

application to the Local Government Board for Scotland. Incidentally, it may be said that the percentage now probably approaches 50; yet a volume on "The Health of the Nations," issued in 1910, contains no clue even to the fact that Scotland is a separate administrative area of Great Britain.

This kind of report is not reassuring as to the other countries; but doubtless the various correspondents will be able to put inquirers "on the track" of more definite information. The work of collation is well done by Mrs. Ogilvie Gordon, and the volume forms a good intellectual point of repair for the many women everywhere concerned to consider and improve the life and labour conditions of women.

PROGRESS OF CHEMICAL AND PHYSICAL SCIENCE.

Fortschritte der Chemie, Physik, und physikalischen Chemie. Neue Folge des Physikalisch-chemischen Centralblattes. Vol. I., 1909. Edited by Dr. Hermann Grossmann and others. Pp. 386. (Leipzig: Gebrüder Borntraeger; London: Williams and Norgate, 1909.) Price 16 marks.

THIS work on the progress of chemistry, physics, and physical chemistry, which represents the first annual volume of a new series of the "Physikalisch-chemische Centralblatt," is issued in monthly parts, and contains a number of interesting reports by specialists on various branches of chemistry and physics, the period under review being 1908 and a portion of 1909.

Two articles on radio-activity and electronics indicate the interest attached to these rapidly developing branches of science, and it is gratifying to find that a substantial part of the pioneering work in this section results from the labours of British chemists and physicists.

The important subjects of spectroscopy, catalysis, thermochemistry, chemical equilibrium, velocity of reaction, and the theory of gases are dealt with in special reports. Recent observations on the influence of light on chemical change are summarised in the article "Photochemistry," by A. Byk.

The study of colloids is a branch of general chemistry now making rapid advances, and the researches of 1908 in this field are discussed by A. Müller, who also deals with the practical application of these investigations to the technical process of dyeing, tanning, photography, and biological chemistry.

The editor, Dr. H. Grossmann, contributes a memoir on complex chemical compounds, in which he reviews the work done in this branch of chemistry during the first half of the year 1909. He groups these so-called "molecular compounds" under four headings:—(1) Compounds with complex cations; (2) compounds with complex anions; (3) auto-complex compounds; and (4) organic-inorganic complex compounds.

One of the most interesting articles in this volume is that on the incandescent mantle industry, written by C. R. Böhm, who describes the rise and development of this important branch of manufacture, and gives a brief outline of the processes involved in the

production of Welsbach mantles on a commercial scale.

The report on pharmaceutical chemistry is noteworthy because it includes a description of the synthesis of racemic suprarenine by Stolz and Flächer. The latter chemist has since separated this product into its two optical antipodes. The laevorotatory base is identical with the active base of the suprarenal capsules, and, when introduced into animals by intravenous injection, produces a very marked increase in the blood pressure. The dextrorotatory suprarenine, under similar conditions, is practically inoperative.

In addition to the above mentioned monographs, the volume contains reports on the recent development of chemical science under the various headings of physical, inorganic, organic, analytical, physiological, and agricultural chemistry. These summaries contain the same information, and discuss topics similar to those dealt with in the annual reports on the progress of chemistry published in recent years by the Chemical Society, and are therefore hardly likely to be preferred by the English reader.

OUR BOOK SHELF.

Radium. By J. P. Lord. Third edition. Pp. x+103. (London: Harding, Bros. and Co., 1910.) Price 2s. 6d. net.

THIS book, to quote from the preface, consists "of a careful compilation of the more material facts needed for an elementary understanding of radio-active phenomena, especially in relation to therapeutic and kindred progress," and the author's aim has been "to steer a middle course between the popular and the scientific literature of the subject, avoiding over-technicality, on the one hand, and on the other, that looseness of which the popular treatment of a scientific matter is peculiarly susceptible." On the whole the book seems fairly well fitted to fulfil its object. The author has successfully avoided over-technicality, but has not been entirely successful in retaining accuracy. In discussing the energy of radium, the view appears to be taken that because the radiations escaping are limited to a thin layer beneath the surface, the heat generated is also limited by the thickness of the layer. The commercially important ratio of radium to uranium in minerals is given as 700 milligrams of the former per ton of the latter, which is more than twice as great as the actual ratio. The present commercial price of radium is given as slightly more than 1000l. per grain, which is particularly unfortunate in such a book, since small quantities can be bought at the present time at about one-quarter or one-fifth this rate.

The chief interest of the book is the description and photographs given of certain new mines of autunite (hydrated uranium calcium phosphate) near Guarda, in Portugal, in the exploitation of which the publishers of the book apparently are interested. The deposits are described as occurring in lodes, varying from an inch to three or four feet in thickness, containing the uranium ore in crystals. A set of radiographs taken with the new material, of percentage of urano-uranic oxide varying from 39 to 15, is included, together with some plates of instruments commonly employed in the measurement of radio-activity. The last three chapters are devoted to the medical uses of radium, on the present state of which the author appears well informed.