

lodged by him at his bank as security for a loan, without which he could not have made the original advance. He will still be out of pocket to the extent of £3,845, but he lives on a slender pension of £138 a year, gratified that his sacrifice has saved a valuable corner of England for the future. Any contribution towards the special sum now being raised will be gratefully received by the Manager, Lloyds Bank, Canterbury.

Coming of the 'Railbus'

SIR W. G. ARMSTRONG, WHITWORTH AND CO. has built a Diesel-electric 'railbus' which has been on exhibition at King's Cross Station, London, since its successful trial run from Newcastle-on-Tyne on July 30. The engine is the Armstrong commercial road vehicle engine and the vehicle has comfortable seats for 57 passengers. According to the *Times* of August 4, the fuel consumption was thirty-five gallons, the cost of which was 13s. 2d. for the journey of 268 miles from Newcastle to London. The running time was 5 hours 48 minutes and the railbus was stopped eight times at signal checks. This compares with 4 hours 55 minutes the time taken by the *Flying Scotsman* in its non-stop run from Newcastle to King's Cross. The same firm has previously built a heavier type of vehicle called a 'railcoach' which is now in regular operation on the north-east coast. The new railbus is the lightest type of self-propelled railway coach of its capacity ever built in Great Britain. It can provide frequent high-speed local services, frequent fast services on branch lines to market towns, and feeder services for main line connexions. The railways can buy these vehicles at about the same price as an ordinary railway coach and can run them frequently and quickly on lines where they are suffering from parallel competition on the roads. The first costs and running costs are said to compare favourably with those of the ordinary Diesel-engined road motor-coach. They have the advantage of superior speed, reaching 50-60 miles an hour, with a 100 horse-power engine, and 70-75 with a 150 horse-power engine.

Electric Power from the Rhine

At Kembs in Alsace about seven miles below the Franco-Swiss frontier there has recently been completed a hydro-electric station which utilises water-power from the River Rhine. According to the *Electrical Review* of July 28 the plant forms part of an extensive development programme which is being carried out in connexion with the Grand Canal of Alsace on the French bank of the Rhine. The present station is the first of eight hydro-electric stations which will be constructed between Strasbourg and the Swiss frontier. The canal, when completed, will have a length of about 70 miles and will be divided into eight sections having differences of level of between 33 and 54 ft. There will be a generating station at each lock and the total capacity will be 700,000 kilowatts. The construction of a dam on the Rhine at the Kembs station has raised its level by 23 ft. The power house has at present five turbo-generator sets each of 31,000 kilowatts. The power

generated is stepped up at a transformer station in the open air to 150 kilovolts for transmission to eastern France and to 220 kv. for the lines running to Troyes and the Paris area. In order to maintain an even load at the power station, a pumping station is being constructed so that when the electric load is light the excess power can be used for pumping water into Lac Noire about forty miles away. A generating plant at the lake returns the power to the Kembs station when the load on the latter is heavy. The central control room has been equipped with elaborate illuminated diagrammatic connexions. The devices used enable all the requisite connexion movements to be prepared and verified before they are actually made by direct control or by signals to substations.

Science and the Motor-Lorry

ACCORDING to the *Times* of August 2, the technical engineers attached to the Paris police force have put before M. Chiappe, the prefect of police, an ingenious system of signalling to be used on motor lorries in order that the drivers may be warned when motorists desire to pass them. A selenium cell is placed in a conspicuous position on the back of the lorry and connected through an amplifier to a bell or some other sound-signalling device placed close to the driver. When a motorist desires to pass, he turns on his headlights so that the beam of light strikes the cell and the warning signal is at once put into action. At night the signal can be switched off as the projection of headlights from behind gives sufficient warning. It is suggested that all French lorries will have to carry this device on and after January 1, 1934. In Great Britain nearly all lorry-drivers obey the rules of the road and let the faster car pass at once by moving to the side of the road. In some countries one sometimes meets a driver on a country road who deliberately drives in the middle of the road so as to hold up a faster vehicle for miles no matter how often it hoots. We think that the ringing of a bell on his own vehicle would be much more effective.

Street Traffic Devices

DURING the last few years there has been a rapidly increasing demand for electric traffic signalling apparatus. With 'fixed time' signalling, unnecessary delays are often caused, and this often leads to a disregard of the signals. For this reason the tendency is now to use purely automatic apparatus, operated by the traffic itself. In South Africa a recent enactment withdrew the nationalist police from traffic duties. This has led to a traffic-operated scheme being put on trial at a street crossing in Johannesburg for several months. This has proved such a success that it has been decided to place an order for twenty-six more of the same type. There is now a large world market for street traffic devices, but Britain is experiencing considerable competition from Central Europe and Japan. The low cost of labour in the latter country has considerably reduced the price of electric lamps. It is difficult to compare the relative values of electric lamps, as a life test is a difficult and expensive operation.