

produce order and certainty where uncertainty and chaos—as regards the identification of species and the determination of their synonymy—previously prevailed to no inconsiderable extent.

Littoral forms of fish-life occupy a considerable portion of the part now before us, although a section is devoted to flying-fish and other pelagic types; but the deep-sea fishes do not come within the purview of the work. Coral-fishes, or coral-wrasses, of the family Labridæ, are treated in the commencement of the present part, and the brilliant hues and remarkable colour-patterns of these gorgeous fishes are most admirably rendered in the accompanying plates. Our sole regret is that the author appears to have made no attempt to explain the mutual relationships and special purpose of these varied markings. Ichthyologists will greatly appreciate the author's careful revision of the large number of species of flying fishes inhabiting the South Seas; but students of the habits of animals will perhaps regret that Dr. Günther has maintained a cautious reserve with regard to the manner in which these fishes perform their aerial flight. Both the "aëroplane" and the "vibration" theories are mentioned, with references, but the author does not give even a suggestion as to which he considers to be the more probable explanation.

With the bare mention that no new species are described, we repeat our congratulations to Dr. Günther on the completion of his long-deferred task.

R. L.

#### OUR BOOK SHELF.

*Further Advances in Physiology.* Edited by Leonard Hill, F.R.S. Pp. vii+440. (London: E. Arnold, 1909.) Price 15s. net.

This is the second volume of original articles issued under the editorship of Mr. Leonard Hill. The first appeared about three years ago, and was reviewed in *NATURE*, May 3, 1906. That the publishers have seen fit to issue a second volume is an indication that the first was a success. The present volume treats of a number of interesting and important questions which have recently been subjects of research among physiologists, and the senior student is thus provided with a summary of the latest views which otherwise it would have been impossible for him to have obtained without much labour and exploration in many journals. The idea of the book is thus excellent; one's only fear is that in the presentation of a good deal of controversial matter even the best of students may sometimes lose himself and wish there was more agreement among physiological workers. In some of the articles more attention is paid to points of difference than to points of agreement, and general conclusions to help the reader in the maze are not always forthcoming. On the other hand, from the point of view of the researcher, the descriptions given of recent work are too fragmentary in some cases to be of any real help, though perhaps this may be wise, for anything which tempts the original worker to neglect reading the actual writings of his predecessors on the same road is to be deprecated.

The articles contained in the book are the following:—Prof. B. Moore opens with a consideration of the equilibrium of colloid and crystalloid in living cells; Mr. M. Flack comes next with an article on the heart, in which, *inter alia*, he discusses the *pros* and *cons.* of the myogenic and neurogenic theories; Dr.

T. Lewis deals with pulse records in relation to the events of the human cardiac cycle; the editor advances his heterodox views on the part played by blood-pressure on such phenomena as lymph production and secretion; Dr. A. Keith contributes an anatomico-physiological article on the mechanism of respiration; and Dr. M. S. Pembrey an extremely useful essay on the physiology of muscular work; the problems of growth and regeneration of nerve, and the nature of the nerve impulse, are then considered by Dr. N. Alcock; Dr. J. S. Bolton treats of cortical localisation, and Marie's views on Broca's aphasia are described; and the volume concludes with an article by Mr. M. Greenwood on visual adaptation and colour vision.

The mere enumeration of the subjects treated indicates the wide-reaching interest of the book, and the names of the authors are a sufficient guarantee that the work is well done.

*Weltsprache und Wissenschaft. Gedanken über die Einführung der internationalen Hilfssprache in die Wissenschaft.* By L. Couturat, O. Jespersen, R. Lorenz, W. Ostwald, L. Pfaunder. Pp. iv+83. (Jena: Gustav Fischer, 1909.) Price 1 mark.

THAT an international language for scientific communication is desirable no one will question; that an artificial language will ever be generally adopted for such a purpose is more than doubtful. If success in this direction is to be attained, it will probably be on the lines indicated in the present pamphlet, which is a kind of unofficial manifesto of the "Délégation pour l'adoption d'une langue auxiliaire internationale" appointed in 1900. A commission including scientific and linguistic experts of different nationalities is more likely to devise an acceptable language than any individual, who of necessity suffers from the prejudice of his mother-tongue and a comparatively limited knowledge of the requirements of the new medium. After seven years' deliberation, the international delegation has adopted most of the principles of Esperanto, but with great modifications in detail.

For Europeans and Americans the fundamental requisites of a common artificial language are:—(1) a simple phonology and alphabet, only such sounds being admitted as are in actual use amongst all the principal European peoples (exclusion of English *w* and *th*, German modified vowels, French nasals); (2) a vocabulary composed, as far as may be, of words comprehensible at sight to cultivated Europeans; (3) as little grammar as possible. These principles are generally followed in the new language "Ilo," the Slavonic peculiarities of Esperanto (*e.g.* the circumflexed consonants and absurd terminal *j*'s) being carefully avoided. The vocabulary has a distinctly Romanic appearance, and grammar is reduced to small proportions, which might with advantage be smaller still. Word-formation from stems by means of prefixes and suffixes is systematic, but needlessly complicated. Why should we, for example, have the prefix *bo-* to indicate relationship by marriage? "Father-in-law" = *bopatro* is not a necessary word; "wife's father" or "husband's father" is equally simple and more definite. Again, to use *-isto* for "professional" and *-ero* for "amateur" is making a rather superfluous distinction. It may be convenient occasionally to distinguish between *fotografisto* and *fotografero*, but in the case of, say, *dentisto* and *dentero* the necessity is not so obvious.

Notwithstanding its shortcomings, "Ilo" is a great advance on its predecessors, and men of science who are interested in the general scheme may be cordially invited to join the "Unio di l'amiki di la lingvo internaciona." But for the general adoption of the language much enthusiasm will be needed, and it is