

many of these are of questionable value, either on account of the methods having been replaced by more up-to-date processes or because the materials specified, which were by-products of long-vanished industries, cannot now be obtained. Apart from this defect, which is inherent in all books of this type, there is no doubt that the present volume will be of great service to workers in laboratories as well as to those engaged in industry. The authors state that "the materials have been principally derived from German technical literature, which is especially rich in receipts and processes which are to be relied on." From the impossible nature of several of the processes, one might have guessed this: British workers are familiar with the "reliable" character of some German specifications.

*Photography and its Applications.* By William Gamble. (Pitman's Common Commodities and Industries.) Pp. xii + 132. (London: Sir Isaac Pitman and Sons, Ltd., n.d.) Price 2s. 6d. net.

MR. GAMBLE, having had a lifelong experience in connection with technical photographic processes and their applications, speaks with authority on these matters. But the very limited scope afforded by so small a volume as this, and the innumerable applications that have to be dealt with, give him only a poor opportunity of presenting the subject to his readers. The short summary often passes into a mere catalogue of operations, and this into a mere dictionary-like mention. A little more care might well have been bestowed on the revision of the text. Working instructions are not given. We can recommend the book to those who wish to get in a small compass a general, but superficial, knowledge of the character of photography and its applications.

*The Chemists' Year Book, 1920.* Edited by F. W. Atack, assisted by L. Whinyates. Vol. i., pp. vi + 422; vol. ii., pp. vii-viii + 423-1136. (London and Manchester: Sherratt and Hughes, 1920.)

SUCCESSING editions of this handy laboratory manual are increasingly useful. The present volumes supply the need formerly satisfied by the "Chemiker Kalender"; English chemists have now no necessity to go outside their own country for such books. A valuable feature of "The Chemists' Year Book" is the series of articles written by specialists, such as that on "Alkaloids" by Dr. E. Hope. The tables and numerical data are very complete.

*Ions, Electrons, and Ionising Radiations.* By Dr. J. A. Crowther. Pp. xii + 276. (London: Edward Arnold, 1919.) Price 12s. 6d. net.

THE subjects dealt with include gaseous conduction, thermionic emission, photo-electricity, X-rays, radium rays, and the electron theory. The treatment involves a knowledge of elementary mathematics, and the work forms a useful appendix to the ordinary text-book of physics. A clear and very readable account is given of the "quantum" theory of radiation.

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## Letters to the Editor.

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### University Grants.

THE article on university grants in NATURE of August 5 is opportune, and does not overstate the gravity of the situation. The proposed recurrent half-million is welcome, but quite inadequate. The annual grant to the universities of the United Kingdom should be at least three millions.

We have been rigidly economical in our expenditure. There is no question of the value of the work which has been done. Everyone agrees that vigorous and well-found universities are indispensable to the national welfare, but they are hampered at nearly every point by insufficiency of income. Large numbers of their teachers are very seriously underpaid. Many departments are undermanned. Advanced studies and research are lamentably curtailed. Libraries are stinted of necessary books.

Before prices rose the universities had not the financial resources which their work required. Since the change in the value of money their position has become critical; some of them are threatened with disaster. In Leeds we have done everything in our power to raise salaries in order to meet the increased cost of living. The emergency was so grave that we decided to run a great risk. We have incurred obligations which will entail an annual deficit of 25,000l. Even this expenditure falls far short of what should be incurred if the high standard of university teaching is to be maintained permanently. It will be impossible for us to continue the present rate of expenditure unless large new grants are forthcoming. In the absence of further aid from the Government I see nothing for it but the abandonment of work which is now well done, indispensable, and nationally advantageous. We need an additional income of about 60,000l. a year in order to maintain the supply of teachers of the right type. The annual grant from the Government to the universities of the United Kingdom should be three times as large as what is given this year.

M. E. SADLER.

The University, Leeds, August 9.

### The Carrying Power of Spores and Plant-Life in Deep Caves.

MY sister and I observed a similar growth of vegetation to that which Mr. Lough. Pendred describes in the Cheddar Caves in NATURE of August 5, p. 709. We were on a knapsack-walking tour together in the Hartz Mountains in 1900, and saw this effect in the beautiful, great, deep Rübeland Caves. These were then lit up by both oil and electric lamps placed, as in the Cheddar Caves, in recesses or on the floor so as to illuminate the stalactites and bone remains. We were told that the ex-Kaiser had ordered the electric illumination, not being content with the previous oil lamps, but both kinds of lighting were still there.

It was very noticeable that the vegetation spread out fan-like in front of the electric lamps to a much greater extent than behind them, or than near the oil lamps, and yet the electricity must have been, at that date, of fairly recent supply. It is true that the