

fall too low. For this reason ten more cylinders are provided, each of which functions successively at intervals of three minutes and thus a safe degree of concentration is maintained.

#### Interference between High-Power Radio Stations

A REPORT from Science Service dated May 29 states that Dr. Balth. van der Pol, speaking at a meeting of the Institute of Radio Engineers in Philadelphia, has directed attention to the interference which may arise if the power of broadcasting stations is sufficiently increased. Dr. van der Pol reported that interference has been noticed in Holland between two distant high-power European stations separated in wave-length by more than 800 metres. This interference has been attributed to interaction or cross-modulation of the two sets of signals in the passage through the ionosphere. (See B. D. H. Tellegen, *NATURE*, **131**, 840, June 10, 1933; V. A. Bailey and D. F. Martyn, *NATURE*, **133**, 218, Feb. 10, 1934.) The effect is believed to increase rapidly as the power of the sending station increases, and if the same phenomenon is found to exist in America, it may prove to be a practical limitation to the power at which radio broadcasting stations can be operated. This would appear to be a new problem for the Federal Radio Commission to consider in the United States.

#### Indian Physico-Mathematical Journal

READERS of *NATURE* may be interested in the *Indian Physico-Mathematical Journal*, which appears twice yearly. It was founded in 1930 for the purpose of publishing original papers on mathematics and theoretical physics, under the editorship of Prof. J. Ghosh, Presidency College, Madras, assisted by a board of eminent Indian scientific workers. The latest numbers, which we have recently received, contain many interesting papers representative of both the above subjects. These form a definite contribution to science and are worthy of more than a local circulation. The *Journal* does not belong to any particular institution, but exists solely to encourage research. The annual subscription outside India is £1.

#### Manuring of Vegetable Crops

LITTLE exact knowledge of the effectiveness of artificial fertilisers on vegetables is available, and further, it seems doubtful whether good crops can be raised indefinitely with the use of artificials alone. For these reasons, the Ministry of Agriculture has thought it desirable to collect all the possible information on the subject, and a bulletin compiled by A. H. Hoare entitled "The Manuring of Vegetable Crops" has just been published (No. 71. 1s. net). It is recognised that for economic production a thorough understanding of the fundamentals of soil fertility and its relation to plant growth is required, and the first part of the bulletin deals with this subject in a concise and practical manner. Special attention is directed to the possibilities in the less commonly used organic manures that are now available, the need of which is a matter of particular

importance for growers on light soils. The various types of crops, brassicas, roots, leguminous, potatoes, etc., are then dealt with in turn and the most suitable fertilisers to use in each case and the best time for their application are supplied. The requirements of the small-scale gardener or allotment holder are not overlooked, and where special instructions for crops intended for canning may be helpful they are included.

#### Leaflets on Diseases of Fruit Trees

THE Ministry of Agriculture and Fisheries has recently issued five new advisory leaflets dealing with fruit tree diseases. "Leaf Scorch, Glassiness, and Bitter Pit of Apples" (No. 203) gives useful descriptions of these three physiological disorders, outlines the conditions which produce them, and suggests ways in which they may be avoided. Advisory Leaflet No. 205 ("Apple Mildew") replaces Leaflet No. 204, and emphasises the need for cutting diseased twigs well back, in order to remove all the fungus. "Gooseberry Cluster-Cup Rust" (No. 198; replacing No. 209) describes the æcidial stage of the fungus *Puccinia Pringsheimiana*, which spends its uredo- and teleuto-spore stages on certain sedges. The æcidial stage occurs on the leaves and fruit of gooseberries, causing malformation. Control is obtained by hand-picking diseased fruits, and removing sedges from the locality. The die-back disease of gooseberries is treated in Leaflet No. 204 (formerly No. 234). The fungus *Botrytis cinerea* kills the outer tissues of the stem, usually just above ground-level, and the whole bush dies. The fungus is usually a saprophyte, and its attacks may be controlled by clearing away decaying material from the neighbourhood, or spraying bushes with 0.4 per cent copper sulphate solution, just before the buds open. "Powdery Mildew of the Vine" (No. 207) is an up-to-date edition of Leaflet No. 133.

#### Research in Bacterial Chemistry

THE Medical Research Council announces the inauguration of new arrangements for further combined chemical and bacteriological investigations into the conditions which govern the life and multiplication of micro-organisms causing disease. These have been made possible by the generous co-operation of the Middlesex Hospital Medical School, the trustees of the late Viscount Leverhulme and the Sir Halley Stewart Trust. Accommodation and facilities are being provided at the Middlesex Hospital in the Bland-Sutton Institute of Pathology and the adjoining Courtauld Institute of Biochemistry. The investigations will be directed by Dr. Paul Fildes, who has been appointed a member of the scientific staff of the Medical Research Council. The other workers are Mr. B. C. J. G. Knight, with a Halley Stewart research fellowship, and Dr. G. P. Gladstone and Dr. G. Maxwell Richardson, holding Leverhulme research fellowships. The arrangements took effect on June 1, and the support given by the co-operating bodies is sufficient for an initial period of five years.