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Railway and Road Matters.

THE L.M.S. is making experiments both in England and Scotland with vehicles equipped to spray weed-killer over the tracks as they go along. The weed-killer train consists of an engine, a brake van and a wagon fitted with a large tank and a spray-pipe controlled by a man riding on the wagon.

THE late Sir Herbert Jekyll succeeded, in 1901, Mr. F. J. S. Hopwood as Assistant Secretary, Railway Department, at the Board of Trade, and when the London Traffic Branch was formed in 1907 he was made its chief and remained there until he retired, on reaching the age limit, at the end of 1911.

SPEAKING of a man who was killed in walking home through some sidings instead of by a quite convenient public road, Mr. J. L. M. Moore said in a recent report: "It is almost incredible that men should take such risks, but this regrettable occurrence brings to light the fact that some have done so in the past in spite of warnings and rules to the contrary."

FOLLOWING our note of August 5th, we can now announce that after negotiations lasting twelve years, four trunk-line railway systems in the eastern part of the United States have been merged into one system valued at 8,000,000,000 dollars (£1,600,000,000 at par). The railways are: The New York Central, the Pennsylvania, the Baltimore and Ohio, and the Chesapeake and Ohio.

A LETTER in *The Times* of October 6th suggests that railways could find a source of economy in omitting the lettering "Railway" from their carriages, e.g., "Southern," instead of "Southern Railway." We may point out in this connection, that Section 121 of the Railway Clauses Act, 1845, requires the owner's name to be painted in legible characters on some conspicuous part of the outside of every such carriage so as to be always open to view.

A MOBILE fleet of thirty "warehouses on wheels," for providing emergency or temporary warehouse accommodation at outlying stations, where there is no warehouse or where the existing accommodation is fully occupied, has been introduced by the L.M.S. Railway in several important areas, including North Wales, Leicester, Bristol, Northampton, and Stoke-on-Trent. These mobile warehouses are converted parcels brake vans or passenger vehicles, and are placed in wayside goods yards with a railway siding adjacent, so that freight can be unloaded direct from the wagons.

THE census of railway servants as on March 12th last, shows that there were 597,971 employed as compared with 616,592 in March, 1931, a decrease of 17,621. The L.M. and S. had, roughly, 7000 less, the L. and N.E. 6000, the Great Western 4000 and the Southern 300. On all the railways there were 1330 fewer drivers and 1342 less firemen, but as an increase of 1099 is recorded in engine cleaners it would seem that many drivers now rank as firemen and firemen as put back to the cleaners' grade. There are 1776 fewer permanent way men and 3300 less shop and artisan staff.

THE proposals for a National Transport Board came before the Labour Party Conference on October 5th, and call for mention here because of the opinion expressed by many of the speakers that the trades unions should be consulted by the Minister of Transport before any appointment was made to the Board. Among those who supported the contention that the membership should be left with the Minister and that the appointments be on "appropriate grounds of ability," was Mr. Herbert Morrison, the Minister of Transport in the last Labour Government, and the representative of the National Union of Railwaymen and of the Railway Clerks' Association. The Associated Society of Locomotive Engineers and Firemen, along with the Transport Workers' Union, supported the amendment, and, in the end, the Conference executive withdrew the proposals for further consideration.

IN connection with the extension of the Southern Company's electrification southwards from Coulsdon to Brighton and Worthing, automatic signals, of the colour-light type, were brought into use between Coulsdon and Balcombe Tunnel on June 6th, and thence to Haywards Heath a week later. The signalling has since been extended to Preston Park, and that section was opened on October 7th. Brighton Station itself is being opened on Sunday next, the 16th. The six signal-boxes there will be replaced by one central signal-cabin, which will contain a locking frame of 225 levers, the interlocking of which will be effected electrically, instead of, as for the last ninety years, mechanically. The frame is being built by the Westinghouse Brake and Saxby Signal Company, and will have the unusual feature of being in three sections—a central and two side sections; the latter are at an angle of 120 deg. to the centre section. This arrangement will give the signaller a greater command of the station and is only possible by the interlocking being actuated electrically.

PART of the new signalling at the King's Cross terminus of the London and North-Eastern Railway, referred to herein on September 16th, was brought into use on October 2nd, and the remainder will be opened on the 30th. The work done on the former date was attended with very unfortunate delays to trains, which conditions were still being felt on Thursday, the 6th. From the explanations given to the Press by the railway company it would appear that there was no delay in carrying out the vast alteration, but that the disorganisation mainly was due to a too fine adjustment of some of the electrical gear and to the method employed for working those connections which have one set of points in one line and another set in a second line, and where both work together by one lever. There is an electric motor at each set of points; these usually work in series, but at King's Cross they were made to work in parallel, and, unfortunately, uniform operation did not follow. The inconvenience to the public was not, however, as great as that at Waterloo in May, 1892, when the opening of a new signal-box led to the London and South-Western Company issuing a notice warning the public to be prepared for delays and when many inward trains did not travel farther than Vauxhall.

Notes and Memoranda.

THERE are, it is said, 140 million people in the world who listen in to wireless transmission. The value of wireless sets in commission is put at £200,000,000 and the cost of broadcasting at £30,000,000 a year.

THE steelwork of the new sixty-nine-storey Rockefeller building in New York was finished on September 26th. The first foundation grillages were placed on February 8th. The building covers a plot 535ft. by 200ft., and contains 58,600 tons of steel.

A RECIPE for the removal of greasy or dirty finger marks from drawings is given as follows in the *Engineering News-Record*:—Place sheets of blotting paper over and under the stained portion. Lay powdered magnesia on the stain and under it, then press the blotting paper with a hot iron. When the powder is shaken off the stain will be gone.

To blacken brass for templet work, it should, according to C. R. Whitehouse, of Boston, Mass., first be thoroughly cleaned and then heated slowly over a charcoal fire. Care should be taken not to allow the brass to touch the charcoal or to allow any sparks from the charcoal to come in contact with it, as this will cause red spots. As soon as the brass has a slightly red hue, dip it into nitric acid and reheat it until it is just short of being red. Rub it strongly with a stiff bristle brush and clean with a greasy cloth. This gives a dead black finish, permanent enough for any lay-out work.

It would appear from a note in the *Journal of Commerce* that a considerable advance in the technique of soldering aluminium has been achieved by Mr. E. Jones, of the Department of Mechanical Engineering at the University of Liverpool. He uses a sharp-edged bit made of steel, which is surrounded by a Bunsen flame. The bit is used to scrape off the oxide film which naturally forms on the surface of the aluminium, and plain tin is applied to the surface of the metal within the flame. It is said that the tinning of the aluminium is quite effective and obviously provides a basis for a soldered joint.

WORKING in co-operation with refinery engineers of the U.S. Bureau of Mines, O. H. Schoenwald and G. M. Ford have developed a method of removing hydrogen sulphide from natural gas, based on reaction with lime. Treatment of the gas to remove the hydrogen sulphide was accomplished by scrubbing the gas with a solution of sodium chloride and calcium hydroxide. The salt solution appreciably increases the solubility of lime in water up to a certain percentage, and thus a smaller volume is required to remove a given amount of hydrogen sulphide. The treating plant consisted essentially of a scrubbing device for contacting the gas with the solution and a series of tanks for making up or settling the treating solution.

PAVEMENTS and lawns are no longer torn up in Baltimore when the gas company finds it necessary to change the pipes entering the premises of consumers. Instead of digging up the old service pipes for their entire length, with considerable damage to streets and yards, the new method involves only a small opening in the paving where the service pipe connects with the main. Through this opening the workmen cut off a 4ft. length of the service pipe. They also disconnect the house end and attach a length of new service pipe at the point of this disconnection. A pulling apparatus is then used for pulling the old service pipe toward the main, and 3ft. or 4ft. sections are cut off at the opening in the paving as the pulling proceeds, while 20ft. sections of the new pipe are added at the house end. This continues until the entire replacement has been effected. As much as 100ft. of new pipe has been pulled in this way without disturbing lawn or shrubbery.

SALAMANDERS, lizard-like amphibians, have been shown to be responsible for the presence of *colon bacilli* in water obtained from springs otherwise free from bacterial pollution. A description of laboratory experiments and field studies on "Salamanders and Water Hygiene" appeared in *Natural History*. Controlled experiments in the laboratory showed that one salamander excreted a sufficient number of *colon bacilli* per day to contaminate 237 gallons of water heavily enough to be considered dangerous for human consumption. It is believed that salamanders act as reservoirs or incubators, and having once been infected with *B. coli* through their feeding habits while away from the spring, continue to excrete them as long as there is material in the salamander's stomach or intestines to supply nourishment to the bacteria. Autopsies performed during the summer showed a marked increase in the amount of food and the number of *colon bacilli* in the stomach and intestinal tracts. It is concluded that salamanders play an important role in causing certain water supplies to appear polluted, thus making it difficult to interpret the evidence of contamination.

THE results of investigations, which are given in a Bulletin just issued by the Forest Products Research Section of the Department of Scientific and Industrial Research indicate that a quality of home-grown Scots pine timber, equal to that of good quality imported red or yellow deal of joinery grade, can be produced in this country, but the rate of growth must not be excessive—that is, the timber should contain on an average twelve rings or over per inch radius. As no very slow home-grown timber was tested, it is not possible to state whether the choicest grades of the imported qualities can be produced in the British Isles. On the other hand, where strength is of primary consideration, an average of nine rings per inch radius is permissible, though the optimum strength is not reached until the growth has slowed down to approximately twelve rings to the inch. A rate of growth faster than nine rings per inch, not only means a rapid falling off in strength, but an equally rapid falling off in general quality and appearance, and the possibility of the use of such timber for better-class work is correspondingly limited. The investigation has clearly brought out that home-grown Scots pine timber grown in different localities varies considerably in weight and ranges from 25 lb. to 45 lb. per cubic foot at a moisture content of 12 to 15 per cent. The report can be obtained from H.M. Stationery Office, price 5s. net.

Miscellanea.

It is proposed to construct a bridge across the Krishna River at Karad, in Madras.

A SHIPBREAKING yard is being organised on the premises of Richardson, Duck and Co., at Thornaby-on-Tees.

SINCE the beginning of 1932 thirty-one new manufacturing firms have started business in Greater Vancouver.

A WHALE oil refinery is to be put up at Churchill, Manitoba, by one of the largest soap makers of the world.

THE new mining and technical college, erected at a cost of £110,000, towards which a grant of £15,000 was made from the Miners' Welfare Fund, was opened at Barnsley on October 10th.

A NEW type of the three-motor Fokker monoplane is being produced to enable the Royal Dutch Air Line to fly in five days from Holland to the Dutch East Indies with mails and passengers.

THE Canadian Government proposes to construct a chain of airway landing fields from coast to coast via Halifax, Montreal, Ottawa, Toronto, Winnipeg, Lethbridge, and Vancouver.

THE new bridge which is being built across the Danube near Belgrade is 4900ft. long and about 40ft. wide. It is to carry two railway tracks and two roadways and includes seven spans of 530ft. each.

It is proposed by the Soviet Government to construct a series of power stations on the rivers Vytgra, Meta, and Lovet, in the Valdai district. The largest would be one at Damyansk, of 250,000 kW.

THE first potash concentration factory in the U.S.S.R. is being started in Solikamsk this month. The factory is equipped with the most modern apparatus. Its capacity is 300,000 tons of potash fertiliser a year.

It is proposed by the British Cadastral and Topographic Air Survey Company, Ltd., of London, to organise in Vancouver a plant for the production of accurate maps. It is said that some 300,000 dollars will be expended on the scheme.

A MEMORANDUM on "The Industrial Diseases of Silicosis and Asbestosis" has been issued by the Home Office (Stationery Office, 3d. net). The memorandum states that "respirators can never be regarded as a substitute for exhaust ventilation."

OWING to the success attending the previous competitions, the Institution of Welding Engineers has decided to offer again the gold medal of the Institution and a prize of £10 10s. for the best paper by a working welder on "Improvements in Welding Practice."

WORK has been started on the further development of the Pykara hydro-electric scheme in Madras in connection with a dam across the river near Mukurti, with the object of increasing the storage capacity. So far the work has consisted principally of surveying and boring, and the results are said to be promising.

It is stated that more than 7 miles of welding are involved in the construction of the new airship hangar at Sunnyvale, California. The dimensions of this structure will be about 1200ft. in length by 308ft. in width by 225ft. in height, and it will have the world's largest single unobstructed floor area, nearly 300,000 square feet.

ACCORDING to the Geological Survey of the United States Department of the Interior, the Federal Government now has reserved 6,579,761 acres of land in twenty-one states and 447,766 acres in Alaska for future power reservoirs. These are said to be capable of producing 15,000,000 H.P. when economic conditions warrant.

THE Polish authorities are preparing a plan for the establishment of a submarine cable connection with the northern countries, so as to be able to get direct communication and thus avoid the German lines. The proposal takes the form of the laying of a cable from Gdynia to Bornholm, whence the traffic would be continued by way of the cables which lie between Bornholm and Denmark and Sweden.

FOR the purpose of hauling pipe across the desert for the construction of the Iraq oil pipe line the Marmon-Herrington Company, of America, has supplied a petrol-driven vehicle with sixteen pneumatic-tired wheels. The tractor unit has six wheels and carries the front end of a four-wheeled trailer. Behind there is towed a six-wheel trailer. The equipment will carry 40 tons and has a total length of 100ft. The maximum speed is about 30 miles per hour.

A NEW reinforced concrete bridge is being built across the river Mersey between Latchford and Howley by Messrs. Bolton and Lakin, of Birmingham. The preliminary work, such as excavating and other operations below water and ground level, is now completed, but it will take probably another eight months before the bridge is ready for opening. The whole of the steel work for the centering, &c., is being supplied by the Pearson and Knowles Engineering Company, Ltd.

CONSTRUCTION work on the Moscow underground is showing fair progress. The first line, which is to connect the Sokolniki district with Krimsky-square, has been divided into five sections. Preparatory work is practically completed; the foundations of the houses under which the subway is to be built have been tested, the ground investigated, and drilling is going on at the points where stations are to be situated. Considerable progress has been made in the building of one station.

THE official returns rendered to the Electricity Commissioners show that 922 million units of electricity were generated by authorised undertakers in Great Britain during the month of September, 1932, as compared with the revised figure of 875 million units in the corresponding month of 1931, or an increase of 5.4 per cent. During the first nine months of 1932 up to the end of September the total amount of electricity generated by authorised undertakers was 8332 million units, as compared with the revised figure of 8058 million units for the corresponding period of 1931, representing an increase of 574 million units or 7.1 per cent.