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STEREOCHEMISTRY.

Stereochemistry. By Dr. A. W. Stewart. Pp. xx+583. (Text-Books of Physical Chemistry. Edited by Sir William Ramsay, K.C.B., F.R.S.) (London: Longmans, Green, and Co., 1907.) Price 10s. 6d.

THIS book is practically a complete and in many cases a detailed account of the subject of stereo or space chemistry since the foundations of this exceedingly fruitful branch of chemical science were laid by Pasteur and Wislicenus. It is not an historical summary, but a carefully thought out treatise, and one which chemists who have to lecture or teach the subject will find of the greatest use.

The book commences with a short historical introduction. Part i. deals with optical activity, the first section describing the asymmetry of the carbon atom. The author's idea of explaining the effect of polarisation on light by means of a paper-knife and two books is distinctly good. The next chapter deals with inactive compounds, and from this we are led up to the active compounds and the determination of configuration.

Chapter viii., on "other active elements," is a review of the work done upon nitrogen compounds, and also deals with the isolation of active compounds of sulphur, selenium, and tin by Pope and his coadjutors. The first part of the chapter is a survey of cases in which nitrogen is known to show isomerism; the second part is a consideration of the various theoretical explanations put forward upon the configuration of nitrogen compounds. This complex part of the subject would perhaps have been more easy to follow if the author had been able to devote a little more space to the consideration of these theories, but as the references are ample and the book is by no means short, even as it is, Dr. Stewart must be left as the best judge of how much space to devote to each portion of the work. As the author himself says in his preface, stereochemistry is much easier to follow if one has a set of models to work with. It is, in fact, very difficult to study the subject from a book alone, and in Appendix B directions for the construction of stereochemical models are given, one of the simplest methods for making tetrahedra being to cut them out of hard yellow soap, needles being used for bonds.

Steric hindrance is a subject which is very much to the fore at the present time, and one rarely visits a meeting of the Chemical Society without hearing it mentioned. For this reason the chapter on steric hindrance in this book is of particular interest. To a certain extent also interest is added because the author, in connection with his work with Baly upon absorption spectra, has come across facts which in the opinion of the authors are a contradiction to the theory of steric hindrance, Stewart and Baly holding that in the case of the carbonyl group the reactivity is not inherent in the group itself, but depends upon the "nascency" of the radical, this "nascency"

being governed by the action of the adjacent groups upon the carbonyl radical. Could not some rather more euphonious name be chosen for the activity of the group than "nascency"? One can perhaps hardly talk about the atomic character of a group; would not activity itself do? It is not unusual to speak of hydrogen, at the moment of its liberation, being in the active form, but one never talks of the "nascency" of hydrogen. Or one might borrow an electrochemical term, and speak of the potential of the group. Thus the potential of hydrogen is high or low, depending upon the surface and character of the electrode from which it is liberated, and the tension or potential of the carbonyl group might be high or low, depending upon the character of the adjacent groups.

Appendix A deals with the relations of stereochemistry to physiology. That the configuration of the groups should affect the physiological action is certainly interesting. Thus when given to rabbits in various ways it was found that in the case of the three arabonic acids more of the lævo- than of the dextro-variety was acted upon, and in the case of the mannoses the dextro-variety appears to be best suited for nourishment. The taste, at any rate to some extent, depends upon the stereoisomeric form; thus in the case of glutaminic acid the dextro-form is sweet, but the lævo-form is tasteless. Furthermore, the toxic action in some cases varies considerably with the different isomeric modifications. For example, *l*-hyoscyamine is almost twice as active in its effects upon the pupil nerve-endings as *dl*-hyoscyamine. This branch of the subject is of great interest, and doubtless the gathering together of these facts will serve to stimulate investigation in this valuable practical part of the subject.

The illustrations are good, some of the half-tone reproductions of models being excellent, and the book itself is well got up. It is decidedly one of the most useful of the series, and Dr. Stewart is to be congratulated upon the completion of a very painstaking work.

F. M. P.

ORIENTAL PLAGUE.

Studies in the Bacteriology and Etiology of Oriental Plague. By Dr. E. Klein, F.R.S. Pp. xv+301. (London: Macmillan and Co., Ltd., 1906.) Price 12s. net.

THE appearance of this book at the present time is opportune, for plague is ravaging our Indian Empire, some 900,000 deaths having been recorded there from January 1 to May 31 this year. The work is based on Dr. Klein's large experience of the bacteriological examination of cases which clinically and epidemiologically were under suspicion of being plague. Many epizootics among rats on shipboard were also investigated by Dr. Klein, and the results of his examinations are included. The data so obtained, and published in many scattered papers, are thus brought into a convenient form for reference.

In chapter i. a good account is given of the histology of plague lesions and of the distribution of the plague