

The very important extract from Professor Hering's lecture should perhaps have been placed here. The reader will, however, find it on page [199](#).

FOOTNOTES:

[\[321\]](#) 'Origin of Species,' Hist. Sketch, p. xvi.

[\[322\]](#) See 'Naval Timber and Arboriculture,' by Patrick Matthew, published by Adam and C. Black, Edinburgh, and Longmans and Co., London, 1831, pp. 364, 365, 381-388, and also 106-108, 'Gardeners' Chronicle,' April 7, 1860.

[\[323\]](#) 'Vie et Doctrine Scientifique de Geoffroy Étienne St. Hilaire,' Paris, Strasbourg, 1847, pp. 344-346.

[\[324\]](#) 'Hist. Nat. Gén.,' tom. ii. 413.

[\[325\]](#) 'Hist. Nat. Gén.,' tom. ii. p. 415.

[\[326\]](#) Ibid.

[\[327\]](#) Ibid. p. 421.

[\[328\]](#) 'Hist. Nat. Gén.,' vol. ii. p. 431, 1859.

[\[329\]](#) 'Origin of Species,' Hist. Sketch, p. xix.

[\[330\]](#) 'Hist. Nat. Gén.,' vol. ii. p. 432.

[\[331\]](#) See 'The Leader,' March 20, 1852, "The Haythorne Papers."

[\[332\]](#) Carpenter's 'Principles of Physiology,' 3rd ed., p. 867.

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CHAPTER XIX.

MAIN POINTS OF AGREEMENT AND OF DIFFERENCE BETWEEN THE OLD AND NEW THEORIES OF EVOLUTION.

Having put before the reader with some fulness the theories of the three writers to whom we owe the older or teleological view of evolution, I will now compare that view more closely with the theory of Mr. Darwin and Mr. Wallace, to whom, in spite of my profound difference of opinion with them on the subject of natural selection, I admit with pleasure that I am under deep obligation. For the sake of brevity, I shall take

Lamarck as the exponent of the older view, and Mr. Darwin as that of the one now generally accepted.

We have seen, that up to a certain point there is very little difference between Lamarck and Mr. Darwin. Lamarck maintains that animals and plants vary: so does Mr. Darwin. Lamarck maintains that variations having once arisen have a tendency to be transmitted to offspring and accumulated: so does Mr. Darwin. Lamarck maintains that the accumulation of variations, so small, each one of them, that it cannot be, or is not noticed, nevertheless will lead in the course of that almost infinite time during which life has existed upon earth, to very wide differences in form, structure, and instincts: so does Mr. Darwin.[Pg 336] Finally, Lamarck declares that all, or nearly all, the differences which we observe between various kinds of animals and plants are due to this exceedingly gradual and imperceptible accumulation, during many successive generations, of variations each one of which was in the outset small: so does Mr. Darwin. But in the above we have a complete statement of the fact of evolution, or descent with modification—wanting nothing, but entire, and incapable of being added to except in detail, and by way of explanation of the causes which have brought the fact about. As regards the general conclusion arrived at, therefore, I am unable to detect any difference of opinion between Lamarck and Mr. Darwin. They are both bent on establishing the theory of evolution in its widest extent.

The late Sir Charles Lyell, in his 'Principles of Geology,' bears me out here. In a note to his *résumé* of the part of the 'Philosophie Zoologique' which bears upon evolution, he writes:—

"I have reprinted in this chapter word for word my abstract of Lamarck's doctrine of transmutation, as drawn up by me in 1832 in the first edition of the 'Principles of Geology.'^[333] I have thought it right to do this in justice to Lamarck, in order to show how nearly the opinions taught by him at the commencement of this century resembled those now in vogue amongst a large body of naturalists respecting the infinite variability of species, and the progressive development in past time of the organic world. The reader[Pg 337] must bear in mind that when I made this analysis of the 'Philosophie Zoologique' in 1832, I was altogether opposed to the doctrine that the animals and plants now living were the lineal descendants of distinct species, only known to us in a fossil state, and ... so far from exaggerating, I did not do justice to the arguments originally adduced by Lamarck and Geoffroy St. Hilaire, especially those founded on the occurrence of rudimentary organs. There is therefore no room for suspicion that my account of the Lamarckian hypothesis, written by me thirty-five years ago, derived any colouring from my own views tending to bring it more into

harmony with the theory since propounded by Darwin."^[334] So little difference did Sir Charles Lyell discover between the views of Lamarck and those of his successors.

With the identity, however, of the main proposition which, both Lamarck and Mr. Darwin alike endeavour to establish, the points of agreement between the two writers come to an end. Lamarck's great aim was to discover the cause of those variations whose accumulation results in specific, and finally in generic, differences. Not content with establishing the fact of descent with modification, he, like his predecessors, wishes to explain how it was that the fact came about. He finds its explanation in changed surroundings—that is to say, in changed conditions of existence—as the indirect cause, and in the varying needs arising from these changed conditions as the direct cause.

According to Lamarck, there is a broad principle[Pg 338] which underlies variation generally, and this principle is the power which all living beings possess of slightly varying their actions in accordance with varying needs, coupled with the fact observable throughout nature that use develops, and disuse enfeebles an organ, and that the effects, whether of use or disuse, become hereditary after many generations.

This resolves itself into the effect of the mutual interaction of mind on body and of body on mind. Thus he writes:—

"The physical and the mental are to start with undoubtedly one and the same thing; this fact is most easily made apparent through study of the organization of the various orders of known animals. From the common source there proceeded certain effects, and these effects, in the outset hardly separated, have in the course of time become so perfectly distinct, that when looked at in their extremest development they appear to have little or nothing in common.

"The effect of the body upon the mind has been already sufficiently recognized; not so that of the mind upon the body itself. The two, one in the outset though they were, interact upon each other more and more the more they present the appearance of having become widely sundered, and it can be shown that each is continually modifying the other and causing it to vary."^[335]

And again, later:—

"I shall show that the habits by which we now[Pg 339] recognize any creature are due to the environment (*circumstances*) under which it has for a long while existed, *and that these habits have had such an influence upon the structure of each individual of the species as to have at length*" (that is to say, through many successive slight

variations, each due to habit engendered by the wishes of the animal itself), "modified this structure and adapted it to the habits contracted."^[336]

These quotations must suffice, for the reader has already had Lamarck's argument sufficiently put before him.

Variation, and consequently modification, are, according to Lamarck, the outward and visible signs of the impressions made upon animals and plants in the course of their long and varied history, each organ chronicling a time during which such and such thoughts and actions dominated the creature, and specific changes being the effect of certain long-continued wishes upon the body, and of certain changed surroundings upon the wishes. Plants and animals are living forms of faith, or faiths of form, whichever the reader pleases.

Mr. Darwin, on the other hand, repeatedly avows ignorance, and profound ignorance, concerning the causes of those variations which, or nothing, must be the fountain-heads of species. Thus he writes of "the complex and *little known* laws of variation."^[337] "There is also *some probability* in the view propounded by Andrew Knight, that variability *may be partly* connected with excess of food."^[338] "Many laws regulate variation, *some*[Pg 340] *few of which* can be *dimly seen*."^[339] "The results of the *unknown*, or *but dimly understood*, laws of variation are infinitely complex and diversified."^[340] "We are *profoundly ignorant* of the cause of each slight variation or individual difference."^[341] "We are *far too ignorant* to speculate on the relative importance of the several known and unknown causes of variation."^[342] He admits, indeed, the effects of use and disuse to have been important, but how important we have no means of knowing; he also attributes considerable effect to the action of changed conditions of life—but how considerable again we know not; nevertheless, he sees no great principle underlying the variations generally, and tending to make them appear for a length of time together in any definite direction advantageous to the creature itself, but either expressly, as at times, or by implication, as throughout his works, ascribes them to accident or chance.

In other words, he admits his ignorance concerning them, and dwells only on the accumulation of variations the appearance of which for any length of time in any given direction he leaves unaccounted for.

Lamarck, again, having established his principle that sense of need is the main direct cause of variation, and having also established that the variations thus engendered are inherited, so that divergences accumulate and result in species and genera, is comparatively indifferent to further details. His work is avowedly an outline. Nevertheless, we have seen that he was[Pg 341] quite alive to the effects of the

geometrical ratio of increase, and of the struggle for existence which thence inevitably follows.

Mr. Darwin, on the other hand, comparatively indifferent to, or at any rate silent concerning the causes of those variations which appeared so all-important to Lamarck, inasmuch as they are the raindrops which unite to form the full stream of modification, goes into very full detail upon natural selection, or the survival of the fittest, and maintains it to have been "the most important but not the exclusive means of modification."^[343]

It will be readily seen that, according to Lamarck, the variations which when accumulated amount to specific and generic differences, will have been due to causes which have been mainly of the same kind for long periods together. Conditions of life change for the most part slowly, steadily, and in a set direction; as in the direction of steady, gradual increase or decrease of cold or moisture; of the steady, gradual increase of such and such an enemy, or decrease of such and such a kind of food; of the gradual upheaval or submergence of such and such a continent, and consequent drying up or encroachment of such and such a sea, and so forth. The thoughts of the creature varying will thus have been turned mainly in one direction for long together; and hence the consequent modifications will also be mainly in fixed and definite directions for many successive generations; as in the direction of a warmer or cooler covering; of a better means of defence[Pg 342] or of attack in relation to such and such another species; of a longer neck and longer legs, or of whatever other modification the gradually changing circumstances may be rendering expedient. It is easy to understand the accumulation of slight successive modifications which thus make their appearance in given organs and in a set direction.

With Mr. Darwin, on the contrary, the variations being accidental, and due to no special and uniform cause, will not appear for any length of time in any given direction, nor in any given organ, but will be just as liable to appear in one organ as in another, and may be in one generation in one direction, and in another in another.

In confirmation of the above, and in illustration of the important consequences that will follow according as we adopt the old or the more recent theory, I would quote the following from Mr. Mivart's 'Genesis of Species.'

Shortly before maintaining that two similar structures have often been developed independently of one another, Mr. Mivart points out that if we are dependent upon indefinite variations only, as provided for us by Mr. Darwin, this would be "so improbable as to be practically impossible."^[344] The number of possible variations

being indefinitely great, "it is therefore an indefinitely great number to one against a similar series of variations occurring and being similarly preserved in any two independent instances." It will be felt (as Mr. Mivart presently insists) that this objection does[Pg 343] not apply to a system which maintains that in case an animal feels any given want it will gradually develop the structure which shall meet the want—that is to say, if the want be not so great and so sudden as to extinguish the creature to which it has become a necessity. For if there be such a power of self-adaptation as thus supposed, two or more very widely different animals feeling the same kind of want might easily adopt similar means to gratify it, and hence develop eventually a substantially similar structure; just as two men, without any kind of concert, have often hit upon like means of compassing the same ends. Mr. Spencer's theory—so Mr. Mivart tells us—and certainly that of Lamarck, whose disciple Mr. Spencer would appear to be, [345] admits "a certain peculiar, but limited power of response and adaptation in each animal and plant"—to the conditions of their existence. "Such theories," says Mr. Mivart, "have not to contend against the difficulty proposed, and it has been urged that even very complex extremely similar structures have again and again been developed quite independently one of the other, and this because the process has taken place not by merely haphazard, indefinite variations in all directions, but by the concurrence of some other internal natural law or laws co-operating with external influences and with Natural Selection in the evolution of organic forms.

"It must never be forgotten that to admit any such constant operation of any such unknown natural cause is to deny the purely Darwinian theory which relies upon[Pg 344] the survival of the fittest by means of minute fortuitous indefinite variations.

"Among many other obligations which the author has to acknowledge to Professor Huxley, are the pointing out of this very difficulty, and the calling his attention to the striking resemblance between certain teeth of the dog, and of the thylacine, as one instance, and certain ornithic peculiarities of pterodactyles as another." [346]

In brief then, changed distribution of use and disuse in consequence of changed conditions of the environment is with Lamarck the main cause of modification. According to Mr. Darwin natural selection, or the survival of favourable but accidental variations, is the most important means of modification. In a word, with Lamarck the variations are definite; with Mr. Darwin indefinite.

FOOTNOTES:

[333]Vol. ii. chap. i.

[334]Vol. ii. chap, xxxiv., ed. 1872.

[335]'Philosophie Zoologique,' ed. M. Martins, Paris, Lyons, 1873, tom. i. p. 24.

[336]'Philosophie Zoologique,' tom. i. p. 72.

[337]'Origin of Species,' p. 3.

[338]Ibid. p. 5.

[339]'Origin of Species,' p. 8.

[340]Ibid. p. 9.

[341]Ibid. p. 158.

[342]Ibid. p. 159.

[343]'Origin of Species,' p. 4.

[344]'Genesis of Species,' p. 74, 1871.

[345]See *ante*, p. 330, line 1 after heading.

[346]'Genesis of Species,' p. 76, ed. 1871.

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CHAPTER XX.

NATURAL SELECTION CONSIDERED AS A MEANS OF MODIFICATION. THE CONFUSION WHICH THIS EXPRESSION OCCASIONS.

When Mr. Darwin says that natural selection is the most important "means" of modification, I am not sure that I understand what he wishes to imply by the word "means." I do not see how the fact that those animals which are best fitted for the conditions of their existence commonly survive in the struggle for life, can be called in any special sense a "means" of modification.

"Means" is a dangerous word; it slips too easily into "cause." We have seen Mr. Darwin himself say that Buffon did not enter on "the *causes or means*"^[347] of modification, as though these two words were synonymous, or nearly so. Nevertheless, the use of the word "means" here enables Mr. Darwin to speak of Natural Selection as if it were an active cause (which he constantly does), and yet to avoid expressly maintaining that it is a cause of modification. This, indeed, he has not done in express terms, but he does

it by implication when he writes, "Natural Selection *might be most effective in giving* the proper colour to each kind of[Pg 346] grouse, and in *keeping* that colour when once acquired." Such language, says the late Mr. G. H. Lewes, "is misleading;" it makes "selection an agent."^[348]

It is plain that natural selection cannot be considered a cause of variation; and if not of variation, which is as the rain drop, then not of specific and generic modification, which are as the river; for the variations must make their appearance before they can be selected. Suppose that it is an advantage to a horse to have an especially hard and broad hoof, then a horse born with such a hoof will indeed probably survive in the struggle for existence, but he was not born with the larger and harder hoof *because of his subsequently surviving*. He survived because he was born fit—not, he was born fit because he survived. The variation must arise first and be preserved afterwards.

Mr. Darwin therefore is in the following dilemma. If he does not treat natural selection as a cause of variation, the 'Origin of Species' will turn out to have no *raison d'être*. It will have professed to have explained to us the manner in which species has originated, but it will have left us in the dark concerning the origin of those variations which, when added together, amount to specific and generic differences. Thus, as I said in 'Life and Habit,' Mr. Darwin will have made us think we know the whole road, in spite of his having almost ostentatiously blindfolded us at every step in the journey. The 'Origin of Species' would thus prove to be no less a piece of intellectual sleight-of-hand than Paley's 'Natural Theology.'^[Pg 347]

If, on the other hand, Mr. Darwin maintains natural selection to be a cause of variation, this comes to saying that when an animal has varied in an advantageous direction, the fact of its subsequently surviving in the struggle for existence is the cause of its having varied in the advantageous direction—or more simply still—that the fact of its having varied is the cause of its having varied.

And this is what we have already seen Mr. Darwin actually to say, in a passage quoted near the beginning of this present book. When writing of the eye he says, "Variation will cause the slight alterations;"^[349] but the "slight alterations" *are* the variations; so that Mr. Darwin's words come to this—that "variation will cause the variations."

There does not seem any better way out of this dilemma than that which Mr. Darwin has adopted—namely, to hold out natural selection as "a means" of modification, and thenceforward to treat it as an efficient cause; but at the same time to protest again and again that it is not a cause. Accordingly he writes that "Natural Selection *acts only by the preservation and accumulation* of small inherited modifications,"^[350]—that is to say, it has had no share in inducing or causing these modifications. Again, "What

applies to one animal will apply throughout all time to all animals—*that is, if they vary, for otherwise natural selection can effect nothing*"^[351]; and again, "for natural selection only *takes advantage of such variations as*[Pg 348] *arise*"^[352]—the variations themselves arising, as we have just seen, from variation.

Nothing, then, can be clearer from these passages than that natural selection is not a cause of modification; while, on the other hand, nothing can be clearer, from a large number of such passages, as, for instance, "natural selection may be *effective in giving and keeping* colour,"^[353] than that natural selection is an efficient cause; and in spite of its being expressly declared to be only a "means" of modification, it will be accepted as cause by the great majority of readers.

Mr. Darwin explains this apparent inconsistency thus:—He maintains that though the advantageous modification itself is fortuitous, or without known cause or principle underlying it, yet its becoming the predominant form of the species in which it appears is due to the fact that those animals which have been advantageously modified commonly survive in times of difficulty, while the unmodified individuals perish: offspring therefore is more frequently left by the favourably modified animal, and thus little by little the whole species will come to inherit the modification. Hence the survival of the fittest becomes a means of modification, though it is no cause of variation.

It will appear more clearly later on how much this amounts to. I will for the present content myself with the following quotation from the late Mr. G. H. Lewes in reference to it. Mr. Lewes writes:—

"Mr. Darwin seems to imply that the external conditions which cause a variation are to be distinguished[Pg 349] from the conditions which accumulate and perfect such variation, that is to say, he implies a radical difference between the process of variation and the process of selection. This I have already said does not seem to me acceptable; the selection I conceive to be simply the variation which has survived."^[354]

Certainly those animals and plants which are best fitted for their environment, or, as Lamarck calls it, "*circonstances*"—those animals, in fact, which are best fitted to comply with the conditions of their existence—are most likely to survive and transmit their especial fitness. No one would admit this more readily than Lamarck. This is no theory; it is a commonly observed fact in nature which no one will dispute, but it is not more "a means of modification" than many other commonly observed facts concerning animals.

Why is "the survival of the fittest" more a means of modification than, we will say, the fact that animals live at all, or that they live in successive generations, being born, continuing their species, and dying, instead of living on for ever as one single animal in the common acceptance of the term; or than that they eat and drink?

The heat whereby the water is heated, the water which is turned into steam, the piston on which the steam acts, the driving wheel, &c., &c., are all one as much as another a means whereby a train is made to go from one place to another; it is impossible to say that any one of them is the main means. So (*mutatis mutandis*) with modification. There is no reason therefore[Pg 350] why "the survival of the fittest" should claim to be an especial "means of modification" rather than any other necessary adjunct of animal or vegetable life.

I find that the late Mr. G. H. Lewes has insisted on this objection in his 'Physical Basis of Mind.' I observe, also, that in the very passage in which he does so, Mr. Lewes appears to have been misled by Mr. Darwin's use of that dangerous word "means," and, at the same time, by his frequent treatment of natural selection as though it were an active cause; so that Mr. Lewes supposes Mr. Darwin to have fallen into the very error of which, as I have above shown, he is evidently struggling to keep clear—namely, that of maintaining natural selection to be a "cause" of variation. Mr. Lewes then continues:—

"He [Mr. Darwin] separates Natural Selection from all the primary causes of variation either internal or external—either as results of the laws of growth, of the correlations of variation, of use and disuse, &c., and limits it to the slow accumulation of such variations as are profitable in the struggle with competitors. And for his purpose this separation is necessary. But biological philosophy must, I think, regard the distinction as artificial, *referring only to one of the great factors in the production of species*." [\[355\]](#)

The fact that one in a brood or litter is born fitter for the conditions of its existence than its brothers and sisters, and, again, the causes that have led to this one's having been born fitter—which last is what the older[Pg 351] evolutionists justly dwelt upon as the most interesting consideration in connection with the whole subject—are more noteworthy factors of modification than the factor that an animal, if born fitter for its conditions, will commonly survive longer in the struggle for existence. If the first of these can be explained in such a manner as to be accepted as true, or highly probable, we have a substantial gain to our knowledge. The second is little—if at all—better than a truism. Granted, if it were not generally the case that those forms are most likely to survive which are best fitted for the conditions of their existence, no adaptation of form to conditions of existence could ever have come about. "The

survival of the fittest" therefore, or, perhaps better, "the fertility of the fittest," is thus a *sine quâ non* for modification. But, as we have just insisted, this does not render "the fertility of the fittest" an especial "means of modification," rather than any other *sine quâ non* for modification.

But, to look at the matter in another light. Mr. Darwin maintains natural selection to be "the most important but not the exclusive means of modification."

For "natural selection" substitute the words "survival of the fittest," which we may do with Mr. Darwin's own consent abundantly given.

To the words "survival of the fittest" add what is elided, but what is, nevertheless, unquestionably as much implied as though it were said openly whenever these words are used, and without which "fittest" has no force—I mean, "for the conditions of their existence."

We thus find that when Mr. Darwin says that natural[Pg 352] selection is the most important, but not exclusive means of modification, he means that the survival in the struggle for existence of those creatures which are best fitted to comply with the conditions of their existence is the most important, but not exclusive means whereby the descendants of a creature, we will say, A, have become modified, so as to be now represented by a creature, we will say, B.

But the word "*circumstances*," so frequently used by Lamarck for the conditions of an animal's existence, contains, by implication, the idea of animals *which shall exist or not according as they fulfil those conditions or fail to fulfil them*. Conditions of existence are conditions which something capable of existing must fulfil if it would exist at all, and nothing is a condition of an animal's existence which that animal need not comply with and may yet continue to exist. Again, the words "animals" and "plants" comprehend the ideas of "fit," "fitter," and "fittest," "unfit," "unfitter," and "unfittest" for certain conditions, for we know of no animals or plants in which we do not observe degrees of fitness or unfitness for their "*circumstances*" or environment, or conditions of existence.

The use, therefore, of the term "conditions of existence" is sufficient to show that the person using it intends to imply that those animals and plants will live longest (or survive) and thrive best which are best able to fulfil those conditions. Hence it implies neither more nor less than what is implied by the words "struggle for existence, with consequent survival of the fittest"—that is to say, if we hold the complying[Pg 353] with any condition of life to which difficulty is attached to be part of "the struggle" for life, and this we should certainly do.

The words "conditions of existence" may, then, be used instead of the "struggle for existence with consequent survival of the fittest," for as they cannot imply any less than the "struggle, &c.," when they are set out in full, and without suppression, so neither do they imply more; for nothing is a condition of existence, in so far as its power of effecting the modification of any animal is concerned, which does not also involve more or less difficulty or struggle; for if there is no difficulty or struggle there will be nothing to bring about change of habit, and hence of structure. This identity of meaning may be also seen if we call to mind that the conditions of existence can be only a synonym for "the conditions of continuing to live," and "the conditions of continuing to live" a synonym for "the conditions of continuing to live a longer time," and "the conditions of continuing to live a longer time," for "the conditions of survival," and "the conditions of survival," for "the survival of the fittest," inasmuch as the being fittest is the condition of being the longest survivor.

But we have already seen that "the survival of the fittest," is, according to Mr. Darwin, a synonym for "natural selection"; hence it follows that "the conditions of existence" imply neither more nor less than what is implied by "natural selection" when this expression is properly explained, and may be used instead of it; so that when Mr. Darwin says that "natural selection" is the main but not exclusive means of modification,[Pg 354] he must mean, consciously or unconsciously, that "the conditions of existence" are the main but not exclusive means of modification. But this is only falling in with "the views and erroneous grounds of opinion," as Mr. Darwin briefly calls them, of Lamarck himself; a fact which Mr. Darwin's readers would have seen more readily if he had kept to the use of the words "survival of the fittest" instead of "natural selection." Of that expression Mr. Darwin says^[356] that it is "more accurate" than natural selection, but naively adds, "and sometimes equally convenient."

I have said that there is a practical identity of meaning between "natural selection" and "the conditions of existence," when both expressions are fully extended. I say this, however, without prejudice to my right of maintaining that, of the two expressions, the one is accurate, lucid, and calculated to keep the thread of the argument well in sight of the reader, while the other is inaccurate, and always, if I may say so, less "convenient," as being always liable to lead the reader astray. Nor should it be lost sight of that Lamarck and Dr. Erasmus Darwin maintain that species and genera have arisen *because animals can fashion themselves into accord with* their conditions, so that, as Lamarck is so continually insisting, the action of the conditions is indirect only—changed use and disuse being the direct causes; while, according to Mr. Darwin, it is natural selection itself (which, as we have seen, is but another way of

saying conditions of existence) that is the most important means of modification.[Pg 355]

The identity of meaning above insisted on was, on the face of it, almost as obscure as that between "*evêque* and bishop." Yet we know that "*evêque*" is "episc" and "bishop" "piscop," and that "episcopus" is the Latin for bishop; the words, therefore, are really one and the same, in spite of the difference in their appearance. I think I can show, moreover, that Mr. Darwin himself holds natural selection and the conditions of existence to be one and the same thing. For he writes, "in one sense," and it is hard to see any sense but one in what follows, "the conditions of life may be said not only to cause variability" (so that here Mr. Darwin appears to support Lamarck's main thesis) "either directly or indirectly, but likewise to include natural selection; for the conditions determine whether this or that variety shall survive."^[357] But later on we find that "the expression of conditions of existence, so often insisted upon by the illustrious Cuvier" (and surely also by the illustrious Lamarck, though he calls them "*circonstances*") "is fully embraced by the principle of natural selection."^[358] So we see that the conditions of life "*include*" natural selection, and yet the conditions of existence "*are fully embraced by*" natural selection, which, I take it, is an enigmatic way of saying that they are one and the same thing, for it is not until two bodies absolutely coincide and occupy the same space that the one can be said both to include and to be embraced by the other.

The difficulty, again, of understanding Mr. Darwin's meaning is enhanced by his repeatedly writing of[Pg 356] "natural selection," or the fact that the fittest survive in the struggle for existence, as though it were the same thing as "evolution" or the descent, through the accumulation of small modifications in many successive generations, of one species from another and different one. In the concluding and recapitulatory chapter of the 'Origin of Species,' he writes:—

"Turning to geographical distribution, the difficulties encountered *on the theory of descent with modification* are serious enough;"^[359] and in the next paragraph, "As, according to *the theory of natural selection, &c.*," the context showing that in each case descent with modification is intended.

Again:—

"On the theory of the *natural selection* of successive, slight, but profitable, modifications,"^[360] that is to say, on the theory of the survival of the fittest; while on the next page we find "*the theory of descent with modification*," and "*the principle of natural selection*," used as though they were convertible terms.

Again:—

"The existence of closely allied or representative species in any two areas implies, *on the theory of descent with modification*, &c.;"^[361] and, in the next paragraph, "*the theory of natural selection*, with its contingencies of extinction and divergence of character," is substituted as though the two expressions were identical.

This is calculated to mislead. Independently of the fact that "natural selection," or "the survival of the [Pg 357] fittest," is in no sense a theory, but simply an observed fact, yet even if the words are allowed to stand for "descent with modification by means of natural selection," it is still misleading to write as though this were synonymous with "the theory of evolution," or "the theory of descent with modification." To do this prevents the reader from bearing in mind that "evolution by means of the circumstance-suited power of plants and animals" as advanced by the earlier evolutionists; and "evolution by means of lucky accidents" with comparatively little circumstance-suited power, are two very different things, of which the one may be true and the other untrue. It leads the reader to forget that evolution by no means stands or falls with evolution by means of natural selection, and makes him think that if he accepts evolution at all, he is bound to Mr. Darwin's view of it. Hence, when he falls in with such writers as Professor Mivart and the Rev. J. J. Murphy, who show, and very plainly, that the survival of the fittest, unsupplemented by something which shall give a definite aim to the variations which successively occur, fails to account for the coadaptations of need and structure, he imagines that evolution has much less to say for itself than it really has. If Mr. Darwin, instead of taking the line which he has thought fit to adopt towards Buffon, Dr. Erasmus Darwin, Lamarck, and the author of the 'Vestiges,' had shown us what these men taught, why they taught it, wherein they were wrong, and how he proposed to set them right, he would have taken a course at once more agreeable with ordinary practice, and more likely [Pg 358] to clear misconception from his own mind and from those of his readers.

Mr. Darwin says, ^[362] "it is easy to hide our ignorance under such expressions as 'the plan of creation' and 'unity of design.'" Surely, also, it is easy to hide want of precision of thought, and the absence of any fundamental difference between his own main conclusion and that of Dr. Darwin and Lamarck whom he condemns, under the term "natural selection."

I assure the reader that I find the task of forming a clear, well-defined conception of Mr. Darwin's meaning, as expressed in his 'Origin of Species,' comparable only to that of one who has to act on the advice of a lawyer who has obscured the main issue as far as he can, and whose chief aim has been to make as many loopholes as possible

for himself to escape through in case of his being called to account. Or, again, to that of one who has to construe an Act of Parliament which was originally framed so as to throw dust in the eyes of those who would oppose the measure, and which, having been since found unworkable, has had clauses repealed and inserted up and down it, till it is in an inextricable tangle of confusion and contradiction.

As an example of my meaning, I will quote a passage to which I called attention in 'Life and Habit.' It runs:—

"In the earlier editions of this work I underrated, as now seems probable, the frequency and importance of modifications due to spontaneous variability. But it is impossible to attribute to *this cause*" (i. e. spontaneous[Pg 359] variability, which is itself only an expression for unknown causes) "the innumerable structures which are so well adapted to the habits of life of each species. I can no more believe in *this*" (i. e. that the innumerable structures, &c., can be due to unknown causes) "than that the well adapted form of a racehorse or greyhound, which, before the principle of selection by man was well understood, excited so much surprise in the minds of the older naturalists, can *thus*" (i. e. by attributing them to unknown causes) "be explained."^[363]

This amounts to saying that unknown causes can do so much, but cannot do so much more. On this passage I wrote, in 'Life and Habit':—

"It is impossible to believe that, after years of reflection upon his subject, Mr. Darwin should have written as above, especially in such a place, if his mind was clear about his own position. Immediately after the admission of a certain amount of miscalculation there comes a more or less exculpatory sentence, which sounds so right that ninety-nine people out of a hundred would walk through it, unless led by some exigency of their own position to examine it closely, but which yet, upon examination, proves to be as nearly meaningless as a sentence can be."^[364]

No one, to my knowledge, has impugned the justice of this criticism, and I may say that further study of Mr. Darwin's works has only strengthened my conviction of the confusion and inaccuracy of thought, which detracts so greatly from their value.[Pg 360]

So little is it generally understood that "evolution" and what is called "Darwinism" convey indeed the same main conclusion, but that this conclusion has been reached by two distinct roads, one of which is impregnable, while the other has already fallen into the hands of the enemy, that in the last November number of the 'Nineteenth Century' Professor Tyndall, while referring to descent with modification or evolution,

speaks of it as though it were one and inseparable from Mr. Darwin's theory that it has come about mainly by means of natural selection. He writes:—

"*Darwin's theory*, as pointed out nine or ten years ago by Helmholtz and Hooker, was then exactly in this condition of growth; and had they to speak of the subject to-day they would be able to announce an enormous strengthening of the theoretic fibre. Fissures in continuity which then existed, and which left little hope of being ever spanned, have been since bridged over, so that the further *the theory* is tested the more fully does it harmonize with progressive experience and discovery. We shall never probably fill all the gaps; but this will not prevent a profound belief in the truth of *the theory* from taking root in the general mind. Much less will it justify a total denial of *the theory*. The man of science, who assumes in such a case the position of a denier, is sure to be stranded and isolated."

This is in the true vein of the professional and orthodox scientist; of that new orthodoxy which is clamouring for endowment, and which would step into the Pope's shoes to-morrow, if we would only let it. If [Pg 361] Professor Tyndall means that those who deny evolution will find themselves presently in a very small minority, I agree with him; but if he means that evolution is Mr. Darwin's theory, and that he who rejects what Mr. Darwin calls "the theory of natural selection" will find himself stranded, his assertion will pass muster with those only who know little of the history and literature of evolution.

FOOTNOTES:

[347]'Origin of Species,' Hist. Sketch, p. xiii.

[348]'Physical Basis of Mind,' p. 108.

[349]'Origin of Species,' p. 146.

[350]Ibid. p. 75.

[351]Ibid. p. 88.

[352]'Origin of Species,' p. 98.

[353]Ibid. p. 66.

[354]'Physical Basis of the Mind,' p. 109, 1878.

[355]'Physical Basis of the Mind,' p. 107, 1878.

[356]'Origin of Species,' p. 49.

[357]'Origin of Species,' p. 107.

[358]Ibid. p. 166.

[359]'Origin of Species,' p. 406.

[360]Ibid, p. 416.

[361]Ibid. p. 419.

[362]'Origin of Species,' p. 422.

[363]'Origin of Species,' p. 171, ed. 1876.

[364]'Life and Habit,' p. 260.

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CHAPTER XXI.

MR. DARWIN'S DEFENCE OF THE EXPRESSION, NATURAL SELECTION— PROFESSOR MIVART AND NATURAL SELECTION.

So important is it that we should come to a clear understanding upon the positions taken by Mr. Darwin and Lamarck respectively, that at the risk of wearying the reader I will endeavour to exhaust this subject here. In order to do so, I will follow Mr. Darwin's answer to those who have objected to the expression, "natural selection."

Mr. Darwin says:—

"Several writers have misapprehended or objected to the term 'natural selection.' Some have even imagined that natural selection induces variability." [365]

And small wonder if they have; but those who have fallen into this error are hardly worth considering. The true complaint is that Mr. Darwin has too often written of "natural selection" as though it does induce variability, and that his language concerning it is so confusing that the reader is not helped to see that it really comes to nothing but a cloak of difference from his predecessors, under which there lurks a concealed [Pg 363] identity of opinion as to the main facts. The reader is thus led to look upon it as something positive and special, and, in spite of Mr. Darwin's disclaimer, to think of it as an actively efficient cause.

Few will deny that this complaint is a just one, or that ninety-nine out of a hundred readers of average intelligence, if asked, after reading Mr. Darwin's 'Origin of Species,'

what was the most important cause of modification, would answer "natural selection." Let the same readers have read the 'Zoonomia' of Dr. Erasmus Darwin, or the 'Philosophie Zoologique' of Lamarck, and they would at once reply, "the wishes of an animal or plant, as varying with its varying conditions," or more briefly, "sense of need."

"Whereas," continues Mr. Darwin, "it" (natural selection) "implies only the preservation of such variations as arise, and are beneficial to the being under its conditions of life. No one objects to agriculturists speaking of the potent effects of man's selection."

Of course not; for there *is* an actual creature man, who actually does select with a set purpose in order to produce such and such a result, which result he presently produces.

"And in this case the individual differences given by nature, which man for some object selects, must first occur."

This shows that the complaint has already reached Mr. Darwin, that in not showing us how "the individual differences first occur," he is really leaving us absolutely in the dark as to the cause of all modification—giving us an 'Origin of Species' with "the origin" cut[Pg 364] out; but I do not think that any reader who has not been compelled to go somewhat deeply into the question would find out that this is the real gist of the objection which Mr. Darwin is appearing to combat. A general impression is left upon the reader that some very foolish objectors are being put to silence, that Mr. Darwin is the most candid literary opponent in the world, and as just as Aristides himself; but if the unassisted reader will cross-question himself what it is all about, I shall be much surprised if he is ready with his answer.

"Others"—to resume our criticism on Mr. Darwin's defence—"have objected that the term implies conscious choice in the animals which become modified, and it has been even urged that as plants have no volition, natural selection is not applicable to them!"

This—unfortunately—must have been the objection of a slovenly, or wilfully misapprehending reader, and was unworthy of serious notice. But its introduction here tends to draw the reader from the true ground of complaint, which is that at the end of Mr. Darwin's book we stand much in the same place as we did when we started, as regards any knowledge of what is the "origin of species."

"In the literal sense of the word, no doubt, natural selection is a false term."

Then why use it when another, and, by Mr. Darwin's own admission, a "more accurate" one is to hand in "the survival of the fittest"?^[366] This term is not appreciably longer than natural selection. Mr. Darwin may[Pg 365] say, indeed, that it is "sometimes" as convenient a term as natural selection; but the kind of men who exercise permanent effect upon the opinions of other people will bid such a passage as this stand aside somewhat sternly. If a term is not appreciably longer than another, and if at the same time it more accurately expresses the idea which is intended to be conveyed, it is not sometimes only, but always, more convenient, and should immediately be substituted for the less accurate one.

No one complains of the use of what is, strictly speaking, an inaccurate expression, when it is nevertheless the best that we can get. It may be doubted whether there is any such thing possible as a perfectly accurate expression. All words that are not simply names of things are apt to turn out little else than compendious false analogies; but we have a right to complain when a writer tells us that he is using a less accurate expression when a more accurate one is ready to his hand. Hence, when Mr. Darwin continues, "Who ever objected to chemists speaking of the elective affinities of the various elements? and yet an acid cannot strictly be said to elect the base with which it by preference combines," he is beside the mark. Chemists do not speak of "elective affinities" in spite of there being a more accurate and not appreciably longer expression at their disposal.

"It has been said," continues Mr. Darwin, "that I speak of natural selection as an active power or deity. But who objects to an author speaking of the attraction of gravity? Everyone knows what is meant and implied[Pg 366] by such metaphorical expressions, and they are almost necessary for brevity."

Mr. Darwin certainly does speak of natural selection "acting," "accumulating," "operating"; and if "every-one knew what was meant and implied by this metaphorical expression," as they now do, or think they do, in the case of the attraction of gravity, there might be less ground of complaint; but the expression was known to very few at the time Mr. Darwin introduced it, and was used with so much ambiguity, and with so little to protect the reader from falling into the error of supposing that it was the cause of the modifications which we see around us, that we had a just right to complain, even in the first instance; much more should we do so on the score of the retention of the expression when a more accurate one had been found.

If the "survival of the fittest" had been used, to the total excision of "natural selection" from every page in Mr. Darwin's book—it would have been easily seen that "the survival of the fittest" is no more a cause of modification, and hence can give no more

explanation concerning the origin of species, than the fact of a number of competitors in a race failing to run the whole course, or to run it as quickly as the winner, can explain how the winner came to have good legs and lungs. According to Lamarck, the winner will have got these by means of sense of need, and consequent practice and training, on his own part, and on that of his forefathers; according to Mr. Darwin, the "most important means" of his getting them is his "happening" to be born with them, coupled, with the fact that his uncles and aunts for[Pg 367] many generations could not run so well as his ancestors in the direct line. But can the fact of his uncles and aunts running less well than his fathers and mothers be a means of his fathers and mothers coming to run *better than they used to run*?

If the reader will bear in mind the idea of the runners in a race, it will help him to see the point at issue between Mr. Darwin and Lamarck. Perhaps also the double meaning of the word race, as expressing equally a breed and a competition, may not be wholly without significance. What we want to be told is, not that a runner will win the prize if he can run "ever such a little" faster than his fellows—we know this—but by what process he comes to be able to run ever such a little faster.

"So, again," continues Mr. Darwin, "it is difficult to avoid personifying nature, but I mean by nature only the aggregate action and product of many natural laws, and by laws the sequence of events as ascertained by us."

This, again, is raising up a dead man in order to knock him down. Nature has been personified for more than two thousand years, and every one understands that nature is no more really a woman than hope or justice, or than God is like the pictures of the mediæval painters; no one whose objection was worth notice could have objected to the personification of nature.

Mr. Darwin concludes:—

"With a little familiarity, such superficial objections will be forgotten."^[367]

[Pg 368]As a matter of fact, I do not see any greater tendency to acquiesce in Mr. Darwin's claim on behalf of natural selection than there was a few years ago, but on the contrary, that discontent is daily growing. To say nothing of the Rev. J. J. Murphy and Professor Mivart, the late Mr. G. H. Lewes did not find the objection a superficial one, nor yet did he find it disappear "with a little familiarity"; on the contrary, the more familiar he became with it the less he appeared to like it. I may even go, without fear, so far as to say that any writer who now uses the expression "natural selection," writes himself down thereby as behind the age. It is with great pleasure that I observe Mr. Francis Darwin in his recent lecture^[368] to have kept clear of it altogether, and to have

made use of no expression, and advocated no doctrine to which either Dr. Erasmus Darwin or Lamarck would not have readily assented. I think I may affirm confidently that a few years ago any such lecture would have contained repeated reference to Natural Selection. For my own part I know of few passages in any theological writer which please me less than the one which I have above followed sentence by sentence. I know of few which should better serve to show us the sort of danger we should run if we were to let men of science get the upper hand of us.

Natural Selection, then, is only another way of saying "Nature." Mr. Darwin seems to be aware of this when he writes, "Nature, if I may be allowed to personify the natural preservation or survival of the[Pg 369] fittest." And again, at the bottom of the same page, "It may metaphorically be said that *natural selection is daily and hourly scrutinizing* throughout the world the slightest variations."^[369] It may be metaphorically said that *Nature* is daily and hourly scrutinizing, but it cannot be said consistently with any right use of words, metaphorical or otherwise, that natural selection scrutinizes, unless natural selection is merely a somewhat cumbrous synonym for Nature. When, therefore, Mr. Darwin says that natural selection is the "most important, but not the exclusive means" whereby any modification has been effected, he is really saying that Nature is the most important means of modification—which is only another way of telling us that variation causes variations, and is all very true as far as it goes.

I did not read Professor Mivart's 'Lessons from Nature,' until I had written all my own criticism on Mr. Darwin's position. From that work, however, I now quote the following:—

"It cannot then be contested that the far-famed 'Origin of Species,' that, namely, by 'Natural Selection,' has been repudiated in fact, though not expressly even by its own author. This circumstance, which is simply undeniable, might dispense us from any further consideration of the hypothesis itself. But the "conspiracy of silence," which has accompanied the repudiation tends to lead the unthinking many to suppose that the same importance still attaches to it as at first. On this account it may be well to ask the question, what, after all, *is* 'Natural Selection'?"[Pg 370]

"The answer may seem surprising to some, but it is none the less true, that 'Natural Selection' is simply nothing. It is an apparently positive name for a really negative effect, and is therefore an eminently misleading term. By 'Natural Selection' is meant the result of all the destructive agencies of Nature, destructive to individuals and to races by destroying their lives or their powers of propagation. Evidently, *the cause of the distinction of species* (supposing such distinction to be brought about in natural generation) *must be that which causes variation, and variation in one determinate*

direction in at least several individuals simultaneously." I should like to have added here the words "and during many successive generations," but they will go very sufficiently without saying.

"At the same time," continues Professor Mivart, "it is freely conceded that the destructive agencies in nature do succeed in preventing the perpetuation of monstrous, abortive, and feeble attempts at the performance of the evolutionary process, that they rapidly remove antecedent forms when new ones are evolved more in harmony with surrounding conditions, and that their action results in the formation of new characters when these have once attained sufficient completeness to be of real utility to their possessor.

"Continued reflection, and five years further pondering over the problems of specific origin have more and more convinced me that the conception, that the origin of all species 'man included' is due simply to conditions which are (to use Mr. Darwin's own words) 'strictly accidental,' is a conception utterly irrational." [Pg 371]

.....

"With regard to the conception as now put forward by Mr. Darwin, I cannot truly characterize it but by an epithet which I employ only with much reluctance. I weigh my words and have present to my mind the many distinguished naturalists who have accepted the notion, and yet I cannot hesitate to call it a '*puerile hypothesis*.'" ^[370]

I am afraid I cannot go with Professor Mivart farther than this point, though I have a strong feeling as though his conclusion is true, that "the material universe is always and everywhere sustained and directed by an infinite cause, for which to us the word mind is the least inadequate and misleading symbol." But I feel that any attempt to deal with such a question is going far beyond that sphere in which man's powers may be at present employed with advantage: I trust, therefore, that I may never try to verify it, and am indifferent whether it is correct or not.

Again, I should probably differ from Professor Mivart in finding this mind inseparable from the material universe in which we live and move. So that I could neither conceive of such a mind influencing and directing the universe from a point as it were outside the universe itself, nor yet of a universe as existing without there being present—or having been present—in its every particle something for which mind should be the least inadequate and misleading symbol. But the subject is far beyond me.

As regards Professor Mivart's denunciations of [Pg 372] natural selection, I have only one fault to find with them, namely, that they do not speak out with sufficient bluntness. The difficulty of showing the fallacy of Mr. Darwin's position, is the difficulty

of grasping a will-o'-the-wisp. A concluding example will put this clearly before the reader, and at the same time serve to illustrate the most tangible feature of difference between Mr. Darwin and Lamarck.

FOOTNOTES:

[365]'Origin of Species,' p. 62.

[366]'Origin of Species,' p. 49.

[367]'Origin of Species,' p. 63.

[368]'Nature,' March 14 and 21, 1878.

[369]'Origin of Species,' p. 65.

[370]'Lessons from Nature,' p. 300.

[Pg 373]

CHAPTER XXII.

THE CASE OF THE MADEIRA BEETLES AS ILLUSTRATING THE DIFFERENCE BETWEEN THE EVOLUTION OF LAMARCK AND OF MR. CHARLES DARWIN—CONCLUSION.

An island of no very great extent is surrounded by a sea which cuts it off for many miles from the nearest land. It lies a good deal exposed to winds, so that the beetles which live upon it are in continual danger of being blown out to sea if they fly during the hours and seasons when the wind is blowing. It is found that an unusually large proportion of the beetles inhabiting this island are either without wings or have their wings in a useless and merely rudimentary state; and that a large number of kinds which are very common on the nearest mainland, but which are compelled to use their wings in seeking their food, are here entirely wanting. It is also observed that the beetles on this island generally lie much concealed until the wind lulls and the sun shines. These are the facts; let us now see how Lamarck would treat them.

Lamarck would say that the beetles once being on this island it became one of the conditions of their existence that they should not get blown out to sea. For once blown out to sea, they would be quite certain to be drowned. Beetles, when they fly, generally fly for [Pg 374] some purpose, and do not like having that purpose interfered with by something which can carry them all-whithers, whether they like it or no. If they are flying and find the wind taking them in a wrong direction, or seaward—which they

know will be fatal to them—they stop flying as soon as may be, and alight on *terra firma*. But if the wind is very prevalent the beetles can find but little opportunity for flying at all: they will therefore lie quiet all day and do as best they can to get their living on foot instead of on the wing. There will thus be a long-continued disuse of wings, and this will gradually diminish the development of the wings themselves, till after a sufficient number of generations these will either disappear altogether, or be seen in a rudimentary condition only. For each beetle which has made but little use of its wings will be liable to leave offspring with a slightly diminished wing, some other organ which has been used instead of the wing becoming proportionately developed. It is thus seen that the conditions of existence are the indirect cause of the wings becoming rudimentary, inasmuch as they preclude the beetles from using them; the disuse however on the part of the beetles themselves is the direct cause.

Now let us see how Mr. Darwin deals with the same case. He writes:—

"In some cases we might easily set down to disuse, modifications of structure which are *wholly or mainly* due to natural selection." Then follow the facts about the beetles of Madeira, as I have given them above. While we are reading them we naturally make up our[Pg 375] minds that the winglessness of the beetles will prove due either wholly, or at any rate mainly, to natural selection, and that though it would be easy to set it down to disuse, yet we must on no account do so. The facts having been stated, Mr. Darwin continues:—"These several considerations make me believe that the wingless condition of so many Madeira beetles is mainly due to the action of natural selection," and when we go on to the words that immediately follow, "combined probably with disuse," we are almost surprised at finding that disuse has had anything to do with the matter. We feel a languid wish to know exactly how much and in what way it has entered into the combination; but we find it difficult to think the matter out, and are glad to take it for granted that the part played by disuse must be so unimportant that we need not consider it. Mr. Darwin continues:—

"For during many successive generations each individual beetle which flew least, either from its wings having been ever so little less perfectly developed, or from indolent habit, will have had the best chance of surviving from not having been blown out to sea; and on the other hand those beetles which most readily took to flight would oftenest be blown out to sea and perish."[\[371\]](#)

So apt are we to believe what we are told, when it is told us gravely and with authority, and when there is no statement at hand to contradict it, that we fail to see that Mr. Darwin is all the time really attributing the winglessness of the Madeira beetles either to the *quâ* him *unknown causes* which have led[Pg 376] to the "ever so little less

perfect development of wing" on the part of the beetles that leave offspring—that is to say, is admitting that he can give no account of the matter—or else to the "indolent habit" of the parent beetles which has led them to disuse their wings, and hence gradually to lose them—which is neither more nor less than the "erroneous grounds of opinion," and "well-known doctrine" of Lamarck.

For Mr. Darwin cannot mean that the fact of some beetles being blown out to sea is the most important means whereby certain other beetles come to have smaller wings—that the Madeira beetles in fact come to have smaller wings mainly because their large winged uncles and aunts—go away.

But if he does not mean this, what becomes of natural selection?

For in this case we are left exactly where Lamarck left us, and must hold that such beetles as have smaller wings have them because the conditions of life or "circumstances" in which their parents were placed, rendered it inconvenient to them to fly, and thus led them to leave off using their wings.

Granted, that if there had been nothing to take unmodified beetles away, there would have been less room and scope for the modified beetles; also that unmodified beetles would have intermixed with the modified, and impeded the prevalence of the modification. But anything else than such removal of unmodified individuals would be contrary to our hypothesis. The very essence of conditions of existence is that there *shall be* something to take away[Pg 377] those which do not comply with the conditions; if there is nothing to render such and such a course a *sine quâ non* for life, there is no condition of existence in respect of this course, and no modification according to Lamarck could follow, as there would be no changed distribution of use.

I think that if I were to leave this matter here I should have said enough to make the reader feel that Lamarck's system is direct, intelligible and sufficient—while Mr. Darwin's is confused and confusing. I may however quote Mr. Darwin himself as throwing his theory about the Madeira beetles on one side in a later passage, for he writes:—

"It is probable that *disuse has been the main agent in rendering organs rudimentary*," or in other words that Lamarck was quite right—nor does one see why if disuse is after all the main agent in rendering an organ rudimentary, use should not have been the main agent in developing it—but let that pass. "It (disuse) would at first lead," continues Mr. Darwin, "by slow steps to the more and more complete reduction of a part, until at last it became rudimentary—as in the case of the eyes of animals inhabiting dark caverns, and of the wings of birds inhabiting oceanic islands, which

have seldom been forced by beasts of prey to take flight, and have ultimately lost the power of flying. Again, an organ useful under certain conditions, might become injurious under others, *as with the wings of beetles living on small and exposed islands*;"^[372] so that the rudimentary condition of the Madeira beetles' wings is here set down[Pg 378] as mainly due to disuse—while above we find it mainly due to natural selection—I should say that immediately after the word "islands" just quoted, Mr. Darwin adds "and in this case natural selection will have aided in reducing the organ, until it was rendered harmless and rudimentary," but this is Mr. Darwin's manner, and must go for what it is worth.

How refreshing to turn to the simple straightforward language of Lamarck.

"Long continued disuse," he writes, "in consequence of the habits which an animal has contracted, gradually reduces an organ, and leads to its final disappearance....

"Eyes placed in the head form an essential part of that plan on which we observe all vertebrate organisms to be constructed. Nevertheless the mole which uses its vision very little, has eyes which are only very small and hardly apparent.

"The *aspalax* of Olivier, which lives underground like the mole, and exposes itself even less than the mole to the light of day, has wholly lost the use of its sight, nor does it retain more than mere traces of visual organs, these traces again being hidden under the skin and under certain other parts which cover them up and leave not even the smallest access to the light. The Proteus, an aquatic reptile akin to the Salamander and living in deep and obscure cavities under water, has, like the *aspalax*, no longer anything but traces of eyes remaining—traces which are again entirely hidden and covered up."^[373]

"The following consideration should be decisive.[Pg 379]

"Light cannot penetrate everywhere, and as a consequence, animals which live habitually in places which it cannot reach, do not have an opportunity of using eyes, even though they have got them; but animals which form part of a system of organization which comprises eyes as an invariable rule among its organs, must have had eyes originally. Since then we find among these animals some which have lost their eyes, and which have only concealed traces of these organs, it is evident that the impoverishment, and even disappearance of the organs in question, must be the effect of long-continued disuse.

"A proof of this is to be found in the fact that the organ of hearing is never in like case with that of sight; we always find it in animals of whose system of organization hearing is a component part; and for the following reason, namely, that sound, which is the

effect of vibration upon the ear, can penetrate everywhere, and pass even through massive intermediate bodies. Any animal, therefore, with an organic system of which the ear is an essential part, can always find a use for its ears, no matter where it inhabits. We never, therefore, come upon rudimentary ears among the vertebrata, and when, going down the scale of life lower than the vertebrata, we come to a point at which the ear is no longer to be found; we never come upon ears again in any lower class.

"Not so with the organ of sight: we see this organ disappear, reappear, and disappear again with the possibility or impossibility of using eyes on the part of the creature itself. ^[374]

[Pg 380]"The great development of mantle in the acephalous molluscs has rendered eyes, and even a head, entirely useless to them. These organs, though belonging to the type of the organism, and by rights included in it, have had to disappear and become annihilated owing to continued default of use.

.....

"Many insects which, by the analogy of their order and even genus, should have wings, have nevertheless lost them more or less completely through disuse. A number of coleoptera, orthoptera, hymenoptera, and hemiptera give us examples, the habits of these animals never leading them to use their wings." ^[375]

I will here bring this present volume to a conclusion, hoping, however, to return to the same subject shortly, but to that part of it which bears upon longevity and the phenomena of old age. In 'Life and Habit' I pointed out that if differentiations of structure and instinct are considered as due to the different desires under different circumstances of an organism, which must be regarded as a single creature, though its development has extended over millions of years, and which is guided mainly by habit and memory until some disturbing cause compels invention—then the longevity of each generation or stage of this organism should depend upon the lateness of the average age of reproduction in each generation; so that an organism (using the word in its usual signification) which did not upon the average begin to reproduce itself till it was [Pg 381] twenty, should be longer lived than one that on the average begins to reproduce itself at a year old. I also maintained that the phenomena of old age should be referred to failure of memory on the part of the organism, which in the embryonic stages, infancy, youth, and early manhood, leans upon the memory of what it did when it was in the persons of its ancestors; in middle life, carries its action onward by

means of the impetus, already received, and by the force of habit; and in old age becomes puzzled, having no experience of any past existence at seventy-five, we will say, to guide it, and therefore forgetting itself more and more completely till it dies. I hope to extend this, and to bring forward arguments in support of it in a future work.

Of the importance of the theory put forward in 'Life and Habit'—I am daily more and more convinced. Unless we admit oneness of personality between parents and offspring, memory of the often repeated facts of past existences, the latency of that memory until it is rekindled by the presence of the associated ideas, or of a sufficient number of them, and the far-reaching consequences of the unconsciousness which results from habitual action, evolution does not greatly add to our knowledge as to how we shall live here to the best advantage. Add these considerations, and its value as a guide becomes immediately apparent; a new light is poured upon a hundred problems of the greatest delicacy and difficulty. Not the least interesting of these is the gradual extension of human longevity—an extension, however, which cannot be effected till many[Pg 382] many generations as yet unborn have come and gone. There is nothing, however, to prevent man's becoming as long lived as the oak if he will persevere for many generations in the steps which can alone lead to this result. Another interesting achievement which should be more quickly attainable, though still not in our own time, is the earlier maturity of those animals whose rapid maturity is an advantage to us, but whose longevity is not to our purpose.

The question—Evolution or Direct Creation of all species?—has been settled in favour of Evolution. A hardly less interesting and important battle has now to be fought over the question whether we are to accept the evolution of the founders of the theory—with the adjuncts hinted at by Dr. Darwin and Mr. Matthew, and insisted on, so far as I can gather, by Professor Hering and myself—or the evolution of Mr. Darwin, which denies the purposiveness or teleology inherent in evolution as first propounded. I am assured that such of my readers as I can persuade to prefer the old evolution to the new will have but little reason to regret their preference.

P.S.—As these sheets leave my hands, my attention is called to a review of Professor Haeckel's 'Evolution of Man,' by Mr. A. E. Wallace, in the 'Academy' for April 12, 1879. "Professor Haeckel maintains," says Mr. Wallace, "*that the struggle for existence in nature evolves new forms without design, just as the will of man produces new varieties in cultivation with design.*" I[Pg 383] maintain in preference with the older evolutionists, that in consequence of change in the conditions of their

existence, *organisms design new forms for themselves, and carry those designs out in additions to, and modifications of, their own bodies.*

"The science of rudimentary organs," continues Mr. Wallace, "which Haeckel terms 'dysteleology, or the doctrine of purposelessness,' is here discussed, and a number of interesting examples are given, the conclusion being that they prove the mechanical or monistic conception of the origin of organisms to be correct, and the idea of any 'all-wise creative plan an ancient fable.'" I see no reason to suppose, or again not to suppose, an all-wise creative plan. I decline to go into this question, believing it to be not yet ripe, nor nearly ripe, for consideration. I see purpose, however, in rudimentary organs as much as in useful ones, but a spent or extinct purpose—a purpose which has been fulfilled, and is now forgotten—the rudimentary organ being repeated from force of habit, indolence, and dislike of change, so long as it does not, to use the words of Buffon, "stand in the way of the fair development" of other parts which are found useful and necessary. I demur, therefore, to the inference of "purposelessness" which I gather that Professor Haeckel draws from these organs.

In the 'Academy' for April 19, 1879, Mr. Wallace quotes Professor Haeckel as saying that our "highly purposive and admirably-constituted sense-organs have developed without premeditated aim; that they have originated by the same mechanical process of Natural[Pg 384] Selection, by the same constant interaction of Adaptation and Heredity [what *is* Heredity but another word for unknown causes, unless it is explained in some such manner as in 'Life and Habit'?] by which all the other purposive contrivances of the animal organization have been slowly and gradually evolved during the struggle for existence."

I see no evidence for "premeditated aim" at any modification very far in advance of an existing organ, any more than I do for "premeditated aim" on man's part at any as yet inconceivable mechanical invention; but as in the case of man's inventions, so also in that of the organs of animals and plants, modification is due to the accumulation of small, well-considered improvements, as found necessary in practice, and the conduct of their affairs. Each step having been purposive, the whole road has been travelled purposively; nor is the purposiveness of such an organ, we will say, as the eye, barred by the fact that invention has doubtless been aided by some of those happy accidents which from time to time happen to all who keep their wits about them, and know how to turn the gifts of Fortune to account.

FOOTNOTES:

[\[371\]](#)'Origin of Species,' p. 109.

[372]'Origin of Species, p. 401.

[373]'Phil. Zool.,' tom. i. p. 242.

[374]'Phil. Zool.,' tom. i. p. 244.

[375]'Phil. Zool.,' tom. i. p. 245.

[Pg 385]

APPENDIX.

CHAPTER I.

REVIEWS OF 'EVOLUTION, OLD AND NEW.'

Those who have been at the pains to read the foregoing book will, perhaps, pardon me if I put before them a short account of the reception it has met with: I will not waste time by arguing with my critics at any length; it will be enough if I place some of their remarks upon my book under the same cover as the book itself, with here and there a word or two of comment.

The only reviews which have come under my notice appeared in the 'Academy' and the 'Examiner,' both of May 17, 1879; the 'Edinburgh Daily Review,' May 23, 1879; 'City Press,' May 21, 1879; 'Field,' May 26, 1879; 'Saturday Review,' May 31, 1879; 'Daily Chronicle,' May 31, 1879; 'Graphic' and 'Nature,' both June 12, 1879; 'Pall Mall Gazette,' June 18, 1879; 'Literary World,' June 20, 1879; 'Scotsman,' June 24, 1879; 'British Journal of Homœopathy' and 'Mind,' both July 1, 1879; 'Journal of Science,' July 18, 1879; 'Westminster Review,' July, 1879; 'Athenæum,' July 26, 1879; 'Daily News,' July 29, 1879; 'Manchester City[Pg 386] News,' August 16, 1879; 'Nonconformist,' November 26, 1879; 'Popular Science Review,' Jan. 1, 1880; 'Morning Post,' Jan. 12, 1880.

Some of the most hostile passages in the reviews above referred to are as follows:—

"From beginning to end, our eccentric author treats us to a dazzling flood of epigram, invective, and what appears to be argument; and finally leaves us without a single clear idea as to what he has been driving at."

.....

"Mr. Butler comes forward, as it were, to proclaim himself a professional satirist, and a mystifier who will do his best to leave you utterly in the dark with regard to his system of juggling. Is he a teleological theologian making fun of evolution? Is he an evolutionist making fun of teleology? Is he a man of letters making fun of science? Or is he a master of pure irony making fun of all three, and of his audience as well? For our part we decline to commit ourselves, and prefer to observe, as Mr. Butler observes of Von Hartmann, that if his meaning is anything like what he says it is, we can only say that it has not been given us to form any definite conception whatever as to what that meaning may be."—'Academy,' May 17, 1879, Signed Grant Allen.

Here is another criticism of "Evolution, Old and New"—also, I believe I am warranted in saying, by Mr. Grant Allen. These two criticisms appeared on the same day; how many more Mr. Allen may have written later on I do not know.[Pg 387]

We find the writer who in the 'Academy' declares that he has been left without "a single clear idea" as to what 'Evolution, Old and New,' has been driving at saying on the same day in the 'Examiner' that 'Evolution, Old and New,' "has a more evident purpose than any of its predecessors." If so, I am afraid the predecessors must have puzzled Mr. Allen very unpleasantly. What the purpose of 'Evolution, Old and New,' is, he proceeds to explain:—

"As to his (Mr. Butler's) main argument, it comes briefly to this: natural selection does not originate favourable varieties, it only passively permits them to exist; therefore it is the unknown cause which produced the variations, not the natural selection which spared them, that ought to count as the mainspring of evolution. That unknown cause Mr. Butler boldly declares to be the will of the organism itself. An intelligent ascidian wanted a pair of eyes, ^[376] so set to work and made itself a pair, exactly as a man makes a microscope; a talented fish conceived the idea of walking on dry land, so it developed legs, turned its swim bladder into a pair of lungs, and became an amphibian; an æsthetic guinea-fowl admired bright colours, so it bought a paint-box, studied Mr. Whistler's ornamental designs, and, painting itself a gilded and ocellated tail, was thenceforth a peacock. But how about plants? Mr. Butler does not shirk even this difficulty. The theory must be maintained at all hazards....[Pg 388] This is the sort of mystical nonsense from which we had hoped Mr. Darwin had for ever saved us."—'Examiner,' May 17, 1879.

In this last article, Mr. Allen has said that I am a man of genius, "with the unmistakable signet-mark upon my forehead." I have been subjected to a good deal of obloquy and misrepresentation at one time or another, but this passage by Mr. Allen is the only one I have seen that has made me seriously uneasy about the prospects of my literary reputation.

I see Mr. Allen has been lately writing an article in the 'Fortnightly Review' on the decay of criticism. Looking over it somewhat hurriedly, my eye was arrested by the following:—

"Nowadays any man can write, because there are papers enough to give employment to everybody. No reflection, no deliberation, no care; all is haste, fatal facility, stock phrases, commonplace ideas, and a ready pen that can turn itself to any task with equal ease, because supremely ignorant of all alike."

.....

"The writer takes to his craft nowadays, not because he has taste for literature, but because he has an incurable faculty for scribbling. He has no culture, and he soon loses the power of taking pains, if he ever possessed it. But he can talk with glib superficiality and imposing confidence about every conceivable subject, from a play or a picture to a sermon or a metaphysical essay. It is the utter indifference to subject-matter, joined with the vulgar unscrupulousness of pretentious[Pg 389] ignorance, that strikes the keynote of our existing criticism. Men write without taking the trouble to read or think."^[377]

The 'Saturday Review' attacked 'Evolution, Old and New,' I may almost say savagely. It wrote: "When Mr. Butler's 'Life and Habit' came before us, we doubted whether his ambiguously expressed speculations belonged to the regions of playful but possibly scientific imagination, or of unscientific fancies; and we gave him the benefit of the doubt. In fact, we strained a point or two to find a reasonable meaning for him. He has now settled the question against himself. Not professing to have any particular competence in biology, natural history, or the scientific study of evidence in any shape whatever, and, indeed, rather glorying in his freedom from any such superfluities, he undertakes to assure the overwhelming majority of men of science, and the educated public who have followed their lead, that, while they have done well to be converted to the doctrine of the evolution and transmutation of species, they have been converted on entirely wrong grounds."

.....

"When a writer who has not given as many weeks to the subject as Mr. Darwin has given years [as a matter of fact, it is now twenty years since I began to publish on the subject of Evolution] is not content to air his own crude, though clever, fallacies, but presumes to criticize Mr. Darwin with the superciliousness of a young schoolmaster looking over a boy's theme, it is[Pg 390] difficult not to take him more seriously than he deserves or perhaps desires. One would think that Mr. Butler was the travelled and laborious observer of Nature, and Mr. Darwin the pert speculator, who takes all his facts at secondhand."

.....

"Let us once more consider how matters stood a year or two before the 'Origin of Species' first appeared. The continuous evolution of animated Nature had in its favour the difficulty of drawing fixed lines between species and even larger divisions, all the indications of comparative anatomy and embryology, and a good deal of general scientific presumption. Several well-known writers, and some eminent enough to command respect, had expressed their belief in it. One or two far-seeing thinkers, among whom the place of honour must be assigned to Mr. Herbert Spencer, had done more. They had used their philosophic insight, which, to science, is the eye of faith, to descry the promised land almost within reach; they knew and announced how rich and spacious the heritage would be, if once the entry could be made good. But on that 'if' everything hung. Nature was not bound to give up her secret, or was bound only in a mocking covenant with an impossible condition: *Si cælum digito tetigeris*; if only some fortunate hand could touch the inaccessible firmament, and bring down the golden chain to earth! But fruition seemed out of sight. Even those who were most willing to advance in this direction, could only regret that they saw no road clear. There was a tempting vision, but nothing proven—many would have said nothing provable. A few years[Pg 391] passed, and all this was changed. The doubtful speculation had become a firm and connected theory. In the room of scattered foragers and scouts, there was an irresistibly advancing column. Nature had surrendered her stronghold, and was disarmed of her secret. And if we ask who were the men by whom this was done, the answer is notorious, and there is but one answer possible: the names that are for ever associated with this great triumph are those of Charles Darwin and Wallace."^[378]

I gave the lady or gentleman who wrote this an opportunity of acknowledging the authorship; but she or he preferred, not I think unnaturally, to remain anonymous.

The only other criticism of 'Evolution, Old and New,' to which I would call attention, appeared in 'Nature,' in a review of 'Unconscious Memory,' by Mr. Romanes, and contained the following passages:—

"But to be serious, if in charity we could deem Mr. Butler a lunatic, we should not be unprepared for any aberration of common sense that he might display.... A certain nobody writes a book ['Evolution, Old and New'] accusing the most illustrious man in his generation of burying the claims of certain illustrious predecessors out of the sight of all men. In the hope of gaining some notoriety by deserving, and perhaps receiving a contemptuous refutation from the eminent man in question, he publishes this book which, if it deserved serious consideration, would be not more of an insult to the particular man of science whom it accuses of conscious and wholesale plagiarism [there is no such [Pg 392] accusation in 'Evolution, Old and New'] than it would be to men of science in general for requiring such elementary instruction on some of the most famous literature in science from an upstart ignoramus, who, until two or three years ago, considered himself a painter by profession."—'Nature,' Jan. 27, 1881.

In a subsequent letter to 'Nature,' Mr. Romanes said he had been "acting the part of policeman" by writing as he had done. Any unscrupulous reviewer may call himself a policeman if he likes, but he must not expect those whom he assails to recognize his pretensions. 'Evolution, Old and New,' was not written for the kind of people whom Mr. Romanes calls men of science; if "men of science" means men like Mr. Romanes, I trust they say well who maintain that I am not a man of science; I believe the men to whom Mr. Romanes refers to be men, not of that kind of science which desires to know, but of that kind whose aim is to thrust itself upon the public as actually knowing. 'Evolution, Old and New,' could be of no use to these; certainly, it was not intended as an insult to them, but if they are insulted by it, I do not know that I am sorry, for I value their antipathy and opposition as much as I should dislike their approbation: of one thing, however, I am certain—namely, that before 'Evolution, Old and New,' was written, Professors Huxley and Tyndall, for example, knew very little of the earlier history of Evolution. Professor Huxley, in his article on Evolution in the ninth edition of the 'Encyclopædia Britannica,' published in 1878, says of the two great pioneers of [Pg 393] Evolution, that Buffon "contributed nothing to the general doctrine of Evolution,"^[379] and that Erasmus Darwin "can hardly be said to have made any real advance on his predecessors."^[380]

Professor Haeckel evidently knew little of Erasmus Darwin, and still less, apparently, about Buffon.^[381] Professor Tyndall,^[382] in 1878, spoke of Evolution as "Darwin's

theory"; and I have just read Mr. Grant Allen as saying that Evolutionism "is an almost exclusively English impulse."^[383]

Since 'Evolution, Old and New,' was published, I have observed several of the so-called men of science—among them Professor Huxley and Mr. Romanes—airing Buffon; but I never observed any of them do this till within the last three years. I maintain that "men of science" were, and still are, very ignorant concerning the history of Evolution; but, whether they were or were not, I did not write 'Evolution, Old and New,' for them; I wrote for the general public, who have been kind enough to testify their appreciation of it in a sufficiently practical manner.

The way in which Mr. Charles Darwin met 'Evolution, Old and New,' has been so fully dealt with in my book, 'Unconscious Memory;' in the 'Athenæum,' Jan. 31, 1880; the 'St. James's Gazette,' Dec. 8, 1880; and 'Nature,' Feb. 3, 1881, that I need not return to it here, more especially as Mr. Darwin has, by his silence, admitted that he has no defence to make.[Pg 394]

I have quoted by no means the most exceptionable parts of Mr. Romanes' article, and have given them a permanence they would not otherwise attain, inasmuch as nothing can better show the temper of the kind of men who are now—as I said in the body of the foregoing work—clamouring for endowment, and who would step into the Pope's shoes to-morrow if we would only let them.

FOOTNOTES:

[376] See p. 44, and the whole of chap. v., where I say of this supposition, that "nothing could be conceived more foreign to experience and common sense."

[377] 'Fortnightly Review,' March 1, 1882, pp. 344, 345.

[378] 'Saturday Review,' May 31, 1879, pp. 682-3.

[379] P. 748.

[380] *Ibid.*

[381] See pp. 71-73.

[382] 'Nineteenth Century' for November, pp. 360, 361.

[383] 'Fortnightly Review,' March, 1882.

CHAPTER II.

ROME AND PANTHEISM.

Evolution would after all be a poor doctrine if it did not affect human affairs at every touch and turn. I propose to devote the second chapter of this Appendix to the consideration of an aspect of Evolution which will always interest a very large number of people—the development of the relation that may exist between religion and science.

If the Church of Rome would only develop some doctrine or, I know not how, provide some means by which men like myself, who cannot pretend to believe in the miraculous element of Christianity, could yet join her as a conservative stronghold, I, for one, should gladly do so. I believe the difference between her faith and that of all who can be called gentlemen to be one of words rather than things. Our practical working ideal is much the same as hers; when we use the word "gentleman" we mean the same thing that the Church of Rome does; so that, if we get down below the words that formulate her teaching, there are few points upon which we should not agree. But, alas! words are often so very important.

How is it possible for myself, for example, to give people to understand that I believe in the doctrine of the Immaculate Conception or in the Lourdes miracles?[Pg 396] If the Pope could spare time to think about so insignificant a person, would he wish me to pretend such beliefs or think better of me if I did pretend them? I should be sorry to see him turn suddenly round and deny his own faith, and I am persuaded that, in like manner, he would have me continue to hold my own in peace; nevertheless, the duty of subordinating private judgment to the avoidance of schism is so obvious that, if we could see a practicable way of bridging the gulf between ourselves and Rome, we should be heartily glad to bridge it.

I speak as though the Church of Rome was the only one we can look to. I do not see how it is easy to dispute this. Protestantism has been tried and failed; it has long ceased to grow, but it has by no means ceased to disintegrate. Note the manner in which it is torn asunder by dissensions, and the rancour which these dissensions engender—a rancour which finds its way into the political and social life of Europe, with incalculable damage to the health and well-being of the world. Who can doubt but that there will be a split even in the Church of England ere so many years are over? Protestantism is like one of those drops of glass which tend to split up into minuter and minuter fragments the moment the bond that united them has been removed. It is as though the force of gravity had lost its hold, and a universal power of repulsion taken the place of attraction. This may, perhaps, come about some day in the material

as well as in the spiritual and political world, but the spirit of the age is as yet one of aggregation;[Pg 397] the spirit of Protestantism is one of disintegration. I maintain, therefore, that it is not likely to be permanent.

All the great powers of Europe have from numberless distinct tribes become first a few kingdoms or dukedoms, then two or three nations, and now homogeneous wholes, so that there is no chance of their further dismemberment through internal discontent; a process which has been going on for so many hundreds of years all over Europe is not likely to be arrested without ample warning. True, during the Roman Empire the world was practically bonded together, yet broke in pieces again; but this, I imagine, was because the bonding was prophetic and superficial rather than genuine. Nature very commonly makes one or two false starts, and misses her aim a time or two before she hits it. She nearly hit it in the time of Alexander the Great, but this was a short-lived success; in the case of the Roman Empire she succeeded better and for longer together. Where Nature has once or twice hit her mark as near as this she will commonly hit it outright eventually; the disruption of the Roman Empire, therefore, does not militate against the supposition that the normal condition of right-minded people is one which tends towards aggregation, or, in other words, towards compromise and the merging of much of one's own individuality for the sake of union and concerted action.

See, again, how Rome herself, within the limits of Italy, was an aggregation, an aggregation which has now within these last few years come together again after centuries of disruption; all middle-aged men have[Pg 398] seen many small countries come together in their own lifetime, while in America a gigantic attempt at disruption has completely failed. Success will, of course, sometimes attend disruption, but on the whole the balance inclines strongly in favour of aggregation and homogeneity; analogy points in the direction of supposing that the great civilized nations of Europe, as they are the coalition of subordinate provinces, so must coalesce themselves also to form a larger, but single empire. Wars will then cease, and surely anything that seems likely to tend towards so desirable an end deserves respectful consideration.

The Church of Rome is essentially a unifier. It is a great thing that nations should have so much in common as the acknowledgment of the same tribunal for the settlement of spiritual and religious questions, and there is no head under which Christendom can unite with as little disturbance as under Rome. Nothing more tends to keep men apart than religious differences; this certainly ought not to be the case, but it no less certainly is, and therefore we should strain many points and subordinate our private judgment to a very considerable extent if called upon to do so. A man, under these circumstances, is right in saying he believes in much that he does not believe in.

Nevertheless there are limits to this, and the Church of Rome requires more of us at present than we can by any means bring ourselves into assenting to.

It may be asked, Why have a Church at all? Why not unite in community of negation rather than of assertion? When I wrote 'Evolution, Old and New,' three[Pg 399] years ago, I thought, as now, that the only possible Church must be a development of the Church of Rome; and seeing no chance of agreement between avowed free-thinkers, like myself, and Rome (for I believed Rome immovable), I leaned towards absolute negation as the best chance for unity among civilized nations; but even then, I expressed myself as "having a strong feeling as though Professor Mivart's conclusion is true, that 'the material universe is always and everywhere sustained and directed by an infinite cause, for which to us the word mind is the least inadequate and misleading symbol.'"[384]

I had hardly finished 'Evolution, Old and New,' before I began to deal with this question according to my lights, in a series of articles upon God^[385] which appeared in the 'Examiner' during the summer of 1879, and I returned to the same matter more than once in 'Unconscious Memory,' my next succeeding work. The articles I intend recasting and rewriting, as they go upon a false assumption; but subsequent reflection has only confirmed me in the general result I arrived at—namely, the omnipresence of mind in the universe.

I have therefore come to see that we can go farther than negation, and in this case—a positive expression of faith as regards an invisible universe of some sort being possible—a Church of some sort is also possible, which shall formulate and express the general convictions as regards man's position in respect of this faith. I think[Pg 400] the instinct which has led so many countries towards a double legislative chamber, and ourselves, till at any rate quite recently, to a double system of jurisprudence, law and equity, was not arrived at without having passed through the stages of reason and reflection. There are a variety of delicate, almost intangible, questions which belong rather to conscience than to law, and for which a Church is a fitter tribunal—at any rate for many ages hence—than a parliament or law court. There is room, therefore, for both a State and a Church, each of which should be influenced by the action of the other.

I do not say that I personally should like to see the Church of Rome as at present constituted in the position which I should be glad to see attained by an ideal Church. If it were in that position I would attack it to the utmost of my power; but I have little hesitation in thinking that the world with a very possible feasible Church, would be better than the world with no Church at all; and, if so, I have still less hesitation in

concluding, for the reasons already given, that it is to Rome we must turn as the source from which the Church of the future is to be evolved, if it is to come at all.

For the new, if it is to strike deep root and be permanent, must grow out of the old, without too violent a transition. Some violence there will always be, even in the kindest birth; but the less the better, and a leap greater than the one from Judaism to Christianity is not desirable, even if it were possible. As a free-thinker, therefore, but also as one who wishes to take a practical view of the manner in which things will, and ought to go, I [Pg 401] neither expect to see the religions of the world come once for all to an end with the belief in Christianity—which to me is tantamount to saying with Rome—nor am I at all sure that such a consummation is more desirable than likely to come about. The ultimate fight will, I believe, be between Rome and Pantheism; and the sooner the two contending parties can be ranged into their opposite camps by the extinction of all intermediate creeds, the sooner will an issue of some sort be arrived at. This will not happen in our time, but we should work towards it.

When it arrives, what is to happen? Is Pantheism to absorb Rome, and, if so, what sort of a religious formula is to be the result? or is Rome so to modify her dogmas that the Pantheist can join her without doing too much violence to his convictions? We who are outside the Church's pale are in the habit of thinking that she will make little if any advances in our direction. The dream of a Pantheistic Rome seems so wild as hardly to be entertained seriously; nevertheless I am much mistaken if I do not detect at least one sign as though more were within the bounds of possibility than even the most sanguine of us could have hoped for a few years back. We do not expect the Church to go our whole length; it is the business of some to act as pioneers, but this is the last function a Church should assume. A Church should be as the fly-wheel of a steam-engine, which conserves, regulates and distributes energy, but does not originate it. In all cases it is more moral and safer to be a little behind the age than a little in front of it; a Church, therefore, ought to cling [Pg 402] to an old-established belief, even though her leaders know it to be unfounded, so long as any considerable number of her members would be shocked at its abandonment. The question is whether there are any signs as though the Church of Rome thought the time had come when she might properly move a step forward, and I rejoice to think, as I have said above, that at any rate one such sign—and a very important one—has come under my notice.

In his Encyclical of August 4, 1879, the Pope desires the Bishops and Clergy to restore the golden wisdom of St. Thomas Aquinas, and to spread it far and wide. "Vos omnes," he writes, "Venerabiles Fratres, quam enixe hortamur ut ad Catholicæ fidei tutelam et decus, ad societatis bonum, ad scientiarum omnium incrementum auream Sancti

Thomæ sapientiam restituatis, et quam latissime propagetis." He proceeds then with the following remarkable passage: "We say the wisdom of St. Thomas. For whatever has been worked out with too much subtleness by the doctors of the schools, or handed down inconsiderately, whatever is not consistent with the teachings of a later age, or finally, is in any way not probable, We in no wise intend to propose for acceptance in these days."^[386]

It would be almost possible to suppose that these words had been written inadvertently, so the Pope practically repeats them thus: "We willingly and[Pg 403] gratefully declare that whatsoever can be excepted with advantage, is to be excepted, no matter by whom it has been invented."^[387]

The passage just quoted is so pregnant that a few words of comment may be very well excused. In the first place, I cannot but admire the latitude which the Pope not only tolerates, but enjoins: he defines nothing, but declares point blank that if we find anything in St. Thomas Aquinas "not consistent with the assured teachings of a later age, or finally in any way not probable"—(what is not involved here?)—we are "in no wise to suppose" that it is being proposed for our acceptance. But it is a small step from allowing latitude in accepting or rejecting the parts of St. Thomas Aquinas which conflict with the assured result of later discoveries to allowing a similar latitude in respect, we will say, of St. Jude; and if of St. Jude, then of St. James the Less; and if of St. James the Less, then surely ere very long of St. James the Greater and St. John and St. Paul; nor will the matter stop there. How marvellously closely are the two extremes of doctrine approaching to one another! We, on the one hand, who begin with *tabulæ rasæ* having made a clean sweep of every shred of doctrine, lay hold of the first thing we can grasp with any firmness, and work back from it. We grope our way to evolution; through this to purposive evolution; through this to the omnipresence of mind and design throughout the universe; what is this but God? So that we can say with absolute freedom from[Pg 404] *équivoque* that we are what we are through the will of God. The theologian, on the other hand, starts with God, and finds himself driven through this to evolution, as surely as we found ourselves driven through evolution to the omnipresence of God.

Let us look a little more closely at the ground which the Church of Rome and the Evolutionist hold in common. St. Paul speaks of there being "one body and one spirit," and of one God as being "above all, and through all, and in you all."^[388] Again, he tells us that we are members of God's body, "of his flesh and of his bones;"^[389] in another place he writes that God has reconciled us to himself, "in the body of his flesh,"^[390] and in yet another of the Spirit of God "dwelling in us."^[391] St. Paul indeed is continually using language which implies the closest physical as well as spiritual union between

God and those at any rate of mankind who were Christians. Then he speaks of our "being builded together for an habitation of God through the spirit,"^[392] and of our being "filled with the fulness of God."^[393] He calls Christian men's bodies "temples of the Holy Spirit,"^[394] in fact it is not too much to say that he regarded Christian men's limbs as the actual living organs of God himself, for the expressions quoted above—and many others could be given—come to no less than this. It follows that since any man could unite himself to "the flesh and bones" of God by becoming a Christian, Paul had a perception of the unity at any rate of human life; and what Paul[Pg 405] admitted I am persuaded the Church of Rome will not deny.

Granted that Paul's notion of the unity of all mankind in one spirit animating, or potentially animating the whole was mystical, I submit that the main difference between him and the Evolutionist is that the first uses certain expressions more or less prophetically, and without perhaps a full perception of their import; while the second uses the same expressions literally, and with the ordinary signification attached to the words that compose them. It is not so much that we do not hold what Paul held, but that we hold it with the greater definiteness and comprehension which modern discovery has rendered possible. We not only accept his words, but we extend them, and not only accept them as articles of faith to be taken on the word of others, but as so profoundly entering into our views of the world around us that that world loses the greater part of its significance if we may not take such sayings as that "we are God's flesh and his bones" as meaning neither more nor less than what appears upon the face of them. We believe that what we call our life is part of the universal life of the Deity—which is literally and truly made manifest to us in flesh that can be seen and handled—ever changing, but the same yesterday, and to-day, and for ever.

So much for the closeness with which we have come together on matters of fact, and now for the *rapprochement* between us in respect of how much conformity is required for the sake of avoiding schism. We find ourselves driven through considerations of great obviousness[Pg 406] and simplicity to the conclusion that a man both may and should keep no small part of his opinions to himself, if they are too widely different from those of other people for the sake of union and the strength gained by concerted action; and we also find the Pope declaring of one of the brightest saints and luminaries of the Church that we need not follow him when it is plainly impossible for us to do so. Is it so very much to hope that ere many years are over the approximation will become closer still?

I have sometimes imagined that the doctrine of Papal Infallibility may be the beginning of a way out of the difficulty, and that its promoters were so eager for it, rather for the

facilities it afforded for the repealing of old dogmas than for the imposition of new ones. The Pope cannot, even now, under any circumstances, declare a dogma of the Church to be obsolete or untrue, but I should imagine he can, in council, *ex cathedra*, modify the interpretation to be put upon any dogma, if he should find the interpretation commonly received to be prejudicial to the good of the Church: and if so, the manner in which Rome can put herself more in harmony with the spirit of recent discoveries, without putting herself in an illogical position, is not likely to escape eyes so keen as those of the Catholic hierarchy. No sensible man will hesitate to admit that many an interpretation which was natural to and suitable for one age is unnatural to and unsuitable for another; as circumstances are always changing, so men's moods and the meanings they attach to words, and the state of their knowledge changes; and hence, also, the interpretation[Pg 407] of the dogmas in which their conclusions are summarized. There is nothing to be ashamed of or that needs explaining away in this; nothing can remain changeless under changed conditions; and that institution is most likely to be permanent which contains provision for such changes as time may prove to be expedient, with the least disturbance. I can see nothing, therefore, illogical or that needs concealment in the fact of an infallible Pope putting a widely different interpretation upon a dogma now, to what a no less infallible Pope put upon the same dogma fifteen hundred, or even fifteen years ago; it is only right, reasonable, and natural that this should be so. The Church of England may have made no provision for the virtual pruning off of dogmas that have become rudimentary, but the Encyclical from which I have just quoted leads me to think that the Church of Rome has found one, and, in her own cautious way, is proceeding to make use of it. If so, she may possibly in the end get rid of Protestantism by putting herself more in harmony with the spirit of the age than Protestantism can do. In this case, the spiritual reunion of Christendom under Rome ceases to be impossible, or even, I should think improbable. I heartily wish that my conjecture concerning future possibilities is not unfounded.

Scientists have been right in preaching evolution, but they have preached it in such a way as to make it almost as much of a stumbling-block as of an assistance. For though the fact that animals and plants are descended from a common stock is accepted by the greater and more reasonable part of mankind, these same people[Pg 408] feel that the evidence in favour of design in the universe is no less strong than that in favour of evolution, and our scientists, for the most part, uphold a theory of evolution of which the cardinal doctrine is that design and evolution have nothing to do with one another; the jar they raise, therefore, is as bad as the jar they have allayed.

It has been the object of the foregoing work to show that those who take this line are wrong, and that evolution not only tolerates design, but cannot get on without it. The unscrupulousness with which I have been attacked, together with the support given me by the general public, are sufficient proofs that I have not written in vain.

FOOTNOTES:

[384]P. 371.

[385]Published as "God the Known and God the Unknown" in 1909. (Fifield.)

[386]"Sapientiam Sancti Thomæ dicimus: si quid enim est a doctoribus scholasticis vel nimia subtilitate quæsitum, vel parum considerate traditum, si quid cum exploratis posterioris ævi doctrinis minus cohærens, vel denique quoque modo non probabile, id nullo pacto in animo est ætate nostra ad imitandum proponi."

[387]"Edicimus libenti gratoque animo excipiendum esse quidquid utiliter fuerit a quopiam inventum atque excogitatum."

[388]Eph. iv. 3, 4, 5.

[389]Eph. v. 30.

[390]Col. i. 22.

[391]Rom. viii. 2.

[392]Eph. ii. 22.

[393]Eph. iii. 19.

[394]1 Cor. vii. 19.

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