"Half a century later (1859) appeared 'The origin of species by means of natural selection.' It was the result of long and careful observation, and is written in much more readable English than the work of the author's ancestor. I will now give some extracts, which relate to the subject before us, taken from the last edition of 1878.

"Page 409.—After mentioning the absence of strata beneath the Cambrian formation, the author says, 'That the geological record is imperfect all will admit; but that it is imperfect to the degree required by our theory, few will be inclined to admit. If we look to long enough intervals of time, geology plainly declares that species have all changed; and they have changed in the manner required by the theory, for they have changed slowly and in a graduated manner.'

"P. 417.—The paragraph as to the imperfection of the geological record is too long to quote in its entirety, but it states that, 'The extinction of species, and of whole groups of species, which has played so conspicuous a part in the history of the organic world, almost inevitably follows from the principle of natural selection; for old forms are supplanted by new and improved forms. Neither single species nor groups of species reappear when the chain of ordinary generation is once broken.' The remainder of this paragraph is considerably qualified by the use of such words as 'in some degree' and 'generally;' and it is therefore not open to any critical comment.

"P. 424.—'I believe that animals are descended from at most only four or five progenitors, and plants from an equal or lesser number. Analogy would lead me one step further, namely, to the belief that all animals and plants are descended from some one prototype.'

"'The origin of species' is couched in a most attractive style of scientific and philosophical candour; but I venture to think that the hypothesis advanced or advocated by the author is inconclusive and unsatisfactory.

"I may here parenthetically observe that both the Darwins had been to a certain extent anticipated in some of their conclusions. In 1733 Sellius ('Historia naturalis Teredinis seu Xylophagi marini') a learned lawyer and philosopher of Utrecht, and a Fellow of our Royal Society, disputed the common opinion which was entertained in his time by some neoteric writers that all living beings had descended from original forms or types.

"That part of Charles Darwin's work which proposes a *vera causa* for the origin of species by means of what he calls 'natural selection' does not seem to have met with general acceptance, even from Professor Huxley, who otherwise approves the doctrine of evolution. It is a very convenient *Deus ex machina* for solving all difficulties. Nor, when he added a subsidiary cause in 'sexual selection,' is that opinion shared by Mr. Wallace, who was the co-originator of the first-named and principal theory.

"What are the facts, so far as geology can teach us, with regard to the origin of species?

"Our knowledge of the earliest life-history of the world is entirely derived from the study of the fossilized remains of marine animals. It is unquestionable that the geological, or rather the palæontological, record is imperfect, especially when we consider that more than three-fourths of the earth's surface is covered by the sea, and is therefore inaccessible to us, and also that what we now call the primeval formations, such as the 'fundamental gneiss' of Murchison and the Laurentian rocks, have been subjected, perhaps over and over again, to volcanic or metamorphic action, and have consequently been deprived of all traces of their organic contents. But we can only take the data which our researches have enabled us to procure; and, until we have more complete information, we have no right to endeavour to explain the '*ignotum per ignotius*.' Let us examine the organic contents of those formations which appear to be the oldest in point of time.

"Having, as our present basis, the fact that the earliest fossiliferous formation known to us is marine, it is useless to expect to discover in that formation the original horse or other land mammal. But we do find in it among the marine organisms no less variety, nor a lower degree of organization, than at present exists in the same classes and orders of the animal kingdom.