

Research in Australian Sea Fisheries

PROF. W. J. DAKIN in his R. M. Johnston Memorial Lecture (*Pap. and Proc. Roy. Soc. Tasmania* for 1934 (1935)) gave a brief survey of various fisheries in all parts of the world and the methods of investigation. Then he proceeded to outline the needs of Australian fisheries. A beginning has been made in different directions, notably with age determinations and biology of the important commercial fish of New South Wales, the tiger flathead. Investigations are also being made into the life-histories of certain fishes and their eggs and larvæ, especially the Australian pilchard. Among the plankton studies one of special importance relates to the biology of the peneid prawns, the life-history of which is now being worked out by Prof. Dakin. The best-known prawns there are the king prawn, *Peneus plebejus*, and the school prawn, *Penaeopsis macleayi*. During the winter, few or no prawns can be taken with nets and those captured are usually small; but in spring there comes a time when the king prawn can be caught in the lakes, and those first taken are small and come from the end farthest from the sea. Later, larger specimens are caught and then enormous outflows or 'runs' of large prawns take place on dark nights. The prawns flock to the entrance connecting the lake with the sea and can be captured in huge quantities. These large prawns are all immature and not quite fully grown, and it is now known that they are migrating to the sea in order to breed there. The eggs are shed in the open ocean and hatch as nauplii, the young migrating into the lakes there to feed and grow. The large prawns migrating to the sea from the lake are less than a year old—a most interesting life-history, and published here for the first time. *Penaeopsis monoceros* appears to be exceptional in laying its eggs in the Swan River at Perth.

Forestry in New Zealand

AN important circular (No. 35, "New Zealand Official Year Book", 1935. Government Printer, Wellington, New Zealand) by Mr. A. D. McGavock, director of forestry, deals with the present policy of the Government on the subject of the forests and forestry in New Zealand. The circular, which merits a careful perusal by all interested in the development of a forest policy for the Empire as a whole, accords full recognition to the importance of the remaining indigenous forests to the future well-being of the country, and emphasises the importance among other species of conserving the remaining Kauri forests. "It is the intention of the State Forest Service," says the circular, "to bring the whole of the national Kauri forests under management plans which will ensure their perpetuation for all time." The general forest policy in New Zealand may be stated as the perpetuation of the indigenous forests and the provision of a supplementary exotic-forest capital which, by rapid growth, will eke out the supplies of indigenous timber and bridge the gap between the exhaustion of the over-mature indigenous forests, which otherwise would occur, and their conversion into healthy production forests. With

the establishment of the exotic plantations now approaching completion, it will be possible to give proper attention to the sylvicultural treatment of the indigenous forests. The timber supply position of the future envisages a balanced yield from both exotic and indigenous forests, and the future alone will determine the relative importance of the two sources of supply. The chief remaining source of anxiety is the gigantic problem of undertaking successfully the thinnings now becoming necessary in the enormous area of State and privately owned plantations, aggregating some 672,000 acres; for an adequately trained staff of sufficient strength to cope with this delicate work does not appear to exist.

Oxidation and Scaling of Heated Solid Metals

FOR some time past the Metallurgical Research Board of the Department of Scientific and Industrial Research has been devoting special attention to the oxidation and scaling of heated metals. A critical survey of existing knowledge on this subject, the importance of which in the treatment, fabrication and use of metals needs no emphasising, is now available ("Review of Oxidation and Scaling of Heated Solid Metals". London: H.M. Stationery Office, 1935. 2s. 6d. net). Although the development of heat-resisting alloys has brought about considerable improvements, much still remains to be done before the troubles and losses due to the oxidation of metals are completely eliminated. The six sections of the review, each of which is contributed by a recognised authority, deal with the theoretical aspects of oxidation, the constitution and formation of scale on ferrous alloys, the quantitative consideration of the oxidation of iron and steel at elevated temperatures, the oxidation of non-ferrous metals and the industrial and practical aspects of the subject. In addition to providing a quite considerable amount of important information for immediate use, the review focuses attention on the problems upon which further research is required and will be found to be of the greatest assistance to other investigators of the same or cognate subjects.

History and Uses of Solders

BULLETIN No. 2, issued by the International Tin Research and Development Council, contains a very interesting account of the history and modern uses of solders in a wide variety of forms. The pamphlet of some fifty pages, which has been prepared by D. J. Macnaughtan, director of research, and Dr. E. S. Hedges, is available free of charge, to all who are interested in the now numerous industries in which solder is used, from the International Tin Research and Development Council, Manfield House, 378 Strand, London, W.C.2. In 1933, 18,000 tons of tin was employed in the manufacture of solders, of which 5,000 tons was used by the motor-car industry and 4,500 tons by the canning and box-making trades. The bulletin indicates the rapid progress which is being made in the use of soldered joints in air conditioning, central heating and refrigerating plant as well as in the electrical industry. The