

hypothetical planet outside Neptune does not attract comment. Since the satellites of Jupiter and Saturn come under notice, more attention might have been given to the moon and to the phenomena of eclipses. The plan of the book, however, aims rather at the description of the surface than of the motion of the planets, though naturally the tale of the discovery of Neptune is told once again. It might seem that there is scarcely room for such a book, considering the number of popular works that are extant, but there is some difficulty in keeping even these works abreast of the time. As an example we may quote the sentence, "Bestimmt sieben, wahrscheinlich sogar acht Monde umkreisen Jupiter." Notwithstanding the recent issue, there is here opportunity for correction in the next edition.

*Untersuchung und Nachweis organischer Farbstoffe auf spektroskopischem Wege.* By J. Formánek, with the collaboration of E. Grandmougin. Pp. 252. Second edition. Part i. (Berlin: Julius Springer, 1908.) Price 12 marks.

THE first edition of this work appeared in 1901 in a single volume. In part i. of the new edition which is now before us, subject-matter to which only forty-two pages were devoted in the first edition has been elaborated and added to so largely that it occupies the whole of part i. The introduction deals with spectroscopic methods in general, but more particularly with absorption spectra of coloured solutions and the influence of solvents, concentration, reagents, temperature, &c., on the latter. Then follow chapters on the spectroscopy, general observations on the relationship between colour, absorption, fluorescence, and constitution of coloured compounds and dyestuffs, and on the relationship between chemical constitution and absorption spectra of dyestuffs belonging to individual classes. The latter include di- and tri-phenylmethane dyestuffs, quinonimide dyestuffs, fluorindene and triphenyldioxazine, acridine dyestuffs, and anthraquinone dyestuffs. No mention is made in this part of the azo-dyes, or the dyes of the indigo group, while of natural dyestuffs only alizarin is mentioned. It is to be presumed, however, that these important classes will receive due consideration in part ii., which represents the practical part of the work.

Although a vast amount of work has been done by different observers on the absorption spectra of the organic dyestuffs, the information is so scattered as to be difficult of access to the ordinary individual, and this is probably the main reason why this important subject has hitherto not received the attention which it merits. There is, however, ample testimony that this particular application of the spectroscopy is being more and more appreciated by the manufacturers of dyestuffs on the one hand, and the users on the other. This is borne out by the fact that such an eminently practical body as the Société industrielle de Mulhouse has made a pecuniary grant to the author to enable him to publish the new edition. Prof. Formánek has made a life-long study of his subject, and a comprehensive and up-to-date book on this particular application of spectrum analysis, such as the present edition promises to be, would be much appreciated. It is to be hoped that the completion of the work will not be long delayed.

*On the Calculation of Thermochemical Constants.* By H. Stanley Redgrove. Pp. viii+102. (London: Edward Arnold, 1909.) Price 6s. net.

THERE are a number of physical properties of substances, e.g. molecular heat of combustion, refractivity, &c., which are chiefly additive in character, so that their values can be calculated if we know the necessary fundamental constants. It is, however, also

well known that these properties, while still remaining additive, involve factors depending on the constitution of the molecule, e.g. method of linking, ring-formation, &c., all of which should be taken into account in the calculation of the value of the particular property in the case of any given substance. It is the thorough-going application of this principle in the calculation of thermochemical constants, extended so as to include, not only the specific thermochemical values of double and triple bonds, but also the thermal value of the "strain" in ring-compounds and of the single bond in chain-compounds, that the book under review expounds. The author's method of calculation has already appeared in several articles published in the *Chemical News*, on which the present monograph is based.

The author's method will best be understood from the following:—Let H be the value of a hydrogen atom plus the link joining it to a carbon atom. Let C be the value of a carbon atom, not including the value of its valencies; let  $L_1$ ,  $L_2$ ,  $L_3$ , be the values of the single, double, and triple bonds respectively. Knowing the constants for four hydrocarbons, it is possible to calculate the value of the following:— $C+4H=\alpha$ ,  $2H-L_1=\beta$ ,  $4H-L_2=\gamma$ ,  $6H-L_3=\delta$ . These are the "fundamental constants" for carbon and hydrogen. Moreover, the formula of any compound can be written in terms of these fundamental constants, and the theoretical value so obtained can then be compared with the experimental number.

This method the author has illustrated by the calculation of a large number of heats of combustion of substances belonging to different groups of compounds, and, with comparatively few exceptions, excellent concordance with the experimental numbers has been obtained. In this fact the method has its justification.

In an interesting section the author discusses also the relation between heats of combustion of ring-compounds and von Baeyer's strain theory, and he shows that in general there is perfect agreement. No simple relationship, however, has been obtained between the angle of deviation and the thermal equivalent.

The book is one which deserves and will no doubt obtain the attention of all who are interested in the relations between the thermochemistry of compounds and their chemical constitution; and the method of calculation is, moreover, one which will not improbably find application in the case of other physical properties of an additive character. It is an important addition to the literature of thermochemistry. A. F.

*An Angler's Season.* By W. Earl Hodgson. Pp. xii+299. (London: A. and C. Black, 1909.) Price 3s. 6d. net.

A BOOK from Mr. Hodgson is always worthy of the angler's attention, and "An Angler's Season" is no exception to the rule. Dealing as he does solely with salmon and trout, and almost entirely with Scotch waters, the author's season begins in January and ends in October, and to each month a chapter is allotted; throughout there is much good reading, a deal of sage advice, and some controversy. Early in February Mr. Hodgson is already at issue with the dry-fly fisherman, and his attack on the "Hampshire method" waxes furious, but he says nothing of those who fish with the dry fly in Aberdeenshire waters and find the method successful. Fault is also found with some anglers for their "habitual indifference to the weight of a basket" and their love of nature; surely an angler is no worse for also being a naturalist, or at least taking an interest in the natural history of fishes. A study of what naturalists have written would have shown the danger of Mr. Hodgson's theory that taking large fish only, and restoring all of