

decrease of nearly 67 million barrels, or 5 per cent, of the total recorded for the previous year. The analysis of production by countries is interesting. For example, in 1930 the second largest producer was Venezuela, while in 1931 Russia came second on the list, the United States taking as hitherto prior place. In 1932 the production of Venezuela still further decreased, Russia again taking second place to the United States, the total output of which was 781 million barrels, or about 60 per cent of the world's total. Of the British Empire resources, Trinidad is tenth on the list with a production of 10 million barrels. British India was responsible for 8 million barrels; Sarawak for a little more than 2 million barrels; Egypt for 1½ million barrels; Canada for 1 million barrels, a noteworthy decline. The output of oil from Persia showed an increase over the previous two years with a total of 49 million barrels, while that from Iraq remained much the same at a little less than 1 million barrels. It is probably safe to say that the general decrease in production for the year of some 67 million barrels is due rather to such measures of conservation as may have been satisfactorily adopted and also to general marketing conditions, rather than to any noteworthy decline in the actual natural resources of petroleum.

Forecasting Rainfall in Queensland

MANY parts of Australia lie on the marginal zone in which the rainfall is sufficient in good years but in bad years drops below the level required to maintain the pastures. Disastrous droughts have occurred from time to time in the past, and may be expected to recur in the future, but hitherto no satisfactory method of forecasting them has been found. Mr. Inigo Jones, director of the Bureau of Seasonal Forecasting in Brisbane, has been investigating the problem, and as a basis for study, he has collected all the available long records of rainfall in Queensland, including 159 stations, which he has published in the form of monthly tables. The lines on which Mr. Inigo Jones is attacking the problem of foretelling these droughts are set out in another pamphlet, entitled "Seasonal forecasting" (Brisbane, 1932). He believes that the weather of Australia is dominated by solar influences, but that these cannot be expressed simply and directly by the sunspot curve. In some way the solar activity is governed by the revolutions of the planets, resulting in a multiplicity of cycles, but the author's ideas on the subject are vague. This would not matter so much if the meteorological data were handled scientifically, but he proceeds to "prove" this hypothesis by picking out the occasions on which the facts agree, more or less, with the theory. Perhaps a more thorough test is now in progress, based on the extensive rainfall data for Queensland referred to above. It may be remarked that one result of the planetary hypothesis is that the main sunspot cycle should be the period of Jupiter, 11.86 years, but the meteorological evidence is almost wholly in favour of the shorter cycle of just over 11 years, as shown, for example, in the fluctuations of level of Lake George in Australia (NATURE, 112, 918, Dec. 22, 1923).

The Collecting Net

THE *Collecting Net* is a flourishing weekly publication belonging exclusively to the biological institutions of Woods Hole. Nos. 1 and 2 of vol. 8 (July 1 and 8, 1933) are now before us. The purpose of the journal is to assemble material of special interest to workers in the Marine Biological Laboratory, the Woods Hole Oceanographic Institution and the United States Bureau of Fisheries. The editorial contents are divided into four parts: results of the scientific work reported during the summer of Woods Hole; items reporting the activities of members of the scientific institution of Woods Hole; world-wide news of the activities of institutions and individuals working in the field of biology; the more important local news. There is a directory for 1933 containing the names and addresses of investigators in the laboratories beside short articles on various researches and apparatus and laboratory notes. Interesting accounts of the Scripps Institution of Oceanography and of the Biological Laboratory of Cold Spring Harbor are written by their respective directors, Dr. Thomas Wayland Vaughan and Dr. Reginald G. Harris. The annual subscription is only two dollars and the magazine is well printed and illustrated.

Marine Studies in South Africa

REPORTS 8 and 9 of the Marine and Biological Survey of the Union of South Africa for 1929-31 include two special reports as well as a large collection of important fishery statistics. The latter is the result of extensive investigation over the 2,500 miles of coast from St. Lucia Bay to Walvis Bay. In a valuable paper on the "Post-Brephalus Development of South African Macrura", W. von Bonde describes the various phyllosoma and puerulus larvæ of the Palinuridæ, Panuliridæ, and Scyllaridæ of this region. The work is well illustrated, and contains interesting notes on the development of the nervous system. It is unfortunate that the method of describing larvæ from the plankton samples does not permit of identification of species. Much experimental work on these lines remains to be done. In the second paper, on "Hydrographical Investigations in South African Seas", J. M. Marchand makes a survey of the variation in temperature and salinity throughout the years 1929-31. He notes the effect of the Mosambique and Benguela currents on the coast of the sub-continent, but it is naturally impossible at present to make more than very broad generalisations when working over such a large area.

Marine Biological Station at Ghardaga

THE faculty of science of the Egyptian University has issued a report in English for 1931-32 containing a description of researches by members of the staff and a somewhat detailed account of the marine biological station at Ghardaga, which is situated on the edge of a group of extensive coral reefs. Corals of hundreds of different species, especially Madreporaria and Alcyonaria, cover the edges of most of the reefs to a depth of 5-6 fathoms and are in such

profusion that all the biological institutions of Europe and the United States can, it is said, be supplied without stint from this source.

New Antarctic Expeditions

Two American expeditions to the antarctic are announced in the *Polar Record* for July. The Ellsworth expedition has for its object a trans-antarctic flight to discover the nature of the land between the Ross and Weddell Seas. From a base, which it is hoped to establish in the Bay of Whales, Ross Barrier, in December, it is proposed to fly to the south of the Weddell Sea and back, without landing on the way. This flight of 2,900 miles is expected to take ten hours. The expedition does not expect to spend more than a week at its base and is not to winter. On the other hand, Admiral R. E. Byrd proposes to winter in the south, taking with him a large number of dogs and several motor tractors besides an aeroplane. His expedition will have a personnel of about forty and is planned to sail this autumn. Details are not yet announced but the plans include a flight to the south pole and exploratory work to the east of the Ross Sea.

New Islands in the Arctic

THE Society for Cultural Relations has issued a report stating that a new group of islands has been discovered in the arctic by the expedition aboard the icebreaker *Sibiryak*. The news was conveyed by a radiogram from Prof. Wiese, head of the expedition, to the Arctic Institute in Leningrad. The islands lie to the south-west of the Izvestia, a group of islands south-west of Solitude Island discovered last year by the icebreaker *Rusanov*.

Carnegie Institution of Washington

THE report of the President of the Carnegie Institution of Washington for 1932 contains a brief account of the broad lines upon which the Institution has organised its distribution of grants. It aims at the greatest service through investigation, and at the same time the fullest use of the advances made. "Attainment of the highest values in an institution devoted to research depends in a measure upon the extent to which touch can be maintained with the fields of application, stimulation, and spiritual refreshment through which they may contribute to life." Keeping this aspect in view, the Carnegie Institution has recognised three lines along which it may aid the use of research contributions. First, it has formulated a scheme for permanent and detailed record of results coming from researches, so that they may be available to specialists in all fields of science. Secondly, continued effort has been directed toward study of the broader interpretation of work accomplished, and toward statement of conclusions in such manner that they may have the widest possible research and educational value. Thirdly, there is now being developed a series of studies, designed to review research activities having application aspects so important that united effort of all contributing agencies may be desirable.

Agricultural Publications

THE third annual report (1931-1932) of the Executive Council of the Imperial Agricultural Bureaux (London: H.M. Stationery Office. 1s. net) shows that important developments have taken place during the year under review. The outstanding feature of the report is that it marks for the first time the regular issue of journals from practically all the eight bureaux. These journals embody information abstracted from scientific periodicals in almost every language and from almost every country. *Horticultural Abstracts* is issued by the Bureau of Fruit Production at East Malling, the *Veterinary Bulletin* monthly from Weybridge, *List of Publications Relating to Soils and Fertilisers* monthly from Rothamsted, *Plant Breeding Abstracts* quarterly from Cambridge, *Herbage Abstracts* quarterly from Aberystwyth, *Bulletin on Animal Genetics* quarterly from Edinburgh. Abstracts on agricultural parasitology, which are prepared by the Bureau at St. Albans, appear in the *Quarterly Journal of Helminthology*, whilst the journal from Aberdeen—*Nutrition Abstracts and Reviews*—reveals co-operation between the Medical Research Council, the trustees of the Reid Library and the Executive Council of the Imperial Agricultural Bureaux. The analysis of the year's expenditure bears testimony to the large part played by these journals in the work of the Bureaux. More than ninety per cent of the gross expenditure has been incurred in the examination, abstraction and distribution of scientific information, in the purchase of necessary scientific books and periodicals and in the publication of a number of special bibliographies on subjects of particular interest.

Epidemiological Studies on Scarlet Fever

THE deaths from scarlet fever in England and Wales in 1851 numbered 13,634, whereas in 1931 with a larger child-population they numbered only 540. This remarkable change in mortality is the subject of a study by Miss Hilda Woods (Med. Res. Council, Sp. Rep. Series, No. 180. 1933). The diminution of scarlet fever deaths appears to be due essentially to lessened severity of the disease, and not to any general diminution in prevalence, and no evidence has been found to prove that hospital isolation has been effective in reducing either the prevalence or the mortality. The spread of scarlet fever has been attributed to various factors, but none seems to be generally applicable. Thus, in London scarlet fever is more prevalent in overcrowded areas, in Birmingham the greatest incidence is among the better class artisans, in Glasgow as overcrowding increases the attack-rate tends to diminish. In London there is a significant association between wet years and low prevalence, but no such association obtains in Liverpool, Manchester, or Birmingham.

The Pasteur Institute of Southern India, Coonoor

THE annual report for 1931 of the Director, Major Iyengar, of the Pasteur Institute of Southern India,