Finally, in the *Liber Hymnorum* of the ancient Irish Church, in a note to the hymn written by Secundinus in honour of St. Patrick, we find the following expression: "The sea is the present world; the ship is the Church; the pilot is the preacher, who guides it to the port of life; the port is the life that is perpetual." Now I repeat, if the ship had been used by the early Christians as a symbol of any sacred object other than the Church, would not these passages of the Fathers be calculated to mislead and confound the faithful rather than to edify and instruct them? I may consequently consider it as proved, that the ship is a symbol of the Church.

I have now established the fact that the ship was a symbol of the Church familiar to the early Christians, and common on their monuments; it remains for me to determine the more important question, what is the precise teaching conveyed under this symbol? or, if my readers do not recognise any conscious didactic effort in its employment, what were the ideas familiar to the early Christian mind that found their universally recognised expression in the sign of the ship? As I have already drawn out my paper to an inconvenient length, I must ask leave to postpone the answer to this question to your next Number.

C.

DARWIN ON THE ORIGIN OF SPECIES.*

The fathers of the last synod of Oscott proclaimed that the battle of controversy is no longer against sectarianism, but against infidelity; and the publication and reception of the remarkable book which I am about to discuss is a startling fulfilment of their prediction. The infidelity we have to combat is no longer the grinning sarcasm of Voltaire, or the blasphemous buffoonery of a half-sceptical libertine; but it is the calm philosophic discussion of men with their minds stocked with facts and instances, who, if they are without metaphysics enough to see the fallacies of their induction, yet earnestly believe the cogency of their proof. When such men come to conclusions quite incompatible with practical faith in any religion whatever, though the mischief is as great, the means of repression are not as handy as in the case of more vulgar infidels. It would be not only an anachronism, but a folly, to say that their case was one rather for the

* *On the Origin of Species by means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life.* By C. Darwin, M.A. London, Murray.

halter or fagot than for argument. They profess to love truth for itself as strongly as we do, and any hint of persecution would only tend to gird their brows with the appearance of a martyr's wreath. Now where forcible repression is impossible, either argument or ignorance is the only resource left for faith.

The decision between ignorance and argument is hard. Ignorance doubtless has its advantages, even in metaphysics, where most ideas are clear enough till we meditate upon them. Matter and spirit, says St. Augustine, are things which we know by not knowing, and know not by knowing —*cognoscendo ignorari, et ignorando cognosci.* "I find no difficulty in time or space," says Charles Lamb, "for I never think about them." So the mysteries of religion are clear to the unsophisticated intellect, and only grow dark as they are refined upon. The humble believer cannot be troubled with difficulties which he never thinks about; he is ensconced behind earthen ramparts that are not to be breached by the batteries of argument. This is the fortress of ignorance; a safe retreat in some ages, but perhaps untenable by those whose lot it is to live with their eyes open in the midst of the controversies and movements of the present time. A blind confidence in the inert force of ignorance is sure to lead some minds to confound ignorance with the simplicity of faith. Then it naturally follows that the test of a religious truth is its simplicity; it must be something which "he who runs can read," and which needs no defence by subtleties of argument. The next step is fatal. In philosophy or literature, or even in common conversation, we are all liable to find hints or arguments which breed in the mind serious objections to some dogmas—say, to those of the Trinity and Incarnation. These objections may be of the subtlest nature, and therefore may require the most subtle replies; but the theory of simplicity teaches its advocates to say, that they cannot believe any doctrine to be necessary which needs the intricacies of philosophical distinctions for its defence. They do not see the hypocrisy of keeping indirect avenues open for the admission into the mind of all kinds of literary and scientific difficulties against religion, and of then refusing to argue directly against these difficulties, on the ground that no religion can be true which requires so subtle a defence. In this way dogma after dogma has been scratched out from the liberal Christian's creed. The difference between Arianism and orthodoxy was called a mere "dispute of words and of letters." The judicious Hooker, who is stanch for the faith of Athanasius, yields to the "simplicity"

theory in the matter of Transubstantiation; "simplicity of faith," he says, "is preferable to that knowledge which, curiously sifting what it should adore, and disputing too boldly of that which the wit of man cannot search, chilleth for the most part all warmth of zeal, and bringeth soundness of belief many times into great hazard."* If the simplicity theory requires that doctrine after doctrine is to be given up as each enters the sphere of controversy, on the ground that the subtlety of defence which is brought out by the subtlety of attack is a sign, if not of the falsehood, at least of the triviality and indifference of a doctrine, then certainly the advocates of that theory must now be prepared to yield to Mr. Darwin's attack, and to resign all faith in God as Creator. Those believers, on the contrary, who have confidence that all truth will be ultimately found to harmonise, will enter into the controversy without fear either of the subtleties with which they will be forced to repel his subtle attacks, or of admitting whatever truths in the physical order he seems to have established on a fair foundation.

Mr. Darwin's theory has no novelty in its elements, much in its construction and compactness. Its real scope is rather mythological than scientific; for it professes to give an account of the origin of man, of animals, and of plants. The development of all organisms from one primeval organism was as integral a feature of some heathen mythologies† as is creation of Christianity. The idea was patronised by the whimsical Monboddo and the brutal Robinet merely in opposition to religion; Lamark was the first to give it any scientific pretensions. Nature, he said, by the movement developed in a globule of liquid, formed the first infusory monad; and by gradual additions to this rudimentary organism, she proceeded to the development of the most perfect beings. Thus a monad would become a mollusc, then an articulated animal, then a fish, a reptile, a bird, and at last a mammal,—first a ruminant, then a rodent, then a carnivorous beast, and at length an ape, which would ultimately develop into a man. The author of *Vestiges of the Creation*, while he familiarised this theory to the imaginative, rather damaged its cause with men of science. The idea of these writers was, that the change took place by a spontaneous adaptation of organs to circumstances. The monkey's tail would wear off, and his hind hands become feet, when he took to sitting and walking, and became man; the land-bird's neck would gradually lengthen as it sat on the brink of the stream to fish.

* Eccl. Polity, V. lxvii. 12.

† For instance, the Persians derived all beings from the bull Abudad.

In place of this imaginary adaptability, Mr. Darwin has substituted a force which exists *in rerum natura*, and really brings about certain changes in organic beings under our observation. This force he calls "natural selection;" variations, he says, occur probably in all animals and plants in the course of generations, just as mankind has become negro or Caucasian, and as various new breeds of cattle are continually being produced. These variations would probaby be propagated, —as negroes give birth to negroes, and not to white men, and as gardeners and cattle-breeders secure the improvements they happen to find in their seedlings and young stock. In nature, an analogous principle of selection is always at work; for "if variations useful to any organic being do occur, assuredly individuals thus characterised will have the best chance of being preserved in the struggle for life; and from the strong principle of inheritance, they will tend to produce offspring similarly characterised." Thus the various organs were perfected, not by being created for any final cause, but by accidental improvements being seized upon and perpetuated, because they gave their possessors advantages in the struggle for existence. Here, again, I must deny Mr. Darwin's originality. Aristotle quotes opponents who said, "It does not rain in order that the corn may grow, but because vapour carried upwards is cooled, and is precipitated; it is a mere accident that rain makes the corn grow." So with the organs of animals; teeth were not made to eat with, but animals without teeth would perish helplessly; and in general the same may be said of all the parts of an animal: "for when the very same combinations happened to be produced which the law of final causes would have called into being, those combinations, which proved to be advantageous to the organism, were preserved; while those which were not advantageous perished, and still perish, like the minotaurs and sphinxes of Empedocles."* By the aid of this natural selection acting through cosmical epochs of millions of ages, Mr. Darwin thinks it *proved* that all animals have descended in one direct genealogical line "from at most four or five progenitors, and plants from an equal or lesser number;" and *probable* that "all the organic beings which have ever lived on this earth have descended from one primordial form, into which life was first breathed" (p. 484).

The perpetual oscillations of science alternately obscure

* "Οπου μὲν οὖν ἅπαντα συνέβη, ὥσπερ κἂν εἰ ἕνεκά του ἐγίνετο, ταῦτα μὲν ἐσώθη ἀπὸ τοῦ αὐτομάτου συστάντα ἐπιτηδείως· ὅσα δὲ μὴ οὕτως, ἀπώλετο καὶ ἀπόλλυται, καθάπερ Ἐμπεδοκλῆς λέγει τὰ βουγενῆ καὶ ἀνδρόπρωρα. Arist. Phys. ii. c. 8.

and illustrate the doctrines of religion. A short time ago, naturalists accepted the perpetual recurrence of miraculous acts of creation during the geological epochs as a proved fact; and they admitted the late appearance of man on the earth. But they denied the unity of mankind; they divided our race into from five to fifteen species, and gave us *une quinzaine d'Adams* instead of one. Mr. Darwin, on the contrary, assures us "that all the individuals of the same species, and all the closely-allied species of most genera, have within a not very remote period descended from one parent, and have migrated from some one birthplace" (p. 486). He connects, almost as cause and effect, the production of new and improved forms with the extinction of the old (p. 317), and therefore admits that man will one day perish, though instead of being swept away by a catastrophe, he will be improved off the face of creation by some superior race, some Demogorgon which will proceed from his loins. But Mr. Darwin does not stop here. "In the distant future," he prophesies, "I see open fields for more important researches. Psychology will be based on a new foundation,—that of the necessary acquirement of each mental power and capacity by gradation. Light also will be thrown on the origin of man and his history" (p. 488). It will be proved that cellular tissue in one stage of development vegetates, in another walks, in another feels and sees, in another acts by instincts, and finally thinks; and man's descent will be traced, proximately perhaps, from an Adam the offspring of a baboon, and ultimately from a monad through a slug.

Mr. Darwin's book contains two elements, intimately blended. One is the mythological conclusion just enunciated, which he props up with the traditional apothegm, *natura non facit saltum;* the other is his accumulation and arrangement of scientific facts. The first is fabulous, the second is most striking; but between the two there is as great a gulf as between the experiments and the conclusions of the alchemists, and no argument will ever logically pass from one to the other. Yet, unaccountably enough, his reviewers have very generally admitted the validity of his process, and have declared that he is only to be met on his own ground; that is to say, that whereas he has chosen to build on physical arguments a metaphysical conclusion that is subversive of psychology, metaphysics, and theology, all these sciences must cover their mouths, and await with resignation the decision of physical science, their new "mother and mistress." "The sufficiency of his hypothesis," says the *Times*, "must be tried by the tests of science (*i. e.* physical science) alone,

if we are to maintain our position as the heirs of Bacon and the acquitters of Galileo." If we think Mr. Darwin's hypothesis physically plausible, we are not to be deterred from holding it by the trifling consideration of its incompatibility with any faith in the spirituality of the soul or the creative action of God.

So far as words go, Mr. Darwin declines to enter on the question of the "origin of the primary mental powers, or of life itself" (p. 207). But this reticence is not real. He is full of disdain for the notion of creation, and if he must admit it, he would thrust it as far back as possible into the abyss of time (as a schoolboy's all-sufficient excuse for the breaking of a window is, that it was done ever so long ago); for even the Creator's claims may be barred by a scientific statute of limitations. Having thus "jumped the world to come," he turns round and attacks those who boggle at the leap:

"These authors," he says, "seem no more startled at a miraculous act of creation than at an ordinary birth. But do they really believe that at innumerable periods in the earth's history certain elemental atoms have been commanded suddenly to flash into living tissues? Do they believe that at each supposed act of creation one individual or many were produced? Were all the infinitely numerous kinds of plants and animals created as eggs or seed, or as full grown? and in the case of mammals, were they created bearing the false marks of nourishment from the mother's womb?* Although naturalists very properly demand a full explanation of every difficulty from those who believe in the mutability of species, on their own side they ignore the whole subject of the first appearance of species in what they consider reverent silence" (p. 483).

That is, in a silence which only differs in its qualifying adjective from that wherewith Mr. Darwin slurs over the first origin of life. The adroitness with which he throws a burden of proof which he declines to bear himself on the shoulders of his opponents is very noteworthy. In all this I accuse him of no conscious unfairness, but only of a temporary forgetfulness of the limits of his hypothesis.

Mr. Darwin has not the slightest expectation that his theory can ever be proved by a rigid induction of facts. Even if kangaroos were really derived from bears, "we should not be able to recognise one species as the parent of another, if we were to examine them ever so closely, unless we likewise possessed many of the intermediate links between their past, or parent, and their present states; and

* The author is evidently alluding to Mr. Goss's foolish though well-intentioned essay *Omphalos*. The question there discussed is not new, as may be seen from *Hudibras*.

these many links *we could hardly ever expect to discover*, owing to the imperfection of the geological record" (p. 464). Besides this, his proofs are all capable of a different interpretation. "I am well aware that scarcely a single point is discussed in this volume on which facts cannot be adduced, often apparently leading to *conclusions directly opposite* to those at which I have arrived" (p. 2). And very many of them are only founded on our ignorance and inability to answer his questions,—"If we make due allowance for our ignorance of the effects of climate, ... if we remember how profoundly ignorant we are with respect to the means of transport, ... I think that the difficulties in believing that all the individuals of the same species, wherever located, have descended from the same parents, are not insuperable" (p. 406). Objections which, if admitted, are fatal to his theory he obviates by an arbitrary hypothesis. For instance, if his theory be true, the silurian strata cannot represent the dawn of life on the globe; yet Sir R. Murchison and his school declare they do, and ask how it is that, while they are so marvellously perfect, all the assumed lower fossiliferous strata have been destroyed. Mr. Darwin "can give no satisfactory answer" (p. 307). "The case at present must remain inexplicable; and may be truly urged as a valid argument against the views here entertained" (p. 308). Mr. Darwin, then, cannot prove that any one real species has ever had its origin from any other; much less can he prove that all genera and species together have descended from a single parent.

Mr. Darwin is perfectly conscious of many flaws in his argument. I will examine one fundamental fallacy of which he does not seem to be conscious. Any one can see that his hypothesis requires an *unlimited* power of progressive variation in the organism; that any law of "reversion," or the return of varieties to their former type, would cast the greatest suspicion on his whole view, by giving plausibility to an old definition of species which has been accepted in France.* Sundry facts, such as the unexpected reappearance of obliterated peculiarities in breeds of birds and beasts, and the alleged return of domesticated animals, when turned wild, to their original type, have hitherto led naturalists to suppose that species, whatever may be the test of their being so, have only the power of oscillating between two limits, and not of

* "A species is a being furnished with organs, separate or united, by which it can perpetuate itself in space and time, with its own properties and qualities more or less developed in a certain *laxum*, having its *maxima* and *minima* determined by circumstances, but impossible to be transgressed without destruction to the organism." The term *laxum*, or arc of vibration of a loosely suspended cord, strikes me as peculiarly happy.

developing in a line of endless divergence without return, and of losing for ever all their original properties and qualities. I cannot satisfy myself that Mr. Darwin has seen the weight of this objection. He fully recognises the tendency of varieties to revert to the original type of the species, especially when crossed. And he tries to prove that the horse, ass, zebra, quagga, and hemionus are all varieties descended from some single progenitor marked like a zebra (p. 167), by the fact of the hybrids of these animals so often having rudimentary marks of the kind. The law of variation, combined with the law of reversion, seems to point to the conclusion that variation is limited, and that whenever the limits are approached, the tendency is not to further variation, but to a return towards the original type; in other words, that variability is not indefinitely progressive, but oscillatory within definite limits. I should be diffident in advancing this objection against so accomplished a naturalist as Mr. Darwin, had I not observed in equally accomplished men the same tendency to rush to extreme conclusions in other branches of science. Astronomers supposed that the planetary orbits were ever accumulating their mutual disturbances, and diverging further and further from their original position, till they should reach a point where the balance would be upset, and a mighty catastrophe would naturally overwhelm the whole solar system. All this hypothesis was refuted by Lagrange, who demonstrated the stability of the orbital inclinations and eccentricities, and of the mean distances and periods of the planets; and thus proved that the movement is not one of perpetual divergence, but only an oscillation about a centre, and that the disturbances, when verging towards the threatened catastrophe, begin to reverse their action, and to restore the whole system to its original position, and thus guarantee its stability by an exquisitely contrived plan of compensation.* Some new Lagrange will one day refute Mr. Darwin, and deliver us from the mental catastrophe of being forced to believe ourselves to be only developed apes. Another analogous case may be found in chemistry. As Mr. Darwin believes that all organisms descend from one parent, so alchemists and chemists have believed that all elements are only various forms of one primordial matter. Sir Humphry Davy wrote in 1809, "Water is the basis of all the gases; and oxygen, hydrogen, nitrogen, ammonia, nitrous acid, &c., are merely electrical forms of water, which probably is the only matter without power, and capable, as it receives power or change in its electricity, of assuming the

* See Sir J. Herschell's *Popular Astronomy*, part ii. ch. xii. xiii.

various forms hitherto considered as elementary."* Liebig has painfully refuted a view lately popular, that certain elements, such as phosphorus, carbon, and lime, were secreted, as it were, and created by organic beings out of other elements. Mr. Darwin seems to incline to this view, when he adduces the nodules of phosphates and carbonates in strata below the silurian as evidence of the existence of organised life during their deposition. However consistent this opinion may be with his other theories, his faith in it is not calculated to give us any great confidence in the sobriety of his judgment.

It appears to me very remarkable that Mr. Darwin gives himself so little trouble to clear this difficulty. He contents himself with asserting, that "there would be great difficulty in proving" that domestic species, run wild, gradually, but certainly, revert to their aboriginal stocks. He holds it certain that, with care, we can preserve and improve our domestic breeds for an almost infinite number of generations; but adds, that "when under nature the conditions of life do change, variations and reversions of character probably do occur" (pp. 14, 15). In his discussion (p. 111) upon "divergence of character," he says nothing whatever as to the checks imposed by the counter law of reversion; and (p. 481) contents himself with summing up—"it cannot be proved that the amount of variation in the long course of ages is a limited quality." I must beg the attention of the reader to this logical figure. Horace tells us,

"Nil agit exemplum litem qui lite resolvit."†

He proves nothing who solves one difficulty by another. Mr. Darwin claims the utmost extent for his hypothesis, which he owns he cannot prove, of the infinite variability of the species, but refuses to admit that the law of reversion has one tittle more extent of application than it is already proved to possess; that is, he only makes out his case by enormous exaggeration of the principle which he selects for his patronage, and by denying to the compensating principle, whose existence and reality he admits, any thing more than bare facts demonstrate. He allows full play to his own imagination, while he requires his opponents to adhere strictly to proved facts.

But while I deny the truth of Mr. Darwin's hypothesis *in rerum natura*, I do not in the least disparage its utility in a scientific point of view. No "disciple of Bacon" would deny that a hypothesis may be useful without being true.

* Dr. Davy's *Life and Correspondence of Sir H. Davy*, p. 129. It is superfluous to say that this was not Sir Humphry's matured view.

† Serm. xi. iii. 103.

"Doctrina Democriti de atomis," says the father of modern science, "aut vera est, aut ad demonstrandum utiliter adhibetur" (Bacon, *Works*, vol. ix. p. 53, ed. 1826). The alchemists and Davy made their discoveries on the hypothesis of the unity of the matter that underlies all forms. Mr. Darwin's theory may lead to equally splendid results. It may be an excellent rule of classification; we may admit hypothetically that "the natural system is a genealogical arrangement, in which we have to discover the lines of natural descent by the most permanent characters, however slight their vital importance may be" (p. 479), for "we shall never probably disentangle the inextricable web of affinities between the members of any one class; but when we have a distinct object in view (to trace the descent), and do not look to some unknown plan of creation, we may hope to make sure but slow progress" (p. 434). It is precisely this *utility* for scientific purposes which is, in Mr. Darwin's view, the chief evidence of the *truth* of his theory, as appears by his summing up of the chapter on classification (xiii.): "These classes of facts (classification, morphology, embryology) seem to me to proclaim so plainly that the innumerable species, genera, and families of organic beings with which this world is peopled have all descended, each within its own class or group, from common parents, and have all been modified in the course of descent, that *I should without hesitation adopt this view, even if it were unsupported by other facts or arguments*" (p. 458). After this, I am not surprised to find him owning the *logical*, as opposed to the inductive, nature of his hypothesis,—"there is no logical impossibility in the acquirement of any conceivable degree of perfection through natural selection" (p. 204); or to see him appealing to scholastic testimony,—"on my theory of natural selection, we can clearly understand the full meaning of that old canon in natural history, *natura non facit saltum*" (p. 206, &c.). He clearly has yet to learn the scientific distinction between the *truth* and the *utility* of a hypothesis.

And if he exaggerates the value of his own theory, he depreciates with equal unfairness that of all others. Properly speaking, he recognises no theory but his own; he talks as if some extra-scientific, unknown, and arbitrary creationism was the only antagonist to his *natural selection*. He can only imagine "independent creation" as a series of arbitrary acts without order or plan. With Mr. Buckle, he seems to think that will is incompatible with law, order, or average; with Mr. Baden Powell, he supposes that because the "idea of creation is not from science,"* therefore it cannot be located in science,

* Third series of Essays, p. 250.

or assigned a place in the phenomena of which science takes account. This new order of metaphysicians refuse to allow that any thing which has physical consequences can be the result of a metaphysical or divine action; they cut the knot of the communion between spirit and matter by denying the existence, or at least the action, of spirit. If we concede this view, of course all evidence of plan in the succession of species is an argument against creation; with such an idea of creation, not only is the law of reversion, or the law of variability, inexplicable, but every other possible or impossible physical fact. A definition of creation is assumed which renders it impossible for the creationist to win; and then he is challenged to argue, and warned that he must argue solely on the data of physical science! Nothing exhibits the feebleness of Mr. Darwin's dialectical powers more vividly than his senseless challenges to those who hold the theory of creation to explain by it the various facts he adduces. When the fact is once admitted that a unity of plan runs through all creation, that all organised beings are formed on a scale graduated from a single type, and branching out into various developments, then I maintain that the appreciation of the fact is not in the least altered, whether we cut up the scale into various degrees, each occupied by a distinct kind of being, capable of genealogical variation within the limits of that degree (and perhaps a little beyond, so as to make provision for the interlacing of genera), or whether we give a unity to the genealogical tree, and actually deduce all beings from one common progenitor. Nor need the creationist be troubled with the facts of morphology, and the tendency of the family type to perpetuate itself even in organs that have become useless; this is only a proof that one plan runs through the scale. Morphological similarity need be no greater proof of identity of descent than morphological similarity of crystallisation in minerals need prove identity of their constituent elements. So with embryology. If the creation is built on a single type variously developed, if man is only the ultimate perfection of the animal kingdom, and if each creature is to be developed from the simplest germ to its highest perfection, it would be highly probable beforehand that the embryo of the most perfect organism must go through stages of similarity to the less perfect. If at one period of our existence we resemble worms, it is no reason that we were once worms; unless Mr. Darwin, after rejecting Christianity as mythological, will accept the revelation of the Samoan islanders, who will teach him how the goddess Tuli planted wild vines, and then pulled them up and threw them into heaps, where they corrupted, and

bred worms, into which Tuli sent spirits, and they became men and women.

I have said that Mr. Darwin's theory is to be divided into two parts, the mythological and the scientific. He seems to suppose that no one who does not hold his mythological hypothesis can admit his scientific facts, and the scientific laws which they imply. In the first place, then, the creationist theory does not necessitate the perpetual search after manifestations of miraculous power and perpetual "catastrophes." Creation is not a miraculous interference with the laws of nature, but the very institution of those laws. "In the institution of nature," says St. Augustine, "we do not look for miracles, but for the laws of nature."* Law and regularity, not arbitrary intervention, was the patristic ideal of creation. With this notion, they admitted without difficulty the most surprising origin of living creatures, provided it took place by *law*. They held that when God said, "let the waters produce," "let the earth produce," He conferred forces on the elements of earth and water which enabled them naturally to produce the various species of organic beings. This power, they thought, remains attached to the elements throughout all time. After the flood, says St. Augustine, it was not necessary that animals should be conveyed to the oceanic islands, as the earth still retained the power of producing them. This power was held to be manifested daily in the "equivocal generation" of frogs, mice, and insects out of the ground by the rays of the sun, moon, and stars. "The word of God," says St. Basil,† "runs through creation, and operates from the beginning to the end of things. Nature, set in motion by this one *fiat*, continues her unchanging work of generation and dissolution, preserving the original type in the succession of kinds unto the end, producing horses from horses, and lions from lions. No lapse of time destroys or obscures the animal type; nature is as fresh as on the morning of her creation. The *fiat*, 'let the earth produce the living soul,' cleaves to the ground, and the earth never tires of obedience. Some creatures receive their being from parents; others are still seen to spring from the earth, as locusts after rain, and numberless kinds of insects, as well as mice and frogs. After rain in hot weather, the country about Thebes in Egypt is immediately full of field-mice; eels too are produced from mud, and not from eggs or other mode of

* "In primâ institutione naturæ non quæritur miraculum, sed quid natura rerum habeat, ut Augustinus dicit, lib. ii. sup. Gen. ad lit. c. 1." St. Thos. Sum. 1, q. 67, art. 1 ad 3.

† Hexaem. Hom. ix. p. 81.

generation." The creationists could receive these or any other facts, or supposed facts, on what they considered good authority; they only demanded that these things should not be considered the results of chance, or the inherent powers of matter independent of God. St. Thomas blames Avicenna, not for considering these powers to be inherent in the elements, but to be inherent in them without reference to God's creation. "Avicenna held that all animals may be produced, without propagation, by a due mixture of the elements, even in the way of nature: but this cannot hold; *for nature is constant in her mode of operations*, and animals which spring from parents cannot naturally be produced in another way. The formative force resides either in the seed, when the beings are generated from seed, or in the celestial bodies, when the beings are generated from corruption. In either case, the material principle is either an element or something elemental; not that water or earth has in itself the power of producing all animals, as Avicenna held, but their capacity of being generated from elemental matter by virtue of seed or of the stars is derived from the powers originally conferred on the elements."* Roger Bacon asserts, on Avicenna's authority, a fact that would have been easily credited by Lamark,—"According to Avicenna, nature obeys the thoughts of the soul; this he proves by the example of the hen, that was so proud of her victory over a cock, that spurs grew on her heels."† Ecclesiastical writers quote Hippocrates, who asserts that certain Scythians had compressed their infants' heads till the conical form of skull had become hereditary. They also believe that monsters, more like beasts than human beings, may be born of women, and they assert the specific difference of these monsters from men by forbidding their baptism.‡ And they have no difficulty in recognising the various races of white and black men, of patriarchs who lived nearly a thousand years, and of giants like Og or Goliath, to be all descended from one Adam. Moreover they most fully recognised the truth that there are no leaps in nature; that the chain of life is connected by the most gradual differences. There is a remarkable passage, too long to quote, in the first chapter of Nemesius, Bishop of Emesa in the fourth century, *De Natura Hominis;* and Father Nieremberg, in the sixteenth century, writes of nature, "There is no gap, no interruption, no dispersion of forms; they are mutually connected, as link with link."§ It is clear, then, that the doctrine of creation

* Sum. 1, q. 69, art. 2.

† Opus tertium, p. 96.

‡ *E. g.* see Tournely *De Baptismo*, q. 3, art. 3, § utrum monstrosi baptizari debeant.

§ Historia Naturæ, lib. iii.

does not prevent us from recognising as truths, not only the universal reign of law, but also the most strange origin for different races. If the ancient saints did not adopt the conclusions of modern science, it is not because they would have condemned them, but because they knew nothing about them; as Roger Bacon says, "No wonder if the ancient saints did not approve these sciences, for they did not know of their possibility. It is one thing not to approve, another to condemn."* On one point they were agreed, and that is, that the law of creation is no exceptional rule that acts by fits and starts, by catastrophes and miraculous interpositions; but an equable ever-present force, embracing all nature as the ocean embraces the land, and active throughout the whole duration of the world.

These quotations show that the believers in creation have a considerable *laxum* for the oscillations of scientific thought; and that however they may dissent from the mythological part of Mr. Darwin's theory, they can investigate and appreciate his facts and his inductions with as much consistency and freedom as the infidel can. If we bear this in mind, we shall perhaps avoid the great fault which Mr. Darwin has fallen into. Simply because a hypothesis is convenient for his classifications, and affords a plausible solution of a number of facts, he adopts it not merely as useful, but as true; and this, though it is as detrimental to other branches of science as it is useful to his own. If it destroys theology, natural and revealed, psychology, and metaphysics, what cares he? They must be reconstructed on his new basis. I must own that men on the other side have acted in a similar way. Simply for the benefit of an unauthoritated interpretation of certain texts of Scripture, controversialists have exhibited a desire to silence and to crush whole branches of natural investigation. This they conceived was for the benefit of religion; and the "religious world" has been hitherto the chief offender in disregarding all other sciences for the imagined behoof of its own. Often enough it was merely a screen for the idleness, ignorance, and timidity, which sooner or later infect the adherents of established opinions, whether religious, political, and scientific, and drive them to discountenance and even to persecute any idea which seems to endanger their own, without any previous inquiry into its truth or its real bearing. Galileo is the tritest example of this tendency; a better one perhaps would be Kepler, who was at the same time persecuted for his astronomical opinions by the Lutheran pastors; for the Protestants of that day, being much more dry sticklers for

* Opus tertium, p. 26.

the letter of Scripture, were on that account much less indulgent to the free thought of science than the Catholics: but the truth is general for all subjects of thought. After any principle of natural science has found its way into popular opinion, and has become mixed up with belief, as soon as a naturalist controverts it, the first impulse of the public is to cry wolf, as if to protect the faith of the simple, but without pity or feeling for the difficulties and distresses of the learned. When geology first demonstrated that death had reigned in the animal kingdom for ages before Adam fell, popular religion was moved to its depths. Milton had declared that it was after the fall that "beasts with beasts 'gan war;"—to say that beast ate beast before Adam ate the apple was "flat burglary" in the judgment of many a well-meaning Dogberry of the religious world. Yet what had ever been the verdict of scientific theology? "To say," writes St. Thomas,* "that animals now fierce and carnivorous would have been gentle in that state (Paradise), is *altogether irrational—omnino irrationabile.*" Truly I may repeat the sentiment of another great man of the age of St. Thomas: "The saints never condemned many an opinion which the moderns think ought to be condemned;"† though, as he continues, "there never was a time when novelties were not spoken against, even by holy and good men, wise in all other matters, except in those which they foolishly condemned."‡ It is a general law that the present time always reflects upon society the average mediocrity of all mankind; every timid old woman, every ignorant peasant, every half-educated pretender, contributes a share towards the stock of prejudices and opinions which represents the living popular mind. But time lets the worthless wither, and charitably casts a veil over the errors of the wise: their foolishness is forgotten; their reason still lives. The controversial powers of Bellarmine are not now judged of by his adventures with Galileo, nor those of St. Boniface by his condemnation of Virgilius. The untenable condemnations pronounced by the ancients are no longer remembered; their decisions have been sifted, and the clarified result comes down to us as calm pure reason. But with the moderns the case is different; he that cries loudest makes most noise, and the clear note of wisdom, which is destined alone to vibrate on in time, is for the present smothered in the bustle and noise of the multitude. Hence, though, as Friar Bacon complains, even holy men have ever joined the mob in condemning novel truths, yet on a large scale,

* Sum. 1, q. 96, art. 1 ad 2.

† Roger Bacon, Opus tertium, c. ix. p. 27. ‡ Ib. p. 28.

and in review, intolerance belongs only to the moderns, to the multitude that surrounds us. This is an evil which seems to me quite irremediable, though it is productive of the worst results. In the time of Roger Bacon, science was still faithful to the Church; but he foresaw, and wrote to the Pope to warn him, that if it were treated as Churchmen were even then beginning to treat it, a schism must ensue. In three centuries that schism was completed; and Christian controversialists gave a practical exemplification of the proverb, "A man can make even his own dog bite him." It is possible to tease our best friend till he turns upon us and rends us. There is a tendency in all religious bodies towards intolerance in all matters of opinion, towards an unwillingness to allow the few to hold sentiments which differ from those of the many; there is a tendency to force all thought into the mould of the average mediocrity. There could be no surer way of offending men of original views, or of tempting them to degrade opinions that are at first only novel or paradoxical into real and conscious attacks upon religion.

R. S.

MILL ON LIBERTY.

Agreeably to the plan proposed in page 75 of this volume, certain particular propositions contained in Mr. Mill's Essay have now to be examined.

The line of argument followed in the first part of this article tends, though by a different road, to the same general conclusion with that of the Essay, namely, that the *liberty* of thought and discussion should be entire. For it need hardly be said that if the lawfulness, at the present day, of coercion *to* the true faith be denied, the lawfulness of any coercion from it is denied *à fortiori*. That, indeed, could not at any time have been legitimate, according to the premises laid down, since the third condition of success could by no possibility be fulfilled in the case of the coercion of Catholics by Protestants. No Lutheran or Anglican, however convinced he might be of the truth of his own opinions, could deny the existence of a large external body, ready to extend its sympathy to any Catholics whom he might attempt to coerce, and to encourage them in at least moral resistance. Protestant coercion cannot, therefore, by the nature of things, attain to more than *political* success. But to maintain that discussion ought to be perfectly *free*, is quite a different proposition from main-