

inferior to the same? Surely it is as noble and as glorious and as serviceable to man's country, as he engaged in slaying the naked and feebling the hungry, as in shooting and devouring one fellow creature?

I have referred above only to the artisan, but have chosen him and the workshop merely for the sake of typical illustration; the remarks apply equally to all who are engaged in useful industry, in the distribution as well as to the producer, to the capitalist and organizer of labour as well as to the labourer himself. The grocer, the carpenter, who should understand and take intelligent interest in the natural history of the products that enter his domain, and the social machinery that brought them there from all the corners of the earth, would be a very different being from the mere parrot-like and change-making machine that usually weighs our tea and coffee.

I have then dwelt upon some of the grounds for giving special emphasis to the word "conscious," believing that the advocates of Technical Education are too apt to regard the subject from a merely technical point of view. It is of the utmost importance that we should be convinced of the perfect harmony which naturally and necessarily exists between moral and material welfare, when the best and swiftest means of obtaining either one or the other are followed, especially as there does exist in the minds of a certain class, both of workers and dreamers, a hostile prejudice and misconception, leading them to regard the advocates of Technical Education as a set of cold-blooded materialists, who look upon the workman as a mere productive engine which they seek to improve only in order to get more out of him. My opportunities of hearing the opinions and feelings of the better class of self-improving workmen have been rather extensive, and I have met with this idea more frequently than one might suppose were possible. Certain daily and weekly paper-headed writers, who are constantly harping about "the materialistic tendencies of the age" have encouraged these ideas, and as the art of smart writing and showy oratory are so very easily acquired, this class of sentimentalism is very numerous.

The work above named, which has suggested these remarks, is published in shilling parts, each containing a large number of well-selected and well-illustrated illustrations of art workmanship, a supplementary sheet of detailed working drawings, and essays on art-industry and miscellaneous technological subjects. Most of the illustrations are representative of continental art, and the character of the whole work is essentially German, including the typography, and some clerical errors in the English. As the chief use of such a work is to supply the English manufacturer with ideas that may help to concentrate him from slavish adherence to mere trade-customs and models, this feature is advantageous, provided it does not lower the too common fallacy of believing that our continental neighbours have a monopoly of artistic taste—a fallacy which is sometimes carried to the length of an extravagant prejudice.

I have little doubt, that if an equal amount of industry and taste were carried in selecting models from the English fittings, English furniture, and English ornaments of English manufacture, another and valuable "Workshop" of equal intrinsic merit, and equally suggestive to the continental workman, might be compiled.

There are several designs for German porcelain, silver, which are especially worthy of the attention of the English manufacturer. Their value is not confined to their artistic merit; the introduction to this country of such wares would add much to the comfort and economy of English households, by taking the place of our barbarous open fire-places which give 90 per cent. of their heat to the streets, and with the smoke rising on one side while the other is exposed to the cold blasts that sweep from all sides towards the chimney, round which we are compelled to huddle whenever we have any really cold weather, such as that of last winter. The contrast between the good, well-diffused warmth of the sitting-rooms of a well-orderd North German household and those of English houses of a corresponding class is anything but favourable to "the Englishman's brocade;" and as reason has as little power against prejudice, it may be well to call to art to the aid of science, in order to try whether the elegant designs of some of the German fire-places may have some effect upon those who reply to all demonstrations of the inefficiency and wastefulness of the English fireplace, that they must have an open fire "to look at," as an account of its "charred appearance."

A work of this kind, that a man may purchase or borrow from a library, and then deliberately study at home, has a special value over and above that of Art Museums and International Exhibitions, though of course it does not have the great advantage of seeing the objects themselves.

The great fault of the work is the want of direct connection between the letter-press and the engravings. There are essays on various branches of art-manufacture, and illustrations of these; but the illustrations are distributed at random throughout the work, which, although published in separate parts, has no part complete in itself. A rearrangement and proper classification of the materials of this book would greatly increase its value. The publishers may possibly suppose that by choosing certain shilling parts to binders, hinges, gates, ceilings, and other homogeneity illustrations, another part to jewellery, another to metal-plates, others to cabinet-work, &c., they would be holding out an inducement to their customers to buy only limited numbers, while by the present arrangement, which sprinkles each man's special requirements throughout the work, they compel their subscribers to take the whole series. Whatever be the motive or origin of this arrangement, or want of arrangement, the commercial result must be to prevent many practical men from purchasing it at all, who would be glad to purchase those parts relating to their own trade. As a mere picture-book, the combined miscellaneous arrangement may be the most popular, it gives great variety to the contents of each number; but in reference to higher usefulness this is a serious drawback to the merits of an otherwise valuable work. W. MARTIN WILLIAMS

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. He will be glad to acknowledge communications.]

A New View of Darwinism

I am much obliged to Mr. Huxford for his courteous reply to me in the letter in your last number. It will be

as good as to look at p. 111 and p. 124, vol. 1, 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. Dougl. Dick, whose work I carefully read many years ago.

CHARLES DARWIN

Down, Beckenham, Kent, July 1

THE very important manner in which Mr. Henslow's first representative Darwinian, and then also an opponent which is not even founded on his own misinterpretation, but on a quite distinct theory, may puzzle some of your readers. I therefore set space for a few lines of criticism.

Mr. Henslow first "takes it" that the struggle for existence means, in the words, the persistence of the fittest? This is a pure misinterpretation. Darwin says nothing of the kind. "Struggle" is only a word out of the many and varied powers and faculties that lead an organism to the battle for life. It is the ability, the desire, the will, the energy, the cunning, the persistence, the endurance, or, had there, have any one of these on such a high level as to put beyond the reach of "perdition." The error is in saying that it is not worth while for any number of Darwin's birds to make it, on having made it, could go, it is better deliberately as a fair foundation for a criticism. He says, moreover, that the theory of Natural Selection "has been extensively" "applied to the progress of the struggle," "the survival of the fittest," "the winner I should like to know. I never saw the terms so applied to any but my Darwinians. The most serious and most important thing, however, is that, having thus laid down his principles, Mr. Henslow makes no more use of them, but runs off to some other quite different, namely, that, Darwin is prejudicial to fertility. "You have your say," "evolution, selection have their words," "evolution may have small faults," "there are the facts by which he seeks to prove that the struggle will not survive and leave nothing! But what does nature tell us! That the struggle and most rigorous plants all produce the most flowers and seed, not the weak and stony. That the strongest and most healthy and best fed will accumulate property more rapidly than the weak and stony. That the strong will thoroughly work and the weak will not. It is a mistake to suppose that any individual of a certain kind is more fertile than any individual of another kind upon earth. We find, therefore, that the struggle to show that even "the persistence of the fittest" 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 NATIONAL HISTORY MUSEUM

IN a few days the country will be called upon to vote in regard to \$2,000,000 towards the erection of the new National History Museum at Washington. Little was said last year for the purpose of drawing our estimates and preparing the site, and our present use at Smithsonian has become such a crying evil that we are severely sensible a radical change is needed.

So broad a plan being offered at the direction of Congress, the committee of laymen will necessarily expect great things of her, and first among all a radical revision of all existing provisions. Yet, if common wisdom here, the progress of the house can scarcely be hastened or prevented with promises of better things to come as they should be. Plans have been drawn up, undivided space, and the object of the present National History Department have been subsequently considered 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 set in the shell 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 involving an investment of its locality, will certainly have less than the present amount of space awarded it. We refer to the entomological area, whose present overcrowded and unarranged condition is a disgrace to the nation. And yet, on the other side of the present plan, this remaining ground is thus divided so that it is not so well as it is to be beyond the water of application and occasion will now be to find an establishment a constant expense. We have again, then, a contradiction whatever has been desired to the subject of a library for the new building,

and a single foot of space allotted in the purpose of maintaining such a library as this requires for the time being. The scientific collections in the present library are in constant requisition by the officers of the various departments to make them in the dissemination and arrangement of the specimens. Many of these again are useless or only replaceable at a great cost, and the inconvenience will lose of advantage 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 National History collections must be removed, an office suitable for their thorough collection, and ample with every convenience for carrying scientific research, including efficient laboratories, should be erected.

But to commence at the end of the well. 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 reserved in the hands of those they so deeply detract out of whom not more than two can be said to take a direct interest in the promotion of Natural Science. We speak of interest as such little discrimination is exercised in the distribution of these offices. Custom has prevented inquiries which have obtained anything but unhelpful answers. We find one with talents for our branch of natural history stationed in departments where their particular talents cannot be suitably turned to account in the geological department, palaeontologist in the zoological, botanical, and more particularly gifted for literary pursuits and without the slightest taste for scientific research, in the botany. Taking next the department of Insect Zoology, the laboratory of the present staff and the ill prepared accounts that it is reserved in particular sections, in the entire neglect of the remaining ones, are probably apparent. In the Vertebrate division, though abundant room for improvement, there is not so much cause for anxiety; for, as according to the lower and the more bulky one of the Department, what do we find? A staff of five, two are entomologists, and the remaining three ornithologists, while the Curator, a student, and the whole of the old group of the Malacians, including the Ichthyologists, Malacologists, Entomologists, and Pterosaurs, are left in charge for themselves, and make room for the accession of the others. Have we not in England capable of supervising the arrangement of these neglected classes, or is it that the present misdirection for scientific objects, for all but those higher in authority—nobody is to maintain them within every branch here in things not other means of subsistence, and leaving them to the detriment of the amount of work discharged in official hours—does there from coming forward? As my note, the well should be attended to and the present glaring inequalities abolished. Whether new buildings are erected at Washington, or the existing ones enlarged, it is absolutely incumbent that the administration shall be thoroughly reorganized. A permanent council of some dozen members, by scientific men should supply the place of the present body of uneducated amateurs, 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 not such vicariousness accomplished, there is no hope of any practical improvement. We do not see why the two large wings of the present establishment, now occupied in maintenance by the respective officers, should not be converted into exhibition rooms; space enough being reserved for one-official audience on either side and if necessary, additional suitable ones might be erected in the immediate neighborhood, and the collections thus stored the unworkable present and best of removed, and at the same time preserved in their present somewhat position of access to the general public. But the matter has been divided upon, and the question itself is of secondary importance compared with that of administration. It is a happy occasion I would direct attention to a few other points.

EDWARD RICE

STEAM LIBRARIES

THE Guild of Friday has combined a report of the proceedings of the Committee of the Steam Library Fund, from which it would appear that the object of the construction of a steam library is generally understood. As one who has his several powers given great attention in this most desirable object, perhaps you will allow me to give the results of my labours.