

so good as to look at p. 111 and p. 148, vol. ii. of my "Variation of Animals and Plants under Domestication," he will find a good many facts and a discussion on the fertility and sterility of organisms from increased food and other causes. He will see my reasons for disagreeing with Mr. Doubleday, whose work I carefully read many years ago.

CHARLES DARWIN

Down, Beckenham, Kent, July 1

THE very ingenious manner in which Mr. Howorth first misrepresents Darwinism, and then uses an argument which is not even founded on his own misrepresentation, but on a quite distinct fallacy, may puzzle some of your readers. I therefore ask space for a few lines of criticism.

Mr. Howorth first "takes it" that the struggle for existence "means, in five words, the persistence of the stronger." This is a pure misrepresentation. Darwin says nothing of the kind. "Strength" is only one out of the many and varied powers and faculties that lead to success in the battle for life. Minute size, obscure colours, swiftness, armour, cunning, prolificness, nauseousness, or bad odour, have any one of them as much right to be put forward as the cause of "persistence." The error is so gross that it seems wonderful that any reader of Darwin could have made it, or, having made it, could put it forward deliberately as a fair foundation for a criticism. He says, moreover, that the theory of Natural Selection "has been expressively epitomised" as "the persistence of the stronger," "the survival of the stronger." By whom? I should like to know. I never saw the terms so applied in print by any Darwinian. The most curious and even ludicrous thing, however, is that, having thus laid down his premises, Mr. Howorth makes no more use of them, but runs off to something quite different, namely, that *fatness* is prejudicial to fertility. "Fat hens won't lay," "overgrown melons have few seeds," "overfed men have small families,"—these are the *facts* by which he seeks to prove that the *strongest* will not survive and leave offspring! But what does nature tell us? That the strongest and most vigorous plants *do* produce the most flowers and seed, not the weak and sickly. That the strongest and most healthy and best fed wild animals *do* propagate more rapidly than the starved and sickly. That the strong and thoroughly well-fed backwoodsmen of America increase more rapidly than any half-starved race of Indians upon earth. No *fact*, therefore, has been adduced to show that even "the persistence of the stronger" is not true; although, if this had been done, it would not touch Natural Selection, which is the "survival of the fittest."

ALFRED R. WALLACE

Our Natural History Museum

In a few days the country will be called upon to vote 30,000*l.* or 40,000*l.* towards the erection of the new Natural History Museum at Kensington. 7,000*l.* were voted last year for the purpose of drawing up estimates and preparing the site, and our present one at Bloomsbury has become such a crying evil that we can scarcely anticipate a refusal of the grant.

So liberal a sum being offered at the shrine of Science, the community at large will necessarily expect great things of her, and first among all a radical redress of all existing grievances. Yet, if rumour whispers true, the prospects of the future are scarcely so brilliant or pregnant with promises of better things to come as they should be. Plans have been drawn up and decided upon, and the chiefs of the present Natural History Departments have been subsequently consulted as to the amount of space required for the several collections under their charge.

This is itself a faulty commencement, for the building should be constructed for the requirements of the collections, and not the collections cut to the size of the building, and, as might have been anticipated, such policy already threatens to prove productive of disappointment and dissatisfaction. Some departments will profit by the change, while others, including the one mostly needing an enlargement of its borders, will absolutely have less than the present amount of space awarded it. We refer to the zoological one, whose present overcrowded and semi-arranged condition is a disgrace to the nation. And yet, on the completion of the present plans, this cramming process is threatened to be still further carried out, though it is to be hoped the voice of opposition and common sense will save us yet from so unfortunate a catastrophe. We hear again that no consideration whatever has been devoted to the subject of a library for the new building,

nor a single foot of space allotted to the purpose of constructing one. Such a blunder as this surpasses the first one. The scientific volumes in the present library are in constant requisition by the officers of the various departments to assist them in the determination and arrangement of the specimens. Many of these again are unique or only replaceable at a great cost, and the inconvenience and loss of advantages that will arise to the official staff on being separated from the collection of works they now have access to, cannot be over-estimated. If the Natural History collections must be removed, an edifice suitable for their thorough utilisation, and replete with every convenience for prosecuting scientific research, including efficient laboratories, should be erected.

But to commence at the root of the evil. No progress can be expected under present auspices, or so long as the chief administration of the establishment, and the appointment and promotion of all officers, is vested in the hands of some fifty or sixty trustees, out of whom not more than two can be said to take a direct interest in the promotion of Natural Science. Nor, again, so long as such little discrimination is exercised in the distribution of these officers. Curiosity has prompted inquiries which have elicited anything but satisfying discoveries. We find men with talents for one branch of natural history stationed in departments where their particular talents cannot be utilised; recent zoologists in the geological department, palæontologists in the recent botanical one, and men peculiarly gifted for literary pursuits and without the slightest taste for scientific research, in the former. Taking next the department of Recent Zoology, the inadequacy of the present staff and the ill-proportioned attention that is devoted to particular sections, to the entire neglect of the remaining ones, are painfully apparent. In the Vertebrate division, though abundant room for improvement, there is not so much cause for censure; but on descending to the lower and far more bulky one of the Invertebrates, what do we find? Of a staff of five, two are conchologists, and the remaining three entomologists, while the Crustacea, Arachnida, and the whole of the old group of the Radiates, including the Echinodermata, Mollusca, Coelenterata, and Protozoa, are left to shift for themselves, and make way for the necessities of the others. Have we no men in England capable of superintending the arrangement of these neglected classes? or is it that the present remuneration for scientific work, for all but those highest in authority—so slender as to necessitate their utilising every leisure hour in eking out other means of subsistence, and taxing their brains, to the detriment of the amount of work discharged in official hours—deters them from coming forward? At any rate, the evil should be attended to, and the present glaring incongruities abolished. Whether new buildings are erected at Kensington, or the existing ones enlarged, it is absolutely incumbent that the administration shall be thoroughly reorganised. A permanent committee of some dozen eminent scientific men should supply the place of the present host of uninterested trustees, and the staff of officers should be distributed in accordance with the plan adopted in the Paris and various Continental Museums. Each zoological section should have its superintendent, with a number of assistants varying according to its requirements, while one governing mind should assume the responsibility and direct the machinery of the whole; and until such reformation is accomplished, there is no hope of any practical improvements. We do not see why the two large wings of the present establishment, now occupied as residences by the superior officers, should not be converted into exhibition rooms; space enough being reserved for one official residence on either side; and if necessary, additional suitable ones might be rented in the immediate neighbourhood, and the collections thus saved the unavoidable wear and tear of removal, and at the same time preserved in their present convenient position of access to the general public. But the exodus has been decided upon, and the question itself is of secondary importance compared with that of administration. On a future occasion I would direct attention to a few other points.

BATHYBIUS

Steam Lifeboats

THE *Globe* of Friday last contained a report of the proceedings of the Committee of the Steam Lifeship Fund, from which it would appear that the subject of the construction of a steam lifeship is seriously contemplated. As one who has for several years given great attention to this most desirable object, perhaps you will allow me to give the results of my labours.