Such in the most general terms is the doctrine advocated in "Der Kampf der Theile im Organismus." Perhaps the most striking feature in the detailed exposition which the author gives of the doctrine is his ignorance of the fact that the doctrine is not original. His work is pervaded by expressions of the importance which he attaches to his idea as that of a new light shining in a dark place, and he is surprised that in the domain of physiology the thoughts of Darwin should not have been earlier applied. But in this country, at all events, the idea is far from being a novel one. Not to mention writers of less repute, Mr. Spencer has meditated deeply upon the causes of "direct equilibration," and his works are over-charged with analogies drawn between the organism physiological and the organism social—analogies which include the struggle for existence and survival of the fittest in all their ramifications. Nevertheless, although Dr. Roux seems strangely ignorant of the philosophy of evolution as taught by Mr. Spencer, his work is of value in pursuing this branch of the subject into greater detail, and with more extensive knowledge of physiology, than has been hitherto done. The topic is a deeply interesting one, and we therefore welcome this attempt at its elucidation. We must, however, observe that Dr. Roux, in the ardour of speculation, is too prone to endow a "muss sein" with the value of an inductive verification; and we must emphatically express our dissent from him wherever he appears to insinuate that the doctrine of natural selection in the domain of physiology has evidence in its favour at all comparable with that which belongs to it in the domain of zoology and botany.

GEORGE J. ROMANES

OUR BOOK SHELF

Pflanzenphysiologie: ein Handbuch des Stoffwechsels und Kraftwechsels in der Pflanze. Von Dr. W. Pfeffer, Professor an der Universität Tübingen. Band I. "Stoffwechsel." (Leipzig: Engelmann, 1881.)

IN treating of the Physiology of Plants, Prof. Pfeffer very naturally divides his subject into two parts, the first being "Stoffwechsel," or metabolism, the second the concomitant "Kraftwechsel," that is, the conversions of latent into kinetic energy and *vice versâ* which are involved in the metabolic processes. The volume now before us treats of the "Stoffwechsel," and it does so in a very thorough and satisfactory manner. In the first place there is evidence in the work of a very complete acquaintance with the extensive literature of the subject, and further, of a critical power of recognising and bringing into prominence those observations which are worthy of being incorporated in the canon of physiological knowledge. The general treatment, too, of the subject is clear and logical, though it suffers from a fault which is not uncommon with German authors, namely this, that the main line of thought becomes here and there obscured by the cloud of detail with which it is enveloped. Still the book is a mine of information for original workers, and a trustworthy guide for advanced students. It is not too much to say that it is the best work in existence on the subject. If the second volume is as good as the first, Prof. Pfeffer will indeed have to be congratulated.

SYDNEY H. VINES

The Norwegian North Atlantic Expedition, 1876-1878. III. Zoology. (Christiania, 1881.)

PART III. of the account of the animals obtained during the above expedition is by the well-known naturalists, D. C. Danielssen and J. Koren, and treats of the group of the Gephyrea. It is illustrated by six plates and one map. Of the ten genera and the sixteen species collected during the expedition four of the genera and seven of the species prove to have been undescribed, and a new family is formed for the remarkable new genus Epithetosoma. This genus differs in many respects from any known genus of the Gephyrea; most notably so by reason of the fissured opening through which the sea water gains access to the perivisceral cavity. The analogue of this respiratory fissure is probably not to be found in the class, but the general organisation of this new form is still truly Gephyrean. Unfortunately but two examples of this interesting form were dredged up, and even these were not well preserved. They were found in sandy clay at a depth of 870 fathoms, in the cold area. In concluding the memoir the authors remark that the two groups into which the class Gephyrea is subdivided, viz. *G. inermia* and *G. armata*, can hardly be regarded as satisfactory. Of several new forms which they describe, and which by reason of their anatomical structure they refer to the second subdivision, none are furnished with the armature on which that subdivision is based. Had therefore the systematic classification been rigorously applied, these would have been referred to the first subdivision, one with which they have but little in common, compared to the striking resemblance they bear to those forms comprised in the other. A list of all the species met with and their principal synonyms are appended.

A Manual of Injurious Insects, with Methods of Prevention and Remedy for their Attacks to Food Crops, Forest Trees, and Fruits, and with Short Introduction to Entomology. By Eleanor A. Ormerod, F.M.S. Pp. 1-323. 8vo. (London: W. Sonnenschein and Allen; Edinburgh: J. Menzies and Co., 1881.)

THE authoress of this book is well known as an enthusiast in the department of Economic Entomology, and may thoroughly be congratulated upon having produced a work that cannot fail in many ways to be useful to the class of readers for whose instruction and profit it is intended. In many respects it is based upon Curtis's familiar (but somewhat obsolete) "Farm Insects," and many of the usually excellent illustrations are counterparts of those that appeared in that work; many others were originally from the faithful pencil of Prof. Westwood: in both cases the old volumes of the *Gardeners' Chronicle* have furnished contributions; a few are from other sources. As in Curtis's work the subject is dealt with according to the plants attacked, not according to the attacking insects, a plan to be much commended in such a work. In each case a short description of the insect and of its methods of attack precede the consideration of Prevention and Remedies. Naturally much is compiled from previous writers; much information given is the result of records obtained from the many willing assistants of the authoress; much is original from her own observations. It is not our duty to enter into an examination of the suggested "remedies"; we vastly prefer to look with more favour upon the means of prevention, and are glad to see that generally sound advice in the way of scientific cultivation is given throughout. Nor are the meteorological conditions overlooked: we can modify many things—we cannot rule the elements; and in very bad seasons we fear our farmers and gardeners must be content to "pocket the loss" occasioned by insect ravages on crops the constitutions of which have been already ruined by atmospheric conditions. In a few cases subjects appear to have been introduced for the sake of effect. For instance, we doubt if any farmer in the kingdom is one penny the worse for the occasional presence in his potato-fields of the larva of the Death's Head Moth; on the other hand many bee-keepers could tell a different tale from the ravages of the moth itself in their hives. The Colorado beetle, of course, has "honourable mention";