

being erected by Richard Thomas and Co. on the site of the old works at Ebbw Vale and the new steel works to be erected on the site of the old works at Palmer's Yard in Jarrow. These examples in themselves sufficiently indicate one way in which the problems of the Special Areas are linked up with those of the preservation of amenities generally, but the North Eastern Trading Estate at Team Valley provides a conspicuous example of the way in which industrial development in a new area can be planned so as to add to, rather than detract from, the amenities of the district. Already it appears that proper facilities for manufacture, pleasant conditions for labour and the high advertising value of a well-planned estate weigh quite as heavily with industrialists as economic considerations. Even if the proximity of a fine type of labour has been a further factor, there is still evidence of a real desire on the part of many industrialists to assist in the solution of the problems of this particular Area.

The Commissioner in his report does not hide the difficulties that remain to be overcome or the seriousness of the present situation, but the keynote of the present report is a definite but restrained optimism. During the twelve months, unemployment in the Areas has fallen by 25.6 per cent., of which only a comparatively small part was due to transference out of the Areas, the corresponding figure for the rest of England and Wales being 12.0 per cent. National and international causes have undoubtedly been responsible for most of this improvement, but it has been largely independent of armament work. Another encouraging sign of progress in the Durham and Tyneside Special Area, for example, is the extent to which much of the work necessary for the recuperation of the Area is now in the hands of bodies locally administered and having a lease of life which is independent of Special Area legislation. Further reduction in the volume of unemployment depends upon the success of the measures now being adopted to induce new industries to establish themselves, the further development of those measures and the policy of the Royal Commission.

As regards particular measures, the report refers once more to the question of establishing a calcium carbide factory in South Wales, the investigation of schemes for low-temperature carbonization or hydrogenation of coal, the improvement of communications, and the research carried out by the Technical Advisory Committee of the North East Development Board, while the Commissioner for the Special Areas in Scotland lays a good deal of stress upon the utilization of coke-oven gas as well as the establishment in the Area of one or other processes for the extraction of oil from coal, if any impression is to be made on the most intractable problem—that of continuing unemployment in the coal industry.

For the future, Sir George Gillett insists that it is not so much new organizations that are wanted as twelve months of steady work to see if, with the powers already granted, any impression can be made on the 200,000 unemployed men and women still left in these Areas, of whom about 80,000 are men of forty-five years of age and upwards, many suffering from diseases contracted through working in the coal mines. This is the most significant problem of the Areas, and is being tackled in various ways, apart from insisting on the employment of older men in wage-paid schemes, such as group holdings, subsistence production, voluntary (local amenities) schemes and allotments.

The problem of the Scottish Special Areas is essentially different in the greater difficulty of transference, in the absence of an expanding industrial centre in Scotland, and in the lesser severity of unemployment statistically. There are, however, many towns and communities with every local service, labour suitable for training and employment, attractive amenities, and a robust civic and social sense. Measures to deal with the unemployment in the coal industry have already been mentioned. Among indirect measures, the Commissioner lays stress on housing, land settlement and assistance to schemes for improving water supplies, sewerage and sewage disposal, drainage and the like.

In conclusion, in view of significant omissions in a recent book on the Special Areas, it is pertinent to point out that the present reports indicate that, up to September 30, 1937, estimated commitments, including expenditure on the Special Areas Fund, amount to £12,900,000 in England and Wales and £2,488,584 in Scotland.

Science News a Century Ago

Progress of British Railways

IN the January number of the *Civil Engineer and Architects' Journal*, under the heading "Progress of Railways", were given extracts from various newspapers referring to the state of construction, growth of traffic, etc., on some fifteen railways. Of the Eastern Counties Railway, it was said: "The works of this railway are now pushed as far as Ilford and it is confidently expected that it will be opened to that town (seven miles) next summer." As regards the Grand Junction Railway, it was remarked: "It is said that the Post Office Department have concluded a valid agreement with the Directors, which will enable the inhabitants of Liverpool after the first of May next, to receive their London letters, dispatched on the preceding evening, at eight on the following morning"; and also that "Notice has been given, that it is intended to dispatch a train from the station at Lime street, for the conveyance of pigs to Birmingham". Similar trains were to be dispatched each Tuesday, Wednesday and Thursday. On the Whitby and Pickering line, "A great increase has taken place in the tonnage amount of traffic and numbers of passengers conveyed, the increase in the number of passengers during the half-year had been 8,000, and the increase in goods traffic 6,000 tons". Another notice said, "On the 1st of January, the London and Birmingham Railway will be open as far as Stony Stratford, and also the Birmingham end as far as Rugby, making in the whole 77 miles of this great undertaking completed." The Bolton and Preston Railway had been decided upon, while at a meeting at Penrith of the promoters of the Lancaster and Glasgow Railway, one speaker, when alluding to the western line over Morecambe Bay to Whitehaven, declared that Mr. Stephenson had made a mistake of fourteen miles in computing the length of the line!

Visions of the Extension of the Electric Telegraph

ON January 5, 1838, a correspondent "Inquisitivus" wrote to the editor of the *Mechanics' Magazine* about the electric telegraph, which was then engaging much attention. "It is too often the case", he said, "that

the ingenuity and valuable time of talented men are wasted upon what has, unknown to them, been invented before; and of this we have instances in the electric telegraph." After referring to the telegraphs of Alexander, Ritchie, Gauss, Cooke, Wheatstone and Davy, he went on: "Now, Mr. Editor. What shall hereafter prevent our globe from having sets of wire laid down branching in all directions over its surface like the nervous system of the human body, and thus having as it were but one pervading soul?" A patient, in India, he said, could then obtain advice from a doctor in London; the *Sydney Gazette* might contain the proceedings of the House of Commons the day before. "From New York to Peking, from Pole to Pole, man will be enabled to converse with man, as though he were in the same house, in the same chamber; it will be one step towards making all nations as one family."

Hooker's "Icones Plantarum"

SIR WILLIAM JACKSON HOOKER (1785-1865), the celebrated botanist, had among other works published "Musci Exotici", "Flora Scotica", "Icones Filicum" and his "British Flora", when in 1837 he began the publication of his "Icones Plantarum" containing figures and descriptions of rare plants in his herbarium. Speaking of the last of these, the *Athenæum* of January 6, 1838, said: "This work appears occasionally in parts, each containing fifty plates of new and rare plants, drawn on stone with singular taste and fidelity. Two volumes have appeared, and a third is announced, although it is known to the friends of the author that each volume leaves him a considerable loser. Such a fact . . . is not very creditable to the science of this country. Nothing can be more interesting to a man of science than the plants represented in these volumes; nothing can be in better taste or more faithful than the figures; and it is difficult to conceive how anything can be cheaper (fifty plates for fifty shillings): yet while the most miserable trash that the press produces under the name of Botany sells in hundreds and thousands of copies, such a sterling work as this is only enabled to maintain its ground by aid of the purse of its author. We do trust that the friends of Botany will bestir themselves on this occasion, and come forward with such a demand for copies as will, we do not say encourage, but enable, the learned author to produce many volumes in addition to those which have hitherto appeared."

The Society of Arts

THE *Mechanics' Magazine* of January 6, 1838, said: "The Society of Arts, in years gone by, took a prominent part in the scientific world, and effected considerable good in promoting that spirit of invention and discovery which is now so general among the manufacturing community. It has not, however, kept pace with the times, and has of late fallen into obscurity. It has also fallen into debt, and an appeal has been lately made to its members, urging them to procure donations and annual subscriptions from noble and wealthy patrons of the arts, manufactures and commerce of the country, and to obtain an increase in numbers so as to renovate the funds and extend the useful powers of the Society."

The appeal was issued by the secretary, Arthur Aiken (1773-1854), a chemist and mineralogist who in 1807-14 had published a "Dictionary" of those sciences.

Societies and Academies

Dublin

Royal Irish Academy, November 30.

ARTHUR E. J. WENT: The salmon of the River Shannon. An account is given of the analysis of the stocks of salmon in the River Shannon during the year 1927. The phenomenon of growth in fresh water in the year of migration as a smolt is discussed, and it is suggested that a minimum size is necessary before the physiological condition is attained which causes the assumption of the smolt livery and the smolt migration. Examination of the scales and data from smolts confirmed the results obtained from the examination of the scales of adult fish.

Paris

Academy of Sciences, November 15 (*C.R.*, 205, 885-939).

ROBERT ESNAULT-PELTERIE: The coefficient of self-inductance of a solenoid.

A. PFLUGER: The growth and distribution of the zeros of certain integral functions of positive finite order.

GEORGES VALIRON: A criterion of normal family.

JOHN ELLSWORTH: Photometric study of the variable star $BD-1^{\circ} 1004$. This star is probably not a variable with eclipses. The photometric period found has no relation with the spectroscopic period.

BERNARD LYOT: The passage of Mercury across the corona.

MIRCEA DRĂGANU: The passage of very rapid protons through matter.

THÉODORE KAHAN: The phenomenon of quantum exchange and nuclear isomerism. A new method of determining this.

GUSTAVE RIBAUD: Improvements in the technique of measuring the temperatures of flames. Modifications of the Kurlbaum optical method.

J. BETHENOD: A method for testing high-power circuit breakers for high-tension systems.

MME. IRÈNE MIHUL and CONSTANTIN MIHUL: The reflection in the atmosphere of waves of radio-diffusion.

MAURICE PARODI: The transmission of some oxides in the extreme infra-red.

ANDRÉ POIROT and MAURICE AUCLAIR: The anode rays of some heavy metals, especially lead. Lead bromide placed in the discharge tube gives satisfactory results and is more convenient than the lead tetramethyl hitherto employed.

ALFRED SILBERSTEIN: Some bromocupric complex compounds.

JACQUES BÉNARD: The parameter of pure ferrous oxide.

C. F. GOODEVE and F. D. RICHARDSON: The existence of chlorous anhydride. Criticism of a recent paper on this subject by Kantzer. This author's method gives an oxide with a spectrum identical with that of chlorine dioxide.

ALEXANDRE TRAVERS and ROBERT DIEBOLD: The mechanism of the decomposition of pure cementite by acids. From a discussion of this reaction it is concluded that it is impossible to determine cementite chemically in a ferrous metal by selective solution of the iron: the carbide is always attacked, liberating carbon, and giving gaseous hydrocarbons.

PAUL CORDIER: The condensation of acetone with phenylpyruvic acid.