Reviews

SHELLAC. By E. J. PARRY, B.Sc., F.I.C. Pp. 240. London: Sir Isaac Pitman & Sons, Ltd. 1935. Price 12s. 6d.

There are various reasons which combine to make this book one of peculiar interest. To treat of shellac, its production, manufacture, chemistry, analysis, commerce and uses requires a wide knowledge of technical processes, of botany, entomology, chemistry and law. Dr. Parry wrote his first paper on shellac in 1901, and, as we all know, has been intimately associated with this subject ever since, so that when we come to read "Parry on Shellac" it is with great expectations. Sir Harry Lindsay contributes a Foreword to the volume, and remarks that it shows a wonderful grasp of the many complex problems underlying the shellac

industry, and that it offers important suggestions. These facts suffice to show that it is a volume which all who have occasion to handle shellac—chemists or others—will wish to acquire.

The first four chapters deal with the origin, production and manufacture of shellac. These give a clear account of the history of the industry and of the insect on whose activities it depends. *Laccifer lacca* is a curious insect; it appears to exist to supply us with lac with which to make our gramophone records, to insulate electrical machinery, and to make profits for merchants. It has a strange life history, and its enemies, parasites—predatory and indirect—are numerous. The industry has been changed from haphazard collection to a semi-scientific one based on study of the various kinds of trees which are the host of *L. lacca* and of the insect and its product. Dr. Parry tells us in a very interesting way how all this has been done and how the crude lac which *L. lacca* lives to produce and then dies in, is subsequently treated to yield the seed lac, button lac, T.N. garnet lac and other varieties known in the world's markets.

Perhaps of even more importance to the analyst are the two chapters following, on the analysis and the chemistry of shellac. The author has very definite views of his own, and not all will agree on some points, but, as there is no right of reply to a review, we will not enter into these. It may, perhaps, be doubted whether Dr. Parry is quite right when he says that the Hübl method for iodine value is the standard in England, in view of the fact that the W.D. specification (quoted in the volume) cites the Wijs method, and that this method is much used by some analysts. Also, it is only fair to Shaefer's work on "Shellac" to point out that the tables facing p. 147 have been incorrectly added, so that the criticism made of them is invalid. The author's long experience of the subject makes his general critical survey of the chemistry of shellac valuable and lends weight to his criticisms of some of the structural formulae which have been put forward on insufficient experimental basis. The discussion of the fascinating question of how the same lac is formed by the insect from the sap of different kinds of tree is all too brief.

The last chapter is of particular interest, and one which few could have written; it is on the commerce of lac, and gives an intimate account of the way in which this rather specialised trade is carried on; also the types and forms of contract for the various grades of shellac are cited and annotated. An appendix reproduces some original papers and gives a glossary of native terms and a bibliography.

No other volume deals so fully with all aspects of shellac, so that this one is most welcome. It may be hoped, too, that it will stimulate research into the chemistry of the subject, so that the constitution of lac and its relation to the sap of the trees may be really determined; it has not yet been done.

H. E. Cox

CARBON COMPOUNDS: A SCHEME FOR THE DETECTION OF THE MORE COMMON CLASSES. F. E. WESTON. Sixth Edition. Pp. x + 113. London: Longmans, Green & Co. 1934. Price 4s. 6d.

The sixth edition of this very valuable little book has been revised by Dr. F. R. Weston, and its usefulness is greatly increased by the addition of an index, the absence of which has exasperated users of previous issues.

The book opens with a very full discussion of the detection of the characteristic elements, and what follows enables the student to assign most common organic compounds to their particular class; in many instances complete identification is possible without outside reference. In all cases, however, by following the scheme sufficient data are obtainable to enable any intelligent student to proceed to the final stage.

Although the book is very sound and by no means out of date, it would, perhaps, have been advantageous to introduce the characteristics of such commercially important compounds as dibutyl phthalate, triphenyl phosphate, methylethyl ketone, cyclohexanone and tetraline. The use of 2:4-dinitrophenylhydrazine and *p*-nitrobenzoyl chloride might also have been included.

As a result of many years of actual use, the reviewer can safely recommend Weston's "Carbon Compounds" as a thoroughly satisfactory book to place in the hands of those starting a course of qualitative organic chemistry.

HAROLD TOMS

LAC AND INDIAN LAC RESEARCH INSTITUTE. By DOROTHY NORRIS, M.Sc., F.I.C., P. M. GLOVER, B.Sc., and R. W. ALDIS, Ph.D., F.I.C. Pp. vii+53. Indian Lac Research Institute, Nankam. 1934. Price Rs.2.8.

This brochure of 53 pages is published by the Indian Lac Research Institute, and is, in the main, devoted to an account of the work achieved and being done by the Institute. In a dozen pages a brief survey on the various aspects of the lac industry are given, but, as might be expected, no attempt is made to go into any great detail. The actual work of the Institute is described under the headings of Biochemical Research, Chemical and Physico-chemical Research, Entomological Research, and General Activities. Although there is little touching the chemistry or analysis of shellac, this brochure is one which no one interested in the scientific outlook of the shellac industry can afford to be without.

E. J. PARRY

THE NATURAL LOGARITHM. By SIR CHARLES VERNON BOYS, A.R.S.M., LL.D., F.R.S. Pp. 31. London: Wightman & Co., Ltd. Price 2s.

The theory of logarithms, particularly the natural logarithm, is probably accepted by the majority of students without question, and the logarithm is subsequently employed as a mathematical convenience without much thought as to its meaning and origin. This book will give its readers a new outlook and extended appreciation of the derivation of logarithms.

The exposition of the thesis has a geometrical basis and it needs only the most elementary knowledge of the subject to follow the reasoning. A concrete significance is thereby given to the natural logarithm, although the translation of the geometrical relationships to finite numbers requires, as unfortunately all such calculations must, the use of approximations.

The reading of this book will give a new interest and significance to a chapter of mathematics which has sometimes been regarded as closed.

P. BILHAM