

this case there is scope for useful research to determine the proper relations between temperature and salinity of sea-water and the best conditions for refrigeration of fish taken therefrom.

At the Conference held last year, the need for extending the pioneering researches on fishing grounds carried out by the *Endeavour* was considered in relation to the establishment of marine biological stations. It is a regrettable fact that there is an almost entire absence of trustworthy information about the seasonal migrations of the native fishes, their spawning habits and life histories, their growth-rate and ecology generally. As a result of the Conference, it now seems likely that in addition to a research trawling unit being provided at an early date there will be a vigorous advance, backed by the universities within the Commonwealth, on the marine biological problems in Australian waters. The visit of the present British Association Expedition to the Great Barrier Reef will undoubtedly have a stimulating influence in this direction.

Transport and distribution of fish in such an area as the south-eastern portion of Australia present perhaps the greatest hindrance to the rapid development of the fishery industry. Briefly, the problem is to develop that measure of co-operative organisation between fishery concerns, transportation agencies, and marketing bodies necessary for rapid and economic distribution from the three large centres of population—Sydney, Melbourne, and Adelaide—to the sparsely populated country districts. It is rightly felt that in Australia, until the problem of distribution is solved, research directed towards the increase of supplies is premature.

Governmental participation in industrial affairs nowadays trends rather to the removal of those factors hindering developments than towards State trading. It is in this spirit that the two Commonwealth Government departments—the Development and Migration Commission and the Commonwealth Council for Scientific and Industrial Research—are co-operating with State authorities to bring the light to economic and scientific problems affecting fishery developments in Australian waters and to point the way to their solution.

A. S. F.

### Royal Photographic Society's Exhibition.

THE annual exhibition of the Royal Photographic Society is now open at 35 Russell Square, and admission is free. It closes on Oct. 13. We are glad to see that our oft-repeated desire that in the scientific and technical division the general appearance of the exhibits should be considered as secondary to their classification is this year acted upon to a certain extent, and to that extent the work of the student examining them is facilitated. What is now needed are a few cross-references in the case of exhibits that might belong to more than one section. For example, under the heading "Spectrography" there is only one item, but it would be entirely wrong to suppose that this is the only example of spectrographic work.

The Astronomer Royal has sent a photograph that shows the relative intensity of the principal doublet in the violet ( $H, K$ ) and the diffuse doublet in the infra-red of the calcium chromospheres. The photograph was taken with a diffraction grating in the reflecting spectrograph with the slit tangential to the edge of the lens. The infra-red is of the first order and the violet of the second order, and they were photographed simultaneously, using light filters to exclude overlapping spectra. The 'astra' light filter is a new filter by Ilford, Limited, for use when photographs

are taken with visually corrected refracting telescopes. It eliminates the secondary spectrum to a very considerable extent. Mr. A. Coleman demonstrates the advantages of this filter by photographs taken with and without it. Ten examples of Zeeman effects (the effect of a magnetic field on lines of the spectrum) are shown by Mr. A. S. M. Symons of the Imperial College of Science. Messrs. Green and Freeman show a series of Fabry and Perot interferometer fringes.

Of the numerous examples of photomicrography, the most notable are of slowly cooled steel by Col. N. T. Belaiew at magnifications of 200 and 2000, which illustrate the deformation of crystals of cementite under the influence of internal stresses due to an allotropic transformation in the matrix. Other interesting points with regard to the nature of these crystals are clearly shown. Dr. G. H. Rodman has two series of nearly thirty each, showing the life history and structure of the greenhouse white fly and of *Zygina (Erythroneura) parvula* respectively, the latter being a pest that has lately become very prevalent at Kew and in greenhouses round London. Each is accompanied with rather long descriptive and explanatory notes.

The present possibilities of the photography of bullets in flight are well shown by Mr. Philip P. Quayle of Ohio. Spark photographs of the firing of a 0.30-calibre Springfield show the state of affairs (1) as the bullet emerges from the muzzle, (2) when the bullet has travelled about 6 inches, and (3) when it is about 18 inches from the muzzle. Similar photographs of the firing of a 12 gauge Winchester shot gun, full choke, show the charge as it leaves the muzzle and at distances from it of 4 inches and 12 inches and at 11 yards.

Some fine examples of X-ray photography are contributed by Kodak, Limited; Ilford, Limited; and Dr. J. H. Mather. Kinematography, photography in colours, photography from the air, telephotography, and practically every branch of photography are well illustrated in the exhibition.

The trade section of examples and apparatus seems to be rather larger than usual, a good deal of the apparatus being designed specially for scientific work. A light of standard quality for testing photographic negative materials is contributed by The British Photographic Research Association. This exhibit comprises a standard lamp, and a colour filter as worked out by Messrs. R. Davis and K. S. Gibson, of the Bureau of Standards, Washington, to make the light similar to ordinary average daylight.

### University and Educational Intelligence.

LEEDS.—The foundation-stone of the new buildings will be laid by the Duchess of Devonshire on Oct. 2. After the ceremony a congregation will be held in the Great Hall of the University to confer the honorary degree of Doctor of Laws on Her Grace, Sir. A. E. Bain, Mr. Alexander Campbell, and Mr. Morton Latham.

WE have received from the Bradford Technical College a prospectus of diploma and special day courses for 1928-29, including three- and four-year diploma courses in textile industries, chemistry, dyeing, civil, mechanical, and electrical engineering, physics, and biology. Special courses in advanced study and in training in the methods of research, special courses involving full-time attendance during one or two years, and part-time day courses are also offered. The relations of the College with industrial firms have of late been extensively developed by the arrangement of visits to local chemical and dyeing works.