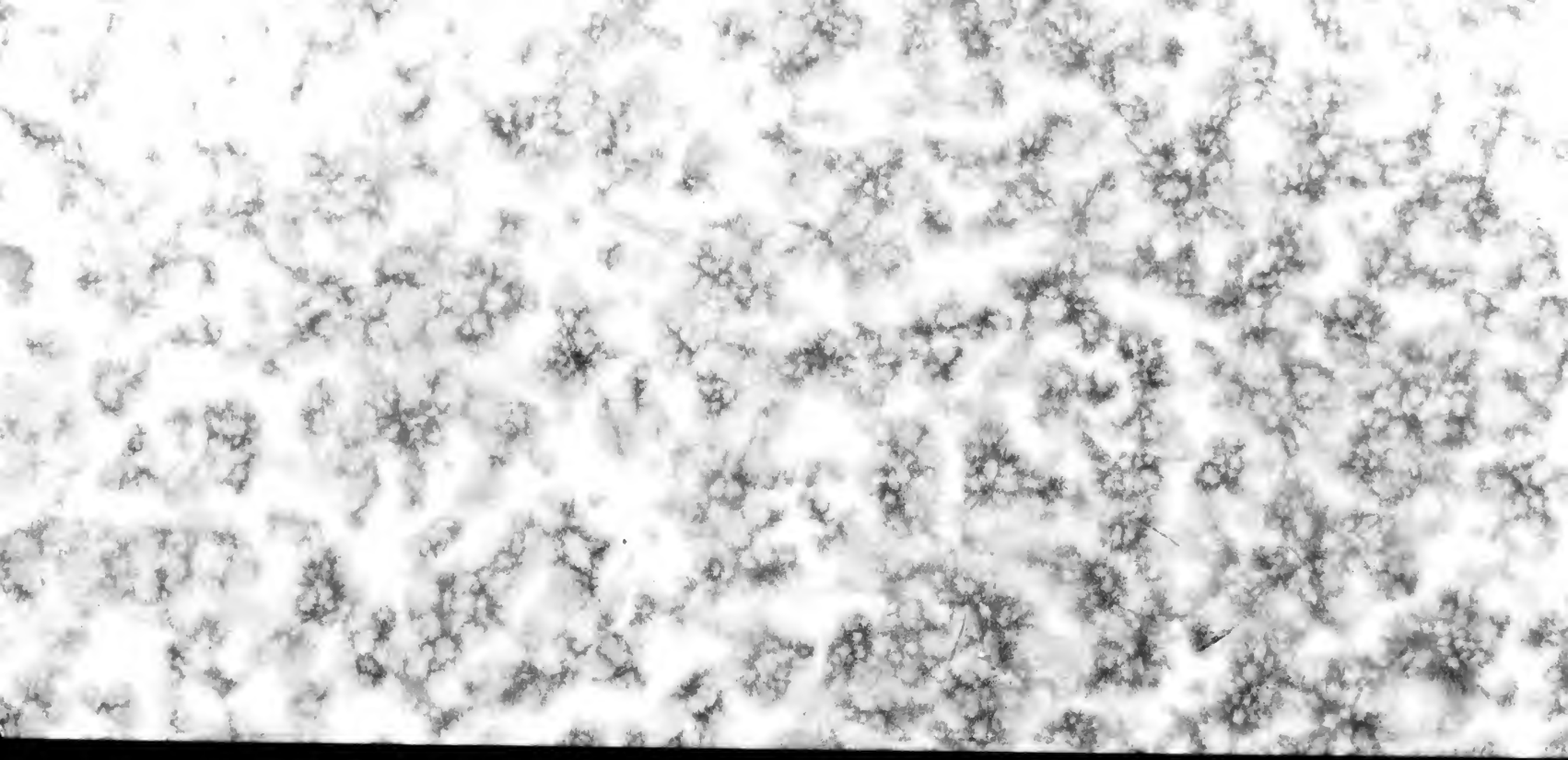

EVOLUTION AND ITS CONSEQUENCES.

A REPLY TO PROFESSOR HUXLEY.

ON reading the criticism which Professor Huxley has done me the honour to make upon a little book (the "Genesis of Species") which I ventured to publish in the early part of this year, I felt that, as a subaltern in science, I was being severely reprimanded by my superior officer; that I might apprehend a sentence of degradation to the ranks, if not actual expulsion from the service. I found myself taxed, if not with positive desertion to an enemy with whom no truce is to be allowed, yet, at least, suspected of treasonable communication with a hostile army, and treacherous dalliance with ministers of Baal.

Now, recognising as I do that, in physical science, Professor Huxley is *indeed* my superior officer, having his just claims to respect and deference on the part of all men of science, I also feel that I am under special obligations to him, both many and deep, for knowledge imparted and for ready assistance kindly rendered. No wonder then that the expression of his vehement disapproval is painful to me.

It was not however without surprise that I learned that my one unpardonable sin—the one great offence disqualifying me for being "a loyal soldier of science"—was my attempt to show that there is no real antagonism between the Christian revelation and evolution!

My "Genesis of Species" was written with two main objects:—

My first object was to show that the Darwinian theory is un-

tenable, and that natural selection is not *the* origin of species. This was and is my conviction purely as a man of science, and I maintain it upon scientific grounds only.

My second object was to demonstrate that nothing even in Mr. Darwin's theory, as then put forth, and *à fortiori* in evolution generally, was necessarily antagonistic to Christianity.

Professor Huxley ignoring the arguments by which I supported my first point, fastens upon my second; and the gist of his criticism is an endeavour to show that Christianity and science are necessarily and irreconcilably divorced, and that the arguments I have advanced to the contrary are false and misleading.

Before replying to Professor Huxley's observations and misconceptions on this head, I may be excused for saying a few words as to my first point, namely, the scientific reasons which seem to oppose themselves to the reception of the Darwinian theory as originally propounded by its author; and here I claim to be acting, and to have acted, as "a loyal soldier of science" in stating the scientific facts which have impressed me with certain scientific convictions (on purely scientific grounds), in opposition to Mr. Darwin's views.

Professor Huxley does not so much dispute the truth of my conclusions as deny their distinctness from those at which Mr. Darwin himself has arrived, or indeed originally put forth, asserting that my book is but "an iteration of the fundamental principle of Darwinism."

I shall then shortly endeavour to show more distinctly wherein my view radically differs from that first propounded by Mr. Darwin, and still maintained, or at least not distinctly repudiated by him; though I believe that the admissions he has of late made amount to a virtual, but certainly not to an explicit, abandonment of his theory.

The Professor expresses his doubt as to the existence of an "absolute and pure Darwinian,"—a doubt which is certainly a surprise to me, as I had always understood him as guarding himself carefully against the identification of his own views with those of Mr. Darwin, and as allowing that it was one thing to hold the doctrine of evolution and another to accept the Darwinian hypothesis. In a lecture* delivered in 1868 at the Royal Institution, he observed, "I can testify, from personal experience, it is possible to have a complete faith in the general doctrine of evolution, and yet to hesitate in accepting the Nebular, or the Uniformitarian, or the Darwinian hypotheses in all their integrity and fulness."

It is plain then that at a recent period, Professor Huxley distinguished himself from thorough-going disciples of Mr. Darwin; implying by this distinction a recognition of the existence of such

* See "Proceedings of the Royal Institution," vol. v. p. 279.

disciples, pure Darwinians, like those of whom he now ignores the existence.

The very essence of Mr. Darwin's theory as to the "origin of species" was, the paramount action of the destructive powers of nature over any *direct* tendency to vary in any certain and definite line, whether such direct tendency resulted mainly from internal predisposing or external exciting causes.

The benefit of the individual in the struggle for life was announced as the one determining agent, fixing slight beneficial variations into enduring characters, and the evolution of species by such agency is justly and properly to be termed formation by "natural selection."

That in this I do not misrepresent Mr. Darwin is evident from his own words. He says:—

"If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down." * Also: "Every detail of structure in every living creature (making some little allowance for the direct action of physical conditions) may be viewed, either as having been of special use to some ancestral form, or as being now of special use to the descendants of this form—either directly, or indirectly, through the complex laws of growth;" and "if it could be proved that any part of the structure of any one species had been formed for the exclusive good of another species, it would annihilate my theory, for such could not have been produced by natural selection." †

Mr. Darwin could hardly have employed words by which more thoroughly to stake the whole of his theory on the non-existence or non-action of causes of any moment other than natural selection. For why should such a phenomenon "annihilate his theory?" Because the very essence of his theory, as originally put forth, is to recognise only the conservation of slight variations directly beneficial to the creature presenting them, by enabling it to obtain food, escape enemies, and propagate its kind.

Such being the case, my first object, as I have before said, was to show not only that "natural selection" is inadequate to the task assigned it, but that there is much *positive* evidence of the direct action both of external influences sufficient to dominate and overpower in certain instances the ordinary processes of "natural selection," and also of still more influential internal powers; moreover, that these latter powers are so efficient as to present themselves as probably the main determining agent in specific evolution, although I admitted that a certain subordinate action of natural selection plainly obtained.

The various arguments I advanced space does not allow me here to reproduce, but referring to my book, I may point out that therein I endeavoured to show:—

* "Origin of Species," p. 208. † *Op. cit.* p. 220.

1. That no mere survival of the fittest accidental variations can account for the incipient stages of structures useful enough when once developed. Such, *e.g.*, as the whalebone of the whale's mouth, the larynx of the kangaroo, pedicellariæ and bird's head processes, and many other structures.

2. That the sexual colours of apes, the beauty of shell-fish, and the complex mechanisms by which fertilisation is effected in many orchids, are quite beyond the power of natural selection to develop.

3. That modes of formation, such as in the human eye and ear, in that they spring from simultaneous and concurrent modifications of distinct parts, have a remarkable significance.

4. That the independent origin of similar structures in very different animal forms should be noted,* and I adduced evidence to show that similar modifications are sometimes directly induced by obscure external conditions, as in the sudden acclimatization of English greyhounds in Mexico, and in the loss of the tail in certain butterflies of certain regions, and in the direct modification of young English oysters when transported to the shore of the Mediterranean. Moreover, it was shown that certain groups of organic forms exhibit a common tendency to remarkable developments of particular kinds, as is the case with birds of paradise.

5. That facts may be cited to support the theory of specific stability (different in degree in different species), and to demonstrate that reversion may take place *in spite of the most careful selection in breeding.* The value of the facts of sterility in hybrids was also considered.

6. That data bearing on the relation of species to time may be brought forward, apparently fatal to their origin by the action of natural selection.

7. That the significant and important facts of the deep-seated resemblances existing not only between different individual animals, but between different parts of one and the same individual, should be pondered over; these points being, as was shown, capable of reinforcement by others drawn from the abnormalities of monstrous births, and the symmetrical character of certain diseases.

From all these considerations, a cumulative argument seemed to me to arise conclusive against the theory that species have had their specific characters fixed solely by the action of "natural selection."

The hypothesis which I ventured to offer as my view of the evolu-

* Professor Huxley corrects me as to "a slip" I have made in laying too much stress on the amount of similarity existing between the eyes of vertebrates and cephalopods. After all, however, the resemblance is very great and striking. It is gratifying to me to find no more important error noted, even by such a master of the subject as Professor Huxley.

tionary process was and is, that just as all admit the universe to have been so ordered—or to so exist—that on the mixing of chemical substances under certain conditions new and perfectly definite species of minerals are suddenly evolved from potentiality to existence, and as by the juxtaposition of inorganic matters under certain influences* a new form of force—"vitality"—appears upon the scene—so also in animals, the concurrence of certain external exciting causes acts in such a manner on internal predisposing tendencies as to determine by a direct seminal modification the evolution of a new specific form. The action of "natural selection," I admitted, and admit, to be real and necessary, but I ascribe to it an altogether subordinate *rôle.*

This view may be true or false, but it is a very different one from that advocated by the author of the "Origin of Species," and I am at a loss to understand how Professor Huxley can consider it identical with Mr. Darwin's, more especially as (at p. 237) I have enumerated the points in which my theory coincides with Professor Owen's "Derivation," and differs from that of the author of the "Origin of Species." It seems to me strange that Professor Huxley should now assert the "very pith and marrow" of Darwinism to have been the affirmation that "species have been evolved by variation, aided by *the subordinate action* of natural selection,"—when he himself, in his "Lay Sermons" (p. 321), has enunciated simply that Mr. Darwin's hypothesis is the origin of species "by the process of natural selection," without one word of qualification; and five pages further on, has considered the possibility of the refutation of Mr. Darwin's view by the discovery of residual phenomena† not explicable by "natural selection"—just such phenomena as I have endeavoured to call attention to in my book.

I question whether Mr. Darwin even now *does* admit that "natural selection" has only a *subordinate* action. I do not recollect to have met with such a declaration, although I think that it should logically follow from the various admissions he has latterly made. If he does admit it, then a cause which is subordinate cannot be *the* determining agent. If he does not admit it, then there is a radical difference between my hypothesis and Mr. Darwin's.

Professor Huxley blames the Quarterly Reviewer's treatment of Mr. Darwin as "unjust and unbecoming," because he endeavours to show how Mr. Darwin has changed his ground without (in spite of

* Though Professor Huxley is disinclined as yet to admit that such evolution of living things takes place now, he none the less admits the principle, though he relegates such evolution to a remote epoch of the world's history. See "Address to the British Association, Liverpool, 1870," p. 17.

† His words are—"What if species should offer residual phenomena, here and there, not explicable by natural selection?"—*Lay Sermons*, p. 326.

his generally scrupulous candour) disavowing "natural selection" as *the* origin of species.

I confess that it seems to me that the reviewer was fully justified in so doing; for Mr. Darwin's reputation as a man of science stands so high, that it was plainly the reviewer's duty to endeavour to prevent the public attaching, in mere deference to Mr. Darwin's authority, a greater weight to his assertions than the evidence adduced warranted. The reviewer sought to do this by showing, by Mr. Darwin's own words, he had been compelled to admit that "abrupt strongly marked changes" may occur "neither beneficial nor injurious" to the creatures possessing them, produced "by unknown agencies" lying deep in "the *nature* of the organism." In other words, that Mr. Darwin has in fact,* though not in express words, abandoned his original theory of the "origin of species."

I am grateful, however, to Professor Huxley for having spoken of "injustice" in connection with Mr. Darwin. I am so because it affords me an opportunity for declaring myself more fully with respect to the distinction between Darwinism and Mr. Darwin.

In common, I am sure, with all those who have been privileged to know not only Mr. Darwin's works, but Mr. Darwin himself, I have ever entertained, and shall continue to entertain for that amiable gentleman and most accomplished naturalist the warmest sentiments of esteem and regard. Convinced as I am that he is actuated by a pure love of truth, admiring, nay, venerating him for his acute, his unwearied and widely-extended researches, it has been to me a most painful task to stand forth as his avowed and public opponent.

The struggle between my inclination to praise and to acquiesce, and my sense of duty which impelled me to dissent, led me to express myself very imperfectly, and I thank Professor Huxley for thus giving me occasion to acknowledge my regret that these sentiments should have led me to give such very inadequate expression to my dissent from, and reprobation of, Mr. Darwin's views, especially as manifested in their later developments.

As to the principles embodied in Mr. Darwin's "Origin of Species," the further study of them more and more brings home to me their unsatisfactoriness, as pointed out by me in my "Genesis of Species."

* Professor Huxley now tells us that Mr. Darwin is inclined to admit that varieties can "be perpetuated, or even intensified, when selective conditions are indifferent, or perhaps unfavourable" to their "existence." Surely, if species may be evolved in the teeth of all the opposition "natural selection" can offer, it is, to say the least, somewhat paradoxical to affirm that nevertheless natural selection is *their cause*. For all this Mr. Darwin has not, I believe, expressly said that the action of "natural selection" is only *subordinate*, though he implies that it is but co-ordinate. So that though he has virtually given up his original theory, his view does not yet coincide with mine, as far as I can gather from his words.

Indeed, "natural selection," as *the* agent for the determination of specific animal forms, is, I am convinced, utterly insufficient to the task assigned it; while the reasoning employed in the "Descent of Man" to support the hypothesis of our ape origin* seems to me, to say the least, unworthy of Mr. Darwin's earlier productions.

Professor Huxley attributes to the Quarterly Reviewer "peculiar notions of probability," because he affirms that if all animals below man *have* been evolved one from the other, then a close resemblance in man's body to any particular animal's does not increase that *à priori* probability as to his bodily evolution, which springs from the fact of his being "an animal at all." But surely if it was of the essence of an animal to be "evolved," so that to be an animal implied being a creature formed by evolution, then the fact of man being an animal would necessarily have a similar implication, and I fail to see what additional force that probability would obtain through any particular resemblance. On the other hand, if there is authority for believing that man's body was miraculously created, such particular resemblance would not render such a miracle one bit less credible; for there is no necessity, on the hypothesis of such miraculous creation, for more than even a specific difference between his body and that of some other animal.

Professor Huxley also speaks of the Quarterly Reviewer's making the admission as to the similarity of man's body to that of brutes "*grudgingly*." With regard to myself, no one is better aware than Professor Huxley how I have worked at the demonstration of the close resemblance between the bodily structures of men and apes.

Another objection is brought both against me and the Quarterly Reviewer by Professor Huxley. We are declared to make a "conspicuous exhibition" of the "absence of a sound philosophical basis," in that we agree in asserting that man differs more from an ape than does an ape from inorganic matter.

But surely this is the position every one must assume who believes that man is immortal, and has a moral responsibility to God. For it is manifest that such distinctions (*e.g.* growth, nutrition, locomotion, &c.) as exist between apes and minerals are as nothing compared with the transcendent distinction above referred to. If, then, in saying this we are in "philosophical error," we share that error with all those who assert the immortality of the soul, and a moral responsibility of each man to God such as no brute possesses. We can also claim as more or less on our side even one of the originators of the theory of "natural selection" itself, and his followers. For Mr.

* The much-ridiculed Lord Monboddo has been successfully redeemed from very unjust depreciation in an interesting article which has lately appeared. See the *Month* for November, 1871.

Wallace, if I understand him rightly, teaches us that for the evolution of man's body special spiritual agencies were required, which were not needed for the rest of the organic world. So that, according to this view, man is marked off from all the rest of nature by a very special distinction.

I will turn now to the main point of Professor Huxley's paper—namely, that in which he applies himself to controverting the second object aimed at in my "Genesis of Species." As I have before said, my second object was to demonstrate that there is no necessary antagonism between the Christian revelation and evolution.

In meeting me on this ground (to discuss what seems to have interested the Professor more than anything else in my book), he endeavours to create a prejudice against my arguments, and to narrow my base, by representing me as a mere advocate for specially Catholic doctrine.*

I altogether decline to allow the issue to be thus limited. I decline it because neither did I intend such limitation, nor do any words of mine justify such a construction of my purpose. I took up, and I take up, only the ground common to me and to all who hold the Christian religion as expressed in the Apostles' Creed, or who maintain the inspiration of Scripture. The better to make sure of my position I made use of an extreme case, knowing that if I could maintain *even that*, then all within that extreme term could not certainly be questioned. Purposely then I set out to show, and I did show, that even the strictest Ultramontane Catholics are perfectly free to hold the doctrine of evolution, thereby making evident that with regard to Christians in general there could not be a doubt as to *their* freedom in the matter. For this end I expressly selected just such persons as would commonly be supposed not to be those from whom (in Professor Huxley's words) "modern science was likely to receive a warm welcome," and amongst others the Spanish Jesuit, Father Suarez, precisely because, as Professor Huxley says, "the popular repute of that learned theologian and subtle casuist was not such as to make his works a likely place of refuge for liberality of thought."

My critic shows how he misapprehends my aim and intention when he speaks of "Mr. Mivart citing Father Suarez as his chief witness in favour of the scientific freedom enjoyed by Catholics." Had he been such a witness I should not for one moment have thought of citing him; it was precisely as one of the most rigid

* At p. 454, Professor Huxley gives the words "Catholic theology" with marks of quotation as if mine, though in fact they were not so. This typographical error does not misrepresent my substantial meaning, but it none the less tends to create a prejudice against my statements in the mind of the public.

theologians, and of "unspotted orthodoxy" (as Professor Huxley justly remarks), that I called him into court where he testifies so completely to my satisfaction.

The success of my mode of procedure is, I confess, gratifying to me. Not only was my argument "most interesting" to Professor Huxley, but he tells us his "astonishment reached its climax," and that he shall "look anxiously" for additional references "in the third edition of the 'Genesis of Species.'" Fortunately I have no need to keep the Professor waiting, but shall shortly proceed to give him these additional references at once.

Let it be borne in mind that in view of the popular conceptions current in England on the subject, my argument was that if even those who receive the teaching of St. Thomas Aquinas and the Jesuits, and who look to Rome for doctrinal decisions—if *even those* are free to accept evolution, then, *à fortiori*, other Christians, supposed to be comparatively untrammelled, need not hesitate as to the harmony and compatibility of Christianity and evolution.

Of all I said in my book on the subject I have nothing to retract; but I repeat yet more confidently than before that "evolution is without doubt consistent with the strictest Christian theology;" that "it is notorious that many distinguished Christian thinkers have accepted, and do accept, both ideas;" that "Christian thinkers are perfectly free to accept the general evolution theory;" and, finally, that "it is evident that ancient and most venerable theological authorities distinctly assert *derivative* creation, and thus their teachings harmonize with all that modern science can possibly require."

The point I had to prove was that the assertion of the evolution of new species (whether by Mr. Darwin's "natural selection" or according to my hypothesis) was in no opposition to the Christian faith as to the creation of the organic world.

In order to prove this I had to consider the meaning of the word "creation," and I found that it might be taken in three senses, with only two of which, however, we had to do.

The first of these was direct creation out of nothing, of both matter and form conjoined—absolute creation such as must have taken place when the earliest definite kind of matter appeared.

The second was derivative or potential creation: the creation by God of forms not *as existing*, but *in potentia*, to be subsequently evolved into actual existence by the due concurrence and agency of the various powers of nature.

Searching for information on the subject, I found to my surprise that the regular teaching of theology adopted this view, which was maintained by a complete consensus of authorities. Of these I purposely chose but a few telling ones as types; and, amongst the

rest, Suarez, who without any doubt, and as I shall proceed to demonstrate more at length, is a thorough-going supporter of it.

Professor Huxley has quite misapprehended * my meaning, hence the disappointment he speaks of. What he did not find, I never said was to be found. What he actually did find is what everybody knew before, but is a matter totally different from and utterly irrelevant to the point I maintained.

My critic fails to distinguish between the question as to the *nature* of creation as an act, and that concerning the *fact* of creation.

Now, what my intention was is plainly shown by the words I used. I said: "Considering how extremely recent are these biological speculations, it might hardly be expected *à priori* that writers of earlier ages should have given expression to doctrines *harmonising in any degree* with such very modern views; nevertheless, this is certainly the case." And so it is.

Of Suarez I said, he opposes those who maintain the absolute creation of substantial forms, and he distinctly asserts derivative (potential) creation. And this is true.

Although Professor Huxley has conveyed the impression that I adduced Suarez as a witness to evolution, I cannot think he intended so to do. He surely could not have imagined me so absurd as to maintain that ancient writers held that modern view; to attribute to them the holding of such a conception would be to represent them as nothing less than inspired. For certainly no notion of the kind could have been present, even in a dream, to the minds of such thinkers. In their eyes (as in the eyes of most till within the last century) scientific facts must have seemed to tell in the opposite direction.

All I maintained, and all that I thought any one could have supposed me to maintain, was that these writers asserted abstract *principles* such as can perfectly *harmonise* with the requirements of modern science, and have, as it were, provided for the reception of its most advanced speculations.

My words were: "The possibility of such phenomena, though *by no means actually foreseen*, has yet been *fully provided for* in the old philosophy centuries before Darwin." And that this is the case can be proved to demonstration. The *really* important matter, how-

* Not only this, but he has even misrepresented my words. He says (p. 445): "According to Mr. Mivart, the greatest and most orthodox authorities upon matters of Catholic doctrine agree in distinctly asserting 'derivative creation' or 'evolution'"—as if "derivative creation" and "evolution" were *the same thing*. Having thus made me enunciate what I never thought of, consequences are deduced which, of course, are not of my deducing. Derivative or potential creation such authorities do assert: evolution of species, however, was no more thought of in their days than the electri telegraph.

ever, is not what were my expressions, but *what is the fact* as to the compatibility of evolution with the strictest orthodoxy? We shall see how, by Professor Huxley's very fortunate misapprehension of my meaning, this truth will be brought out yet more clearly than before.

Far from maintaining that Suarez was a teacher of development or evolution, what I quoted him for was this:—

I. As an opponent of the theory of a perpetual, direct creation of organisms (which many held, and still hold).

II. To show that the principles of scholastic theology are such as *not to exclude* the theory of development, but, on the contrary, to favour it, even before it was known or broached.

What Professor Huxley quotes in his article amply *confirms my position*. For if there are innumerable substantial forms in the potentia of matter, which are evolved according to the proximate capacity of matter to receive such forms, it is evident that if the organisation of matter, through chemical or other causes, progresses by the ever-increasingly complex reactions between bodies and their environment, then it necessarily follows that new and higher substantial forms may be evolved, and consequently new and higher forms of life.

Such a principle, firmly established against opponents, becomes applicable to the evolution of new species, as soon as ever physical science shows good reason to regard the origin of species not as simultaneous but successive.

It may be objected that Suarez, in the passage referred to, only adverts to new individuals of known kinds in the ordinary course of nature. Professor Huxley says: "How the substantial forms of animals and plants primarily originated, is a question to which, so far as I am able to discover, he does not so much as allude in his 'Metaphysical Disputations.'" Most certainly, in his day, no one entertained the modern notion as to origin of species; and it was hardly to be expected that Suarez should say anything directly in point. That he should establish the needful principle was all we could reasonably demand or expect.

Nevertheless, in a remarkable manner, even Father Suarez does refer to the origination of certain kinds of animals, and admits their actual evolution by natural causes. These are partly exceptional forms such as hybrids, and partly such as were believed to originate by cosmical influences direct from the inorganic world, or through the agency of putrefaction.

In lib. ii., de Opere Sex Dierum, c. x., n. 12, speaking of such animals as the mule, leopard, lynx, &c., after stating the opinion that individuals of their kinds must have been created from the beginning, he says, "nihilominus contrarium censeo esse probabilius;" and he gives his

reason, "quia hujusmodi species animalium sufficienter continebantur potentialiter in illis individuis diversarum specierum ex quorum conmixtione generantur; et ideo non fuit necessarium aliqua eorum individua ab auctore naturæ immediate produci." This in principle is absolutely all that can be required, for it reduces the matter simply to a question *of fact*. He asserts *the principle* that those kinds of animals which are potentially contained in nature need not be supposed to be directly and immediately created. In determining what kinds were or were not so contained, he followed the scientific notions of his time as he understood them. He would have written according to the exigences of science now.

But this matter is really unmistakable. For, so far was Suarez from teaching that all life requires direct creative action, that he speaks of certain creatures, "quæ per influentiam cœlorum ex putrida materia terræ aut aqua generari solent." (Ibid., n. 10.)

It is also interesting to see that (in n. 11) he positively asserts the improbability and incredibility that certain kinds of animals now living were actually created at first at all: "Alias dicendum esset in omnibus speciebus quantumvis imperfectis aliqua individua in principio fuisse facta quia non est major ratio de quibusdam quam de aliis. *Consequens est incredibile.*" He then instances certain insects, but as far as the *principle* of evolution in itself is concerned he might as well have selected crocodiles.

Moreover, with respect to certain vegetable productions, he says (ib. c. vi. n. 1), "an vero hujusmodi herbæ sint factæ hoc die *tantum in potentia* vel etiam in actu magis dubitari potest." Finally, even with regard to the production of animals altogether, he tells us that it was not a *real creation* (c. x. n. 3), "sed ex præjacente materia modo tamen proprio auctoris naturæ." It is strange that Professor Huxley should have overlooked these passages which so directly contradict his assertions.

Nevertheless these passages are not, let it be recollected, adduced to show that Suarez held the doctrine of evolution, or that he maintained as a fact that species were evolved, except in peculiar cases, or that he took St. Augustin's view as to the fact of creation; but to demonstrate that he distinctly admits *principles compatible* with evolution, and that even where he asserts direct and immediate divine action, yet that even there the exceptions he admits bring out still more clearly how completely I was justified in adducing him as a witness to the compatibility of evolution with the principles of the scholastic philosophy.

So much then for the teaching of Suarez as to the nature of the creative act and the admission of the evolution of even certain new organic forms by natural causes.

Let us turn now to a much more important subject.

Besides and in addition to this view it is a most remarkable circumstance that ideas should have been expressed of a distinctly evolutionary character by the highest theological authority, even as regards the *very fact of creation*, as an historical event.

Few things seem to me more striking than that such an anticipation, as it were, should have been enunciated by one of the greatest teachers the Church has ever known, a doctor, the authority of whose writings is not surpassed by that of any of the Fathers—I mean St. Augustin. As I said in my book, "it must be borne in mind that no one had disputed the generally received belief as to the small age of the world, or of the kinds of animals and plants inhabiting it." Nevertheless, as I have shown, the teaching of St. Augustin was distinct with respect to the potential creation of animals and plants. That great source of western theology held that the whole creation spoken of in Genesis took place in one instant; that all created things were created at once, "*potentialiter atque causaliter*," so that it accords with his teaching if we believe in the gradual development of species, the slow evolution, "per temporum moras," into actual existence of what God created potentially in the beginning.

Now the greatest representatives of Catholic theology are unquestionably St. Augustin and St. Thomas Aquinas, and this being, as almost every one knows, the case, it is inconceivable how a teacher like Professor Huxley could write as he has done regarding the consequences of a divergence of Suarez from their expressed opinions.

If, as Suarez suggests, St. Thomas followed St. Augustin rather through deference than from identity of opinion, it would only bring out more strongly the paramount authority of the latter. But in fact Suarez was here mistaken, for we have St. Thomas's own words as to the matter, where speaking of St. Augustin's view, he tells us, "et hæc opinio *plus mihi placet*" (2 Sent. dis. 12, quaest. 1, a. 2).

Here it may be well to explain (as Professor Huxley seems quite to have misapprehended me), that when I spoke of the "wide reception" of Suarez and of his being "widely venerated" and of "unquestioned orthodoxy" I never thought of placing him on a level with St. Thomas and St. Augustin. Moreover, "wide veneration" and "orthodoxy," by no means imply authority in the sense of binding consciences. Many Catholic teachers altogether reject the teaching of Suarez on certain points, though they none the less consider him an authority to be respectfully consulted, indeed, but by no means to be necessarily followed.

Multitudes of teachers, all agreeing in matters of faith, yet belong

to very different theological schools, and the idea that any one of them can bind the others is simply laughable to those who know anything of the matter.

Professor Huxley seems to imagine in showing that Suarez (like most teachers of his day, Catholic or not, *e.g.* Tycho Brahe) adopts an extreme literalism of scripture interpretation, he has made a notable discovery. But (as before remarked) I referred to Suarez for principles of interpretation with regard to derivative creation, and his views as to the historical facts of Genesis are quite beside the question. St. Thomas explains the diversity of opinion among theologians in a way which exactly meets my purpose: "Quoad mundi principium, aliquid est quod ad substantiam fidei pertinet scilicet mundum incepisse creatum et hoc omnes sancti concorditer dicunt. Quo autem modo et ordine factus sit non pertinet ad fidem nisi per accidens, in quantum in Scriptura traditur, cujus veritatem diversa expositione sancti salvantes diversa tradiderunt (2 Sent., dist. 12, q. 1., a. 2).

My critic also appears to think that because one side of a question is perfectly orthodox, that its contradictory cannot also be so. If he knew the A B C of Catholic doctrine, he would know that in *open questions* it is perfectly allowable to maintain either side.

Professor Huxley says, that Suarez in this question (as in other matters) is in opposition to St. Augustin. He is so; but other theologians of equal weight severely took him to task for his expressions on this subject, as I shall proceed to show, and there is not the slightest difficulty in bringing forward many theological authorities, both before and since the time of Suarez, who approve or positively affirm the position which St. Augustin took. Therefore, even if I had made the mistake which Professor Huxley supposes I had, it would not be of the slightest moment, and my thesis could repose as securely on the support of other theologians.

Thus I may mention St. Thomas, St. Bonaventure, Albertus Magnus, Denis the Carthusian (1470), Cardinal Cajetan (1530), Melchior Canus (1560), Bannes (1580), Vincentius Contenson (1670), Macedo and Cardinal Noris (1673), Tonti (1714), Serry (1720), Berti (1740), and others down to the present day.

St. Bonaventure calls St. Augustin's exposition, "Multum rationabilis et valde subtilis," and speaks of his method as a "via philosophica;" nay, he calls the contrary opinion "Minus rationabilis quam alia" (Librum secund. Sent. Dist. xii. Quæst. ii. art. 1 conclusio).

St. Thomas, as I have shown, supports and approves St. Augustin, but he even admits ("Summ," par. i. quæs. lxxiii. art. 1 ad. 3) the possibility of new species himself. He says:—"Species etiam novæ

si quæ apparent, præextiterunt in quibusdam activis virtutibus sicut et animalia ex putrefactione generata producuntur ex virtutibus stellarum et elementorum quas a principio acceperunt, etiam si novæ species talium animalium producuntur."

Professor Huxley will hardly dispute the weight and significance, in this controversy, of the distinct adoption of St. Augustin's view by an eminent Roman Cardinal of the latter part of the seventeenth century.

Yet Cardinal Noris ("Vindiciæ Augus.," c. iv. § ix.; see Migne's "Patrologia Cursus Completus," tom. xlvii. p. 719) speaks in the following uncompromising words:—

"Hic etiam recentiorum querelæ, imo censuræ, quibus insignem Sancti Doctoris interpretationem in cap. i. Geneseos excipiunt, refellendæ sunt. . . Augustinus, quod videbat sex priores dies queis Moyses mundum a Deo creatum scribit, si litteraliter accipiantur, gravissimis difficultatibus subjici, quas ipsemet in libris de Genesi ad litteram proponit, subtilem prorsus ac *se dignam* sententiam excogitavit, nempe dies illos intelligendos esse mystice, juxta cognitionem angelicam de rebus in Deo, et in proprio genere, et juxta ordinem rerum simul a Deo creatarum, dierum etiam ordinem in angelorum mente designavit. . . . . Ex nostris scriptoribus Magister Emmanuel Cerda Lusitanus, publicus in Academia Conimbricensi theologiæ professor, in suis Quodlibetis theologicis, acerrime contra recentiorum impetum Magni Parentis sententiam propugnat, eorumque et in censurando audaciam, et in impugnando debilitatem ostendit; idem quoque præstitit Carolus Moreau, noster Bituricencis in vindiciis pacificis."

Speaking of Cornelius à Lapide, he adds:—

"Verum Augustino consentit Albertus, qui ob multiplicem ac mirabilem litterarturam Magni cognomento insignitus fuit, his plane verbis; sine præjudicio sententiæ melioris videtur Augustino consentiendum. Part I. Summæ q. 12, de quatuor coævis. Addit Sanctus Thomas proxime laudatus: Hæc opinio (Augustini) PLUS MIHI PLACET. Itane Corneli sententia illa, quam Albertus Magnus ac Sanctus Thomas, Scholasticorum lumina ac columnæ, probant et sequuntur, hac ætate erronea evasit? Quænam illam Synodi, qui Romani præsules, quæ doctorum academiæ proscripsere? An quia tibi tuisque displicet erronea censenda est? . . . . . Næ Sanctus Thomas, Albertus Magnus, Sanctus Bonaventura, et Ægidius Romanus inter accuratiores theologos minime recensendi sunt? Erunt ne illi de ultima theologorum plebe, Senatores vero Suarez, Molina et Martinon? Imo omnium nobilissimi illi sunt quibus et Suarez et Molina assurgant, Martinon vero nec eadem cum illis die nominetur."

Berti, who was Assistant-General of his order, who published his book at Rome, and belongs to a period more than half a century later than Cardinal Noris, proposes the following thesis ("De Theologicis Disciplinis," lib. xi. c. ii.):—

"Propositio I. Audaciæ potius et fidentiæ vitio, quam doctrinæ laude debent notari, qui maledico dente carpunt Augustianam de *simultanea creatione* sententiam.

"Propositio II. Augustini de simultanea creatione sententia non solum ab omni animadversione immunis est, *verum etiam probabilis et prope certa.*"

And in n. 9 he says:—

"Quare in distributione operum Dei omnia quidem spectant ad illos dies invisibiles in quibus creavit omnia simul, videlicet ad diversas cognitiones angelorum; sed plura, hoc est, quæ primum in rationibus seminalibus, deinde visibiliter facta sunt, si accipiantur secundum priorem conditionem, pertinent ad dies intelligibiles, et unico momento fuerunt et ipsa producta; si vero inspiciantur, ut in propria forma aspectabili constitutæ, istorum creatio perficitur in tempore, et post sex illos dies invisibiles; spectatque ad dies naturales in quibus Deus operatur *quotidie*, quidquid ex illis tanquam involucris primordialibus in tempore evolvitur. Sed legite S. Patrem Lit. v. de Gen. ad lit."

But now, coming down to our own day, the same complete refutation of Professor Huxley's position is most easily effected.

Father Pianciani, a Jesuit, was president of the College of Philosophy in the Roman University. His work, "Cosmogonia Naturale Comparata al Genes.," was published at Rome in 1862, at the press of the "Civilta Catholica." Professor Huxley will hardly dispute as to his orthodoxy. This author, in his "Historia Creationis Mosaicæ" (published at Naples as long ago as 1851), p. 29, shows that the whole of the first chapter of Genesis must be read as a most sublime and magnificent poetical description. Concerning St. Augustin's special view, he tells us (p. 15), "Ejus doctrina ad hæc capita revocatur:"—

"1° Omnia simul a Deo fuisse producta: 2° Cum ipsa ita disponi queant, ut infimum gradum materia elementaris, supremum puri spiritus occupent, interjectos et medios tum mixta, seu chimica composita, tum corpora physice composita, ut saxa, tum præcipue corpora organica. Hinc quæ ad infimum, supremumque gradum spectant et si quæ alia sunt, quæ naturæ viribus neque nunc producuntur, plene et perfecte tunc fuisse producta; quæ vero interjectis gradibus continentur et nunc naturæ viribus producuntur, virtute duntaxat et seminaliter seu *causaliter*, tunc Dei imperio extitisse. Augustini opinio, *semper ab errore immunis habita* pluribus placuit theologis quos inter Alberto Magno. St. Thomas in Summa, p. 1, q. 74, a. 2—eam reveretur, et nec ipsi nec vulgari doctrinæ præjudicandum censet, p. 15, 16."

No liberal-minded man can see with anything but regret how eagerly Professor Huxley endeavours to restrict within the narrowest limits the faith of the greater part of the Christian world, saying, "I, for one, shall feel bound to believe that the doctrines of Suarez are the only ones which are sanctioned by authority," &c.

But the attempt to represent that such literalism is binding on Catholics is simply preposterous. There is no need for the present Archbishop of Westminster to give any such permission as Professor Huxley speaks of (as to the six days), because such freedom existed long before His Grace occupied the see, and was accepted by his predecessor, Cardinal Wiseman. It would be restriction, not freedom, which could alone require him to make any declaration on the subject.

We might really suppose that at this day it would be superfluous to assert that Catholics are free and unembarrassed in their geology and palæontology. But that I may not seem to shirk a point on which the Professor lays such stress, namely, the "six days" of creation, I will say a few words as to the position of Catholics with regard to this matter.

Now, authorities showing the freedom of Catholics in this respect are so numerous, that it is only difficult to choose. In the first place we have St. Augustin and his many followers, also St. Hildegard, Bertier, Berchetti, Ghici, Robebacher, and Bossuet. Cardinal Cajetan says distinctly that the six days were not real days, but meant to indicate order. And I may cite also Cardinal Gousset, "Theol. Dogmatique," t. i. p. 103, *seq.*; Frayssinous, "Défense du Christianisme," conf. "Moïse, historien des temps primitifs;" Perrone, S. J., "Prælect. Theol.," vol. i. p. 678 (édit. Migne, 1842). But it is really needless to speak of writers during the last few years, for books are daily printed at Rome *with the permission of authority* such as Perrone, just mentioned, also Tongiorgi and Pianciani ("Cosmogonia Naturale," p. 24), before referred to. In English we have Cardinal Wiseman's "Science and Revealed Religion," Lectures v. and vi., and only last year a similar work was published in London by the Rev. Dr. Gerald Molloy.

So much for the question of the six days. But before leaving the subject of Christianity and evolution, there is yet one more point which it may be well to notice. With respect to the hypothesis I advanced that Adam's body might have been formed by evolution like those of other animals, the soul being subsequently infused, Professor Huxley remarks:—

"If Suarez is any authority it is not Catholic doctrine. 'Nulla est in homine forma educta de potentia materiæ' is a dictum which is absolutely inconsistent with the doctrine of the natural evolution of any vital manifestation of the human body. Moreover, if man existed as an animal before he was provided with a rational soul, he must, in accordance with the elementary requirements of the philosophy in which Mr. Mivart delights, have possessed a distinct sensitive and vegetative soul or souls. Hence, when the 'breath of life' was breathed into the manlike animal's nostrils, he must have already been a living and feeling creature. But Suarez particularly discusses this point, and not only rejects Mr. Mivart's view, but 'adopts language of very theological strength regarding it.'"

Professor Huxley then quotes from Suarez a passage ending "ille enim spiritus, quem Deus spiravit, anima rationalis fuit, et PER EAMDEM FACTUS EST HOMO VIVENS, ET CONSEQUENTER, ETIAM SENTIENS,' and a conciliar decree condemning the assertion of the existence of two souls in man.

It is surely not less prudent than it is just to refrain from speaking authoritatively of that which we have not studied and do not

comprehend. The fact is that Professor Huxley has completely misapprehended the significance of the passages he quotes. No wonder if reasoning perfectly lucid to those who have the key appears a mere "darkening of counsel" to those who have not mastered the elements of the systems they criticise.

To say that Suarez "rejects Mr. Mivart's view" is absurd, because no such view could by any possibility have been present to the mind of any one of his day. To say that anything in the passage quoted is, even in the faintest degree, *inconsistent* with that view, is an utter mistake. This is plain, from the doctrine as to the infusion of every soul into every infant, which was generally received at the period when Suarez wrote.

This doctrine was that the human fœtus is at first animated by a vegetative soul, then by a sentient soul, and only afterwards, at some period before birth, with a rational soul. Not that two souls ever coexist, for the appearance of one coincides with the disappearance of its predecessor—the sentient soul including in it all the powers of the vegetative soul, and the rational soul all those of the two others. The doctrine of distinct souls, which Professor Huxley attributes to me as a fatal consequence of my hypothesis, is simply the doctrine of St. Thomas himself. He says (Quæst. lxxvi., art. 3, ad. 3):—"Dicendum quod prius embryo habet animam quæ est sensitiva tantum, qua ablata advenit perfectior anima quæ est simul sensitiva et intellectiva ut infra plenius ostendetur." Also (Quæst. cxviii., art. 2, ad. 2):—"Dicendum est quod anima præexistit in embryone, a principio quidem nutritiva, postmodum autem sensitiva et tandem intellectiva."

He then answers the objection that we should thus have three souls superposed, which he says is false because—

"Nulla forma substantialis accipit majus aut minus, sed superadditio majoris perfectionis facit aliam speciem sicut additio unitatis facit aliam speciem in numero. . . . Ideo dicendum quod cum generatio unius sit corruptio alterius, necesse est dicere quod tam in homine quam in animalibus aliis, quando perfectior forma advenit fit corruptio prioris, ita tamen quod sequens forma habet quidquid habebat prima et adhuc amplius. . . . Sic igitur dicendum quod anima intellectiva creatur a Deo in fine generationis humanæ quæ simul est et sensitiva et nutritiva corruptio formis præexistentibus."

Now I am not saying anything about the truth of this doctrine, but only that it perfectly harmonizes with the hypothesis thrown out; while that it was the doctrine generally held in Suarez's day should be known to everyone who writes upon such a subject at all. This agreement between the doctrine and the hypothesis will readily be apprehended, for if Adam was formed in the way of which I suggested the possibility, he would, till the infusion of the rational soul, be only animal vivens et sentiens, and not "homo" at all. But when

the rational soul was infused, he thereby, as Suarez justly says, "factus est homo vivens, et consequenter, etiam sentiens."

The dictum, "Nulla est in homine forma educta de potentia materiæ," is nothing to the point, because I never supposed that the "forma rationalis" was in potentia materiæ, but only the "forma sentiens," which would disappear and become non-existent as soon as the "animal," by the infused rationality, becomes "homo." Thus, so far from being inconsistent with my hypothesis, it supports it; for the dictum must have been applied by Suarez to every child, the "forma sentiens" of which he must have allowed to be "educta de potentia materiæ," although the "forma rationalis" in his doctrine, as in my hypothesis, is directly created by God, and is in no way "educta de potentia materiæ." Professor Huxley has read Suarez *ad hoc*, and evidently without the guidance of any one familiar with that author, or with his philosophy, and the necessary consequence of writing on such a subject under such circumstances follows of course.

I think that it must now be plain to all readers, from the passages referred to, that there is perfect freedom for even the very strictest Christians, not only as regards the question of the six days, but also with respect to the full doctrine of Evolution.

Professor Huxley, indeed, must know well that, in addition to the authority of approved writers of ancient and modern times, there is a *living authority* in the Church. That authority, moreover, is ready at any moment to condemn heresy in the published expressions of any of her children, and certain to detect it; the question as to such views as evolution being tenable *solvitur ambulando*. The Professor congratulates himself prematurely on the "spontaneous retreat of the enemy from nine-tenths of the territory which he occupied ten years ago." Not *one step backwards* has been taken by the enemy Professor Huxley seems to detest above all. In proof of this I can refer to the *Rambler* of March, 1860, wherein a position was at once taken up, which is substantially identical with that which I maintain now.

A word as to what I cannot but consider the very regretable animus which Professor Huxley displays in this matter. We have been accustomed to hear again and again the assertion that men of science differ from the devotees of theology, in that they enter on their inquiries *æquo animo*, free from prejudice, and desirous only of truth. Believers have been warned, *usque ad nauseam*, that a wish to believe vitiates all their arguments. But what weight can we attach to Professor Huxley's conclusions when he tells us with regard to the doctrine of Evolution that "the position of complete and irreconcileable antagonism which, in his opinion, it occupies to the Catholic Church, is '*one of its greatest merits in my eyes.*'" A similar, though less striking, theological prejudice is also exhibited by Mr. Darwin himself. He tells us, in his "Descent of Man," with

characteristic candour, that in his "Origin of Species" his *first object* was "to show that species had not been separately created," and he consoles himself for admitted error, by the reflection that "I have at least, as *I hope*, done good service in aiding to overthrow the dogma of separate creations."*

I have already refused to allow that I contend for less than the intellectual and religious interests of all Christians. But, in fact, I may claim a yet wider sympathy; for in my book I have supported the dogma of creation as against all those who decline to assert the existence of a God, on the one hand, or those who identify him with the creation on the other; and I have endeavoured to uphold the Theistic conception as opposed to Antitheism† and Pantheism respectively.

Professor Huxley tells us that the necessity of a belief in a personal God, in order to a religion worthy of the name, "is a matter of opinion!" Of course the word may be employed in some unusual sense. I recollect reading of a certain Emersonian who, having accompanied his wife to see Fanny Elsler dance, and being charmed, remarked to her during the performance—"Margaret, this is poetry." To which his wife replied—"No, Paul, it is *religion!*" Of such religion I willingly make a present to Professor Huxley. But, apart from such *bizarre* employments of the word, I firmly adhere to my proposition. I know that Buddhism is sometimes asserted to be atheistic, but the conception of a power or principle apportioning after death rewards and punishments according to a standard of virtue, necessarily involves the existence of an entity, which, as being most powerful, intelligent, and good, is virtually, and logically, a personal God, whatever be the name habitually applied to it.

I do not know what precise meaning Professor Huxley would give to the word religion. He speaks of "worship, 'for the most part of the silent sort,' at the altar of the Unknown and the Unknowable," but he has not (as far as I recollect) explained to us as yet the full and exact nature and tenets of that religion the ritual of which is thus hinted at. Mr. Darwin's conception of religion is, however, sufficiently definite. He tells us‡ that it consists "of love, complete submission to an exalted and mysterious superior, a strong sense of dependence, fear, reverence, gratitude, hope for the future, and perhaps other elements."

Let us apply this to the Unknown and the Unknowable. "Love"

* I am indebted to Mr. Chauncey Wright for calling my attention to this remark, which had escaped my notice.

† By antitheism I mean that opinion which is opposed to theism, without dogmatically denying the existence of God. Antitheists deny that we can make any assertion whatever about that which underlies phenomena, and which they term the "unknowable."

‡ "Descent of Man," vol. i. 68.

for that of which we can by no possibility know anything whatever, and to which we may as reasonably attribute hideousness and all vileness, as beauty and goodness! "Dependence" on that of which treachery and mendacity may be as much characteristics as are faithfulness and truth! "Reverence" for an entity, whose qualities, if any, may resemble as much all we despise as all we esteem, and which, for all we know, may be indebted to *our faculties* for any recognition of its existence at all! "Gratitude" to that which we have not the faintest reason to suppose ever willingly did anything for us, or ever will! "Hope" in what we have no right whatever to believe may not, with equal justice, be a legitimate cause for despair as pitiless, inexorable, and unfeeling, if capable of any sort of intelligence whatever!

This is no exaggeration. Every word here put down is *strictly accurate*, for if that which underlies all things is to us the unknowable, then there can be no reason to predicate of it any one character rather than its opposite. If, on the other hand, we *have* any reason to predicate goodness rather than malice, nobility rather than vileness, then let preachers of the unknowable abandon their unmeaning jargon, for it is no longer with the unknowable we have to deal, and we are plunged at once into a whole world of as distinctly dogmatic theology as can be conceived—a theology the dogmas of which are profoundly mysterious, while they are even more trying, and at the same time more illuminating, to the reason, than any others of the whole catena which logically follow.

Although I have taken up this broad ground in controversy, and only contended for truths common to all believers in revelation, nevertheless I would not have it supposed that I in any way shrink from openly avowing my position as a Catholic Christian, and I cannot consider it other than a compliment to my creed that Professor Huxley, in his attack on Christianity generally, singles it out for his special hostility. All Christians owe a debt of gratitude to Professor Huxley, for calling forth more clearly the certainty that their religion has nothing to fear from the doctrine of evolution. It is, however, Catholic Christians who are pre-eminently beholden to him for occasioning a fresh demonstration of the wonderful way in which their greatest teachers of bygone centuries, though imbued with the notions and possessing only the rudimentary physical knowledge of their days, have yet been led to emit fruitful principles by which the Church is prepared to assimilate and harmonize even the most advanced teachings of physical science.

Professor Huxley indulges in rhetorical declamation as to a "blind acceptance of authority," but such acceptance is as much repudiated by me as by Professor Huxley. The Church, in addressing unbe-

lievers, appeals to "reason" and "conscience" alone for the establishment of that Theistic foundation on which she reposes, and no acceptance of authority can be called "blind" which results from a clear perception both of its rational foundation and of the harmony of its dogmas and precepts with those highest faculties of our nature, reason and conscience.

I confess myself weary of these tedious declamations as to the incompatibility of science with Christianity on the one side, as also of timid deprecations on the other. The true position of these two powers justifies neither such hopes nor such fears; for, in truth, no possible development of physical science (and as to Biology I claim to speak with some slight knowledge) can conflict with Christian dogma, and therefore every attempt to attack from that basis is necessarily futile.

On the other hand, so far from the Christian religion tending to cramp or fetter intellectual development, it is notorious that some of the profoundest thinkers of recent as of more ancient times, have been believers in Christianity, and I am convinced that every man who rejects that belief is *ipso facto* necessarily condemned not only to a moral but also, and as inevitably, to an intellectual inferiority as compared with what he might attain did he accept that system in its fulness. The Christian creed has long been before the world. I would invite Professor Huxley to formulate his system in distinct propositions, that it also may be tested by our supreme and ultimate standards—"reason" and "conscience."

With the extreme hatred of Catholicity which animates my critic, it is easy to understand the irritation which my demonstration of the harmony which exists between the Church and modern science has caused him. He lets it be seen that he had supposed science to have thoroughly refuted some of the Church's fundamental dogmas, hence the vehement reproaches I have unwittingly drawn down upon my head by my endeavour to promote concord. I feel persuaded, however, that an intolerance which would exclude from the band of "loyal soldiers of science," a Secchi, a Van Beneden, and a Sullivan, merely because they happen to be at the same time "true sons of the Church," will not commend itself to the great bulk of my scientific fellow-countrymen any more than the wish to deprive Catholics of their common rights as citizens will be approved of by the English-speaking races generally.

Turning to Professor Huxley's observations in another branch of philosophy, I proceed now to say a few words as to his strictures on the psychology of the Quarterly Reviewer.

I apprehend that my critic's psychological views coincide in the main with those of Mr. Herbert Spencer. Now it is not of course

possible within the limits of this article to write a treatise on psychology, and nothing less would be requisite to explain the grounds of my complete and fundamental divergence from the views referred to. It must suffice to say here, that Professor Huxley has adduced no argument and has brought forward no kind of illustration which I have not maturely considered and deliberately rejected as inadequate and fallacious. Another time I hope to be able to go at length into this question and to endeavour to explain, according to the system I adopt, the facts adduced by the opposite school; as also to support my views by positive arguments. In the meantime I heartily re-echo Professor Huxley's tribute to the supreme importance of "the philosophical questions which underlie all physical science," and I am confident that vast good would result if only men could be brought to undergo the labour and persevering application necessary for their thorough investigation.

I must here, then, confine myself to the clearing up of some misapprehensions and misrepresentations.

In the first place, Professor Huxley objects to the assertion that "sensation" is not "thought," "though sensations supply the conditions for the existence of thought." He says:

> "If I recall the impression made by a colour or an odour, and distinctly remember blueness or muskiness, I may say with perfect propriety that I 'think of' blue or musk; and so long as the thought lasts, it is *simply* a faint reproduction of the state of consciousness to which I gave the name in question, when it first became known to me as a sensation."
>
> "Now, if that faint reproduction of a sensation which we call the memory of it, is *properly termed a thought*, it seems to me to be a somewhat forced proceeding to draw a hard and fast line of demarcation between thoughts and sensations. If sensations are not rudimentary thoughts, it may be said that some thoughts are rudimentary sensations. No amount of sound constitutes an echo, but for all that no one would pretend that an echo is something of totally different nature from sound."

To this I can now only reply by observing that according to my view a recalled thought is not a "rudimentary sensation," though the sensible memory is made use of with regard to it. I also deny utterly that the faint recurrence of a sensation can ever be properly termed a thought, and the act of "recalling" such sensation is only to be so named on account not of the sensation recalled, but of the intellectual, voluntary act of recalling.

The analogy of an echo is false and misleading. An echo is merely a particular kind of sound, but a thought is *not* merely a particular kind of sensation.

Again, Professor Huxley objects to the assertion that sensations supply the conditions for the existence of thought or knowledge—saying:

"If this implies that sensations supply the conditions for the existence of our memory of sensations, or of our thoughts about sensations, it is a truism which it is hardly worth while to state so solemnly. If it implies that sensations supply anything else it is obviously erroneous. And if it means, as the context would seem to show it does, that sensations are the subject-matter of all thought or knowledge, then it is no less contrary to fact, inasmuch as our emotions, which constitute a large part of the subject-matter of our thought or of knowledge, are not sensations."

It seems to me that this argument is quite unfair, and that it is a false dilemma. The reviewer's words evidently point to "sensations" as the condition of our knowledge of external objects, and this, at least, is no truism. For my part, if I understand Professor Huxley rightly, I should assert that to be "axiomatic" which he says is "obviously erroneous."

The short summary in the *Quarterly Review* of the psychical characters common to man and brutes on the one hand, and peculiar to man as a rational animal on the other, was evidently not intended as an exhaustive catalogue, but merely as a concise statement of certain leading and essential differences. Therefore "emotion," as avowedly common to man and brute, and volition and memory, as beside the question, were reasonably left unnoticed.

A carping criticism as to the word "agency" as applied to sensation in these reflex acts in which sensation intervenes, is what, I confess, I should not have expected from Professor Huxley. He certainly would never think of denying the intervention of sensation in such acts.

As to his assertion that the Quarterly Reviewer in conceding to animals his first four groups of actions, "grants all that is necessary for the purposes" of his critic, it is an error which arises from the thorough misapprehension by Professor Huxley of the Reviewer's position, as will be made manifest by what I have to say concerning reason and predication.

Professor Huxley gives us, in illustration of his views, a comparison between a gamekeeper and a greyhound, both engaged in coursing, the relevancy of which, I confess, escapes me.

No one denies that man is an animal. No one denies that the sensitive faculties of the greyhound are possessed by the man just as are his digestive and locomotive faculties. No anatomist denies that man's bodily structure closely resembles the brutes', and I, at least, have been forward in asserting it. I maintain, however, that though man and dog agree in exhibiting the phenomena of *feeling*, they differ altogether as to the phenomena of *thinking*, of which man alone gives any evidence.

Professor Huxley asks a singular question. He says—"What is the value of the evidence which leads one to believe that

one's fellow-man feels? The only evidence in this argument of analogy, is the similarity of his structure and of his actions to one's own." Surely it is not by similarity of actions, in any ordinary sense of the word, but by *language* that men are placed in communication with one another, and that the rational intellect of each perceives the rationality and sensibility of his fellow-man.

Professor Huxley asserts that by "a combination of sensible images," the Quarterly Reviewer must mean more than his words imply, or otherwise a greyhound would not run after a hare. Certainly the Reviewer could hardly have suspected that any one would take him to mean that brutes are destitute of appetites and emotions. The conjunction, however, of these appetites and emotions with sensible images in complex associations is certainly amply sufficient to explain all that is exhibited by dogs in "the noble art of coursing," and this Professor Huxley must allow if, as I suspect, he would attribute nothing essentially higher to the gamekeeper himself.

On the question concerning morality I have, I conceive, some reason to complain of Professor Huxley's treatment of my observations. From the remarks which he has again and again made, it is evident to whom he attributes the article in the *Quarterly Review*. Nevertheless, he, in the first place, misrepresents my statement in my book, and attributes to me an absurdity which is not in it, but which is distinctly pointed out and repudiated in the *Quarterly Review*. In the second place, he accuses me of neglecting a remark made by Mr. Darwin, which remark is not only referred to, but actually quoted in the same review.

First, with regard to Mr. Darwin. In this matter Professor Huxley accuses me of charging that gentleman "with being ignorant of the distinction between material and formal goodness," though Mr. Darwin himself "discusses the very question at issue in a passage, well worth reading, and also comes to a conclusion opposed to Mr. Mivart's axiom." As I have said, this passage is not only referred to, but actually quoted in the *Quarterly Review*. In that passage, however, Mr. Darwin, though he notices, gives no evidence of fully understanding my distinction, nor, though he notices an objection, does he meet the difficulty in the least. Professor Huxley seems to think that because Mr. Darwin has *referred to* an objection, that that objection has thereby *lost its force*. The objection, however, has not been refuted either by Mr. Darwin or Professor Huxley, and hence it becomes probable that, as I am convinced is the case, it *cannot be refuted*.

We will turn now to the more serious misrepresentation of which I have to complain. My critic exhibits me as committing the absurdity of maintaining that no act can be "good" unless it is done with

deliberate and actual advertence in every instance—as if I thought that a man must stand still, consider and reflect in each case in order to perform a meritorious action. He also implies that I am so unreasonable as to deny "merit" to actions done unreflectingly and spontaneously from the love of God or one's neighbour.

What I assert, however, is, that for an act to be "good" it must be really directed by the doer to a good end, either actually or virtually. The idea of good, which he has in the past apprehended, must be influencing the man at the time, whether he adverts to it or not, otherwise the action is not moral. The merit of that virtue which shows itself even in the spontaneous, indeliberate actions of a good man, results from the fact of previous acts having been consciously directed to goodness, by which a habit has been formed. The more thoroughly a man is possessed by the idea of goodness, the more his whole being is saturated with that idea, the more will goodness show itself in all his even spontaneous actions, which thus will have additional merit through their very spontaneity. Now this was actually expressed in the *Quarterly Review*, where of such an act it is stated that "it is moral as the continuation of those preceding deliberate acts through which the good habit was originally formed; and the rapidity with which the will is directed in the case supposed may indicate the number and constancy of antecedent meritorious actions."

Not only, however, does Professor Huxley avoid notice of this passage, but he quotes my words as to the unmeritorious nature of actions "unaccompanied by mental acts of conscious will directed towards the fulfilment of duty," so as to lead his readers to believe that I say this absolutely. He takes care not to let them know that here I am speaking * only of the "actions of brutes, such as those of the bee, the ant, or the beaver," which, of course, never at any period of the lives of any one of these creatures were consciously directed to "goodness" or "duty" as an end, so that no later spontaneous actions could in their case result from an acquired habit of virtue, on which account I was fully justified in speaking of their actions as devoid of morality.

Professor Huxley speaks of "the most beautiful character to which humanity can attain, that of the man who does good without thinking about it" (p. 468). Does he mean that the absence of thought is the cause of the beauty? If so, then if I do the most beneficial acts in my sleep, I attain this apex of moral beauty. This, of course, he will not allow. Therefore, it is not by reason of the not thinking about it that the action is beautiful, but, as Professor Huxley goes on to say, "because he loves justice and is repelled by

* See "Genesis of Species," p. 221, 2nd edition.

evil." In this last, then—in this habit of mind, the beauty consists. But will the Professor say that the man got himself into this state without previous acts of conscious will? Can a man love justice without being able to distinguish between the just and unjust? if he loves moral beauty, must he not *know* it?

Professor Huxley does not, I believe, mean what he says when he asserts that acts may be moral which are not directed to a good end. Were it so, such words as "virtue" and "goodness" would have no rational and logical place in his vocabulary.

Similarly, I do not believe him when he says he "utterly rejects" the distinction between "material" and "formal" morality. I do not, because he has elsewhere asserted that "our volition counts for something as a condition of the course of events." If, however, he rejects the distinction he says he rejects, he thereby absolutely denies every element of freedom and spontaneity to the human will, and reduces our volition to a rank in the "course of events," which counts for no more than the freedom of a match as to ignition, when placed within the flame of a candle. With the enunciation of this view, "formal morality" most certainly falls, and together with it every word denoting "virtue," which thus becomes a superfluous synonym for pleasure and expediency.

Adverting now to the question of "reason," according to Professor Huxley (p. 463), "ratiocination is resolvable into predication, and predication consists in marking, in some way, the succession, the likeness and unlikeness, of things or their ideas. Whatever does this, reasons; and if a machine produces these effects of reason, I see no more ground for denying to it the reasoning power, because it is unconscious, than I see for refusing to Mr. Babbage's engine the title of a calculating machine on the same grounds."

"Thus it seems to me that a gamekeeper reasons, whether he is conscious or unconscious, whether his reasoning is carried on by neurosis alone, or whether it involves more or less psychosis."

According to my idea of the matter, predication essentially consists not in marking "succession, likeness and unlikeness," but in *recognising* these relations *as true.*

To this extent I may shelter myself under the authority of Mr. John Stuart Mill. Mr. Mill, in criticising Sir William Hamilton's definition of judgment, makes the following remarks ("Examination of Sir William Hamilton's Philosophy," p. 346):—

"The first objection which, I think, must occur to anyone, on the contemplation of this definition, is that it omits *the main and characteristic element* of a judgment and of a proposition. . . . When we judge or assert, there is introduced a new element, that of objective reality, and a *new mental fact*, belief. Our judgments, and the assertions which express them, do not enunciate our mere mode of mentally conceiving things, but

our conviction or persuasion that the facts as conceived actually exist; and a theory of judgments and propositions which does not take account of this, *cannot be a true theory*. In the words of Reid 'I give the name of judgment to every determination of the mind concerning *what is true* or *what is false*. This, I think, is what logicians, from the days of Aristotle, have called judgment.' And this is the very element which Sir Wm. Hamilton's definition" [and I may now add Professor Huxley's also] "omits from it."

Further on Mr. Mill says:—

"Belief is an *essential element* in a judgment. . . . The recognition of it as true is not only an essential part, but *the* essential element of it as a judgment; leave that out, and there remains *a mere play of thought*, in which no judgment is passed. It is impossible to separate the idea of judgment from the idea of the truth of a judgment; for every judgment consists in judging something to be true. The element belief, instead of being an accident which can be passed in silence, and admitted only by implication, constitutes the very difference between a judgment and any other intellectual fact, and it is contrary to all the laws of definition to define judgment by anything else. The very meaning of a judgment or a proposition is something which is capable of being believed or disbelieved; which can be true or false; to which it is possible to say yes or no."

In addition to this, Mr. Mill, in his notes on his father's, Mr. James Mill's, "Analysis of the Human Mind," ably shows, against Mr. Herbert Spencer, that rational belief cannot be explained as being identical with indissoluble association (vol. i. p. 402).

In denying, then, reason to brutes—in denying that their acts are rational, I do not, of course, deny for a moment that they are rational in the sense in which Mr Babbage's machine is calculating, but what I *do* maintain is, that brutes have not the power of forming judgments in the sense above explained. And I still more emphatically deny that brutes have any, even the very dimmest, consciousness of such ideas as "ought" and moral excellence. And because I further believe that no amount of sensible experiences can generate these conceptions, I deny that any brute is *even potentially* a moral agent. Those who credit brutes with "morality," do so by first eliminating from that idea all its essential characteristics.

One word now of explanation. Professor Huxley seems much disturbed at my speaking of virtue as, in his view, *a kind of retrieving*, and accuses me of imposing an "injurious nickname," and making a "joke." Nothing could have been further from my intention than either one or the other. As it happens the expression was not *my own*, but was picked up in conversation with as thorough a Darwinian even as Professor Huxley himself, who used it, as I understood, not as a nickname, but as a handy mode of bringing home his conceptions to my mind. I made use of it in all innocence, and I still think it singularly apt and appropriate, not certainly to express the conception

of virtue, but to bring home the utilitarian notion of it. Professor Huxley says, "What if it is? Does that make it less virtue?" I answer, unhesitatingly, that it not only makes it "less virtue," but prevents its being virtue at all, unless it springs as a habit acquired from self-conscious acts directed towards an end recognised as *good*.

Professor Huxley regrets that I should "eke out" my arguments against the views he patronises, by ascribing to them "logical consequences which have been over and over again proved not to flow from them." But it was to be expected that a disciple of Mill,* such as Professor Huxley, would know that in matters of this kind it is impossible to reason *à posteriori*, on account of the complexity of the conditions; and that the *à priori* argument, by deductions from inevitable tendencies, can be alone employed. If Professor Huxley is persuaded of the evil consequences of Christianity, I am equally persuaded of the evil consequences of his system.

No one has a greater esteem for Professor Huxley than I have, and no one is more convinced than I am of the uprightness of his intentions and his hearty sympathy with self-denying virtue. Nevertheless, the principles he unhappily advocates cannot but tend, by a fatal necessity, in one direction, and to produce results socially, politically, and morally, which he would be the first to deplore. They tend in the intellectual order to the degradation of the mind, by the essential identification of thought with sensation, and in the political order to the evolution of horrors worse than those of the Parisian Commune. I refrain from characterizing their tendency in the moral order.

Before concluding, I must make one observation with regard to Mr. Wallace. I emphatically disclaim having had any intention of depreciating obliquely Mr. Darwin, though I desired to do justice to Mr. Wallace. It is an undoubted fact that there are many men who, if they had thought out natural selection simultaneously with Mr. Darwin, would have clamorously sought a recognition of the fact,

* In speaking of the application of the experimental method to social science, Mr. Mill remarks:—"This mode of thinking is not only general with practitioners in politics, and with that very numerous class who (on a subject which no one, however ignorant, thinks himself incompetent to discuss) profess to guide themselves by common sense rather than by science; but is often countenanced by persons with greater pretensions to instruction . . . . As, however, the notion of applicability of experimental methods to political philosophy cannot co-exist with any just conception of these methods themselves, the kind of arguments from experience which the chemical theory brings forth as its fruits (and which form the staple, in this country especially, of parliamentary and hustings oratory), are such as, at no time since Bacon, would have been admitted to be valid in chemistry itself, or in any other branch of experimental science." (Mill's "Logic," vol. ii. p. 454.) "It is evident that Sociology, considered as a system of deductions *à priori*, cannot be a science of positive predictions, but only of *tendencies*." (*Op. cit.* p. 477.)

and have lost no opportunity of asserting simultaneity. No one can affirm that Mr. Wallace has shown the faintest inclination of the kind, while no one can deny that if he had followed the clamorous path, his name would have been more widely known and more popularly associated with natural selection than has been, in fact, the case.

It is a gratuitous assertion on the part of Professor Huxley to say I have suggested that Mr. Darwin's eminence is due to Mr. Wallace's modesty, in any other sense than what I have now explained—namely, that had Mr. Wallace put himself more prominently forward, he would have been seen more distinctly by the popular eye, an assertion no one can question.

As a fact, I believe that Mr. Wallace, in the passage quoted by Professor Huxley, allows his modesty to deceive him. From what I know of Mr. Wallace, I venture to affirm he underrates his powers, and I am convinced he *could* have written as good a defence of natural selection as even the "Origin of Species." There are not wanting those who, though they have carefully studied Mr. Darwin's work, only fully understood his theory when presented to their mind in the clear, lucid, and admirable writings of Mr. Wallace.

St. George Mivart.