We do not know whether Mr. Darwin is related to the well-known author of the “Zoonomia,” whose physiological speculations, long since consigned to oblivion, attracted so much attention in the days of our grandfathers. If it be so, he has some hereditary claim to construct theories on the subject of zoological development. But as he has a far larger body of observed phenomena to work upon than were accessible to his predecessor in name and pursuit, so he has also brought to their consideration a less amount of proneness to conjectural and plausible theorizing, a better turn for patient investigation, and a more profound acquisition of scientific knowledge.

Mr. Darwin has to a great extent taken up the same ground which was trodden before by the author of the well-known “Vestiges of Creation.” That ingenious though recklessly unphilosophical book has, we strongly suspect, operated not a little to keep back inquiry from the mysterious subject of the propagation of the several forms of life. Our naturalists subdivide tribes into genera, genera into species, species into varieties. But it is impossible to lay down any precise rule whereby to distinguish in all cases the difference between two varieties of the same species from the difference between two species of the same genus. And that being so, how are we entitled to assume, as is commonly done, that the several varieties of the same species are all descended from one common type, while the several species are each descended from a separate type? On this point Mr. Darwin remarks-

In considering the origin of species, it is quite conceivable that a naturalist, reflecting on the mutual affinities of organic beings, on their embryological relations, their geographical distribution, geological succession, and other such facts, might come to the conclusion that each species had not been independently created, but had descended, like varieties, from other species. Nevertheless, such a conclusion, even if well founded, would be unsatisfactory, until it could be shown how the innumerable species inhabiting this world have been modified, so as to acquire that perfection of structure and coadaptation which most justly excites our admiration. Naturalists continually refer to external conditions, such as climate, food, &c, as the only possible cause of variation. In one very limited sense, as we shall hereafter see, this may be true; but it is preposterous to attribute to mere external conditions, the structure, for instance, of the woodpecker, with its feet, tail, beak, and tongue, so admirably adapted to catch insects under the bark of trees. In the case of the misteltoe, which draws its nourishment from certain trees, which has seeds that must be
transported by certain birds, and which has flowers with separate sexes absolutely requiring the agency of certain insects to bring pollen from one flower to the other, it is equally preposterous to account for the structure of this parasite, with its relations to several distinct organic beings, by the effects of external conditions, or of habit, or of the volition of the plant itself.

The author of the “Vestiges of Creation” would, I presume, say that, after a certain unknown number of generations, some bird had given birth to a woodpecker, and some plant to the mistletoe, and that these had been produced perfect as we now see them; but this assumption seems to me to be no explanation, for it leaves the case of the coadaptations of organic beings to each other and to their physical conditions of life, untouched and unexplained. It is, therefore, of the highest importance to gain a clear insight into the means of modification and coadaptation.

In endeavouring to trace out a law on this subject Mr. Darwin has wisely given his especial attention to the phenomena more immediately within our ken, those which are supplied by the domesticated animals. He observes that breeders of any stock produce important variations of type by selecting the animals from which to propagate, and that any peculiarities which they exhibit are, as a general rule, perpetuated and developed by inheritance. Then he argues that if there be any natural forces in operation analogous to the artificial selection made by breeders and fanciers, we may easily conjecture how the several lines of heritable blood would diverge more and more from each other and from the common ancestor, would develop in an increasing degree the organisation which fits them for any special circumstances, and seek more and more the circumstances for which they are fitted. Thus in a long succession the generations the descendants of a common stock would assume the distinct characteristics of different species, even to that recognised test of difference in species, the infertility of their mutual hybrids. This suggestion has often been thrown out before, but it has never been put forward, we think, in so definite a shape or so philosophical a spirit; nor has it ever received such illustration and support as is supplied to it by Mr. Darwin’s ingenuity and scientific knowledge.

The required natural force, analogous to the breeders’ selection, Mr. Darwin terms Natural Selection. There is, as he remarks, a constant struggle for existence going on, and that being so, he asks-

Can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others, would have the best chance of surviving and of procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would be rigidly destroyed.

[page 3 Introduction, F373]

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[page 80-81 Chap. IV. Natural selection, F373]
Elsewhere he illustrates the above process in the following fashion:

When we see leaf-eating insects green, and bark-feeders mottled-grey; the alpine ptarmigan white in winter, the red-grouse the colour of heather, and the black-grouse that of peaty earth, we must believe that these tints are of service to these birds and insects in preserving them from danger. Grouse, if not destroyed at some period of their lives, would increase in countless numbers; they are known to suffer largely from birds of prey; and hawks are guided by eyesight to their prey,—so much so, that on parts of the Continent persons are warned not to keep white pigeons, as being the most liable to destruction. Hence I can see no reason to doubt that natural selection might be most effective in giving the proper colour to each kind of grouse, and in keeping that colour, when once acquired, true and constant. Nor ought we to think that the occasional destruction of an animal of any particular colour would produce little effect: we should remember how essential it is in a flock of white sheep to destroy every lamb with the faintest trace of black.

Thus Mr. Darwin would suggest that all existing species have spread out from a few common types, and that there may still be a continuity of descent between our modern race of animals and the extinct forms of fossil life; so that the existing elephant may be “served heir” (as the Scotch lawyers say) to the mammoth of forgotten ages.

Our author frankly states the objections that may be urged against his theory, and he admits that the strongest is to be found in the want of any geological testimony in his favour; for having here the facts of a vast series of ages before us, we might reasonably expect to trace the gradual divergence of a species from its primordial type by the remains of those intermediate forms through which it has passed. He can only meet this objection by urging the imperfect state of the geological record so far as it is yet known to us:-

The several difficulties here discussed, namely our not finding in the successive formations infinitely numerous transitional links between the many species which now exist or have existed; the sudden manner in which whole groups of species appear in our European formations; the almost entire absence, as at present known, of fossiliferous formations beneath the Silurian strata, are all undoubtedly of the gravest nature. We see this in the plainest manner by the fact that all the most eminent palæontologists, namely Cuvier, Owen, Agassiz, Barrande, Falconer, E. Forbes, &c., and all our greatest geologists, as Lyell, Murchison, Sedgwick, &c., have unanimously, often vehemently, maintained the immutability of species. But I have reason to believe that one great authority, Sir Charles Lyell, from further reflexion entertains grave doubts on this subject. I feel how rash it is to differ from these great authorities, to whom, with others, we owe all our knowledge. Those who think the natural geological record in any degree perfect, and who do not attach much weight to the facts and arguments of other kinds given in this volume, will undoubtedly at once reject my theory. For my part, following out Lyell’s metaphor, I look at the natural geological
record, as a history of the world imperfectly kept, and written in a changing dialect; of this
history we possess the last volume alone, relating only to two or three countries. Of this
volume, only here and there a short chapter has been preserved; and of each page, only
here and there a few lines. Each word of the slowly-changing language, in which the history
is supposed to be written, being more or less different in the interrupted succession of
chapters, may represent the apparently abruptly changed forms of life, entombed in our
consecutive, but widely separated formations. On this view, the difficulties above discussed
are greatly diminished, or even disappear.

[page 310-11 Chap. IX. Geological record, F373].

In connexion with the palaeontological aspect of the question there is another consideration
which Mr. Darwin has not noticed, and which may in some sort be taken to militate against
his theory. We allude to the fact that the grandest and strongest types of animal life have
become extinct, while dwindled specimens of the same group survive among us. If in the
days when

A monstrous eft was of old the lord and master of earth,

he could not maintain his supremacy and existence, what could have been the more
favourable conditions which enabled his scurvy relations of the newt and lizard sort to
prosper, in their crawling way, at this present epoch?

One of the most curious chapters in Mr. Darwin’s book is that in which he illustrates his
theory from the indications of what we might term a yearning on the part of nature for a
common pattern on which to construct the several forms of life. Such are the phenomena of
what is termed Morphology:-

What can be more curious than that the hand of a man, formed for grasping, that of a mole
for digging, the leg of the horse, the paddle of the porpoise, and the wing of the bat, should
all be constructed on the same pattern, and should include the same bones, in the same
relative positions?

[page 434 Chap. XIII. Morphology, F373].

Such indications he also gathers from Embryology, as pointing out the similarity which exists
between the embryos of animals which at maturity are widely distinct. Perhaps the most
striking illustration of this sort is that drawn from the existence of rudimentary organs, such
as the mammary of males and the undeveloped upper jaw of ruminants.

It is obvious that Mr. Darwin’s speculations must jar on the pre-conceived opinions of those
who are pleased with such arguments as those advanced in Paley’s “Natural Theology.” In
fact the whole of that ingenious and interesting treatise is superseded if we admit Mr.
Darwin’s theory. Let it not be supposed, however, that the establishment of this theory (and
it can by no means be said to be established yet) is to be regarded as any gain to a Lucretian
view of cosmogony. It is surely not less a Divine act of creation, to impress a law upon
nature by which she develops herself, than to create the developed forms themselves. All the
progress of science leads us from the latter aspect of the Creator to the former. Happily we
are not dependent on scientific knowledge for the lesson which tells us of a God. From

The poor Indian, whose untutored mind
Sees God in clouds and hears him in the wind.
to a Humboldt with all the arena of Science before him, Nature teaches all one and the same
truth, though she varies the language in which she expressed it.
December 26, 1859.

JOHN BULL AND BRITANNIA.

suking an extensive business, is quite out of his reach, and the trade is not annoying beyond their present position. It is well for them to understand this, and not to allow their thoughts to dwell on such "musements" as would be considered as pleasures by the vulgar, or, in other words, to consider the things of this world and the things of the world as the only objects of their affections. With the "musements" that the vulgar hold in such high estimation, with the "fashions" that are displayed in the streets, with the "fashions" that are to be seen in the shops, with the "fashions" that are to be heard in the assembly rooms, with the "fashions" that are to be seen in the theaters, with the "fashions" that are to be seen in the churches, and with the "fashions" that are to be seen in the parks, they are not only to be avoided, but they are to be despised. They are to be avoided because they are unnatural, and they are to be despised because they are unprofitable. They are to be avoided because they are not to be seen, and they are to be despised because they are not to be heard. They are to be avoided because they are not to be spoken of, and they are to be despised because they are not to be thought of. They are to be avoided because they are not to be done, and they are to be despised because they are not to be done. They are to be avoided because they are not to be seen, and they are to be despised because they are not to be heard. They are to be avoided because they are not to be spoken of, and they are to be despised because they are not to be thought of. They are to be avoided because they are not to be done, and they are to be despised because they are not to be done. They are to be avoided because they are not to be seen, and they are to be despised because they are not to be heard. They are to be avoided because they are not to be spoken of, and they are to be despised because they are not to be thought of. They are to be avoided because they are not to be done, and they are to be despised because they are not to be done. They are to be avoided because they are not to be seen, and they are to be despised because they are not to be heard. They are to be avoided because they are not to be spoken of, and they are to be despised because they are not to be thought of. They are to be avoided because they are not to be done, and they are to be despised because they are not to be done.

In our notice of the British and Foreign Company last week, it was erroneously printed in our Saturday's "Penny," that they had not paid a dividend. The error could not be explained by the context.

To Mr. John Cholmley, on Church Rates.

Sirs,—I have the honour to bring to the notice of the Committee of the British and Foreign Company, the question of the value of church rates, and the light they throw upon the subject of church rates. It is in the interests of the Church that the rates should be reduced to a minimum; and I shall try to make you see that my views are not at variance with those of the Church. In the case of a county town like this, where the rates are already very high, it is not the wish of the Church to see them increased. In the case of a county town like this, where the rates are already very high, it is not the wish of the Church to see them increased.

In this sense, I mean, of course, that the Church does not wish to see them increased, and I am not going to argue that anything should be done to reduce them. But I am going to show that the present system is not only unprofitable, but it is also unwise.

The Church, I think, is of opinion that the rates should be reduced to a minimum; and I shall try to make you see that my views are not at variance with those of the Church. In the case of a county town like this, where the rates are already very high, it is not the wish of the Church to see them increased. In the case of a county town like this, where the rates are already very high, it is not the wish of the Church to see them increased.

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