

thirteen years later, the condition in this respect could only be described as chaotic. The remedy suggested is the transference of the responsibility for valuation to a central authority which, helped by a court of appeal, would in the course of time evolve a national code of rules. The authors proceed to examine the difficulties that would arise in any attempt at speedy reassessment from the fact that, under the present law, rates vary nearly proportionately with gross values and that, to prevent them from falling on the poor to an extent felt to be intolerable, there is under-assessment of 'poor' houses in comparison with 'wealthy' houses. There is also the problem arising from the prevalent tendency to value new houses at a relatively lower level than old houses. Much time would elapse before the proposed new authority could straighten out imperfections; for a new system must grow slowly.

It was not part of the authors' plan to suggest major innovations or reforms in the finance of English local government. This is to be regretted; for it is no secret that small and poor authorities are viewing with dismay the addition to the commitments threatened or imposed upon them by the new Education Act and similar measures. Rumour has it that only minor alterations in boundaries will be made as the result of government inquiries now proceeding and that the larger and wealthy areas will be left substantially untouched. It is difficult to escape the conclusion that the size and functions of local government units call for drastic revision if the present financial system is to continue.

J. G. SMITH.

FLUORESCENCE AND PHOSPHORESCENCE AND THEIR APPLICATIONS

Luminescence of Liquids and Solids and its Practical Applications. By Peter Pringsheim and Marcel Vogel. Pp. x+201. (New York: Interscience Publishers, Inc.; London: Imperia Book Co., Ltd., 1943.) 4 dollars.

THE study of luminescence, particularly the luminescence of solids, has undergone profound changes during the last ten years. Before that time, knowledge of energy states and energy transfers in the liquid and solid states was exceedingly meagre; the subject of luminescence as a whole had a very uncertain theoretical basis. The recent advances have perhaps been more striking in the case of solids, and this can be traced in great part to the stimulation which the subject received from A. H. Wilson's papers on semi-conductors. Almost simultaneously, some of the newer discharge lamps began to pass from the laboratory to the manufacturing stage. The new mercury discharge lamps were at once a challenge to those interested in the luminescence of solids; for the emission spectrum of these lamps contained a plentiful proportion of near ultra-violet radiation, coupled with a deficiency of emission at the red end of the spectrum. Lamp manufacturers in many parts of the world successfully met this challenge, and greatly improved techniques for the preparation of luminescent solids were developed, with results that most of us are now familiar with. At the same time the more fundamental aspects of the subject received renewed attention (see, for example, the

Faraday Society's Discussion on Luminescence, 1938), and it was clear that the subject was emerging from a period of empirical research previously dominated by the Lenard school, and documented, for example, in vol. 23 of the "Handbuch der Experimental Physik".

Prof. Pringsheim is well known for his original work on the fluorescence of liquids and vapours, and also for his earlier book "Fluorescenz und Phosphorescenz", the third edition of which was published in 1928. This book undoubtedly gave the best available physical approach to the subject, but from the modern point of view it was sadly out of date, and scarcely comprehensive. The present reviewer had hoped that the new work by Pringsheim and Vogel would in effect be a completely revised edition of the earlier German monograph. In this it must be confessed he is disappointed; the new volume is a popular exposition of the subject, and particular emphasis is laid on the applications. Within these self-imposed limits, the authors have produced a useful survey for the general reader; it cannot be said that the book will add much to the knowledge of specialists.

The first part of the book is concerned with the physics of luminescence. After a brief introduction to the historical and theoretical aspects of the subject, experimental technique, materials and their properties are considered at length. A chapter is also devoted to the rapidly growing subject of fluorescence analysis. Fluorescent paints and screens for various purposes are also considered, but some of the later illustrations are more reminiscent of the cheaper type of commercial brochure than would have been anticipated from the hands of the senior author. Figs. 56, 57 and 59 give, respectively, external views of a cathode-ray tube, a television receiver and an electron microscope; they do not appear to serve any particularly useful purpose.

It is to be hoped that Prof. Pringsheim will now write the book we have been waiting for.

J. T. RANDALL.

GERMANO-POLISH PROBLEMS

Teuton and Slav on the Polish Frontier
A Diagnosis of the Racial Basis of the Germano-Polish Borderlands and Suggestions for the Settlement of German and Slav Claims. By Lt.-Col. G. R. Gayre. Pp. 76+18 plates and 41 maps. (London: Eyre and Spottiswoode (Publishers), Ltd., 1944.) 8s. 6d. net.

LIEUTENANT-COLONEL GAYRE has written a short study of the Germano-Polish problem in terms of physical and social anthropology. He has sought indeed to give as much information, explanation and comment by means of cartography as through the letterpress, since the book has more than forty maps and diagrams.

Some of the cartographical material is interesting in that the work of foreign scholars has been reproduced for the benefit of English readers for the first time. Some maps, however, are spoiled by the form of reproduction, for example, Nos. 4, 5, 16 and 31, in which the type of the place-names and legend has been reduced so much that the result is illegibility.

The descriptions of geographical background, of the physical characteristics of the peoples concerned, and of their culture, are not without interest, nor