two new nitrogen-containing extractives have been found in the lower vertebrates, namely, a betaine, homarine, in lobster muscle, and a guanidine derivative, asterubin, in star-fish. More attention is being paid to bacteria, and there are reports on metabolism, soil microbiology and the biochemistry of the fungi.

We have refrained from listing the separate reports or their authors, but we would wish to endorse the thanks conveyed to the contributors by the editors in their preface. It is of great value to the worker to have these judicial summaries by experts made available so promptly each year.

Solubility

Solubility of Non-Electrolytes

By Prof. Joel H. Hildebrand. (American Chemical Society Monograph Series, No. 17.) Second edition. Pp. 203. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1936.) 22*s*. 6*d*. net.

IT is not often that a reviewer, who has read through the first edition of a book, finds it worth while to do more than glance through a second edition, in order to discover and review the new sections that have been introduced. Prof. Hildebrand's book is an exception, since the reviewer has taken the opportunity to renew his acquaintance with the earlier as well as the later text, and has found this to be a most interesting experience, since the book is full of matter which is not dealt with adequately (and indeed appears to have been largely overlooked) in the ordinary text-books of physical chemistry.

The book has a strict thermodynamic background, which sometimes makes it rather hard for the ordinary chemist to read, and it is not always easy to bear in mind the significance of the symbols which are carried forward from page to page; but for the most part the conclusions are also stated in general terms, so that the significance of the deductions is easily seen and can readily be applied to concrete cases. The author is, however, now inclined to be sceptical of his former deduction (following Dolezalek) that negative deviations from Raoult's law, which lead in extreme cases to the formation of two liquid layers, can be explained by the association of one of the liquids, since the degree of association required is often fantastic, and unsupported by collateral experimental evidence.

One of the first novelties to be introduced is the author's own conception of 'regular solutions', in which the identity of molecular size and molecular attraction of an ideal solution is not required, but in which "thermal agitation is able to overcome any tendency towards molecular orientation, combination or association, and to give the same completely random distribution as exists in ideal solutions". Under this heading, an account is given of Menke's work in Debye's laboratory on the structure of liquids. The forces between polar molecules are discussed on the basis of London's formula for the interaction of dipoles, and those between non-polar molecules on the basis of Lennard-Jones's theory of force-fields. Other novelties include Langmuir's theory of interfacial energies, Bernal and Fowler's investigation of the structure of water, and Butler's work on metallic solutions.

It is remarkable that the new edition actually occupies three pages less than the old one. This result is surely almost without precedent, and is one on which the author deserves to be congratulated heartily.

L'Espece

Par Prof. L. Cuenot. (Encyclopedie scientifique: Bibliotheque de biologie generale.) Pp. ix+310. (Paris: Gaston Doin et Cie, 1936.) 30 francs.

THIS book provides a very helpful account of certain aspects of the species problem. Both the meaning of the concept of species, and the process of specification, are well handled, as is the question of isolation. The examples are, throughout, varied and well chosen.

The author wisely gives a preliminary survey of the genetic phenomena relevant to his purpose, together with a satisfactory description of meiosis. Unfortunately, the general treatment is much hampered by omitting the concept of the gene-complex, and a discussion of polymorphism and of the effects of fluctuation in numbers should have been included in a work of this kind. Likewise some reference should have been made to the various problems of relative growth, and the idea should have been developed that the evolution of rare and abundant species is likely to follow different lines.

However, this is quite a stimulating book, and it is provided with a good glossary, bibliography and index. E. B. F.