

position and general trends in the industry as a supplier of solid, liquid and gaseous fuels. There is a movement for gas works to pass into the control of holding companies, a process which has led at times to increased efficiency and a reduction in prices to the consumer. Mr. Bennett indicated the dangers to be feared where undertakings were bought at inflated prices, owing to the availability of cheap money, and where the motive force was financial opportunism irrespective of public good. In some countries, organisations have been established for the official testing and certification of gas appliances. Mr. S. Lacey and Mr. C. A. Masterman contended that such a movement could bring no advantage in Great Britain, where the safety and efficiency of gas apparatus already exceeds that current in other countries. Mr. W. L. Boon described the rapid advance of gas coke in public favour for domestic purposes. The development of the gravity feed boiler has resulted in coke displacing oil firing of central heating installations. With these boilers, uniform conditions can be maintained automatically, with attendance once in 24 hours, at a very low fuel cost. Open coke grates are increasing in popularity and already some 70,000 have been installed in London alone.

Flock of Birds Mistaken for Sea-Serpent

LIEUT. A. J. COBHAM, R.N., sends us an account of a flock of low-flying birds being mistaken for a sea-serpent. Similar observations have been made before, but it is worth while to put Lieut. Cobham's notes on record. On March 14, 1935, H.M.S. *Electra* was 100 miles S.W. of C. Spartel (North Africa). At about 17.30 G.M.T., weather being fine and visibility a maximum, Lieut. Cobham was on the bridge with a midshipman and a signalman. Suddenly to the westward, about 200 yards off, what seemed to be a sea-serpent was seen, travelling at about 30 knots on a slightly divergent course. "It had a small head, on the surface, creating a bow-wave, and behind, at intervals of approximately 12 feet, there were four humps, each with a bow-wave. Every 20 seconds or so the beast submerged for a few moments. Inspection with binoculars showed the phenomenon to be a flock of small birds of the guillemot family (*Alle alle* or *Fratercula arctica*). They were flying in five 'V'-formations, skimming so closely over the water that from time to time they were hidden by a swell. The light, due to a heat haze, was peculiar. The sea, to the westward, appeared to be an oily grey colour, against which the birds showed black. All three of us had the same impression on sighting, and so 'real' was the appearance that after establishing the truth with binoculars, the birds still looked exactly like a sea-serpent when seen with the naked eye."

Avon Biological Research

THE annual report of the biological research which is being carried out on the River Avon at Southampton in association with the University College there gives an account of the varied lines of work

pursued in the second year of this scheme (Southampton: University College, 2s. 6d.). The general condition of the coarse fish in the area is described, with a special note on the incidence of 'black spot' disease among them. Methods are being sought for checking the loss of fish in mill-races, in the flooding of water-meadows, and by poisoning from decaying masses of weed. The use of green light has been tried to deter fish from entering dangerous waters, as well as a revolving fish screen which automatically keeps itself free from debris. Preliminary experiments have been made on the hatching and rearing of salmon and trout under natural and artificial conditions, and the resulting yield and condition of young fish were determined. The work was seriously hampered throughout by the drought conditions of 1933-34.

National Institute of Agricultural Botany

THE fifteenth annual report (1933-34) of the National Institute of Agricultural Botany, Cambridge, shows that continued progress has been made in all departments. An important change in the stations at which crop testing is carried out took place in the autumn of 1934, when a new centre was established at Askham Bryan near York, in place of that at Good Easter, Essex, which was closed down. The results at the latter station had proved so similar to those at Cambridge, that it seemed more valuable to extend the Institute's activities in a northward direction. Two new winter wheats from the Cambridge University Plant Breeding Institute were tested (162/8/1E, and W.70 A) and gave very promising results, while 'Resistance', the new winter oat which had proved so outstanding in former trials, was put on the market for distribution. Continued progress is recorded in the work of the Official Seed Testing Station, 29,487 samples being dealt with during the year under review. With regard to the activities of the Potato Testing Station at Ormskirk, eighty-seven entries were received for the official immunity trials, and all but three of these remained free from wart disease in the field. It is noteworthy that, with the exception of three varieties known to be duplicated, all the new varieties entered for the trials proved to be distinct. This is a striking tribute to the way in which the Potato Synonym Committee has been able to check the practice of distributing old varieties under new names and at an enhanced price.

Report of the Development Commissioners

THE twenty-fourth report (1933-34) of the Development Commissioners which has just been published (London: H.M. Stationery Office, 2s. net) deals mainly with the various purposes for which advances from the fund were made to assist agriculture, rural economy and fisheries. In general, the allocation of grants was very similar to that in the previous year, but although no actual payments were made, arrangements were completed whereby the work at certain British institutes, hitherto financed by the Empire Marketing Board, could be continued.

Since detailed descriptions of the scientific work in progress at the various research institutes aided by the Development Fund are published elsewhere, only a brief outline of their work is given in the present report. The scheme, organised by the Society of Friends, for assisting unemployed men in cultivating allotments, was once again given financial support, in view of the great success of the work in 1933. Disappointment, however, is expressed that it was not possible to assist as many as had been hoped, chiefly owing to the difficulty in securing suitable land. The Rural Economy Section reports progress on nearly all sides, and rural industries are being developed over most of Great Britain on practical and profitable lines. Fishery research has also produced valuable results, particularly with regard to the herring and haddock industries. The determination of the best-sized mesh to use to ensure that undersized fish are not landed has enabled definite legal regulations to be enacted, and the survey of young haddock stock has rendered it possible to forecast the quantities of marketable fish and their probable distribution in future years. The report concludes with a financial statement and a schedule of the grants allocated during the year under review.

Agricultural Research in East Africa

THE Colonial Office has issued the sixth annual report (1933-34) of the East African Research Station at Amani (London: H.M. Stationery Office. 1s. net), from which it is evident that progress has again been made in all the various research activities with which the Station is concerned. As regards coffee investigations, the earlier impression that heavy applications of organic manures to *arabica* coffee effectively offsets the harmful influence of soil acidity has now been confirmed, while culture solution studies suggest a marked correlation between acidity of the medium and the degree of branching of the roots which occurs, high acidity being associated with an unbranched type of root system. Results of importance have also been obtained by the plant pathology section, as the vector of the mosaic disease of *Cassava* has been definitely proved to be a species of white fly (*Aleurodidæ*). On the biochemical side comes the discovery that the fermentation of coffee is an unnecessary process so far as quality is concerned, though the difficulties of correlating quality with the method of preparation of the coffee are still not overcome. The cultivation of sisal (*Agave amaniensis*) continues to increase, and the first lot of seedlings raised at the research station are now becoming available for fibre tests, the standardisation of which has been considerably developed during the past year.

Fishery Research in the U.S.S.R.

THE organisation of fishery research in the U.S.S.R. is the subject of a brief but highly important article by Prof. B. S. Ilyin in the current issue of the *Journal du Conseil* (9, No. 3. Conseil Permanent International pour l'Exploration de la Mer. Andr. Fred Høst et Fils, Copenhagen. December 1934). The Scientific Institute of Marine Fisheries, formerly the

Central Scientific Institute of Fisheries (Moscow), and the State Institute of Oceanography (Moscow) have been united under the name of the "Union Scientific Institute of Marine Fisheries and Oceanography". The new Institute is designed to function as a planning, guiding and co-ordinating centre for the activities of the numerous fishery stations situated around the coasts of the U.S.S.R. Its purpose is to promote the welfare of the fisheries by acquiring data concerning marine biological and oceanographical phenomena, and intelligently applying the results. In this connexion the formation of an economic section is of especial interest and importance in view of present events and tendencies in the fishing industry of Great Britain. The Institute will issue three series of publications—*Transactions*, *Records* and *Bulletins*—all in Russian, but the first two will be furnished with English, French or German summaries. The address of the Institute is Moscow, Verkhne Krasnoselskaya 17.

Research in the Electrical Industry

THE fourteenth annual report of the British Electrical and Allied Industries Research Association (the E.R.A.) shows that the electrical industry is fully alive to the commercial value of research. It has been well supported both by the Government and the various branches of the industry during last year, and although we do not agree that there can never be a point "at which research has all the support it needs and deserves", it has certainly not been "oversubscribed" in the past. The long list of researches the Association has before it, still inadequately financed, shows that there is need for further co-operative help. It is interesting to read that designers of insulating material for electrical material are now attaching less importance to a knowledge of the electric strength of their materials and more to their thermal conductivity. The importance of Fourier's theorems on the conduction of heat is being fully recognised, and also that temperature is a leading factor in electrical breakdowns. For some years the flame of the Méker burner has been the standard for the determination of "resistance to naked flame". It has been found that the standardisation of the burner flame in conjunction with simple correction factors is unsatisfactory, as flame temperature is not correlated to the calorific value of the gas in a simple manner. Further experiments are being made to develop a standard flame for scientific tests in connexion with 'inflammability'. The electrical resistivity map of the soil of England and southern Scotland has now been completed, and a summary of the work done on telephone interference has been published. Tests on radio interference are in progress. A list is given of the Government departments, engineering and scientific institutions, universities and colleges which have co-operated in the work of the Association.

Progress in Radio Communication

A paper by Col. A. S. Angwin giving a review of the progress of radio communication for the year