

a public supply are the steelworks of Stewarts and Lloyds at Corby, those of Firth Brown at Sheffield and the thread mills of J. and P. Coats at Paisley.

High-Definition Television Transmission

IN connexion with the high-definition television transmissions which will be radiated from the Alexandra Palace, the British Broadcasting Corporation has requested Baird Television, Ltd., and Marconi-E.M.I. Television Co., Ltd., to send to manufacturers a complete specification of the waveform which they will radiate in their television transmissions from the palace. We have received from each of the companies their specifications, which are highly technical and will be mainly of interest to manufacturers. The ratio of the horizontal to the vertical breadth of the pictures is four to three for the Baird transmissions and five to four for the E.M.I. transmissions. The latter system transmits 25 complete pictures per second each of 405 total lines. These lines are 'interlaced' so that the frame and flicker frequency is 50 per second. It is claimed that good pictures can be received, although only a fraction of the radiated band is used; but the greater the width of the transmitted band utilised the better the received picture.

High Pressure Turbine Practice

IMPORTANT developments are taking place in the large power stations of electric supply companies. In the *Electrical Times* of September 19 there is an interesting account of the Loeffler boilers, which will supply steam turbines at the enormous pressure of 2,000 pounds per square inch. The exhaust steam from the high-pressure turbine is at a pressure of about 195 pounds per sq. in. and is reheated by steam from the boilers before passing into the low-pressure turbine. The North Metropolitan Supply Co. has two stations at Brimsdown called *A* and *B*. In the old station *A* the conditions were unfavourable to economical generation as the turbine pressure was only 150 lb. per sq. in. Owing to the favourable economic possibilities offered by the Loeffler boiler the station is being altered; two boilers each having a capacity of 210,000 lb. per hour, each operating at a pressure of 2,000 lb. per sq. in. and at a total temperature of 940° F., have been ordered from the Mitchell Engineering Co., Ltd., which has acquired the British rights from the well-known firm of Vitcovice. If petrol drops on the steam pipes at these high temperatures it bursts into flame. About twenty of these boilers are used abroad in Czechoslovakia, Germany and Russia. To get the best results it was necessary to have a set of 50,000 kilowatts. As a machine of this size could not be fitted into Brimsdown *A* it was divided into two. The high-pressure part has a power of 20,000 kw. and the low-pressure part has a power of 30,000 kw. It is claimed that certain advantages will accrue from running the machines in series.

The Lower Yield Point of Stress

THE report of the British Association (Section G), Committee on Stresses in Overstrained Materials,

presented at Norwich, states that particular consideration has been given to the requirements of the engineering profession and industry in view of present and future developments. By the increasing use of electric and other methods of welding in structural work, the problem of plastic overstrain has reached such high importance as to become one of the determining factors in design, and the Committee puts forward the considered view that the so-called 'lower yield point' affords the most satisfactory and reliable basis for the comparison of structural steels. The several advantages attached to its adoption are set forth seriatim, and a draft specification is submitted. The Committee, of which the chairman is Sir Henry Fowler, expresses the opinion that the lower yield point should be included in the British Standard Specifications, and recommends that the desirability of its addition be brought to the notice of the British Standards Institution.

Publication of Scientific Literature

THE projects for scientific publication and bibliography (cf. *NATURE*, 133, 641; 1934) have been implemented by a grant of 15,000 dollars from Chemical Foundation. As a result, a new Documentation Division of Science Service has been initiated in furtherance of activities in this field which were considered at a conference called by Science Service on July 11 and July 29. The immediate objectives being attempted under the grant are the development of camera, projection pointer, reading machine for microphotographs and other means for photographic reproduction, and the establishment of a project for the photographic publication of papers which at present cannot be published promptly or in full. This undertaking will be carried out with the co-operation of existing scientific journals and societies. The plans of the new division are outlined in a paper read by Mr. Watson Davis, director of Science Service, before the thirteenth Conference of the Institut International de Documentation at Copenhagen, September 9-14. It is considered that the scheme for the publication of scientific papers by microphotographic or similar methods should be self-supporting from the start. Possibilities of increasing the availability of existing literature by such methods are to be explored and the broad problem of scientific bibliography is also to be studied.

San Diego Natural History

SEVERAL papers recording new work have been published recently in the *Transactions of the San Diego Society of Natural History*. Vol. 8 (Nos. 6, 7, 8, 9), March 1935, contains a paper on new marine mollusca of West Mexico by Herbert N. Lowe, a description of a new trilobite from Northern California by Harry E. Wheeler, a revision of some Californian *Astrodapsis* by George L. Richards and some new species of molluscs of the genus *Triphora* by Fred Baker and V. D. P. Spicer. Both the mollusc papers deal with the shells alone, but there is in the first a good annotated list of shells collected at Punta Penasco, Sonora, Mexico. The trilobites include a very well preserved specimen

of a new *Griffithides* from the Permian Nasoni formation, its nearest known relative being *G. acanthiceps* from the Carboniferous limestone of England. A second paper by the same author discusses and re-describes the original type specimen of Vogdes' *Phillipsia (Griffithides) ornatus* from the Lower Coal measures, Conway County, Arkansas, renaming it *Griffithides conwayensis*.

Bird Sanctuaries in London

THE industry of the voluntary observers who report to the Committee on Bird Sanctuaries in the Royal Parks (England) gives a wonderfully full picture of bird-life in Greater London (Report of Committee for 1934. London: H.M. Stationery Office. 6d. net.). In Richmond Park, 56 species bred, and 38 other species were seen or heard; in Bushey and Hampton Court Parks, 52 species nested, including kingfisher and nightingale, and 26 others were seen. But the surprising thing is that, in the midst of the commotion of London itself—in Hyde Park and Kensington Gardens—there should appear visitors like the red-throated diver, the Slavonian grebe, and the golden-eye duck, all of them recorded for the first time in that area. It is said also that the Scandinavian form of the lesser black-backed gull appeared on the Serpentine in the autumn of 1933. Curious diversity in choice of roosting sites is shown by starlings and wood-pigeons: every evening about sunset, during autumn and winter, the latter leave St. James's Park, where there are plenty of suitable roosts, to spend the night in Battersea Park; and they make use of the very trees which some of the 2,000 starlings have sampled and abandoned before they continue their journey to roost in St. James's Park, which the pigeons have just left.

Research in the Tortugas Laboratory

THE section in the Year Book, No. 33 (1934) of the Carnegie Institution of Washington dealing with this station reports a number of workers during the season and a great variety of subjects. Although much work is done in the field, there is a notable increase from year to year in the use of apparatus requiring electric current. This will probably necessitate the installation of a power plant of greater capacity in the future. Dr. Alan Boyden, continuing his serological studies of invertebrates, has used examples from many different phyla, including 7 molluscs, 4 arthropods, 8 echinoderms and 5 chordates. The results have been very satisfactory, and will enable light to be shed upon some of the more obscure relationships between the major groups of animals. Other researches include a study of the ecology and physiology of corals by Prof. C. M. Yonge, who found that the opportunity to examine the reefs in detail was of special value in view of his previous experience with Pacific coral reefs, and Mr. J. E. Harris's observations on the swimming movements of fishes, which embrace work on the fishes in their natural surroundings besides cinematographic experiments with special relation to their fins, whilst Prof. W. H. Longley's subject is the systematics of the Tortugas fishes.

Marine Research at Cullercoats

THE Report for the year ending July 31, 1934, of the Dove Marine Laboratory, Cullercoats, Northumberland (Armstrong College), published by the Marine Laboratory Committee and drawn up by the director, Prof. A. D. Hobson, shows it was a period of expansion of the activities of the Laboratory. The research work of the staff has been well maintained and there has been an increase in the number of outside workers. A number of alterations have been made in the building, including the conversion of a little-used lecture room into a new laboratory in which about a dozen students can be accommodated, or five research workers. This can be used for experimental and chemical work for which the main laboratory is not suitable. The work on herring has been continued as agreed with the Ministry of Agriculture and Fisheries, samples from the catches from the local shoals landed at North Shields during the season of 1933 being duly examined. Further investigations on the shoals from other parts of the coast have been continued. In Dr. Bull's work on conditioned responses in fishes, special attention is being paid to temperature, and it is found that teleostean fishes generally are extremely sensitive to temperature and that they can react to it purposively. Experiments on the perception of changes in salinity are now progressing satisfactorily. An excellent paper on the British Sphæromatidæ (Crustacea Isopoda) by Joseph Omer-Cooper and J. Hedley Rawson is included in this report. One of the species (*Limnoria lignorum*) is of economic importance as it is a wood-boring form and very widely distributed. A detailed discussion on the distribution of the Sphæromatidæ is included. In his aquarium observations Dr. Bull makes some important observations on the enemies of the common star-fish *Asterias rubens*, and shows that it is the only food eaten readily by the sun-stars *Solaster papposus* and *S. endica* and the northern stone-crab *Lithodes maia*. Adult specimens of all three can be maintained in captivity for long periods on such a diet.

British Association Mathematical Tables

PROGRESS in the publication of these tables has been rather slower than was anticipated, chiefly owing to the great labour required in correcting the proofs. Vol. 5, containing the prime factors of all numbers up to 100,000, has now been passed for printing. Tables for cyclotomy and trinomial congruences, offered by Prof. L. E. Dickson, have been accepted for publication. With regard to Bessel functions, at least three volumes will be required. The first of these (forming vol. 6 of the Tables) is now in the press, and will be published shortly. The calculations for the other volumes will absorb the greater part of the Committee's time and money during the next year.

German Chemical Industry

SHORT summaries of papers delivered at the conference of the Deutsche Gesellschaft für Chemisches

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