

and greater prominence given to habits. So far, however, as we can see, the author appears to have recorded little or nothing new in regard to the latter, and we venture to think that he has missed an opportunity of giving fuller detail as to adaptation to environment, especially as regards coloration. Neither is he to be congratulated as regards his style in many parts of the work, as witness the following sentences in the description of the bearded tit (p. 184):—"The family characters are the same as the generic ones. It is found in various parts of Europe and Asia." It may be also pointed out that "Obb" (p. 261) is not the name of a well-known Siberian river. Again, the introduction of the word "Raptors" in connection with a cut on p. 84 is unnecessary and puzzling, when it is not, so far as we can see, used in the text. And this reminds us that a glossary of eight items seems strangely inadequate in a work where a considerable number of technical terms are necessarily employed, for we quite fail to see why it is necessary to explain the meaning of "aftershaft" and leave the reader to find out the signification of "primary."

As regards the illustrations, we have nothing but commendation to bestow, the full-page plates by Mr. Whymer—and especially the one of kingfishers—being exquisite delineations of bird-life. We notice, however, that the small text-figures of birds' heads are for the most part the well-known cuts of Swainson, which were used *with full acknowledgment* by Prof. Newton in his "Dictionary of Birds." Why, we may ask, has the author thought fit to depart from this excellent practice, and to publish the cuts in question as though they were original?

R. L.

*The Bermuda Islands.* By A. E. Verrill, Yale University. (Published by the Author, New Haven, Conn., U.S.A., 1902.)

In this book, reprinted from the *Transactions* of the Connecticut Academy of Sciences, Prof. Verrill gives an account of the Bermuda group which is intended to subserve four distinct purposes; first, that of a general guide-book on the history, structure, and productions of the islands, for the use of visitors; second, of an introductory text-book to the study of the natural history of the archipelago; third, of a record of the more important changes in the flora and fauna already caused by man; and, lastly, that of a general introduction to a series of more technical memoirs, by the author and other naturalists, on the natural history and geology of the islands, now in course of publication. The present volume includes a general description of the islands, an account of their physical geography and meteorology, a sketch of their discovery and early history, and an account of the animals and plants introduced or exterminated since their discovery by the Spaniards about 1510. The last part of Prof. Verrill's work is of special value, for, so far as appears, no human being had set foot on the islands before that date. Accounts of the geology and marine zoology of the group are promised in a later volume. The book is illustrated by thirty-eight excellent plates, and a large number of cuts, and a valuable bibliography is appended.

*La Pratique des Fermentations industrielles.* By E. Ozard. Pp. 168. (Paris: Gauthier-Villars, n.d.) Price 2.50 francs.

This book is intended specially for the use of brewing chemists. The author gives the essential principles underlying the various fermentation processes, which allow of the transition of sugars and starches into alcoholic products, and also broadly indicates how those processes are carried out in practice.

NO. 1751, VOL. 68]

## LETTERS TO THE EDITOR.

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## Psychophysical Interaction.

A BRIEF note to remove a possible misunderstanding suggested by Prof. Minchin. He seems to think, or to imagine that others will think, that when speaking of the action of mind on matter I conceive of mind as a thing that can sustain a "reaction"; so that a stress might exist with matter at one end and mind at the other. Such an absurdity would indeed play havoc with the laws of mechanics; at any rate, I never entertained such a notion for a moment, whether for a guiding or for any other kind of force. If I lift a table it is quite certain that the weight of the table, plus its mass-acceleration, is transmitted through my boots to the floor: so far mechanics is supreme. But not even Prof. Minchin could calculate whether I shall lift the table or not, nor what I shall do with it when I have lifted it. I should obey every law of mechanics if I cast it on a bonfire; but I should have interfered with the course of nature, regarded as a mechanically determinate problem, even by only lifting it.

I want to understand the nature of this interference better; I have no other "anxiety" on the subject.

Incidentally I should like to transfer to your pages a most interesting and clearly-worded claim made by Sir W. T. Thiselton-Dyer in to-day's *Times*:—

"Directive power... wipes out [meaning would wipe out if it were established]... the whole position won for us by Darwin. It is no use mincing matters. Students of the Darwinian theory must be permitted to know the strength and weakness of their dialectic position. What that theory did was to complete a mechanical theory of the Universe by including in it the organic world." It is the last sentence to which I would direct attention.

Athenæum Club, May 15.

OLIVER LODGE.

I AM not clear that it is wise to endeavour to aid Sir Oliver Lodge out of the pit he has, it seems to me, quite unnecessarily fallen into. But I will put a rope down to him, as it must be very uncomfortable down at the bottom.

Almost every mechanical problem leads by the application of ultimate mechanical principles to a differential equation. The solution of this equation involves a certain number of constants which may be infinitely many, but which we always find to be absolutely determined by the initial conditions. At first sight it seems difficult, without tacitly dropping a fundamental mechanical principle—such as that of momentum—to allow for "guidance" and "freewill" therein. But differential equations occasionally admit of *singular solutions*. We may follow up a particular solution, absolutely defined by the initial conditions, until we run onto the singular solution. After this we can stick to the singular solution or leave it again at any other contact with a particular solution, which will still satisfy the fundamental differential equation. Can "guidance" and free-will correspond to a shunt of this kind?

I am quite unaware of any differential equation in mechanics providing a good illustration of this suggestion. Still, we must get Sir Oliver up to the surface again, and this is the only rope by which I can conceive him ascending.

K. A. Π. V.

## "Red Rain" and the Dust Storm of February 22.

THE Marquess Camden recently sent me a sample of fine sand or dust collected from the roof of Bayham Abbey, Lamberhurst, shortly after the great dust storm of February 22, which I have caused to be examined. As the results appear to be of interest, especially in reference to Mr. Clayton's contribution to the *Proceedings* of the Chemical