

Shellac

Shellac: its Production, Manufacture, Chemistry, Analysis, Commerce and Uses

By Ernest J. Parry. Pp. xi+240. (London: Sir Isaac Pitman and Sons, Ltd., 1935.) 12s. 6d. net.

THE insect that produces the resinous material which is called shellac takes little heed of the notoriety with which its product is now invested. Financial crises of considerable magnitude have attended the failure of speculative attempts to corner the market in it, and the word has been in the mouths of thousands who have little, if any, knowledge about the material, its manufacture or its uses. It is permissible to comment on the fact that most raw materials, the production of which is limited, are liable to have the supplies cornered by vested interests and their price to the user raised accordingly. Once, however, a chemical synthesis of such materials or of a substitute for them has been achieved, the danger of a monopoly is at an end and the product can be produced in quantity without restraint, except such as arises from patent laws, and sold at a cost which bears close relation to the cost of manufacture. The urge to make synthetic products is thus a proper one economically, though, alas, the competitive struggle between natural and synthetic has often resulted in the ruin of an industry and much unemployment.

The lac industry began with the demand for the dye, the crimson lake or cochineal of commerce. Coal tar dyes superseded this; but fortunately the resin was found to be valuable first as a varnish, then as an electrical insulating material, and later for gramophone records.

Mr. Parry, who is an analyst of repute, has given us a book of wide interest covering the whole of the divarications of his subject. Starting with the origin, a full account is next given of the practical production, the enemies of the lac insect and the manufacture of shellac. These sections are well illustrated.

When shellac has reached the market, the question arises of its evaluation by analysis, and it is only in quite recent years that this has been possible. Mr. Parry now treats the question at considerable length, indicating a procedure for the commercial analysis. When it comes to the chemistry of shellac, we are on less certain ground, particularly as it is a mixture, being said to consist of two parts of shellolic acid, five parts of aleuritic acid and seven parts of amorphous acids. Formulae have been suggested, particularly by Harries and Nagel, for these two acids.

The chapter on the commerce of lac introduces a number of subjects, such as the rights of land-owners in India, marketing up to the Calcutta merchant shippers, the London trade, contracts: the expert must know something of all these. In an appendix, the author's original papers are included, largely dealing with adulteration, also the United States standards and methods of analysis, and finally a glossary of native terms.

Information is thus provided for every branch of the industry, and the seeker for knowledge about shellac is well cared for: he will, or should be, properly grateful to Mr. Parry for the trouble he has taken in making his own unique store of knowledge generally available. E. F. A.

Photoelectricity and Surface Chemistry

Electron Emission and Adsorption Phenomena
By J. H. de Boer. Translated from the manuscript by Mrs. H. E. Teves-Acly. (Cambridge Series of Physical Chemistry.) Pp. xi+398. (Cambridge: At the University Press, 1935.) 21s. net.

IT is surprising that there are so few books in English which deal with photoelectric phenomena. Hughes and Du Bridge's book, which made a welcome appearance three years ago, deals mainly with those aspects which are of special importance to physicists, and the only other book which has appeared recently concerning this or related subjects is Reimann's "Thermionic Emission". Dr. de Boer is therefore to be congratulated

on giving us another account of this interesting subject from a novel point of view.

The object of this book is the interrelation of the adsorption of atoms on solids and the photoelectric and thermionic emission of electrons. The first two chapters are introductory, and give a short summary of the fundamental phenomena. The next part of the book is concerned with the effect of adsorbed layers on the emission from metal surfaces, while the last part deals with the photoelectric effect in insulators.

The change in the work function due to adsorbed layers is familiar ground, and Dr. de Boer has covered it well. The use of potential curves greatly