

In his anxiety to make the text-book a self-contained unit, the author has devoted seven pages to give a brief outline of the qualitative analysis. The information given in this chapter is too meagre and the student has to consult text-books on qualitative analysis to get the required information. This chapter could have been very much enlarged by omitting unnecessary description of some elementary topics like filtration, construction of a barometer, etc. In spite of the author's attempt to give an account of 'manufacturing processes now in use', it is strange to find him devoting too much of space for Weldon's method of manufacture of chlorine from hydrochloric acid. In fact the modern practice is to manufacture hydrochloric acid from chlorine. The author seems to think (p. 246) that chlorine is not manufactured on a large scale because the caustic soda that is simultaneously produced has no market. On the other hand, the problem of the day is to find new methods of utilisation of chlorine manufactured in the alkali industry. 'Sublimation' has been defined as vapourisation of the solid with or without passing through the liquid state; this mistake has to be rectified. The illustrations, viz., heating of ammonium chloride for sublimation and separation of water from alcohol by fractional distillation, are not apt.

M. R. A.

**The Charnockite Rocks of Mysore (Southern India).** By B. Rama Rao. (Bulletin No. 18, Mysore Geological Department), 1945. Pp. 199, with maps, photographs and photomicrographs. Price Rs. 3.

This Bulletin is a detailed account of the results of twenty-five years of his investigations on the Charnockite and allied rocks of Mysore. It is divided into nine sections. The first section is an introduction to the study of charnockites, with special reference to the work done at different periods by the officers of the Mysore Geological Department. The older officers of the Department generally accepted Holland's view of a plutonic igneous origin for these rocks. But, Rama Rao's detailed studies in the field and the laboratory have revealed a number of evidences in support of a metamorphic origin for the charnockite rocks

in Mysore. Section 2 gives, in brief, a classification of these rocks. The third section describes the chief distinguishing characters of charnockites in general. The Mysore rocks are similar in all the characters to the typical charnockites, except in showing certain differences, like variation in texture, absence of hypersthene in some rocks showing charnockitic characters, and the occurrence (though rarely) of sphene. Section 4 gives a general summary of the mineralogy of these rocks and stress is laid on the secondary origin of hypersthene in them. The fifth Section, the largest, gives detailed descriptions of the petrography of all the rock types belonging to the charnockite series, which include the following: ultrabasic, basic, intermediate, and acid rocks, the charnockite dykes, and the charnockitic rocks. Section 6 is a comparative study of the chemical compositions of the charnockites of Mysore with those of other areas. In Section 7 some important exposures (14 in number) of these rocks and their field relations to associated rocks are described with the help of maps. Section 8 gives briefly a comparison between the charnockite rocks of Mysore and those of Holland's type area of Madras.

Section 9, the last chapter, deals with the most important question of the mode of origin of these rocks. It begins with a chronological review of researches on this subject. Next evidences collected in Mysore, favouring a metamorphic origin, are given. The age of the rocks in Mysore is also discussed. Rama Rao concludes that these rocks belong rather to a metamorphic province than to an igneous petrographic province, wherein "the combined series of alterations under different periods of metamorphism of a composite series of rock formations of different ages, have given rise to a series of hypersthene granulites of very variable composition".

The publication, being an exhaustive summary of the results of intensive work of over two decades on a variety of rock types belonging to the charnockites, will be welcomed as an important contribution to the literature on this complex series of rocks and is bound to help and stimulate further research in this field.

M. V. N. MURTHY.

## SCIENCE NOTES AND NEWS

**University of Travancore--Council of Research.**—The Fifteenth Annual Report presented by Dr. K. L. Moudgill, Vice-Chairman, to the Council, records the progress of work for the year on a wide front. The general overall impression produced is that Travancore is fortunate in having an organisation which secures active and fruitful co-operation between industry and scientific research, each nourishing and being in turn nurtured by the other.

The Council proposes to open a Department of Applied Chemistry and, the establishment of a chair in Mineral Research has been

made possible by a munificent endowment by Dr. Rm. Alagappa Chettiar. And, amongst the schemes already under way, mention may be made of a model salt factory to be opened in an area of 8 acres. The production of agar-agar continues. Pyrethrum plantations are to be extended to 100 acres. And, although the pyrethrin content of the Travancore flower 0.5 per cent., is modest, it is interesting to note that the stalks of the flowers are reported to contain as much as 0.13 per cent. pyrethrins—a finding which does not agree with much of the published work on the subject. Experi-



ments are also in progress on the production of charcoal from indigenous woods and on their destructive distillation. The most extensive data on this subject have been collected at the Mysore Iron and Steel Works, Bhadravati, and it would appear that co-operative endeavour in this field might well ensure avoidable duplication. A subject of great importance and of topical interest (the question was raised only this month in the House of Commons) is the State's resources in Monazite and Ilmenite with their potential bearing on atomic energy. The Council proposes to tackle this problem. The importance, complexity and resources needed for adequate and rapid progress in this field are such that perhaps India as a whole would gain and the State would lose nothing if the problem was taken up by an All-India Organisation. The Public Health Laboratory continue<sup>a</sup> its work on nutritional studies and on cholera vibrios. In the Applied Biology Section striking progress has been made in the Tapioca Farm which now has 72 varieties registered and where some 1,000 intervarietal hybrids have been raised. The Entomological Section has, amongst other problems, been working on a question of all-India interest—the susceptibility of bamboos to insect attack. Under Agricultural Chemistry, the work on soil surveys is being continued and a start has been made on base exchange phenomena in paddy soils. The Council has been able to secure the interest of private firms in the opening of deep-sea fisheries and curing yards which the Government propose to encourage.

The above are merely the high-lights of an interesting and informative Report at the conclusion of which the Vice-Chairman points out that many of these schemes have been influenced by the stresses and requirements of war. We can only share his hope that the cessation of these abnormal conditions would not mean any diminution in the encouragement—in the broadest sense of the term—to the Council of Research of the University of Travancore.

**Atomic Research Committee.**—On the recommendation of the Board of Scientific and Industrial Research, the Governing Body has set up a Committee under the Chairmanship of Dr. H. J. Bhabha, F.R.S., to explore the availability of raw materials in India capable of generating atomic energy, suggest ways and means of harnessing them and keep in touch with similar organisations in other countries.

**Schemes of Industrial Research.**—The construction of a Technological Block of the Glass and Ceramic Research Institute in Calcutta at an estimated cost of Rs. 2,21,000, a block grant of Rs. 60,000 per annum to the Madras University for meeting the cost of a Leather Research and Technological Institute and a grant of Rs. 75,000 per annum to the Tata Institute of Fundamental Research, Bombay, for work on Astrophysics and Experimental Physics and Cosmic Ray Research, were lately approved at a meeting of the Governing Body of the Council of Scientific and Industrial Research.

**American Road Experts to Visit India.**—With the concurrence of Provincial Governments the

Government of India have invited two top-ranking Public Works and Road Officials—Major-General Philip B. Fleming, the head of the Federal Public Works Administration, and Mr. Thomas Harris MacDonald, head of the Federal Bureau of Public Roads,—from the United States to pay a short visit to India, to advise generally on India's large programme of road development. Owing to their other important duties, the services of these two distinguished officials have been spared by the Government of the United States with great difficulty, but the President of the United States has agreed to their spending about one month in India during which time they will be the guests of the Government of India and will see as much of India's road system as possible in the time available.

**British Aviation Experts for India.**—The Civil Aviation Office of the Government of India is being expanded to meet the requirements of the programme for the development of India's air transport services and civil flying. As a first step towards this three specialist officers have been recruited in England. These officers who have taken up their appointments in Delhi are Air Vice-Marshal Sir Edward Rice, who becomes Deputy Director-General (Aircraft); Air Commodore E. I. Bussell, who has been appointed Director of Licensing, and Mr. J. P. Jeffcock, who becomes Director of Communications. Mr. Jeffcock is on three years' contract while both Sir Edward Rice and Air Commodore Bussell are on five years' contract.

Dr. P. V. Nair, M.Sc., D.Phil. (Oxon.), has been appointed Professor of Applied Chemistry in the University of Travancore. Dr. Nair is a former pupil of Sir Robert Robinson, Pres. R.S., Waynflete Professor of Chemistry in the University of Oxford, and worked at the Universities of London and Oxford.

We acknowledge with thanks the receipt of the following:—

#### BOOKS

1. *Vitamins and Hormones*, Vol. III. By R. S. Harris and K. V. Thimann (Editors). (Academic Press, Inc., New York, N.Y.), 1945. Pp. xv + 420. Price \$6.50.
2. *Advances in Carbohydrate Chemistry*, Vol. I. By W. W. Pigman and M. L. Wolfrom (Editors). (Academic Press Inc., New York, N.Y.), 1945. Pp. xii + 374. Price \$6.00.
3. *Electron Optics and the Electron Microscope*. By V. K. Zworykin et al. (Messrs. John Wiley & Sons, Inc., N.Y.), 1945. Pp. xii + 766. Price \$10.00.
4. *A Text-Book of Elementary Astronomy*. By Ernest Agar Beet. (Cambridge University Press, London), 1945. Pp. x + 110. Price 8/6.
5. *An Introduction to the Theory and Design of Electric Wave Filters*. By F. Scowen. (Chapmann and Hall, Ltd., London), 1945. Pp. xii + 164. Price 15/-.
6. *Roads for India*. By T. R. S. Kynnersley. (Tata Sons, Ltd. publication. Published by Messrs. Padma Publications, Bombay), 1945. Pp. 55. Price Re. 1.