

28th. March, 1929.
Revised 3rd April.

Major Leonard Darwin,
Cripps's Corner,
Forest Row,
SUSSEX.

Dear Major Darwin,

Many thanks for your letter on Chapters VII and VIII.

About free will modern physical views do seem to be beginning to make a little difference to the problem. If you consider the two alternative dogmas

(i) The exact laws of physics can be expressed as differential equations,

(ii) The exact laws of physics are statements of probability.

I doubt if any of the wave mechanics people would say now that (i) is more probably true than (ii).

If (ii) were true, interest centres on the ultimate independent units. Independent being now defined purely by the law of compounding independent probabilities. Such units are like monads, there is no going behind them, and though the behaviour of a large aggregate can be predicted, that of an individual cannot be. Monads need not be permanent entities in time.

The question arises "What determines which possible

course a monad will take, and the answer on this system is definitely NOTHING external to the monad. We may if we like say the monad chooses, but not that its choice, like that of man, in ~~any~~^{my} use of the term is influenced by outward circumstances.

There is no contradiction to rational thought in all this, though it certainly leaves unsolved the question of undetermined choice in the animal brain. It is not easy to imagine a system of considerable physical size the behaviour of which is appreciably arbitrary, but, though not easy, it is not impossible.

I doubt if all this affects my actual argument, which only requires that different men should behave differently, and would I think apply quite well to automata if they had an illusion of free choice.

I am particularly anxious to avoid misrepresenting your father's views; though I do not agree in emphasis with the earlier pages of "Organic Evolution". If Lamarckism had seemed acceptable I think it would have done all that your father said about Natural Selection, and would therefore have been as important as Natural Selection really is. To me it all hangs on the if. I believe your father jibbed before 1837 at putting forward the historical evidence without an effective working ^{cause} ~~cause~~, and that this attitude he would feel to be his duty as a follower of Lyell in geology.

In order to give a better form to the sentence I have

amended to :-

With a clear grasp of scientific principle which is not always sufficiently appreciated, it is evident that they felt that the mere historical fact of descent with modification, however great its popular interest, could not be usefully (was of minor importance discussed prior to the establishment of the means by which . compared with) such modification is being brought about.

Let me know if this seems to you a true statement of the state of opinion which made the reading of Malthus the turning point in the development of Evolutionary theory. This is not quite the same as asking you to agree with me in the matter of emphasis, which I do not altogether expect.

There is a sense in which an elephant's trunk is more different from a pig's snout than a man's brain from a dog's. I will even claim than a man's mind than a dog's, which is more than I can say. ^{However} Hence the example is not the best I could have chosen and perhaps I ought to suppress it.

Yours sincerely,

I have just received a third ^{daughter} chapter. All well.