

Recent Trolleybus Progress

By Gordon O. P. Pearce

AT the outbreak of war, municipal transport in this country was being transformed through the change from one form of transport to another. Many towns were losing trams in favour of more mobile means of conveyance, and the trolleybus, hitherto little developed here, suddenly revealed itself capable of solving many of the problems that presented themselves when a decision was made to "scrap the trams."

Briefly, trolleybuses afford advantages over the alternative, omnibuses, in that existing electrical equipment is used, carrying capacity is greater, acceleration is more rapid, and there is an absence of fumes, noise and vibration. Trolleybuses are now subject to horse-power taxation, but maintenance is more simple and less costly.

Until the early 1930s trolleybus design was merely the adaptation of an omnibus chassis, with the substitution of an electric motor for the internal combustion engine, and some readers may be familiar with this earlier type as operated by the London United Tramways or the Notts. and Derby Traction Company. These vehicles had dummy radiators. With the realisation of the possibilities of the trolleybus, manufacturers such as A.E.C., Leylands, Sunbeam and Guys commenced research and re-designing, and some fine vehicles appeared. The decision of London Transport to substitute trolleybuses for trams gave further impetus, and buses to seat 70 were ordered and are in service in the Metropolis.

A few figures will illustrate the development of the trolleybus in service in the years before the war. In 1932 some 500 trolleybuses were operated by 19 municipalities, with a further 240 by other operators. By 1939 over 1,400 were operated under 30 municipalities, while other operators ran over 1,800. Overseas development too proceeded apace, and

British vehicles were supplied to Cape Town, Durban, Johannesburg, Sydney, Montreal, Rangoon, Delhi, and other places.

Features of interest in trolleybus design indicating recent progress include electrical braking, in addition to air and ordinary braking. These make the vehicle ideal and economical for urban operation, particularly where gradients are severe. The substitution of carbon-insert trolley-heads for the trolley-wheels has eliminated the "swish" and rendered current col-

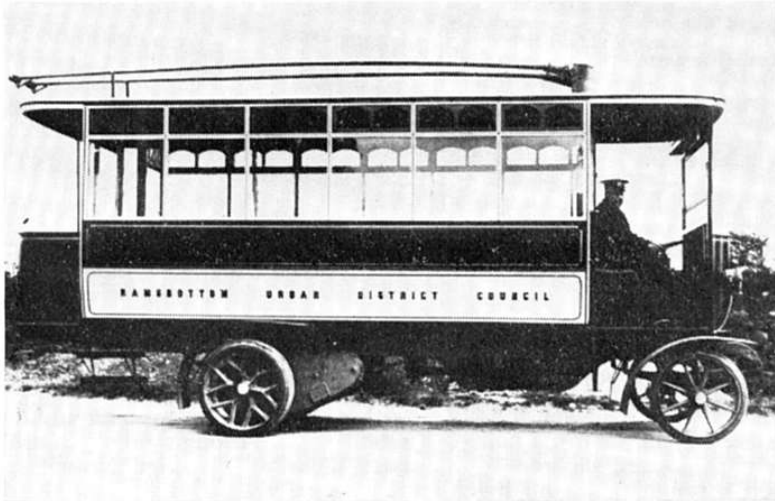


A Bournemouth Corporation trolleybus on the turntable at the Christchurch terminus. The use of a simple turntable avoids the need for a large turning circle equipped with overhead wiring.

lection noiseless, and the placing of the motor, resistances and transmission between the frames permits the maximum body space to be used above the chassis. Some vehicles are provided with batteries to facilitate manoeuvring should the electricity fail or road obstructions occur.

In body design one sees such features as dual exits on trolleybuses in Bournemouth and Newcastle, where a pneumatically-operated folding front door facilitates rapid unloading. Central entrance bodies are favoured in Grimsby and Darlington, while "Pay-as-you-Enter" designs have now appeared in Cardiff and London. Special low-loading bodies have been evolved for Reading, St. Helens and Portsmouth, owing to the presence of low over-bridges.

A point to remember is that the power source of the trolleybus is home produced coal.



RAMSBOTTOM— Trolleybus Pioneer

by M. EVANS

Photos: Courtesy of R. B. Parr

RAMSBOTTOM is a small Lancashire town with a population of about 16,000. The principal industries are cotton-weaving, calico-printing and rope-making. It is situated between Rawtenstall and Bury and is one of the few bus-operating Urban Districts. Peel Tower and Grants Tower overlook the place, the latter being dedicated to the Grant Brothers, benefactors to the town, who appear as Cherryble Brothers in 'Nicholas Nickleby'.

Of special significance to the public transport enthusiast is the fact that trolleybuses were pioneered in Ramsbottom. The trackless system appears to have been inaugurated because plans to construct a tramway came to nought. Tramway powers were, in fact, obtained in 1903 to put down track, amounting to twenty chains double and seventy-eight chains single. When it was realised, however, that the tramway project could not be fulfilled, the Council applied, in 1912, for trolleybus powers and a shed was built in Stubbins Lane in 1913 at a cost of £1,898. Operation commenced in August of the same year, Ramsbottom being the first railless traction system independent of tramway operation in the country, and the only one in North Lancashire. One route was constructed, Holcombe Brook to Edenfield.

The installation had cost £13,350 (£3,000 more than the original estimate) and it was calculated that an average income of £68 per week would be required to make the system pay. Some delay in the delivery of the cars was experienced in July, 1913, but the Council was able to secure a promise that two would be in Ramsbottom before the end of August.



The actual Board of Trade Inspection, carried out by Major Druitt and Mr. Potter, took place on 21st August, 1913. The route was traversed from Ramsbottom station to Edenfield and from this point to Holcombe Brook. Those present included Councillor Wilkinson, the Chairman of the U.D.C., J. B. Hamilton of Leeds Corporation Tramways, the Consulting Engineer, Mr. Jenkins, Manager of the Bury Corporation Tramways and representatives from the Post and Telephone Department, Rawtenstall Tramways, R.E.T. Construction Company and Clough Smith. Mr. Wyld, the Manager, drove the first car and Corporation employees were also carried. A second car was tried as well. A good part of an hour was given over to the examination of the wires and various parts of the equipment. All went well and the system was found to be generally satisfactory. Brakes were tested on both cars. The actual route was three-and-a-half miles in length, with a gradient descent from Edenfield into Stubbins, hence the special precautions taken over the brakes.

A fare of 3d was charged from Holcombe Brook to Edenfield, with a 1d for any four quarter mile stages and ½d for each two stages. The service was half-hourly.

In December, 1913 an effort was made to arrange with Trackless Trolley Limited to send a Cedex-Stoll car to Ramsbottom for a free trial. This does not appear to have taken place however.

Power was supplied from a special station adjoining the depot.

It was not long before the neighbouring local authorities began to cast a watchful eye on Ramsbottom as, at that time, Dundee, Aberdare, Bradford, Leeds, Stockport and Keighley were either already in the trolleybus field or had proposals in that direction. Evidence also seems to suggest that the possibility of interrunning Ramsbottom's trolleybuses with the tramways of both Bury and Rawtenstall was not ruled out. Indeed, the first vehicles carried under-running trollies to permit them to operate in conjunction with trams, if necessary. Incidentally, although Manchester did not introduce trolleybuses until March, 1938, suggestions were made to run them as early as 1908 and one of the advantages of trolley vehicle operation was stated to be the inter-running possibilities.

The Ramsbottom trolleybus held the municipal transport field until the early 1920's. The same year as

(Heading photo), an early Ramsbottom trolleybus. The two designs of spokes are worthy of note—the larger and stronger types being on the rear wheels. (Left), the crowd seems to suggest that the photo was taken shortly after the opening of the system.

the Council installed electric traction (1913), the Lancashire and Yorkshire Railway inaugurated an electric train service from Bury to Holcombe Brook (which survived until 1951). This was a sure indication of how important this mode of transport was then regarded.

In the summer of 1922 Railless Limited of Moorgate Street, London, E.C. demonstrated a new type of single motor railless car at Dover. The car had just been completed for Ramsbottom. It was brought to Dover for inspection and tested on very steep gradients, including a 1 in 10 stretch. The demonstration made a great impression on Mr. E. H. Bond, the Manager of the Dover Corporation Tramways, who declared himself to be in favour of replacing the town's tramways by this form of traction—this suggestion as early as 1922. Track renewals were heavy and it appeared, at the time, that Dover would adopt the trolleybus. This straw did not indicate the direction of the wind, however, and the trams succumbed to East Kent buses in 1937.

In Bolton, trials were carried out pre-1914 with both petrol and steam buses. Services commenced in 1908 to Darcy Lever and Brownlow Fold, operation continuing until the tramways were opened on these sections in 1910 and 1911. Bolton's second and more successful attempt was in 1923 with three Leylands. Rawtenstall ran buses as early as 1907, when an Orion, 'The Rossendale', was put on the road. This was followed by Ryknields the next year. Like Bolton, however, these early efforts were failures. Rawtenstall had to wait until 1924 before bus operation began in earnest. It was no surprise, therefore, when Ramsbottom's first buses, Thornycrofts, entered service in 1923. Five years later Leylands, the subsequent mainstay of the fleet, came onto the scene. By now it was evident that the days of the trolleybus in Ramsbottom were numbered; the solid-tyred vehicles must have contrasted strongly with the recently acquired, and more modern looking buses. In addition to this, the system was running down. So on 31st March, 1931, the town said farewell to the small venture in electric traction. The poles remained in place for some years afterwards and to trace the route, even if one did not, in fact, have any knowledge of the former system was not difficult. The bus fleet increased as the years went by and in 1947 double-deckers were introduced.

Had Ramsbottom's tramway plans materialised the route would have been from Holcombe Brook to Edenfield (as the trolleybus one), but the tramway plans included Rawtenstall. The gauge was to have been 4 ft. 8½ in. Bury, where electric tramways were constructed during 1903-04, had proposals for extensions to Holcombe Brook and Stubbins as well as to Rawtenstall via Edenfield. The aforementioned would have affected Ramsbottom and, as the Bury gauge was also 4 ft. 8½ in., through running would have been possible.

Now a little about the system itself. The fleet consisted of seven R.T. vehicles. Details exist of Nos. 1 to 6. The cars had six windows and an open platform at the rear. The words 'Ramsbottom Urban District Council' appeared on the lower panels. The maximum weight, when loaded, was five tons. The trollies permitted a radius of 16 ft. from the centre of the trolley wire. The seating capacity was 28 and transverse seats were used. The cars had direct chain drives, each with two 20 H.P. motors and series parallel controllers. Electrical equipment was by Siemens and the bodies were built by Lockwood and Clarkson of Leeds. The vehicles were of a special composite construction. 'Garcke' for 1928 states that all seven cars had two

motors, but the last one No. 7 (already mentioned) appears to have been a single motor car. Messrs. Clough Smith erected the overhead which was of the tramway type, the poles being of bracket arm construction. Overhead junction work of the E.M.B. type was designed and manufactured by Electro-Mechanical Brake Company. The power was at 10,000 volts, transformed at the substation to line voltage of 500 and supplied eventually by the Lancashire Electric Power Company.

The proposal for a free trial of a Cedes-Stoll vehicle in Ramsbottom in 1913 came from the Council and this must have been the case with several municipalities at that time—always ready to obtain better rolling stock and equipment for the system, ears always tuned to any new development.

In the late summer of 1938, whilst on the way to Bury, the writer encountered the remnants of the Ramsbottom trolleybus system, seven years after its demise. The poles were indeed very similar to tramway ones. As a matter of fact Edenfield-Holcombe Brook could well have been taken for an abandoned tramway route. The poles themselves were on the heavy side with lamps suspended from the brackets. The colour was dark olive and the appearance was not too pleasing on the eye. That was all that remained of an Urban District Council's pioneering efforts in the field of trolleybus operation a quarter of a century earlier.

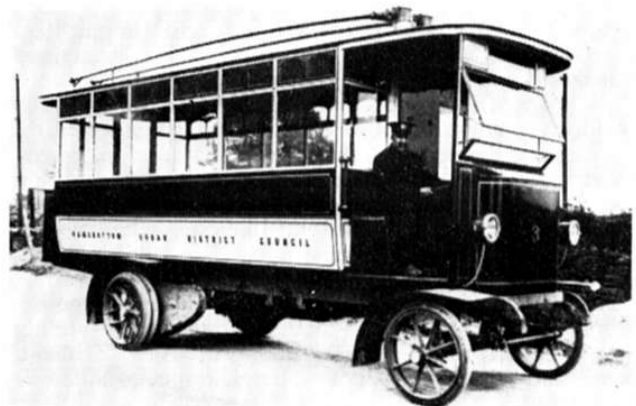
Most of the early trolleybus systems did not last the distance—Dundee closed in 1914, Stockport in 1919, Keighley's first routes in 1921 and Aberdare in 1925. Ramsbottom was, so to speak, the last of the lights to go out. Various factors, such as difficulties in obtaining replacements and the ever developing motorbus, contributed to the downfall of the early trolleybus pioneers. It seems that, in the early days, the trolleybus held great promise. What might have been a boon to municipal transport never really 'arrived'. In view of the fact that trolleybuses in the pioneering era had a future less certain than that of the tram, Ramsbottom certainly took a courageous step in adopting this form of transport.

Acknowledgement

The writer wishes to express his thanks to the Librarian of the Institution of Electrical Engineers for the use of the library facilities. Amongst these were the bound volumes of both 'The Tramway and Railway World' and 'The Tramway and Light Railway Journal' for the year 1913.

Certain details on Ramsbottom have also been taken from the excellent publication 'Great British Tramway Networks' by W. H. Bett and J. C. Gillham.

In addition I send my sincere good wishes to Miss U. B. Murphy, B.A. A.L.A. of Ramsbottom Public Library for kindly providing me with points of information contained in the captions.



(Right). Here can be seen the influence of the tramcar in the early trolleybus designs.