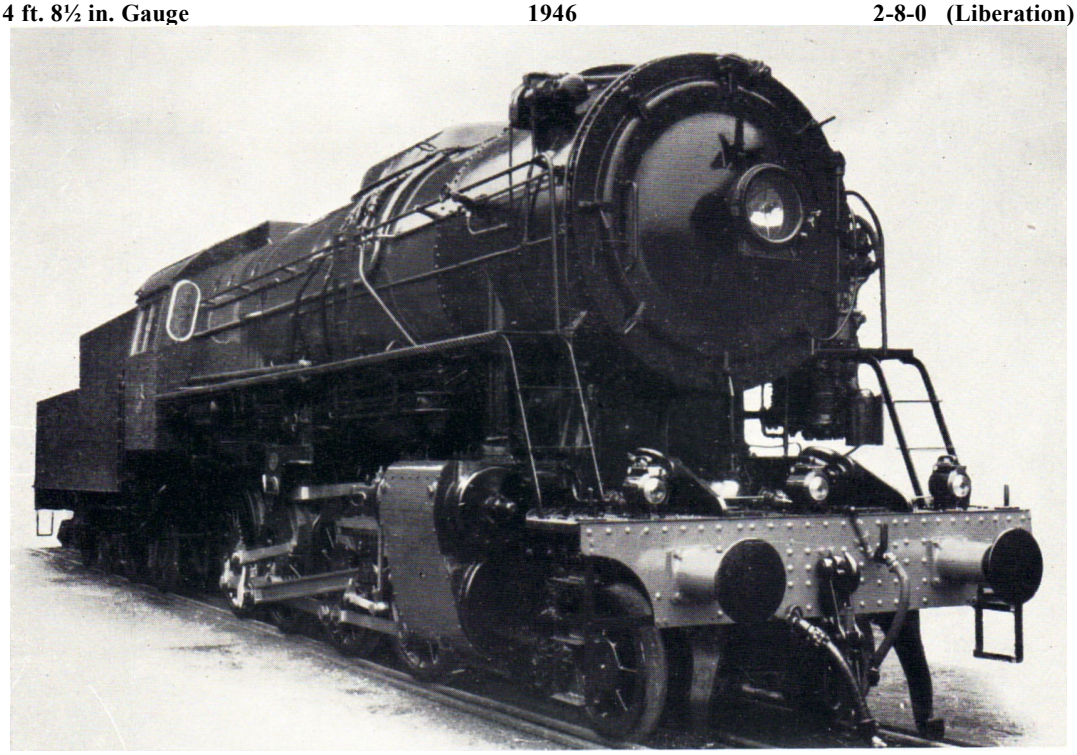
LUXEMBURG RAILWAYS AND U.N.R.R.A.

4 ft. 8½ in. Gauge **1946** **2-8-0 (Liberation)**



Cylinders.....	**(2) 21⅝ in. Diam. x 28 in. Stroke**
Diameter Coupled Wheels.....	**4 ft. 9⅛ in.**
Working Pressure.....	**227 lb.**
Tractive Effort at 85% Pressure.....	**43,800 lb.**

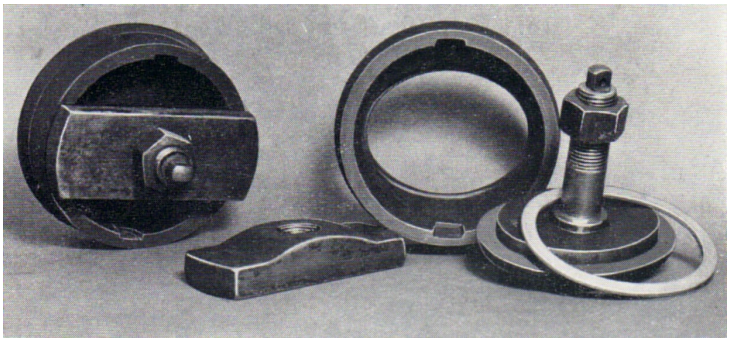
Maximum Axleload.....	**18.5 tons**
Weight :	
Engine in Working Order.....	**84.35 ''**
Tender '' ''	**58.2 ''**
Total '' ''	**142.55 ''**

The "Liberation" 2-8-0 Locomotive illustrated above is an unusually interesting machine, and 110 of them were supplied to U.N.R.R.A. immediately after World War II for use in Yugoslavia, Poland, and Czechoslovakia, a further 10 being delivered to Luxemburg.

The design owed its initiation to the Technical Advisory Committee on Inland Transport (T.A.C.I.T.) in collaboration with The Vulcan Foundry, the former body consisting of members of the British and Allied Governments charged with the post-war reorganisation of Continental communications. After agreement as to the general specification to be adopted, T.A.C.I.T. requested

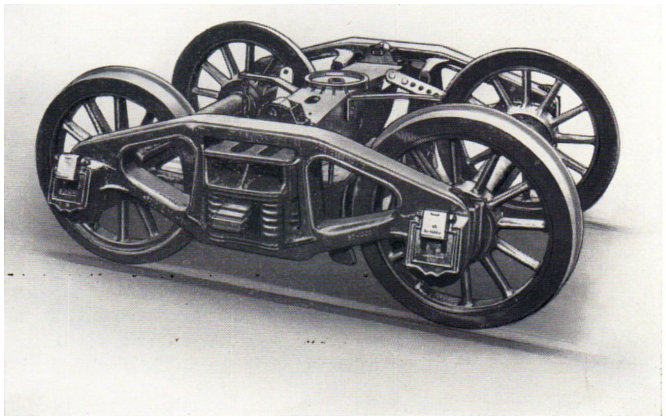
the Ministry of Supply to place an order and The Vulcan Foundry were asked to work out the details and were given a very free hand in the matter. This, together with the co-operation of the Continental engineers, resulted in the production of a locomotive embodying many of the best features of British, Continental, and American practices.

Built to conform to the Berne loading gauge, the " Liberation " has a tractive effort of 43,800 lb. at 85% pressure, a maximum axle load of 18-5 tons, and will negotiate curves of 330 ft. radius.



Continental Type Washout Door

Difficulty regarding post-war lack of repair facilities on the Continent was catered for by simplicity of design and ease of maintenance, and with the exception of proprietary fittings all details were designed to metric dimensions and all replaceable machined parts were manufactured to the International S t a n,d - ards Association system of tolerances to ensure interchangeability.



Cast Steel PIankless Tender Bogie

The ample boiler, pressed at 227 lb., and having 44 sq. ft. of grate area, is provided with a round-topped firebox with copper inner shell and three arch tubes; it is radially stayed and is

provided with flexible stays in the breaking zones. The boiler washout doors are of German type, the door having a fiat face enclosed within a circular housing welded to the boiler, enabling all doors to be identical irrespective of their location.

The superheater has 36 elements with a maximum steam temperature of 700°F.

The circular smokebox, with door secured by dogs, rests on a cast iron saddle, and the cast steel frame stay below it carries the truck componsating beam bracket.

The ashpan is of the double hopper pattern and the firegrate is of the rocking type, the firebars being in the form of loose fingers carried on the rocking bars.

The Continental engineers required rhomboidal steam ports and in consequence the piston valves have the unusually large diameter of 12 in. The Walschaert valve gear is of simple design and has no offsets, and an unusual feature is the crosshead arm attachment which is by means of a tapered pin pressed into the crosshead and secured by a cotter.

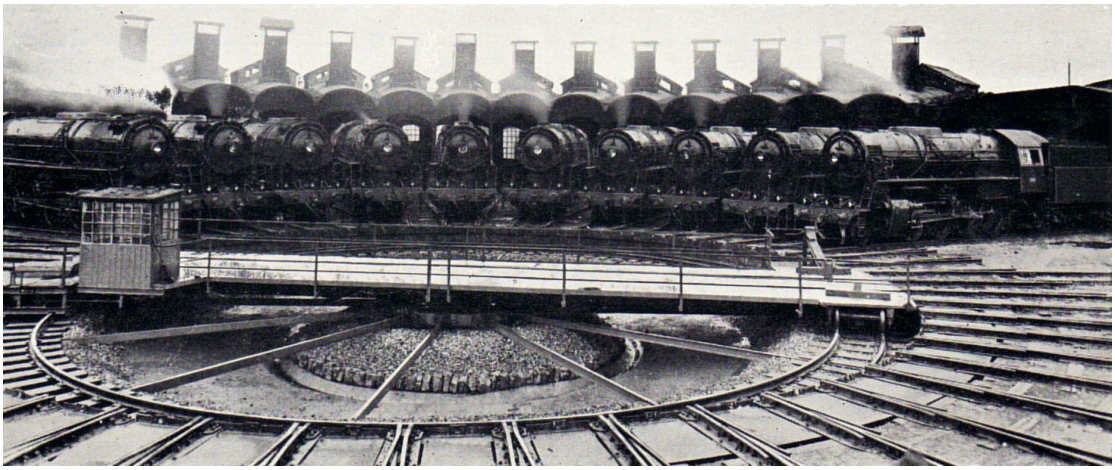
It was impossible at that time to obtain steel slabs for bar frames and therefore plate frames were provided conforming to normal British practice.

All lubrication except at a few minor points is by oil, fed from Wakefield mechanical lubricators.

The tender has tank and bunker of all-welded construction and is provided with two fourwheeled American pattern cast steel bogies of the plankless type. These consist virtually of only three pieces, two side frames and one cross bolster, resulting in considerable saving in weight and facility of assembly.

Other points of interest include two Everlasting blowdown cocks, reflex water gauges, forged steel manifold, two Davies & Metealfe 12.mm.. lifting and re-starting hot water injectors of special design for operation in Eastern Europe under winter conditions, compressed air sanding apparatus with, the sandbox on the boiler top, overhead springing , compensated in two groups, a powerful Westinghouse, cross compound air compressor for dealing with very heavy fully fitted freight trains, and very complete electric lighting equipment.

The " Liberations " in service in Yugoslavia are employed between Belgrade and Divaga and between the port of Susak on the Adriatic Sea and Moraviqe. Trains of 360 tons are regularly handled on this latter section where long winding gradients of 2.5% abound.



The 15 locomotives sent to Czechoslovakia are stationed at Ceska Trebova, 102 miles east of Prague, and from this centre they work freight trains of 1,200-1,300 tons to Prague, Brno, and Olamuec, with ruling gradients of 1 in 125.

The 10 Luxemburg engines are used not only on freight trains but also for general passenger work including the Paris-Liege expresses.

In all the countries where these locomotives are employed their free steaming and economical coal consumption have been the subject of particular comment.