of unreality grew on without intention of fraud; but the time came when intellect began to ask questions, and the stories which were related as sacred truths were seen first to be inconsistent, and then to be incredible. The first resource for defense was allegory. The stories about the gods were not true in themselves, but only figuratively true. Behind the ceremonial of the temples lay "the mysteries" in which the initiated were admitted into the real secret. So interpreted, Homer and Hesiod continued to be tolerable. But the strength of the traditions was weakened insensibly by allegoric dilution. When any thing might mean any thing, men began to ask whether any thing at all was known about the gods. They looked round them, and into their own souls, at the phenomena of real experience, and asked what lessons they could discover in facts which could not be disputed.

So began Greek philosophy. The tone at first was reverent. Order and uniformity was manifest throughout the universe, and where order was, it were assumed that there was an ordering mind.

Some thought that the origin of things was "spirit," others that it was "matter;" some that spirit and matter were co-eternal, others that matter had been created by spirit out of nothing. It was asked what the nature of spirit was. Was spirit self-existing outside the universe, or was it infused in material substance as the soul of a man is in his body? Was it conscious of itself? or was not the most perfect being a serene automaton which needed no consideration, and therefore never reflected upon itself? Again, was spirit intellectual merely, or was it just and good? and if good, whence came evil? Such questions cut deep, but they were not necessarily irreligious. Plato taught a pure theism. Aristotle believed matter to be eternal; he believed God to be eternal also, and the phenomena of existence to result from the efforts of matter to shape itself after the all-perfect pattern which it saw in God. Even Epicurus did not deny that the gods existed. He denied only that there was any trace of their interference with human fortunes.

The difficulty was to account for sin and misery, if a conscious Providence immediately directed every thing. The most popular religious solution of the problem was the doctrine of what was called plastic nature. Nature was supposed to be a force developing itself unconsciously and automatically, as the seed develops into the tree, or, as it was ingeniously expressed by Aristotle, "as if the art of the shipwright was in the timbers." Each organ of every living thing corresponded to its functions. But the operations of nature were not mechanical like human contrivances. Organization was governed by laws from within, not by intention directing it from without, and nature being imperfect, and only striving after perfection, being progressive and not yet complete, her creations partook necessarily of her infirmities, and were subject to decay and change. Such a conception of nature was an earlier form of Spinozism. The bird builds its nests, the spider stretches its web automatically. The human craftsman, as he becomes skilled in any art, does his work more and more spontaneously, and with less and less conscious reflection. When he is a master of his business, he makes each stroke as surely, yet with as little thought about it, as he lifts his food to his mouth.

With these and the like ingenious speculations, philosophers endeavored to answer the questions which they put to themselves about their own nature and the world they lived in; religion and the religious rituals all the while being neither abandoned nor denied, but remaining as a dress or a custom which each day was wearing

thinner. And human life all the while was real, as it is now, brief, struggling, painful, the plaything of accident, a fire-fly flashing out of the darkness, and again disappearing into it; coming none knew whence, going none knew whither: yet while it lasted, with its passions and its affections, its crimes and its virtues, its high aspirations, its mean degradations, its enthusiasms and its remorse, its wild bursts of joy and agonies of pain, it was an important possession to the owner of it, and speculations about plastic nature would not be likely to satisfy him when he demanded the meaning of it. Yet demand the meaning of it man will and must. Life is too stern to be played with, and as the old creed died into a form, and philosophy proved so indifferent a substitute, dark and terrible notions can be seen rising in Greek poetry; notions that there were gods, but not good gods; notions of an inexorable fate; notions that men were creatures and playthings of powerful and malignant beings who required to be flattered and propitiated, and that beyond the grave lay gloomy possibilities of eternal and horrible suffering. Gone the sunshine of Homer, this healthy vigor, unconscious of itself. Gone the frank and simple courage which met the storm and the sunshine as they came, untroubled with sickly spiritual terrors. In Æschylus, in Sophocles, in Euripides, even in Plato himself, the prevailing thought is gloomy and desponding. Philosophy, it was plain, had no anodyne to offer against the sad conviction of the nature of man's life on earth, or availed to allay anxiety for what might happen to him hereafter.

In this condition the Romans came into the inheritance of the world, and became its spiritual as well as administrative trustees. Their religion, too, had gone like the Greek. They had allowed the national divinities of Italy to be identified with the gods of Hellas. They had modelled their literature on the Athenian type. They had accepted Greek poetry and philosophy as containing the best which could be felt or known on the great questions which most concerned humanity. But for them some practical theory of life was necessary by which they could rule the present, and face the future. They were not a people to be troubled with subjective sorrows. They were earthly, unideal, material in all that they thought and in all that they did. The Roman proconsul, when reminded of "truth," asked scornfully, "What *is* truth?" That men had bodies he knew well; whether they had souls or not was no matter of present concern.

Roman statesmen, called as they were to govern the human

race from the British Channel to the Euphrates, had no leisure for any such idle disquisitions. Their only care was that their subjects should obey their magistrates, live peaceably, thrive, and cultivate the earth. For the rest, each individual, so long as he indulged in no political illusions or enthusiasms, was free to dream or fancy what he pleased. Their own convictions followed the pattern of their government. They had no illusions. The material welfare of man was all that they understood or were interested in, and the creed on which they settled down found an exponent in the greatest of their poets. The practical misery of mankind had risen from wars and crimes. The Romans bade war and crime to cease. The spiritual misery of men had been self-caused by fantastic imaginations, by groundless terrors, by dreams of supernatural powers, whose caprice persecuted them in this world, and whose vindictive malice threatened to make them wretched in the next. Religion had been the curse of the earth, and though fools might still torture themselves with a belief in it, if they so pleased, Lucretius, speaking the very inmost conviction of the imperial Roman mind, informed them that religion was a phantom begotten of fear and ignorance. The universe, of which man was a part, was a system of things which had been generated by natural forces. Gods there might be, somewhere in space, created by nature also, but not gods who troubled themselves about men. All things proceeded from eternity in one unchanging sequence of cause and effect, and man had but to understand nature and follow her directions to create his own prosperity and his own happiness, undisturbed by fear of supernatural disturbance. If the sufferings and enjoyments of this world were distributed by a superintending providence, it was a providence which showed no regard for moral worth or worthlessness. The good were often miserable, the wicked flourished, and a power so careless of justice, even if it existed, did not deserve to be reverenced. But it existed only in the brain of man. Evils, or what were called evils, were a necessary part of an imperfect existence. But evil was disarmed of half its power to hurt when its origin was known, and the more carefully the laws of nature were studied, the more successfully man could contend against it.

Long before Rome became the world's mistress, the theory had been thrown out by Democritus: Epicurus had worked it into shape, and it had been the creed of a sect among the Greeks. As soon as it had become practically embodied in the Roman system of

government, it was developed into a plain confession of faith, and as the legions struck down the nationalities of Asia and Europe, the intellect of Lucretius declared the overthrow of their superstitions and proclaimed the sovereignty of science.

Unlike the Greek mythology, the system of Lucretius was not a thing of imagination. Splendidly as his genius illustrated the details of the Epicurean philosophy, the system itself was based on observation of facts astonishingly accurate, if we consider the age at which he lived; and his inferences were drawn in the strictest scientific method. Within the proper limits of physical science he anticipated many of the generalizations of the best modern scientific thinkers. His moral and spiritual conclusions are almost exactly the same as theirs. Spiritual philosophy grows out of general principles, and whether those principles be derived from a wide or limited induction, whether the facts appealed to be completely known or only imperfectly, when once the principles are assumed the same deductions will follow.

Lucretius opens with the most beautiful lines in Latin poetry, describing the sacrifice of Iphigenia at Aulis. His object was to create at once and indelibly the impression which he most desired to convey, of the horrors which had been occasioned by religion and the dread of the unknown. Had he lived in our time, he would have referred to the massacre of St. Bartholomew, to an auto-da-fe, or to the burning of a witch. Ignorant of the real causes of things, men had ascribed the calamities from which they suffered to evil spirits, whom it was necessary to flatter and appease. They were frightened as children were frightened at the dark. Their terrors would disappear with sounder and clearer knowledge.

As the modern astronomer believes that the solar, and perhaps the sidereal, system was once a mist of fiery dust which became condensed by motion into suns and planets, Lucretius conceives that space was originally filled with atoms like the motes which we see floating in a sunbeam in a dark room. The modern philosopher derives the first motion from a tendency of floating particles of unequal density to rotate. Lucretius postulates a downward tendency with lateral declinations from the properties of the atoms themselves. Motion once given, coherence begins, and matter in combination develops the phenomena which we experience. Atoms, germs, monads—call them what we please—are not things without function or property. They tend to assume forms, and in those forms to acquire new powers. The universe exists, and we

exist. To say that it exists, because God willed it so, is to say nothing. God is only a name for our ignorance. We conceive of him as more perfect than matter, as being the cause of matter, and we find no difficulty in making so large an assumption. But it is more easy to conceive that matter may exist with less perfect functions, than God with entirely perfect functions.

The earth, when first formed, was fertile, like a woman in her youth. She produced freely all kinds of living creatures, and in the exuberance of natural fecundity she threw out of herself every variety of combination which could consist with the nature of things. She produced plants, she produced animals; some strong, some weak, some with power to propagate their species in their own likeness, some without that power, some able to support themselves with ease, others with difficulty or not at all. Infinite varieties of living things were thus brought into existence to take their chance of continuance. The most vigorous survived. Lions were preserved by their fierceness and strength, foxes by their cunning, stags by swiftness of foot, man by superior intelligence, and other animals again by man's help, because he found them useful to him, as dogs and horses, sheep and oxen. While assigning to the earth these vast powers of productiveness, Lucretius, nevertheless, limits those powers with curious caution. The earth could create only beings consistent with themselves. Rivers could not be made to run with gold. Trees must bear fruit, not sapphires and emeralds. Horses might be made of many kinds, and men of many kinds; but Centaurs, half horse and half man, could not be made, because a horse grows to maturity with five times the rapidity with which a man can grow.

The readers of Darwin will miss the theory of the modification of species, which it was impossible for Lucretius to have guessed; but they will find nowhere the modern doctrine of the survival of the fittest stated more clearly and carefully. Those who deny most earnestly that any elemental power of spontaneous generation can be traced in operation at present, are less confident that it may not have existed under earlier conditions of this planet, or may not exist at present in other planets. The theory of Lucretius is not in the least more extravagant than the suggestion of Sir William Thompson that the first living germ was introduced by an aerolite.

SCIENCE AND THEOLOGY—ANCIENT AND MODERN.

CHAPTER II.

THE Stoics, like the authors of the Bridgewater Treatises, had pressed science into the service of religion by the theory of final causes. They had examined the eye, and had found an organ constructed curiously to enable us to see. So the ear seemed to be made to hear, the feet to walk, the hands to minister to our various necessities. In the whole system of nature they had found an extraordinary adaptation of means to special ends, and the universe, as they supposed, was generally subordinated to the interests of man.

From the evidence of contrivance they had passed to a contriving mind, and had built together a specious fabric of natural theology. Lucretius met the Stoics on their own ground, and anticipated precisely the modern objection to the same positions. The argument creates more difficulties than it removes; for if we are to suppose every thing which exists to have been designed, we have to account for the existence of evil, while scientifically the inference of intention confounds organization with mechanism. In machinery the instrument is manufactured to supply a need which has been felt already. Men dug the ground with their hands before they invented spades, and they used spades before they invented plows. They made plows to do the work more easily which they were already doing with inferior means. They fought before they used shields and lances; they slept on the ground before they had beds; and they ate and drank before they had dishes and drinking-cups. In the organized works of nature the process is reversed. The use does not produce the instrument, but the instrument occasions the use. We see because we have eyes, we speak because we have tongues of a peculiar form, we hear because we have ears. But without eyes there could be no sight, without tongues there could be no articulation, there would be no sound if there were not ears to

hear. We are too feeble and too ignorant to place ourselves behind the purposes of the Maker of the universe and insist that he intended this and that. We do not know what he intended. We see only that he does not work as we work, and if we insist on evidence of conscious design, we make the moral phenomena of human experience hopelessly inexplicable. Organization is not contrivance, but immeasurably superior to contrivance. What it is we can not tell. We see only that the organs which we so much admire do not come into existence complete, as we should expect to find them if they were made with a determinate purpose. They are developed slowly, age after age, in successive modifications of a single type, the fish's fin becoming the wing of a bird, or the arm and hand of a man, the fish's scales becoming the bird's feathers; the horse's hoof a variation of the finger nail.

Having launched man into the world, Lucretius traces his history along the lines of the modern palæontologist. Sir John Lubbock might have transcribed many passages from him without altering a word. He describes the unclothed, houseless biped, hiding helplessly in caves, in danger of carnivorous beasts, and poorly feeding himself on roots and leaves. A branch of a tree provides him with a club and pebbles are his first missiles. The stone age follows. He tears the ground with flints. He rises to bows and arrows. He kills animals and clothes himself with their skins. He sees sparks fly, and learns partly by accident the use of fire. He warms his lodging with it and dresses his food. A forest breaks into flame on a mountain-side. Straying afterward among the ashes of the conflagration, he finds copper ore which had cropped above the surface smelted by the heat. He examines it, he heats it again and finds it soft and malleable, and when cold once more he discovers it to be hard as stone and available for a thousand uses. The copper age succeeds the stone age, and the iron the copper, and so on through all the epochs of mechanical discovery. The necessities of his body being provided for, the mind begins to work. The man opens his eyes to the wonder of what is around him. He has done much for himself. But forces are at work about him and within him, before which he is helpless. Pains rack his bones, disease lays him prostrate and powerless. Tempests destroy his crops. Floods sweep away his homestead and his stock. The thunder rolls, the levin bolt shoots from the cloud. The earth shakes, the meteor blazes across the sky. The sunrise and sunset do not strike him with wonder. He has been accustomed to them from his birth

and he knows that if the sun disappears, he will find it again when he wakes from his slumber.[1]

But what the sun was, or what the moon, or what the bright procession of glittering gems which on cloudless nights passed over the vault of the sphere in majestic calm, what these were who could tell? The largest and brightest of these orbs moved among the stars, on courses of their own, perhaps with life, with motion, with motives, with will and purposes of their own. The clouds, too, the fierce harbingers of storm and desolation, what were they? Awe-stricken men called them gods, or the work of gods, with passions like those of man. They bent before them with trembling deprecation of their wrath. They invented religion, and in so doing filled themselves with causeless terrors which banished peace from their waking thoughts and filled their dreams with phantoms.

But their misgivings were not to haunt them forever,

> Ignorantia causarum conferre Deorum
> Cogit ad Imperium res et concedere Regnum.

With knowledge of the causes of things, the dominion disappeared of these imagined beings. Nature, when examined reverently, showed no caprice, no sign of interference or passion or willfulness; one unchanging sequence of natural cause and natural effect prevailed throughout the universe. Each phenomenon was preceded by some natural force producing it, and each advance of science was a guarantee to men of security and happiness. Miserable man was, and miserable he would be, so long as he was haunted by the dread of the unknown; not that the gods themselves, whatever they might be, inflicted pain on any inferior creatures; the gods were blessed in themselves and paid no heed to mortals. But wretched mortals tortured their own souls by causeless fear and terror. Thun-

[1] It would seem true that, what we call the "solar myth" had been already suggested as an explanation of the current legends; but the theory found no favor with Lucretius, who dismisses it in a few lines as sensible as they are beautiful.

> "Nec plangore diem magno, solemque per agros
> Quœrebant pavidi palantes noctis in Umbris,
> Sed taciti respectabant somnoque sepulti,
> Dum roseâ face sol inferret lumina cœlo.
> A parvis quod enim consuerunt cernere semper
> Alterno tenebras et lucem tempore gigni
> Non erat ut fieri posset mirarier unquam,
> Nec diffidere ne terras eterna teneret,
> Nox in perpetuum detracto lumine solis."—*De Rerum Naturâ, lib.* v.

der and lightning were the chief strongholds of superstition. Horace, we remember, professed to have been converted by a thunderstorm. Lucretius, though his knowledge fell far short of ours, was still satisfied that these aerial disturbances were natural phenomena. There was never thunder from a clear sky. Clouds accompanied it always, and clouds of a peculiar character. Could it be believed that the Olympian Jove came down into a cloud to be nearer to his mark? If the thunder was his voice, he would warn before he struck; but the flash always came before the sound. If the lightning struck the wicked, some sign of purpose might be admitted,

> "icti flammus ut fulguris halent,
> Pectore perfixo documen mortalibus acre."

But these fiery missiles fall on the innocent and the evil alike. They fall on the shrines of the gods themselves as readily as on the palaces of tyrants. Most often they fall on the earth or into the sea. Were we to suppose that the Omnipotent was practicing his hand? Lucretius did not know the phenomena of electricity. But with intuitive genius he had anticipated two, at least, of our most important modern discoveries. He had perceived that force was a constant quantity, that it was not expended, but was converted from one form into another. He had ascertained, also, that heat and light were intimately connected with force. A blow produced heat; sparks flew when steel was struck with flint; lead would melt by friction, even by the friction of the air when passing swiftly through it. His editor, Creech, selects this particular theory as an illustration of his scientific credulity. Lucretius had in fact struck on the exact explanation of the incandescence of meteoric stones.

From thunderstorms Lucretius passed to the other aerial phenomenon of rain. Rain was credited to Jupiter Pluvius, or whoever it might be. Lucretius showed, with ingenious clearness, that rain did not descend from any reservoir of waters above the firmament. It descended because it had first ascended by evaporation; moisture rose from the sea, rose from the ground, rose whenever any wet thing became dry. In the sky it condensed into clouds, from which it fell again in rain.

So going one by one, through the chief strongholds to which superstition attached itself, the Epicurean poet insisted, and as we all now admit, insisted truly, that every one of them could be traced to natural causes acting in a definite way, and that there was no sign anywhere of miraculous interposition.

Of this universal system man was a part, but not the chief part, as in his vanity he imagined. Nature, in her work of generation, had no special thought of man, above her other children; she had placed him on the earth, a being who, if he could control his passion and imagination, if he could labor quietly and enjoy the fruit of his labor, was capable of modest happiness, and was equally certain of misery if he gave way to wild ambitions or disordered appetites. Society formed naturally, and regulations were made for the good of all, to enable society to hold together. If man would submit to these regulations, and would fulfill such functions of labor as fell to him, he might live out the space of years which nature had allotted to him in peace and content. His allotted time being over, then comes the end. And what is the end? From such a philosophy there could come but one answer. Lucretius is only peculiar in this, that the answer which he gives has no note of sadness in it, but is proclaimed as a message of good news, a deliverance from groundless alarms. The future life which haunted the consciences of the early nations was an antiicpation of torment. So far from being any check on vice, Lucretius insisted that it was a provocation to crime by adding new terrors to death. The enormities into which men were seen daily plunging were adventured only to escape want and poverty, and want and poverty were dreadful because they were avenues to death. But death rightly looked on was no fearful thing, scarcely a thing to be regretted. What was death? The separation of soul and body. And what was soul? When a child was conceived did some immortal spirit come racing through the sky to take possession of the growing germ? Not so at all. Soul was generated with body and corresponded to body. In the human body there was a human soul. In an animal body there was an animal soul. A horse had not the mind of a man, nor a man the mind of a horse. The soul was born with the body, and grew with its growth. Feeble, like its tenement, in infancy, it strengthened as the body strengthened, came to its maturity when the youth became a man, and with the coming on of age mind and limbs lost their power together.

Whatever might be the nature of the soul, it was inseparably connected with an organized system of matter, and could have no existence independent of it. The human soul and the animal soul were the same in kind, they differed only as their bodies differed, and resembled each other in the same proportion. At death the soul of both dissolved like smoke, and ceased to be.

> "Ergo dissolvi quoque convenit omnem animai,
> Naturam ceu fumus in altas aëris auras."

In a human body, and nowhere else, could a human soul have existence. Clouds did not form in the sea. Fish did not swim on dry land. Blood did not flow in a flower-stalk, or sap in stones. To every thing there was an allotted place. The mortal had no fellowship with the immortal.

Was this a sad conclusion? "Rather," says Lucretius, "it is the most consoling of certainties. Death is nothing, for where death is we are not. Before we were begotten empires were convulsed; provinces were wasted with fire and sword; nations were sunk in wretchedness. We knew nothing of these calamities. They touched not us. We could suffer nothing, for we were not. As it was before we began to live, so it will be again when we have ceased to live. Storms may roll over the earth, land may be mixed with sea, and sea with sky. We shall know nothing of it. The substance of our bodies will be in other forms, with other souls attached to them. New beings will have come into existence, to live and pass away as we did. But those beings will not be *us*. The continuity once broken is broken forever. We shudder when we look upon a corpse. We imagine that when our bodies are corrupting, we shall be in some way present and conscious of our own decay. It is not so. Our bodies will decay, but we shall not be present. We shall not be any more. We shall not suffer any more. "Ah!" some one says, "must I leave my wife and children, and my pleasant home? Must all be taken from me?" They will not be taken from you, for *you* will have no being. You will not miss them. You will know no regrets or vain longings for what is gone. Your friends will lament for you. You will not lament for them. You will be in peace.

"Why, then, unhappy mortal," says Lucretius to the vain complainers, "why do you grieve? Why cry out on death? Has your life been happy, the banquet is over; you have taken your fill; depart and be thankful. Have you been unfortunate, has life brought you sorrow and pain, why wish for more of it? Life and sorrow end together. Would you live forever? The terms of human existence do not alter. Had you a thousand lives they could bring you nothing new. You would but tread again the same circle. As it has been with you, so it would be, though you could repeat the process to eternity. This is nature's sentence, and who shall gainsay her? Dry your tears. Peace with your idle whines. Use your time wisely while it is yours. A little space and it will be gone. The ages before you were born are a mirror in which you can read the ages to come. The past has no terrors in it. The future has

none, unless you create them for yourself. Real indeed they are to you as long as you anticipate them. Tityus and Sisyphus, Cerberus and the furies! the thought of these will cause you agonies as long as you believe in them. Know these spectres for what they are, the offspring of your own fears, and be at rest. Who and what are you that you dream of immortality? Wiser and nobler men than you will ever be have lived, and are gone. Accept your fate. There is no remedy."

Such was the Lucretian creed, which has this merit in it, that it is free from cant. There is no half belief here; no affectation; no professions from the teeth outward, of what the heart disowns; no feeble struggling to reconcile the irreconcilable; no half-formed misgivings, which take from our actions their pith and marrow, and make us dread to look into our consciences for fear of what we may find there. It was a creed naturally accepted by resolute men who were too proud to play intellectual tricks with themselves, and in it is expressed completely the practical genius of the Roman empire. The multitude never adopted it. The multitude continued their offerings at the temple, consulted the oracles, and prayed, or affected to pray, to the gods. The State did not openly profess it. The State maintained scrupulously the established decencies and ceremonials, but it was the real conviction of the Roman intellect. It was the creed of Julius Cæsar. It was the creed at heart of Cicero. Tacitus would not have called himself an Epicurean, but his opinion was substantially the same. Above all, it was a confession of the faith on which for four centuries the civilized world was ruled. The Romans knew nothing and cared nothing for spiritual ideals. Peace, order, justice between man and man, and material prosperity, these were the sole aims of the Roman administration, and the explanation of their contemptuous toleration of the motley superstitions of the age.

Nations have never been formed on such principles. Nations in their infancy aspire to something else than material prosperity. They have beliefs, enthusiasms, patriotisms, with a savor of nobleness in them. Cæsar himself owed his conquests to the self-devotion of his soldiers, his own affection for them, and to his inconsistent idealism. And the experiment of the Roman empire showed that nations can not any more live by such principles after they have arrived at maturity. Coarse minds are brutalized by them. The average mind rejects them, and prefers superstition, however wild. Gibbon considered that, on the whole, the subjects of the empire

enjoyed greater happiness in the years which intervened between the accession of Trajan and the death of Marcus Aurelius than at any period before or since; but it was a happiness in which their nature became degraded, and when the shock came of the barbarian invasions they had lost the courage to resist.

It would of course be preposterous to pretend that there was any general resemblance between the state of things under the Roman sovereignty and the present condition of Europe and America. Then the whole civilized world was held down under a single despotism. Now free and powerful nations confront each other, each jealous of its rights, and resolute to maintain them; each professing to prefer honor to prosperity. And yet in the long run the fate of nations is determined by the convictions about the nature and responsibilities of man which are embodied in their policy, and are entertained by the ablest thinkers; and every where, it may be said, opinions are now professed by men whom we agree to admire, and are accepted by politicians as the rule of legislation, which recall the phenomena of the time when the old order of things perished, as if high cultivation itself was like the blossoming of a plant, the final consummation of a long series of past efforts which precedes a great change. The flower sheds its petals. Seed-vessels develop in the place of it, from which after a long winter there arises a new era.

The nations of modern Europe, like the early Greeks and Romans, formed their original policy on religion. For centuries states and individuals alike professed to be governed in all that they thought and did by the supposed revelation which was given to mankind eighteen hundred years ago. Avowed disbelief of it there was none; of secret, silent misgiving there was probably very little. For practical purposes that revelation was accepted as a fact, as little allowing of doubt as the commonest phenomena of daily experience. The universal confidence received its first shock at the Reformation of the sixteenth century. Just as the original pagan creed was made incredible by the legends with which it was overspread, so Christianity was overgrown by a forest of extravagant superstitions. Conscience and intelligence rose in revolt, and tore them to pieces. For a time all was well. The weeds were gone; the faith of the early church was restored in its simplicity. The Huguenots in France, the Lutherans in Germany, the Puritans in England and Scotland were as absolutely under the influence of religious belief as the apostles and first converts. Providence to them was not a form of speech, but a living reality. The preambles of the English

Acts of Parliament referred always to the will of the Almighty as the foundation of human law. Skeptics even then had begun to exist. There were men who, after the authority of the Church had been shaken, had not acquiesced in the authority of a book; and philosophy commenced its search for other grounds of certainty; just as it commenced in Greece before ordinary men had begun consciously to disbelieve in Paganism. But in neither instance had these first efforts any wide effect. The time was not ripe for Democritus; it was not ripe for Hobbes or Spinoza. In an age when the massive intellect of Cromwell was satisfied with Protestant Christianity, and hungry village congregations could demand a second hour from their preachers, philosophy might speculate in its closet, but it could not affect popular sentiment. The disintegrating forces, however, worked on below the surface. Puritanism and its ways went out of fashion. The austere virtues of the Commonwealth were followed by folly and dissipation, and free thought again raised its head. A new and enlightened generation turned with shame and penitence from a piety which sent wretched old women to the stake for crimes which had no existence save in the diseased brain of cowardly fanatics. Disbelief in any present exercise of supernatural power extended backward upon the past. The mythologies, the oracles, the auguries of the old world came to be regarded as dreams. The miracles of the medieval church were dismissed as forgery and illusion, and the cures still alleged to be worked at the shrines of Catholic saints were used as an argument, being admitted to be false, to show how these legendary stories had passed into belief. The Old and New Testament resisted longer the dissolving influence. They were protected by the enchantment which still surrounded the accredited records of revelation, and the history of the chosen people was looked on as exceptional and special. But a charm, however sacred, could not long repel the restless efforts of the speculative intellect. If miracles were so inherently improbable that we were entitled to reject without examination every alleged instance of contemporary supernatural interposition, on what ground could we draw a line so rigid between sacred and profane history? The lives of the saints were as full of marvels as the Book of Kings or the Acts of the Apostles; why were we to disbelieve every story which lent support to a religion which we did not like, while we insisted on the absolute truth of each single detail which we found in the Bible? Revelation, it was said, was itself a miracle; the divinely authenticated author-

ity for a miraculous history. Such an answer was a tacit concession that a miracle could not be substantiated by human evidence. The spirit of Democritus had revived in Epicurus; the spirit of Hobbes revived in Hume. The Essay on Miracles threw into words a conviction which had been already formed in every logical mind in Europe. If the supernatural was to be admitted any longer, it must be received by faith; it could not be proved by reason. So far as philosophy had a word to say about the matter, the theological position had been taken by storm. Hume's arguments were desperately resisted, as it was natural that they should be. Ingenious attempts were made to recover the captured lines, but the conclusions demanded were too weighty for the premises. No human skill could make it probable on grounds of reason that while profane history was full of fiction and mistakes, every incident and every word should have been recorded exactly in sacred history. Such a history would be itself the greatest of miracles; and to assume a miraculous book was an act of faith, as Hume said, and it could be nothing else.

In the last century there were no penny newspapers carrying over the world the newest discoveries, with leading articles and criticisms addressed to the million. Philosophic writings had a small and select circulation, and the million continued to think as their fathers had thought. If we can believe Berkeley and Butler, however, their most accomplished lay contemporaries had ceased to believe in Christianity as completely as Pericles and Alcibiades had ceased to believe in Jupiter; and had the political condition of the world remained undisturbed, the doubt would have probably extended downward, and the state of opinion at which we have at present arrived might have been anticipated by half a century. But the growth of liberalism on the Continent had been swifter than with us. The catastrophe of the French Revolution, with the enthronement of the Goddess of Reason, appeared as the visible fruit of infidelity. The English mind was terrified back out of its uncertainties, and determined, reason or no reason, that it would not have the Bible called in question. It was decided that Hume had been sufficiently answered by Lardner and Paley. The discussion was not to be reopened; and English middle life returned for nearly half a century to the fixed convictions of earlier times.

Behind the banner thus resolutely raised came an effort to restore the influence of religion on the heart and emotions. First there was a prominent revival of evangelical piety. As the wave of spiritual

feeling lost its force, it has been succeeded by superstition and by a less sincere and simple, but still ardent appeal to tradition and Catholic principles. The leaky vessel has not been repaired, for repairs were impossible, but the chinks and flaws in her planking have been tarred over and painted. Stained windows have gone back into the churches, and the white light which sufficed for the simple, truth-loving Protestants have been replaced by the enervating tints so dear to the devotional soul. Organs and choristers, altars and altar ornaments, fine clothes and processions, the mystery of the real presence, in the name of which more crimes have been perpetrated in Europe than can be laid to the charge of the bloody idol in Tauris—we have them even now among us in full activity. The religious mind has set itself with all its might to make things seem what they are not, and turn back the river of destiny to its sacred fountains.

In vain. Practical life has meanwhile gone its way. The principles of the once abhorred French Revolution have been adopted as the rule of political action, even in conservative England; and silently, without noise or opposition, we have taken Jeremy Bentham for our practical prophet, and have admitted as completely as was admitted by Augustus Cæsar, or Trajan, that civil government has no object beyond the material welfare of the people. The will of God has no more a place, even by courtesy, in our modern statutes. Political economy is the creed which governs the actions of public men; and political economy, by claiming to be an interpretation of a law of nature, dispenses with Providence, while it assumes as an axiom that the masses of men are, have been, and ever will be influenced by nothing else than a consideration of material interest. Eccentric individuals may have their generosities, their pieties, their tastes for art or science or amusement. Interest is the one constant commanding motive on which the practical statesman can rely. Respectable people fight against the unwelcome truth when it is thrust upon them inconveniently. They believe in political economy, and they believe that they believe in Christianity. Naively and unconsciously they betray their true convictions in the language which they habitually use. When the English Liturgy was written, "*wealth*" meant well-being. Well-being is now *money*. Ask what a man is worth, the answer is his rent-roll. Has he been fortunate? He has made a good speculation, or he has inherited a "legacy" when he did not expect it. Is the nation "prosperous"? Where should we look

but to the rate of wages and the imports and exports? Are we in an age of progress? The income-tax decides. The standard of human value has become again what it was under the Cæsars, and which Christianity came into the world to declare that it was not. People continue to go to church. They continued then to go to the temples. They say their prayers in public, or perhaps in private. So they did then. The clergy pray for rain or fine weather, and on great occasions, such as the potato blight, the archbishop issues a special form of petition for its removal. But the clergy and the archbishop are aware all the time that the evils which they pray against depend on natural causes, and that a prayer from a Christian minister will as little bring a change of weather as the incantation of a Caffre rain-maker. We keep to conventional forms, because none of us likes to acknowledge what we all know to be true; but we do not believe; we do not even believe that we believe, the bishops themselves no more than the rest of us; no more than the College of Augurs in Cato's time believed in the sacred chickens.

An energetic people are impatient of insincerity, and the convictions which we all act upon have at last found a voice precisely as convictions of an analogous kind found a voice in Lucretius. We have practically eliminated Providence from the administration of things. The Lucretian philosophy has revived again, reinforced by a vast accumulation of new knowledge, to tell us, as Lucretius did, that the universe can be accounted for without the hypothesis of a Providence. The theory of development, as it is called, does not deny the existence of God any more than Epicureanism denied it. It denies only that the phenomena require the existence of such a being to account for them. For a time, even after the authority of tradition was shaken, science seemed to be on the side of religion. The evidence of design in nature was urged, as it was urged by the Stoics, in proof of a designing mind; and as long as each species of plant and animal was believed to be distinct from every other, each one of them required a special art of creation to bring it into being. Both positions are now abandoned by advanced scientific thinkers. Lucretius' objections are again held to be fatal to "final causes." If the "omnia ex ovo" is not an acknowledged certainty, if we are not yet agreed that we are all descended from a jelly-fish, yet every naturalist of consequence is convinced that the phenomena of life are produced on constant and uniformly acting principles of law; that the history of the animal creation is a his-

tory of progressive growth, lower forms being succeeded by higher, as the fœtus in the womb develops into a man, without any sign of the action of any external energizing powers.

Moral and historical philosophy have modeled themselves on the same type. Moral philosophy, based on the necessities of society and general expediency, needs no God or voice of God, in the conscience, to explain its principles, while the admitted facts that the character of a man depends on his organic tendencies, affected by education and circumstances, have modified, in spite of us, our notions of free-will and our definition of moral responsibility. In history, again, ingenious writers discover laws of evolution, causes operating through centuries, determining the characteristics of successive epochs, exhibiting individuals as the plaything of broad and general forces, and reducing still further the limits within which they can be the authors of their own actions. Unchanged in principle, the Lucretian interpretation of life and its conditions is passing swiftly into general acceptance. And now arises the serious question how far these notions will go, and how they will affect such spiritual belief as we still continue to hold? The theory of development may be held, and is held, by many persons who look forward to a life beyond the grave. Can this expectation any longer allege a rational ground for itself, or is it a plant which grew in another soil, and lingers now as an exotic in a climate with which it has no natural affinity? Time will show; but meanwhile we may learn something from the history of the past. In the Rome of the Empire, religion had less to say for itself than it has now, and science relatively had far greater advantage over it. The print which has been left by Christianity on the character of mankind is too deep to be effaced or disregarded. Yet even in the Roman Empire, the sciences which mastered the intellect could not master the emotion, and there is an insight of emotion which the intellect can not explain, but which nevertheless does and will exercise an influence which can not be ignored; and there are virtues necessary to human society which will only grow when emotion is allowed to speak.

The educated Romans had satisfied themselves that there was no hereafter; that Tartarus was a dream, and that at death they faded into smoke. They could discourse eloquently on the good and the beautiful. They could enforce order by the policeman. They could develop useful arts. They could cultivate science and

material progress. They could create the condition, in fact, which was so impressive to the mind of Gibbon. But morality and purity and charity, patriotism, enthusiasm, even art and poetry, withered under a creed which deprived life of its human interest and the imagination of every object which could kindle it. Very remarkably, even among statesmen like Celsus, who still held to the scientific formula of things, a belief in a future life and future retribution made its way once more against the wind into the position of an admitted truth. The better sort of men clung vaguely to the moral principles of religion; and when paganism was fairly dead, all that had been true in paganism, a belief in God, a belief that the world after all was not deserted by a moral government, that our earthly life is but the threshold of our true existence, all this revived in Christianity. Centuries passed before the transformation was complete, centuries of miserable retribution for the long pursuit of a godless, material prosperity. The civilized animals (for animals only they had proclaimed themselves to be) were awakened roughly from their dreams by the fierce inrush of the "Scourge of God" out of the northern forests.

Man's nature is the same as it always was. Science has much to teach us, but its message is not the last nor the highest. If we may infer the future from the past, a time will come when we shall cease to be dazzled with the thing which we call progress, when increasing "wealth" will cease to satisfy, nay, may be found incapable of being produced or preserved except when relegated to a secondary place, when the illusions which have strangled religion shall be burnt away and the immortal part of it restored to its rightful sovereignty. A long weary road may lie before us. Not easily will an inviolable atmosphere of reverence form again round spiritual faith to warn off the insolent intruder. Piety, reverence, humble adoration of the great Maker of the world, are in themselves so beautiful that religious faith might have remained forever behind that enchanted shield, if imaginative devotion could have kept within bounds its wild demands upon the reason. Not till Catholics had piled superstition on superstition, not till Protestants had elaborated a speculative theology which conscience as well as intellect at length flung from it as incredible, did the angels which guarded the shrine fold their wings and fly. The garden of Eden is desecrated now by the trampling of controversy, and no ingenious reconciliations of religion and science, no rivers of casuistic holy water, can restore the ruined loveliness of traditionary faith. But the truth which is

in religion will assert itself again as it asserted itself before. A society without God in the heart of it is not permitted to exist; and when once more a spiritual creed has established itself which men can act on in their lives, and believe with their whole souls, it is to be hoped that they will have grown wiser by experience, and will not again leave the most precious of their possessions to be ruined by the extravagances of exaggerating credulity.

JAMES ANTHONY FROUDE.

CHAPTER III.

THE REPLY TO MR. FROUDE.

By PROFESSOR P. G. TAIT.

DOES HUMANITY REQUIRE A NEW REVELATION?[1]

THIS question we answer with a prompt and decided—No ! Let us briefly consider :

1. How it has recently been raised.

2. By what arguments and analogies an affirmative answer has been supported.

3. Why there is no necessity for a new revelation.

We will not formally take up these as separate heads, but merely use them as a sort of framework for our discourse.

"*What is generally doubted is doubtful.*"

So at least says Mr. Froude, with charming dogmatism, in his extremely well-written articles in recent numbers of this Review.[1] This paradox is in fact one of the two chief reasons which he gives for looking upon the Christian religion as a scheme which suited its time, no doubt, but which now requires to be superseded. I can not attempt to compete with him in word-painting, nor should I desire to use it, even if I could, in place of argument. Thus, instead of commenting on this statement of his, for the moment at least, I try to imagine how one would fare at Mr. Froude's hands if he took a somewhat similar—though perhaps not equally startling —license. Suppose, for instance, a writer of acknowledged power were to lay down as a matter of undisputed certainty a proposition such as this :

What is generally misunderstood is unintelligible.

[1] "Science and Theology—Ancient and Modern."—From the *International Review.*

With what howls of execration, with what withering sarcasm would such a writer be welcomed—according to the style and temper of the multitudinous and mutually incompatible schools of thinkers, to every one of whom he would have given mortal offense? I can not conjecture what exact form of denunciation would be employed by Mr. Froude; but it would assuredly be something tremendous. Yet I venture to assert that this proposition contains quite as much of essential truth as does that laid down by Mr. Froude.

Fancy the theorist in politics or in political economy who has for years endeavored to bring his universal *panacea* before a listless public, and whose sole reward has been some contemptuously sarcastic notices, of a few lines each, in the more obscure of the daily journals—not one of the writers having taken the trouble to master what he was criticising. Is this great theorist necessarily unintelligible because everywhere misunderstood?

Fancy, again, the modern poet who should say his lyrics were misunderstood, because generally regarded as delirious and more than obscene:—while to himself, the true and only judge, they were merely the voice of Nature speaking by his pen;—would *he* allow that the genuine reason is that his verses are unintelligible?

Such men might not make out their case, though they would be hard to convince that they were in the wrong. But when a scientific man appears on the field, he tells you at once that there is *no such thing* in mathematical or physical science as the Unintelligible, though there is much that is imperfectly, or not at all, understood.

Or, to take higher game, let us consider Mr. Froude himself.

Is the term *Force* unintelligible because all but universally misunderstood and misapplied, so far, indeed, as to be generally confounded with Energy? Mr. Froude says that Lucretius, "with intuitive genius, had anticipated two, at least, of our most important modern discoveries. He had perceived that force was a constant quantity, that it was not expended, but was converted from one form to another."

Of course what is here referred to is the *Conservation of Energy;* but, though so generally misunderstood, the principle itself is by no means unintelligible. Yet the error here committed is, from the scientific point of view, so great as of itself seriously to shake our confidence in the rest of the article of which it forms a part. While engaged with this branch of the subject, and to avoid repetition, I may allude, once for all, to a little more of Mr. Froude's unscientific

science. Thus he applauds the methods of Lucretius, and says his moral and spiritual conclusions agree with those of the best modern scientific thinkers. We shall presently have to ask, Who are the best modern scientific thinkers? and the answer will promptly and effectually dispose of Mr. Froude's notion that their moral and spiritual conclusions agree with those of Lucretius.

Again, Mr. Froude says, after sketching the cosmogony of Lucretius:

"The reader of Darwin will miss the theory of the modification of species, which it was impossible for Lucretius to have guessed; but they will find nowhere the modern doctrine of the survival of the fittest stated more clearly and carefully. Those who deny most earnestly that any elemental power of spontaneous generation can be traced in operation at present, are less confident that it may not have existed under earlier conditions of this planet, or may not exist at present in other planets. The theory of Lucretius is not in the least more extravagant than the suggestion of Sir William Thompson that the first living germ was introduced by an aërolite."

This passage contains a tangled mass of error, for the discussion of which the space at my disposal would be wholly insufficient. Not to speak of the adventitious *p* in Thompson, nor of the ridiculous superlative in the phrase "*survival of the fittest*" (which is not Mr. Froude's, but which it is strange to see used without protest by an accurate writer), the statement about the opponents of spontaneous generation is as wholly incorrect as is the allusion to the meteorite theory of Helmholtz and Thomson.

Take another general proposition, quite as defensible as Mr. Froude's:

He who is generally trusted is trustworthy.

I should think Mr. Froude's vast historical knowledge would make him one of the very first to cry out against a statement such as this. Every one of us, in his own personal experience of bankers, railway directors, insurance officers, and what not, has had ample reason to know and feel its absolute falsity.

After what has just been said, it is hardly necessary to examine or comment upon the other dogmatic statements of Mr. Froude, such as

"*Truth is what men trow,*"
"*Things are what men think.*"

As contributions to English etymology, these may or may not be accurate. With that I have nothing to do. But as logical propositions—and it is as such that they are brought forward and used—

they are transparently incorrect. Yet these and their like form one half of the basis of Mr. Froude's slashing but melancholy argument. Let us for a moment suppose them cut away, as at least useless if not wholly misleading, and endeavor to discover what support remains.

Here it is:

"The theory of development, as it is called, does not deny the existence of God any more than Epicureanism denied it. It denies only that the phenomena require the existence of such a being to account for them. For a time, even after the authority of tradition was shaken, science seemed to be on the side of religion. The evidence of design in nature was urged, as it was urged by the Stoics, in proof of a designing mind; and as long as each species of plant and animal was believed to be distinct from every other, each one of them required a special act of creation to bring it into being. Both positions are now abandoned by advanced scientific thinkers."

If this be so, it is no doubt a very sad state of things, and perhaps *might* explain the following very extraordinary assertion with reference to the present time as compared with that of the Cæsars:

"People continue to go to church. They continued then to go to the temples. They say their prayers in public, or perhaps in private. So they did then. The clergy pray for rain or fine weather, and on great occasions, such as the potato blight, the archbishop issues a special form of petition for its removal. But the clergy and the archbishop are aware all the time that the evils which they pray against depend on natural causes, and that a prayer from a Christian minister will as little bring a change of weather as the incantation of a Caffre rain-maker. We keep to conventional forms, because none of us likes to acknowledge what we all know to be true; but we do not believe; we do not even believe that we believe, the bishops themselves no more than the rest of us—no more than the College of Augurs in Cato's time believed in the sacred chickens."

I feel assured that there are but few thinking men who will indorse a statement like this. So far as it is connected with science, it rests upon absolutely no scientific basis whatever; for science has *not* proved, and will never be able to prove, that there are not now any direct interferences (from without) in what we call the order of nature. And the assertions as to our beliefs are probably even more wide of the mark than those of Elijah, when to his querulously-egotistical exclamation, "I have been very jealous for the Lord God of Hosts: because the children of Israel have forsaken thy covenant, thrown down thine altars, and slain thy prophets with the sword; and I, even I only, am left; and they seek my life, to take it away"—the altogether unexpected and crushing

answer came: "Yet I have left me seven thousand in Israel, all the knees which have not bowed unto Baal, and every mouth which hath not kissed him."

Perhaps Mr. Froude's answer to this objection may be that supplied by his own words: "We are too earnest to tolerate impiety, and the traditions of religion will retain their hold with the millions long after they have lost their influence over the intellect. Intellect we know is not omniscient. Emotion has a voice in the matter, which is always on the side of faith, and women in such subjects are governed almost wholly by their feelings."

Still it is not easy to reconcile this statement with the last above quoted.

But who, pray, are the advanced "scientific thinkers" so confidently appealed to by Mr. Froude as having given up the proof which is furnished by the evidence of design in nature?

Mr. Froude says, "the inferences [of Lucretius] were drawn in the strictest scientific method. Within the proper limits of physical science he anticipated many of the generalizations of the *best modern scientific thinkers*. His moral and spiritual conclusions are almost exactly the same as theirs;" "the fate of nations is determined by the convictions about the nature and responsibilities of man which . . . are entertained by the *ablest thinkers;* and everywhere opinions are now professed by *men whom we agree to admire*, . . . which recall the . . . time when the old order of things perished." If these extracts contain even a *trace* of truth, we are indeed in a bad way. Let us examine them. One thing is specially to be remarked, the persistence and iteration with which Mr. Froude claims as supporters of his views the ablest scientific thinkers.

When we ask of any *competent* authority, who were the "advanced," the "best," and the "ablest" scientific thinkers of the immediate past (in Britain), we can not but receive for answer such names as Brewster, Faraday, Forbes, Graham, Rowan Hamilton, Herschel, and Talbot. This must be the case unless we use the word science in a perverted sense. Which of these great men gave up the idea that nature evidences a designing mind?

But perhaps Mr. Froude refers to the advanced thinkers still happily alive among us. The names of the foremost among them are not far to seek. But, unfortunately for his assertion, it is quite certain that Andrews, Joule, Clerk-Maxwell, Balfour Stewart, Stokes, William Thomson, and such like, have, each and all of

them, when the opportunity presented itself, spoken in a sense altogether different from that implied in Mr. Froude's article. Surely there are no truly scientific thinkers in Britain farther advanced than these! But then Mr. Froude has said that the inferences of Lucretius "were drawn in the strictest scientific method." Most scientific men think them, as a rule, metaphysical, and even in some instances wholly absurd.

It is obvious from this that Mr. Froude's notions of science are altogether at variance with those of the best authorities.

For true scientific writing there are three indispensable requisites:

1. Your facts must be facts.
2. Your reasoning must be logical.
3. Your knowledge must be *in all respects* adequate.

The words italicized are of the utmost importance, because the very slightest defect of knowledge may be fatal to the whole conclusion.

Mr. Froude is a very able and plausible writer, and his position as a historian is matter of common knowledge. But though these qualifications undoubtedly render his essay very pleasant reading, the fact that his subject deals to a certain extent with science has proved sufficient to show that something more than literary knowledge and ability is wanted to confer upon it that accuracy which is indispensable to authority. Nothing prepares one so well for the solution of a hard problem as previous practice at similar but easier ones, so we may usefully say a word or two about a few simpler cases, which bear some little analogy to that of Mr. Froude, in connection with his recent articles.

Nothing is more strikingly characteristic of the ignorance of even educated people than the way in which certain persons obtain undeserved popularity and come to be regarded (except of course by experts) as authorities in literature or in science. The royal road to this distinction lies in not merely looking and talking big, but in doing so in a great variety of subjects. Lawyers laughed at the late Lord Brougham's law, but thought him great in literature and science; scientific men laughed at his science, but allowed that he was a master in law and literature; and the recently published Napier correspondence has shown in what hearty contempt he was held by literary authorities like Macaulay.

The once celebrated "Vestiges of Creation" owed its popularity not so much to the truth and novelty of some of its statements, and

their supposed heretical boldness, as to the enormous range of subjects on which its author could smatter sufficiently to pass muster with men who knew them only superficially. Even true scientific men, though each convinced that the author was only superficially acquainted with his own pet subject, were often incautious enough to state that he was obviously well acquainted with every thing else.

It is a mere truism to say that no one can nowadays write with authority on more than two or three branches even of science—and, in general, these are closely allied: as physics, chemistry, and mineralogy, anatomy and physiology, etc. And it is another, but less generally received, truism that no one can make sound applications of even the elements of a scientific subject without a really profound knowledge of the whole.

The *Paper Science* of the present day, that which pretends to make the highest science at once interesting and intelligible to all, is a disgrace to education generally—a proof that such education as even the best of non-specialists receive is incompetent to enable them to detect superficiality and confident, because ignorant, smattering. What a contrast to the carefully thought-out treatises of two centuries ago—rich and full, even when wholly speculative—on the production of *one* of which a man spent often the best years of his life! What a contrast to these is the constant flow of trashy verbiage from the "Easy-Writing" Paper Scientist! *He* it is who is mainly responsible for the state of things we have now to explain.

The assumed incompatibility of Religion and Science has been so often and so confidently asserted in recent times that it has come, like the universal knowledge and ability of Lord Brougham, or the all-round scientific merits of the "Vestiges of Creation," to be taken for granted by the writers of leading articles, etc., and it is of course perpetually thrust by them broadcast before their too trusting readers.

But the whole thing is a mistake, and a mistake so grave that no true scientific man (unless indeed he be *literally* a specialist—such as a pure mathematician, or a mere mycologist or entomologist) runs, in Britain at least, the smallest risk of making it.

Who are, after all, the people who so loudly assert this so-called incompatibility? Do they, or does even any one of them, show that thorough acquaintance with *both* sides of the question which is usually, and I think rightly, imagined to be necessary for the formation of a judgment of any value? When *one* such presents himself it will be time enough for genuine theologians, if not to feel alarm,

at all events to be prepared for battle. Hitherto at least it appears that the contest has been originated and carried on by the supernumeraries, I had almost said the camp-followers, of both classes, the scientific and the theological. With a few, and these very singular, exceptions, the true scientific men and the true theologians of the present day have not yet found themselves under the necessity of quarreling.

An ignorant and mischievous supernumerary on the theological side takes up old and now exploded views of the nature and mode of production of the Bible—asserts (let us say) that every word, nay, every letter, in it is divinely inspired and has been divinely preserved to us—that its incidental references to objects of physical or natural science must also be scientifically exact. Well may the true theologian desire to be preserved from his friends!

"For the son dishonoreth the father, the daughter riseth up against her mother, the daughter-in-law against her mother-in-law; *a man's enemies are the men of his own house.*"

Hereupon an equally ignorant and mischievous underling of the scientific establishment, fancying he has an opportunity of attaining the notoriety which is his main object in life, seizes on these absurd statements, gravely assumes that they are put forward by the masters and not by the underlings, and proceeds with much stage effect and clatter to expose their absurdity. The long-enduring public, led too often by ignorant though "educated" men (for a "scholar" may be, and too often is, altogether innocent of the very slightest power of detecting the characteristic difference between science and pseudo-science, obvious though it be to the practised eye)—the patient public, I say, under such leadership, grows ecstatic over the tremendous contest, and hails the fancied victor as among the foremost men of science of his time. It is like the terrific sword and buckler combat in a melodrama, cheered to the echo, though every one *knows* it is humbug. And thus Religion, which has never really been in question, suffers in the judgment of the vulgar.

The same effect is often produced by a nearly converse process. The mischievous scientific camp-follower begins throwing stones at what he imagines to be religion; but, as true religion is something very different from the idea he has formed of it, he has of course no chance of hitting his mark.

But the equally mischievous theological underling thinks *his* opportunity has come; and so at it they go, tooth and nail, hammer and tongs, with plenty of noise and no result, except of course

that Religion again suffers in the eyes of the ignorant, who fancy that this tomfoolery carried on in her name really involves her interests. They have, besides, a sort of unexpressed notion that Religion should be, like Cæsar's wife, not only unimpeachable but unimpeached—forgetting that a child may easily drive in a nail so that a giant may find difficulty in extracting it.

So much for the discussions on the so-called incompatibility of Religion and Science. Almost invariably initiated and carried out against the wishes and the convictions of the true leaders on either side, they have become a sort of ladder by which hangers-on or supernumeraries manage now and then to raise themselves into public notice. To do so with the greatest effect they adopt, as a rule, the side of *what they call Science*. A well-known scientific man puts it very happily thus: "The dogs have partaken of the children's bread, and are determined to show that they belong to the family." It must be allowed that now and then some of the really foremost men have thought it worth their while to confute a more than usually loud-mouthed (and *therefore* popular) opponent, but as a body they have as yet found no cause to interfere.

Mr. Froude, I think, has done much harm by throwing himself unsolicited, and in great part unqualified, into this sham-fight of underlings. [A knight, as Don Quixote found to his cost, ought not to mix in the pastimes or quarrels of carriers and clothworkers.] He is quite as one-sided as, though of course from any point of view far more effective than, the scribblers with whom, in an evil hour, he has temporarily associated himself. Had he confined himself strictly to the somewhat novel question he has raised, which is practically that at the head of this paper, he would have to some extent kept clear of these small fry and their perennial chatter, *Diis aliter visum!*

According to Mr. Froude, we are, without being generally conscious of it, living in a period of exceptionally rapid advance. This advance consists not so much in material prosperity and scientific discovery, as in shaking off, one by one, the trammels of a burdensome superstition which we are at length beginning to estimate at its true value.

"Whither these material changes may be carrying us, it is idle to conjecture. Nothing of the same kind has ever been witnessed on the earth before, and there is no experience to guide us. The spiritual change is not so unexampled. Phenomena occurred most curiously analogous at the time of the rise of Christianity;

and from the singularly parallel course in which at those two periods the intellect developed itself, we may infer generally what is likely to come of it.

"That we have been started out of our old positions, and that we can never return to positions exactly the same, is too plain to be questioned. Theologians no longer speak with authority. They are content to suggest, and they deprecate hasty contradistinction. Those who doubted before now openly deny. Those who believed on trust have passed into uncertainty. Those who uphold orthodoxy can not agree on what ground to defend it. Throughout Europe, throughout the world, the gravest subjects are freely discussed, and opposite sides may be taken without blame from society." "Along the whole line the defending forces are falling back, not knowing where to make a stand; and materialism all over Europe stands frankly out, and is respectfully listened to when it affirms that the war is over, that the claims of revelation can not be maintained, and that the existence of God and of a future state, the origin of man, the nature of conscience, and the meaning of the distinctions between good and evil, are all open questions."

It is true he gives us a crumb or two of momentary comfort—sufficient for the present and perhaps for the next generation.

"The entire generation at present alive may probably pass away before the inward change shows itself markedly in external symptoms. None the less is it quite certain that the ark of religious opinion has drifted from its moorings, that it is moving with increasing speed along a track which it will never retrace, and towards issues infinitely momentous. What are these issues to be? The thing that hath been, that shall be again."

I do not venture directly to contradict all these assertions. Some of them are certainly in part true; some are at least plausible. But I think the situation is enormously exaggerated. The state of the real heart-depths of a nation is not to be judged by the froth or dross which comes most prominently to the surface. The vices and frivolities, whether of fashionable society or of the music-hall cad, like the flippant lectures of half-educated materialists and the childish follies of ritualism, are but as ripples that disturb the surface of the water; while the strong current of common-sense, morality, and religion flows on uninterruptedly below.

What led to the recent marvellous recovery of France? What but the fact that the glaring vices and frivolities, which to casual observers were her most prominent feature, did not seriously affect the real life of the nation? Remember what Horace says of the similar scum of his own times, and also of the true manhood which (till the scum is brushed away) is obscured from the sight of the careless observer:

"Non his juventas orta parentibus
Infecit æquor sanguine Punico—
* * * * * *
Sed rusticorum mascula militum
Proles, Sabellis docta ligonibus
Versare, glebas, et severæ
Matris ad arbitrium recisos
Portare fustes," . . .

And just as we all know from recent experience that a similar, perhaps even a higher, manhood is to be found to a practically unlimited extent alike in Britain and in America; so we may feel assured that the great bulk of the sound common-sense people, of all classes, in these countries, is at heart leal to religion—of which, *therefore*, it does not ostentatiously make parade. Flippant skeptics may, in ordinary times, without great fear of contradiction, assert the contrary. But they would be altogether confounded were a season of trial, danger, and difficulty to arise, such as would necessarily call into practical display the simple but profound religious convictions of these many true hearts.

Doubter—if you can be found—think of Elijah and be reassured! Thus the second of Mr. Froude's chief reasons for his conviction falls to pieces like the first. Christianity is *not* "generally doubted." And even if it were, that which is generally doubted is by no means necessarily "doubtful." Yet it is solely upon grounds so uncertain, or rather so certainly erroneous, that the startling conclusions he comes to are based.

The only passage in Mr. Froude's articles which suggests even the slightest hope is the following:

"For centuries states and individuals alike professed to be governed in all that they thought and did by the supposed revelation which was given to mankind eighteen hundred years ago. Avowed disbelief of it there was none; of secret, silent misgiving there was probably very little. For practical purposes, that revelation was accepted as a fact, as little allowing of doubt as the commonest phenomena of daily experience. The universal confidence received its first shock at the Reformation of the sixteenth century. Just as the original pagan creed was made incredible by the legends with which it was overspread, so Christianity was overgrown by a forest of extravagant superstitions. Conscience and intelligence rose in revolt, and tore them to pieces. For a time all was well. The weeds were gone; the faith of the early church was restored in all its simplicity. The Huguenots in France, Lutherans in Germany, the Puritans in England and Scotland, were as absolutely under the influence of religious belief as the apostles and first converts. Providence to them was not a form of speech, but a living reality."

With the exception of *one* sneering epithet, the whole of this passage may be accepted as it stands. But what follows? Instead of the obvious conclusion, that the Reformation was not complete, having left at least as many blots on dogmatic Christianity as it had removed; and that a second and more sweeping Reformation is now urgently required—what is hinted at is the necessity for an altogether new revelation, or, at least, a completely new system of philosophic belief.

But the great bulk of the human race can not be philosophers—can not even, so far at least as experience has taught us, be scholars. Yet surely they are all individually, not merely numerically, as important in the eyes of the common Creator (Mr. Froude *does* seem to allow that there is a God, belief in whom is essential to the existence of society) as is any, the most erudite, philosopher.

It would therefore appear, from the most absolutely common-sense view—independent of all philosophy and speculation—it would appear that the only religion which *can* have a rational claim on our belief *must* be one suited equally to the admitted necessities of the peasant and of the philosopher. And this is one specially distinguishing feature of Christianity. While almost all other religious creeds involve an outer sense for the uneducated masses and an inner sense for the more learned and therefore dominant priesthood, the system of Christianity appeals alike to the belief of all; requiring of all that, in presence of their common Father, they should sink their fancied superiority one over another, and frankly confessing the absolute unworthiness *which they can not but feel*, approach their Redeemer with the simplicity and confidence of little children.

"The Garden of Eden is desecrated now by the trampling of controversy, and no ingenious reconciliations of religion and science, no rivers of casuistic holy water, can restore the ruined loveliness of traditionary faith. But the truth which is in religion will assert itself again as it asserted itself before. A society without God in the heart of it is not permitted to exist; and when once more a spiritual creed has established itself which men can act on in their lives and believe with their whole souls, it is to be hoped that they will have grown wiser by experience, and will not again leave the most precious of their possessions to be ruined by the extravagance of exaggerating credulity."

Most true, and yet most false! But false only because of the implied assumption that the "spiritual creed" already vouchsafed to us is *not* one "which men can act on in their lives, and believe with their whole souls."

That men in myriads have already thus believed, and acted on, the altogether spiritual creed of the New Testament, is matter of absolute certainty. And if in the past, why not in the present and in the future?

The Founder of Christianity has given for all time the answer to those who, discontented with what God has graciously done for them, seek a new revelation. "If ye believe not Moses and the prophets, neither would ye believe though one rose from the dead."

To this there can be no answer except a bold denial of the Divinity of Christ. That Christ claimed to be divine we know, altogether independently of Scripture, from the historical facts connected with His execution. We have His own triumphant answer to the question (all-important so far as our present subject is concerned): "Art thou he that should come, or do we look for another?" But the claim comes out admitted in all its strength in the words of the high-priest: "What need we any farther witnesses? ye yourselves have heard the blasphemy."

All who approach the subject without bias can see from the New Testament records how some of the most essential features of Christianity were long in impressing themselves on the minds even of the Founder's immediate followers. And we could not reasonably have expected it to be otherwise. The revelation of Himself which the Creator has made by His works we are only, as it were, *beginning* to comprehend. Are we to wonder that Christianity, that second and complementary revelation, is also, as it were, only *beginning* to be understood; or that, in the struggle for light, much that is wholly monstrous has been gratuitously introduced, and requires a Reformation for its removal? What more likely than that, in the endeavor to frame a document for the stamping out of a particular heresy, over-zealous clergy should carry the process a little too far, and so introduce a new and opposite heresy? But this is no argument against Christianity; rather the reverse.

It might in fact be asserted, with very great reason, that a religion which, like any one of the dogmatic systems of particular Christian sects, should be stated to men in a form as precise and definite as was the mere ceremonial law, would be altogether an anomaly—inconsistent in character with all the other dealings of God with man—and altogether incompatible with that Free Will which every sane man feels and knows himself to possess.

P. G. TAIT.

CHAPTER IV.

THE CONFLICT OF RELIGION AND SCIENCE.[1]

THE keen saying of Bacon, "there is a superstition in avoiding superstition," has been often verified in the history of opinion; but it might have startled the master had he foreseen that its most marked example would be furnished in these days by science itself. We have had too many champions of Christianity, who weaken its cause by denying the results of modern discovery; we have now quite as narrow a type of dogmatists, who mistake their scorn of revealed truth for philosophic wisdom. The work[2] before us is a rare specimen of this latest growth in England and in our own country. We opened it, knowing the author to be a man of deserved reputation in his own sphere, and hoping for light in regard to the questions which employ the best minds of our time; but we laid it down with the conviction, that a thorough knowledge of the spectroscope, or of the mysteries of chemical analysis, does not of necessity imply a knowledge of theology and Christian history. With this feeling we shall freely examine the book. It has seemed to us the more needful to do it, because several of its reviewers, in fighting over the geological issue, have left unanswered the false theory of revelation by which the whole argument stands or falls. We shall gladly accept every genuine fact. But when the most competent scholar in the field of natural study, offers us his loose reading and looser logic as the verdict of philosophy on religious belief, we shall try him by his own standard; and as he appeals to science, to science he shall go.

Let us state at the outset the line of the argument which our author has given us. It is his purpose to show, by a review of the most prominent ages of Christianity, that there has been from first to last an irreconcilable conflict between science and dogmatic faith. The long record is divided by him into several critical epochs. The first struggle of early Christianity ends in the suppression of the schools of Alexandria, and is followed by the Southern Reformation, as he strangely calls it, in which the truth of the unity of God,

[1] From the *International Review*.

[2] "History of the Conflict between Religion and Science," by J. W. Draper, M. D., LL.D. New York: Appleton & Co.

destroyed by Christian idolatry, is reaffirmed by the Mohammedan religion. The next conflict is as to the nature of the soul, and ends in the anathema of the church on the pure, scientific doctrine of Averroism. The succeeding conflict is with the dawning science of Europe concerning the position and structure of the earth. This is followed by the Reformation of Luther. The present is the controversy between religion and science, as to the government of the world; or the question of supernatural order, and natural law. Such is the history which our learned author gathers at last into one conclusion. Science is progressive. The religion of the Christian Scripture and church is in its nature bound by certain unchangeable traditions, which must always be opposed to the views affirmed by natural discovery. We beg the reader to mark clearly the terms of the question. Had he sought only to expose the superstitions of the past, his book would have been no new discovery of a fact admitted by all reasonable Christian men. Had he sought, again, to show that these errors were only the crude conditions of our growth, and that we might look forward to an age when science should be found in harmony with the essential truths of revelation, we should gladly hail him as a teacher. But the conflict, in his view, is inherent in the character of revelation. There is no hope save in the surrender of the whole fabric of a supernatural religion.

Such is the historic argument we are to meet; and we may state as clearly the position we shall take against it. We shall not identify revelation with any traditional systems of Biblical interpretation or theology. It is here that such critics are seemingly strong only because they can wrest against revelation the weak weapons of its defenders. We claim that Christianity is a revelation of God as a personal Creator and Father; of the moral condition of man; of the gift of redemption in Christ, and of the connection of a life of holiness with the life to come. Such truths are in their nature essentially the same in every age, because this revelation is fitted to the same spiritual wants, and has its witness in the moral life of the race. But as this religion is given in the form of historic records, and yet more interpreted by men, it must be studied in all such particulars by the light of science, of language, and historic criticism. The Scriptures are not designed to be the oracle of scientific certainty. Biblical and doctrinal learning have their law of gradual progress, as have all other departments of knowledge. In this view we should read the history of the Christian past; as the record of a growth of imperfect systems indeed, of truth mingled with superstition, yet a record linked

with the steps of all human civilization under the guidance of God. If by this principle we examine the theory of our boastful critic, we find that he has neither understood the meaning of revelation, the worth of Christian history, nor the claims of its reasonable believers.

We turn, then, at once to his historic sketch. Instead of any general argument, we prefer to follow the method of our author; for we can thus test, step by step, the solidity of his learning, and give him the happy privilege of refuting himself. It might be thought somewhat singular at first, that he should begin with an elaborate story of the conquests of Alexander. But we soon learn his purpose. It is necessary for him to prove that the pagan world was not indebted to Revelation for the truth of monotheism, but that the doctrine came from Persia. We pass over the pages of historic episode, which may be useful to some readers not familiar with the commonplaces of that time, and mark the original discoveries of this writer. None can deny the genius or learning of that remarkable school, which in the later day of Greek wisdom produced such masters as Ptolemy and Hipparchus. They were undoubtedly the heralds of inductive science. Nor can we doubt, again, that the new impetus given to the Greek intellect was largely due to the march of Eastern discovery. But we are indebted to our author alone for the information that "this great intellectual development was aided by the knowledge they acquired of the religion of Persia." It is readily understood that some religious ideas entered from this source into the later Jewish system, and in the form of Manichæan theosophy played a large part in the Christian heresies; nay, we may find traces of this influence, although in a far less degree, in the Neo-Platonic school. But it is neither proved by the remains of that time, nor allowed by any historian of repute from Ritter to Ueberweg, that the later Greek science was in any way affected by the peculiar tenets of the Persian religion. The fancy of this critic, weaves this web of theory out of the thinnest facts. Nor would it help him, if it were true, since the religion of Persia was no monotheism in that later time. It is a question by no means settled among critics, whether such a truth was ever held by that people. Yet we are told, again, in the most authoritative tone, that "Persia had at first followed the monotheism of Zoroaster, and afterward accepted dualism." We need only send him to the Avesta for the refutation of his statement. It is the conclusion of our ripest scholars, at whose head stands Spiegel, the translator of the sacred books, that "the religion of the Persians in the time of Darius, Xerxes and Artaxerxes, was essentially the

same as it appears in the Avesta. Nay, we learn from the same authority, that Zoroaster, or Zarathustra, although he was probably the founder of the religion, was even in that day, as we may judge from the character assigned him by classic writers, a very mythical personage. Doubtless, therefore, the Persian, like other branches of the Aryan religion, began with the worship of the heavenly bodies, and afterward passed into the ritual system of the Avesta. It was, indeed far purer than many of the superstitions of the East; a religion which had retained somewhat of the simplicity of the primal light-worship, nearer to the Hebrew in its rejection of idols; yet it was no monotheism, but a dualism, and its mythology had created, beside the powers of light and darkness, a host of lesser divinities. We commend our author to a more thorough study of a subject, before he attempts to invent a theory.

But we must pass from his historic rambles to his ideas of Greek philosophy. Having taught us how the sublime truth of monotheism entered from Persia, he will now prove that Greek genius reached in that age its highest development, only to be followed by a barbarous Christianity. To do this, he must show us that the guiding intellect of that age, Aristotle, was a true inductive philosopher, not to be confounded with the barren scholastics of the church. But if he is at home in the epicylic theory, he is in the cloud-land of fancies when he attempts metaphysics. We cite his words:

"Plato descended from the composition of a primitive idea to particulars; Aristotle united particulars into a general conception." "The essential principle of the Aristotelian philosophy was to rise from particulars to universals, advancing to them by induction." "The inductive philosophy thus established is a method of great power. To it all modern advances in science are due."

No statement could more misrepresent the truth. Aristotle, without doubt, studied nature with more accuracy than any before him, and hence had at times what have been called "luminous anticipations" of science. But to say in any sense whatever, that his philosophic method was that of induction, is only possible to those, who have gained their ideas of him at second-hand. The method of Plato, as well as Aristotle, is to ascend from particulars to universals; but the main difference between them is, that Plato conceived his universal ideas as entities, Aristotle held them as mental cognitions. The analytic genius of the Stagyrite thus led him to the widest range of systematic knowledge. But his method is that of rigid logical demonstration; and none can read his Physics without accepting the

criticism of Bacon, that he "constructed the world out of his categories." It is curious to observe how a superficial thinker like Lewes, in attempting to show the beginning of positive science with Aristotle, has refuted himself in mistranslating the famous sentence from the Metaphysics, "Art begins, when from a great number of experiences there is formed one general conception of like cases." But the word rendered "experiences" is the exact contrary, "many ἐννόηματα;" not an induction of facts, but a logical unity in the mind. We have dwelt on this, because it touches the whole argument of our critic. Neither Aristotle nor his scholars in the middle age had reached the path of experimental science. It was in the order of knowledge, that they should first study the problems of human thought.

We are prepared, after the author's eulogy on the religion of Persia and the perfection of later Greek science, for more novel discoveries as to the rise and decline of the Christian faith. It is soon disposed of. It fills a much smaller place in his view than the astronomy of the Museum. There was, it appears, as the result of these Macedonian conquests and the "military domination of Rome," a general sentiment of the "universal brotherhood" of man. The Jewish-Christian sect thus at first gained its sway over the pagan world, as a sort of "communism." We may well admire the genius which has reached so plain a solution at last of the grandest problem of history; even simpler than that of Mr. Buckle, who wrote the story of Christian civilization with Christianity left out. It is not enough for such reasoners to recognize in the condition of the Roman world, in the decay of pagan worship, and in the social interchange of nations, that which gave room for the ideas of a nobler faith; but we are gravely asked to find in that world, lying under the yoke of the Cæsars, without liberty, with the most appalling growth of social vices, with no belief save in the most swarming superstitions, the natural birth of a religion, which purified not only idolatry but the life of the household and the state, and has shaped the whole civilization of the after time. This is indeed a wonderful *instantia crucis* of the inductive science. But our philosopher does not dwell long on the origin of Christianity. Even the simple truth with which it began is destined soon to fall away; and we learn that it soon became a distinct paganism. There is probably nothing in history which can quite compare with the inventive boldness of this chapter on the corruptions of the church. We had long known that there were errors and vices in the primitive age; but we had no conception of their extent. It has been discovered by this scholar, that Constan-

tine actually consecrated the ancient pagan rites under a Christian form, with the express purpose of conciliating the many heathen of the Empire. The Madonna was the Egyptian Isis, with the infant Horus in her arms and the crescent moon under her feet. The Feast of Purification was an open substitute for the Lupercalia. It is in this spirit he writes history; an instance or two of natural superstition is cited as if the spots covered the whole disk of the sun; and all the ages of Christian life, of intellectual battle with pagan error, of moral purity or social regeneration are nothing to his scientific mind.

But we must follow him now, as he enters with much learning into the Christian theology of the early age. It will, doubtless, awe many of his readers to find him so profound in his citations from the Fathers, yet we beg leave to examine a few statements. Our author informs us that Christian doctrine was, in the age of Tertullian, the simplest of faiths, but it changed with Augustin into a system of revolting dogmas. He quotes at large the famous apology to Severus. "The attentive reader will have remarked," he says, "in Tertullian's statement of Christian principles, a complete absence of the doctrines of original sin, total depravity, predestination, grace, and atonement." Such a mode of dealing with the writings of this father is a little singular. It should be known to such a critic that this simple Tertullian was the most fertile intellect of the West African church, and did more than any other in his age to shape that theology of the Latin communion, which was afterward ripened by Augustin. It should be known that he is the author of many treatises, full of the most subtle discussions of doctrine; and although Augustin has brought into more systematic shape the tenets which our critic specifies, each one of them is to be traced in Tertullian. It should be known to him that a view of the theology of that time must embrace the fathers of the Eastern church, who represent more than the West its noblest philosophic thought, and who joined the spirit of Plato with a Christian faith in their discussion of the unity of God, freedom, and immortality. To present this official paper of Tertullian to the emperor, as an epitome of Christian theology, is as absurd, as it would be to send one who desires to know the principles of the Novum Organon, to Bacon's Apology in the case of the Earl of Essex. Nor is it strange, therefore, that we find this choice criticism followed by as lucid a view of Augustin. Our author gives us a few disjointed passages, and then pounces on the Pelagian controversy. It is dismissed by a summary appeal to science. We are told that the great point of the controversy was "whether death had been in the world before Adam, or was the penalty

of sin." Pelagius was the unconscious herald of the modern school, which proves that long before man, thousands of species and genera had died; and thus the church, in sustaining Augustin, severed theology from science! It is indeed, difficult to meet such talk with due gravity. Undoubtedly this question was involved in the controversy; but no one, at all acquainted with doctrinal history, is ignorant that the real difference between the two was in regard to the nature of divine grace and human ability. Nor does it matter at all, in our estimate of the great doctor of the Latin church, whether he were right or wrong in this particular. Such criticism is as absurd, as to doubt Newton's laws of astronomy because he had a fanciful theory about the London plague. The task of Augustin was to study the deep laws of human nature in conscience and history, to show the truth of Christianity in its adaptation as a revelation of redemption to the moral want of the race; and while there are errors in his system, derived chiefly from the Platonic philosophy which he followed, no competent scholar will deny him his place as one of the noblest teachers, not only of the Christian church, but of all time. To measure him by the method of this critic, is to measure a mountain by a microscope.

At this point our learned author reaches the first step of his conclusion. The barbarous religion of Christ at last seals its hostility to science by the closing of the schools at Athens under Justinian. It might not be very difficult for us to answer him on his own ground. The act of Justinian was, of course, that of a despot. But what had that to do with the real progress of science? There was at that period hardly a vestige of Greek genius such as had bloomed in the better day of a Ptolemy or Hipparchus, and whatever of intellectual life survived, had passed into the Christian church. But it is a deeper defect which blinds him to the intellectual worth of that age. To him there is no progress save in the sciences of mechanics and chemistry. It is impossible for him to conceive that a religion, which did not produce great geometers, or settle the structure of the globe, could have done any thing for the race. Had he even got so far as the philosophy of Comte, he might have learned that the growth of the human mind must begin with the theological and the metaphysical before it can reach the scientific stage. Had he known the deeper law of Christian history, he would have discovered that, however admirable the knowledge of nature, the noblest science is that which concerns the moral and social life of humanity. It was no loss to the world, if it waited a few centuries longer for a Copernicus. The task of the church was

to educate the pagan mind in a purer faith, and when that first step was passed, to shape the life of barbarian Europe; and the same Justinian, who closed the Athenian schools, had wisdom enough to give the world the Pandects of Roman law.

But we are now ready for another of the great historical discoveries of our author. It is the period which he has called the "Southern Reformation." The religion of Mohammed proclaims the unity of God against an idolatrous Christianity; and the church again shows itself the enemy of science. It would be hard to find a chapter in which so narrow a basis of fact is made to support so huge a pile of theory. We are told that the Christian church had introduced the worship of Isis in the form of the Madonna; that Nestorius was condemned for rejecting this idolatry, and when his banished sect spread over the East, the Arabian prophet was converted by its teachers. But this is not all. "The life of the prophet was devoted to the extension of this theological doctrine;" and hence our historian claims for Islamism the leadership of scientific progress, while Christendom had lost the truth of the one God. It will be necessary only to turn to the history of that age in order to test this theory. Nestorius was one of the victims of a harsh theology; and the church which condemned him, had already been infected by the superstition, which ripened later into Mariolatry. But every student knows, that while the dispute concerning the θεοτόκος entered into the question, the doctrine for which Nestorius was sentenced was that of the separation of the two natures in Christ. We may justly lament the spirit of an age, which had too far lost in its metaphysical subtleties the living power of its own doctrine; we may not doubt that such a decay left Christendom the weak prey of the Arab invader. But to say in any wise that the church had renounced its faith in the one God, or that its partial superstition could be called idolatry, is only extravagant nonsense. We can thus fairly understand the relation of our religion to that wonderful and brilliant era of Saracenic life. History has cast a much clearer light in our day on the character of Mohammed, than when he was wont to be treated as the arch impostor; it has shown that he was indebted to Jewish, probably to Nestorian sources for much of his doctrine; and that above all, the faith in the one God in spite of blended errors, made that religion the conqueror of the East. But it does not seem to occur to our author that this very fact is the refutation of his strange claim for Islamism. He has admitted that the religion of the Koran is only a bastard form of Christianity, and thus he directly allows that all the progress he

claims for the doctrines of Mohammed is due to the belief, which he rejects as at war with science. Christianity gave the power which overthrew idolatry; Mohammed gave the legends of the Koran, the sensuality and the martial fanaticism. Nor is it less astounding to hear a philosophic historian talk of Islamism as the "Southern Reformation." Undoubtedly the monotheistic faith of Islam changed the polytheism of the East, and was in that respect the source of a higher civilization; but we are not aware that it converted any part of Christendom. It subdued the decaying empire by force of arms, and the fresh strength of an Arab people was mightier than an old, corrupt civilization. But what has that to do with a Southern Reformation?

Yet we have not ended the paradox. Our author is not content with giving just praise to the Saracenic civilization, but he must hold it up as far grander than that of Christian Europe during the same period. We shall not yield to him in our admiration of that marvelous age. The history of the world has no chapter more brilliant than that of the Caliphs, who won a victory grander than had been achieved by the scimitar. That civilization grew like the tropic plant, which reaches its full beauty in a season. But it shows an utter want of historic insight to compare it with the development of the Western race. The genius of the Arab, like all of the Semitic stock, was narrow, although intense in the range of its ideas. It could interpret the works of Greek science; but it could not lay the foundations of a great social polity, or give birth to a literature and art like that of Europe. Even in science we have the judgment of Whewell, that the original contributions of Arabian schools are slight. And it is a grave mistake to speak of this progress, as if in any sense the religion of Mohammed were more favorable to the cause of science, than the Christianity of the church. Our critic might well consult a Semitic scholar, not likely to be too partial in his religious tastes, Ernest Renan, who will teach him that the bigots of the Koran were more hostile to the study of Greek philosophy than any in the darkest day of the Latin communion. Thus the age of the Mohammedan civilization reached its bloom only to decay, and has left nothing save a splendid memory. But it was the necessity of the Christian civilization, as it was to endure, to have a slower growth. The church of the seventh century was busy with the education of the hordes that overturned southern and middle Europe; and after the mind of the continent had been trained in religious faith, in social order, in the fusion of races, in the development of a rich, manifold life, it could ripen a literature, an art,

and a science also, which should survive when Islamism had passed away forever.

But our historian has not quite closed his eulogy of Mohammedan wisdom. Not only in regard to the unity of God was the Christian church opposed to science; but in the next conflict concerning the nature of the soul we are to find the same sad bigotry. Averroes, the great Arabic commentator of Aristotle, taught the doctrine of emanation, which according to this critic is the same with the modern theory of evolution; his learning passed from Spain into the Christian schools, and was at last condemned by the church. It is strange indeed, that in his zeal to array science against religion our eager champion should have made such blunders in regard to the system which he praises as genuine philosophy. He has found in Aristotle the master of the inductive method; and he now, with greater lack of learning, accepts the doctrine of his commentator. Yet he should have known that Averroes, or Ibn Roschd, is, in the opinion of the most competent scholars, not a true interpreter of Aristotle in his theory of emanation. The teaching of the Greek sage, as clearly stated in the twelfth book of his Metaphysics is, that there exists an active intellect, present to the human soul, yet distinct from the passive or passional nature. There are other passages from his treatise on the soul, which speak of this active intellect as alone incorruptible. Hence the question arose, whether he held this universal mind to be impersonal, so that there could be no personal, individual being after death. The difference of view on this weighty point, is the dividing line between the Christian disciples of Aristotle and the system of Averroes. To omit all other authorities, we need only cite the learned work of Renan on the Arabian sage, which our critic seems to have skimmed just enough to mistake. Aristotle, as even Renan admits, has not clearly expressed himself on this point; but it was perhaps from some later Greek commentators, as Alexander of Aphrodisias, that Averroes borrowed his idea. His system is that of a thorough pantheism. It starts with the conception of one indivisible soul, impersonal, emanating through all, individual in none; and thus ends in the denial of a personal immortality. But our critic has not only confounded the view of the Greek master with this notion of emanation; he has strangely identified it with the doctrine of evolution. Yet the two are very opposites. The theory of Averroes is a masterpiece of metaphysical speculation; it begins with the most abstract idea of being, and reasons downward to all souls as partakers of divinity. The theory of evolution is of a natural life, known only in

phenomena, passing from the lowest embryotic form to organic completeness, yet by the very nature of inductive reasoning excluding all possible idea of being. Evolution admits no teleological view. Aristotle and his disciple held that "God and nature do nothing in vain" (De Cœlo).

But we need spend no more words in showing this error. We leave the critic in the hands of our positive sages, who will hardly forgive him for indorsing the most subtle of metaphysical ideas, as science. We need only turn at last to the absurdity of the charge against the Christian church. It is so far from a conflict between religion and science, that we may justly call the controversy a defense of the sound science of the mind against the most baseless speculation. We have no wish to defend the philosophy of the scholastic time, or deny the worth of the knowledge that replaced its barren schools, but we may claim at least that it shall not be loosely sneered at by every half scholar, who can prate of the "dark ages," yet understands nothing of the intellectual power that grappled with the problems of human thought. It is indeed one of the most singular features of that period, that it joined with its ecclesiastic spirit the utmost freedom of inquiry; nor do we need a better proof than the fact that Averroism itself could have so strong an influence on its opinions, and even men like those of the later school of Padua, could remain public teachers, while they were sceptics in regard to the deepest truths of the Christian religion. It was only when the doctrine of the Arabian commentator appeared in an avowed pantheism, that it was rejected; nor was it an act of blind church authority, but Albert the Great appeals to Aristotle himself in his masterly defense. If, therefore, our critic wishes to sustain the theory of absorption into the divine essence as a truth of modern science, his conflict is not with religion alone, but with the best reason of every age.

We come now to nearer times, and conflicts where we shall not be compelled to criticise so closely our author's vague learning, but can dismiss his assumptions with fewer words. The next battle between religion and science is as to the nature of the world. The old story of Copernicus and Galileo appears again, and the persecutions of the church are recorded with much eloquence. No one, we suppose, even the narrowest of Roman ecclesiastics, would defend to-day the ignorance of that time; but it was reserved for this writer to discover that the Copernican theory is "opposed to revealed truth." We are gravely assured that Copernicus himself was aware of this. It is hard indeed to reason with such a logician. He must have read history

with strange eyes, if he does not know that such a theory, grand as it was, could only be slowly accepted at that time; that men of unquestioned science were doubters, as well as half-educated priests; that it was not wonderful if the geocentric view, the most natural to the unscientific mind, should be sustained by appeal to the language of the Scriptures. But it is worse than absurd, when he thus attempts to fasten on revealed truth the responsibility for all the imperfections of human knowledge. It is the best evidence that there is no conflict between science and religion, that the system of Copernicus has taken its just place in the belief of Christian interpreters as well as of astronomers. None can be found in our age who would regard the language of Scripture as other than that of popular, phenomenal speech: and he who speaks of the discovery "as opposed to revealed truth," only proves a prejudice blinder than that of the most slavish literalist. We cannot indeed fail to observe how this spirit peeps out in page after page of our author's writings. It is not for the progress of astronomy, after all, that we are to be grateful, but for the fact that it has relieved us of our Christian superstition as to the immortality of man. We are told that the result of all our knowledge of the stars is "that man, his pleasures or pains, are of no consequence;" that a philosopher must rise above the vulgar error of believing that "these gigantic bodies have no other purpose than what is assigned by theologians, to give light to us." And is our author unaware, that some of the truest Christian minds, before and after Chalmers, have accepted the reasoning of modern astronomy as proving the likelihood of other inhabited worlds, and so far from lessening our hope of human redemption, as enlarging our ideas of the goodness of God and the sphere of our immortality? But this is lost on our philosophic author. Giordano Bruno, closes this chapter, and it is strange with what perverse ingenuity an instance of church cruelty is turned into an encomium on pantheism. We are not only to reprobate the men who burned him, but to enroll him among the martyrs of truth, and "erect his statue under the dome of St. Peter's!"

Here, then, we reach the views of our author in regard to the Protestant Reformation; and although he has placed before it a chapter on the age of the globe, we take the liberty of postponing it for the sake of chronological order. The Reformation is, in his phrase, the conflict respecting the criterion of truth. He begins with a general sketch of the vain attempts of the church to enforce its doctrines, and lays down as the principle of the Reformers the right of private judgment. But we are told that, "so far as science is con-

cerned, nothing is owed to the Reformation." The leaders "were determined to banish philosophy from the church." It is not a little amusing that in proof of this he has cited Luther's denunciation of Aristotle. Had he read the books of Luther, or known the spirit of his age, he would have learned that the scholasticism of the Papal church, the Aristotelian logic which had frozen the life of the Gospel, called forth the wrath of the German apostle; and we can pardon his vehemence, when we know from his own history how hard was the battle of faith against tradition. The protest against Aristotle was the same in regard to the truth of religion, as that of Bacon in philosophy against the "fruitless categories" of the school learning. Our critic sees in it only the hatred of religion to science. But the *gravamen* of the charge against the Reformation is stronger than this. It was "the fatal maxim, that the Bible contained the sum of all knowledge," "the Procrustean bed of the Pentateuch," that made it the enemy of all progress in scientific discovery. We have here the same deplorable misconception of history, which we have seen from first to last in this volume. It is clear enough that the science of Biblical interpretation was not far advanced among the Protestant Reformers. The principle of the supreme authority of the Scriptures was their noble weapon against the traditions of Rome; nor was it strange that it should be mistaken for a theory of verbal infallibility, which a more thorough knowledge must correct. It was enough for them that they opened the sealed book, and gave it to the study of Christian men. To ignore the worth of the Reformation for history, because Luther and Calvin did not understand the later results of natural research in their bearing on the origin of the earth and man, is unworthy of one who professes to write a philosophic history. The masterly criticism of the great German historian, Neander, gives us the true estimate of the Reformation. Had it not been for the religious life, which stirred the mind of the world, all the discoveries of science and the growth of letters would have done little for the civilization of Europe. But the later history of Protestant thought is evidently as unknown to our author as its beginnings. He has given us the names of a few scholars, who seem to him more advanced in sound learning; yet the meager list proves how little he has studied its progress in the interpretation of the Scripture, or the promotion of a Christian science. To him it is merely a religion somewhat more tolerable than that of the Vatican. The only Protestantism he accepts is that which has entirely renounced its faith in a supernatual revelation. There can be in his view no alternative, save the dullest

adherence to the traditional theology of the past, or to fling away every truth of Christianity. He looks with "cold impassiveness" on all this history since the Reformation, as of less moment than that of a few fossil remains in some pre-Adamite cavern.

We can thus pass to the remaining chapters on the results of more modern discovery. The question of the formation of the earth and its age, is presented to us with a full array of the wonders opened by men of science in the last half century. We accept readily every sound conclusion which has been reached. But when we are told by our critic, that there is an irreconcilable conflict between revelation and modern geology, we simply reply that it is an absurd assumption. There is nothing whatever in a reasonable view of the Mosaic cosmogony, which forbids the belief that the earth has passed through a long series of formations; nay, we hold that our knowledge of the Scriptures has been vastly enlarged by the light thrown on the primeval history of man by the Bible of the rocks. It may indeed be well for us to wait until we have some more fixed arithmetic than that of our author, who talks of thousands of thousands of years preceding our historic era. Such extravagance has naturally created doubt. But the progress of Christian science on this subject is enough to show that there is no conflict in any warrantable sense. There have been and are those who have feared that the book of Genesis might lose its truth, if it did not contain a scientific account of earth and man, and who have thus resorted to very forced interpretations. But each step of discovery has had its just influence. There is no intelligent mind which does not accept the geological view of the gradual work of creation, or the facts which science has established as to the character of the deluge. Nor is there any result as to the antiquity of the race, which will fail to be received, whenever the vague theories of the hour shall be finally settled. The history of the race is not embraced of necessity in the annals of the Hebrew family. We shall in all such questions arrive at as clear a conviction, as we have already of the truth of the Copernican theory. It is to this the whole progress of Biblical study is surely tending; and if there are naturalists, who know more of the spectroscope than the Scriptures, who misquote Augustin and Luther, yet call themselves scholars, we may allow for the unscientific defects of some Christian divines.

One last point remains. It is that of the government of the world by divine intervention or unvarying law. We have here the fullest exposition of the belief of our author. All the brilliant discoveries

or theories of modern time, the nebular hypothesis, the wonders of organic evolution, the correlation of forces, are brought together in this chapter as centering in this one truth of natural law. This is to decide forever the fate of Revelation. Christianity declares a supernatural Deity. Science proves a fixed, unchanging order. We accept this question as the highest for our modern thought; but we reject utterly his statement that it is a conflict between Christianity and science. It is to the peculiar character of the charge, which this writer brings against the claims of Revelation, that we ask attention, since it involves the weightiest point of modern unbelief. The religion of the Bible, we are told, gives us only a series of "miraculous interventions." There have been, undoubtedly, too many defenders of Christianity in past years, who claimed that a miracle was the suspension or infraction of a law of nature; and to science itself we owe a large debt, in that it has given us, since the controversies with the English deists of the last century, a truer conception of law. If there be a conclusion, as this wise man should know, in which all Christian thinkers agree, it is that a miracle is the action of a divine and higher law, which does not suspend but subordinates what we call laws of nature. If we accept the truth of a personal God, we need not doubt the possibility or probability of a special revelation. There can be, therefore, no chasm between the Christian belief and the results of modern science. It is rather in these grand discoveries of unity of force, throughout the ages of development, that we find higher proofs of one living mind, one divine plan. But it is with the false science, which recognizes in this order only an impersonal force, a law without a mind, that we have the real conflict of our time. Christianity is not the issue. It is between atheism and faith in God. Nor is it a small service which a bold thinker like Mill has done, in having proven that the vague theism of the last century is as untenable as Christianity to him who believes in nothing beyond the phenomena of nature. We are content, therefore, to leave the question here. If our philosopher is prepared to claim for science that it is identical with an undisguised atheism, we can fully understand the drift of his reasoning.

With this study of so remarkable a work, we are now quite prepared for the conclusion. It is with a triumphant appeal to the gathered evidence of all ages, that the author declares science the only true test of knowledge, and sets aside the authority of revelation. We were summoned, at the opening of the volume, to the death-bed of paganism; and we now have the funeral service read

anew over the remains of Christianity. It would be indeed a relief, if we could fairly understand him as only passing sentence on the false theories which have obscured Christian truth; but although he levels his bolts chiefly against the Syllabus, it is too plain from the chapters we have reviewed, that his argument is against the claims of all supernatural religion. We cannot quite determine what may be his creed, whether, as we infer from here and there a sentence, the vague theism of a former type, or the more outspoken materialism of our own day; but in either case we can fully appreciate the ground of his denial. We, too, will draw our conclusion, which we trust all our readers will acknowledge after this examination of the argument. It is, in a word, the utter misconception of the character of Revelation and of Christian history, which from first to last has led to this imaginary conflict between science and religion. He has begun with the false idea that Christianity is to be identified with the theories of Biblical interpretation and theology, fastened on it in its early age; and his attempt has been from that point of view to dwell on the mistakes and superstitions of the past, without the least admission of its growth. Such a caricature of our religion is unworthy of a scholar. It has been the empty sophism of unbelief from the first until now. Let any blind or malignant critic read the Fathers only to find in them some fanciful interpretations of Jewish history, while he passes by their noblest ideas of the divine nature or of Christian life; let him hunt among the doctors of the middle age for every absurdity in regard to the substance of soul or matter, and ignore their masterly discussion of the deepest problems of thought; let him judge the past by the measure of the present, and forget all the good it has done in the slow formation of the mind or social character, and he will find enough to gratify his doubt. Yet the author's own historic sketch is the refutation of his view. There is not a single fact of importance which he has not distorted. There is not a single point of Christian doctrine or history, which does not appear through the smoked glass of his theory. But what is it, after all, that his record of the conflicts of the past has proven? If in every age the progress of science has been impeded by religious superstition, the same history shows that the truth has risen above the dogmatism of the day. Each example, down to our own time, witnesses that the settled results of knowledge have been accepted, not only by men of science, but by the most intelligent minds among Christian believers. Our author wrote, some years ago, a work on the "Intellectual Development of Europe." We commend him to a

deeper study of that subject. If he reads the history of Christianity, as even a thinker of sceptical views but of large and generous mind may do, he will find in it the same law of development as in all branches of science. It will be clear that there has been as slow a growth, as long a conflict with traditional ideas in the study of chemistry or of medicine, as in the theological systems of any time. We might take the example of Biblical interpretation, and show how from the early allegorical methods of the Fathers it has steadily gone forward, by the more thorough study of language, by the light cast on it from historic and Oriental research, and by the influence in later days of natural discovery, until it rightly claims the rank of sacred science. And if with a deeper view than that of tracing the intellectual development alone, if with a Christian eye he will read the moral and social record of our religion, it will be to him a history which alone explains the whole civilization of the past; in every age amid its errors he will yet trace a law of growth; in the early time he will recognize a divine truth, transforming the world from idolatry to the faith in one God and a purer life; in the darkest years of a despotic church, a discipline of law needed for the education of mankind.

Such is our view of Christian history; and in this light we may briefly sum the argument, as it bears on the grave questions that weigh on the mind of our own time. If indeed the spirit of this writer were in any true sense that of modern science, we might well despair of reconciliation. But we will not confound its noble aims with those who so misrepresent it. There is not and cannot be any conflict between religion and science with those who understand the mutual relation of each. It is the province of science to study freely the facts of nature and of human history; and whatever it verifies by its sure induction, must be admitted by all reasonable men. Any theory of Scripture, at variance with the demands of this just canon of criticism, is untenable, and must pass away before the growing convictions of Christian scholars. It is a truth to be learned, and deeply learned by the defenders of the faith, that their efforts to rear the sacred word into the oracle of scientific truth has been one of the strongest weapons in the hands of unbelief. But while we grant this to science, there is an equal, nay, a greater lesson to be learned on the other side. It is, we repeat, the province of Christianity to teach those truths which do not lie within the sphere of nature, but belong to the moral and spiritual history of mankind. The being of a personal Creator and Providence; the fact of evil in

the conscience of the race; the presence of a Divine Power in humar history; and the relation of this life with a personal life to come, are neither proved nor disproved by any inquiries into the structure of the globe and the origin of man. Yet this unreasonable conflict has been forced on religion by a school of naturalists, who mask their materialism under the name of science, and because nature teaches only phenomena, deny all knowledge of a God beyond force, or a life beyond that of these physical atoms. This philosophy is as untrue to the methods of science as it is to the teaching of Christianity. There can be no reconciliation in such a case. But we need not fear for the result, in behalf of religious or of intellectual truth. Although we may not hope for a speedy adjustment of such grave problems, he must have read poorly the history of philosophic opinions, who does not see in this a transition time; nor may we doubt that the materialistic tendency has already reached its worst extravagance, and will pass away as like errors have passed. Science itself will reject the vagaries of those who have turned it into a speculation; it will gather up the facts which a Darwin or a Huxley have found, while their theories will be forgotten. Meantime, we may be content with the wise saying of an English divine, that "patience is the true temper of our age:" we may be sure, that the only conflict Christianity can have, is with the false spirit of those who misrepresent it; the only weapons it needs, those of sound learning and fearless study of the truth.

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