

GIANT WALKING

DRAGLINE

THE BIG LADY EATS A MOUNTAIN

A MECHANICAL mammoth—the “Big Lady”, they call her locally—is stalking the Welsh hills. The NCK-Rapier W1800 walking dragline—the largest in the world—weighs 1,790 tons, excluding the bucket, and is 103 feet long.

Just over ten years ago Ransomes and Rapier Ltd., who have been constructing walking draglines since 1937, produced a 1,400-ton model, then the biggest in the world. That particular dragline is still in service and her sisters are excavating in many parts of the world. They can move about 30 tons of earth at a bite, but the W1800 can shift twice as much.

The 1,400-ton dragline (W1400) was originally designed to operate in an open-cast iron ore mine at Corby, in Northamptonshire, where the overburden to a depth of 100 feet had to be excavated and dumped in one operation.



A general view of the Rapier W1800 Walking Dragline. All the illustrations to this article appear by courtesy of Ransomes and Rapier, Ltd.

Based on the experience they gained with the W1400, the makers created the W1800 type, the first of which has been purchased by the National Coal Board and is in ser-

By

L. BRUCE MAYNE

vice in the open-cast workings at Maesgwyn Cap at Glyn Neath, in Glamorganshire. The operators of

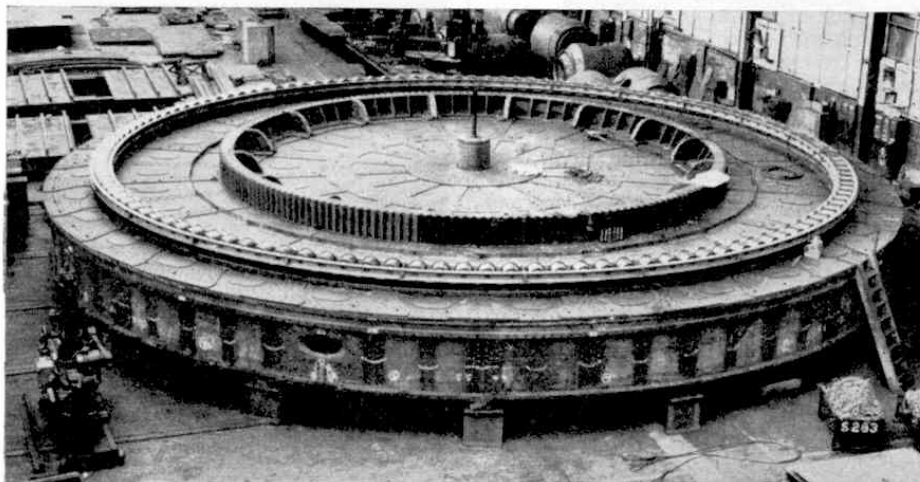
The completed base for the mammoth dragline, with rollers and slew rack in position. This slew rack is more than 32 feet in diameter and the roller path is 48 feet in diameter.

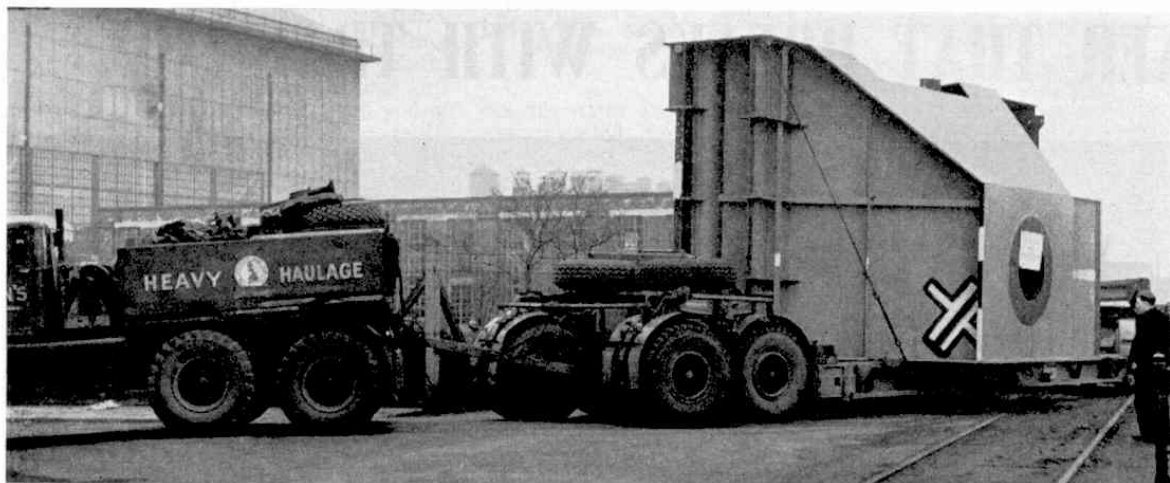
the equipment which, it must be emphasised, removes the overburden—that is, the earth covering the coal seams—and does not dig the coal itself, are George Wimpey and Co. Ltd.

So immense is this machine that when its work has been completed on the present site and it has to be moved elsewhere, it will have to be dismantled and re-assembled on the new site. To facilitate this, the whole machine has been erected from separate units as if built with some gigantic Meccano Outfit. These units—the heaviest weighs 42 tons—are dowelled and bolted. In places flange welding makes for increased rigidity, but the work has been done in such a way that it will not affect the adjoining parts of the main structure when it is dismantled.

The dragline is fitted with a basic boom of 208 feet on which either of two extensions may be mounted. The shorter gives an operating length of 247 feet for working with a 40 cubic yard bucket (a 91-ton load) and a longer one giving a working length of 282 feet using a 30 cubic yard bucket (a 65-ton load).

Despite the staggering weight, depths and heights involved, the complete cycle is carried out in remarkably quick time. When digging a depth of 40 feet—which is deeper than the average house is high—the dragline can load its bucket, hoist it to a height of 40 feet above ground, swing through a 90 degree arc and return to the





The largest single unit of the dragline, weighing 42 tons, leaving the works on a low-loader.



A close-up of the dragline's 40 cubic yard bucket which was manufactured by Hadfields, Ltd., of Sheffield.

original point, all in 64 seconds. Every hour the W1800 can excavate and dump its own weight of earth.

The circular base of the machine, weighing 284 tons, is 55 feet in diameter and is a riveted, welded and bolted construction of rolled steel plates and sections heavily braced and built on radial girders. Around the forged steel centre-post in the base, standing 6 feet 3 inches high and weighing four tons, the superstructure rotates.

The revolving superstructure is a cantilever unit built on a rotating frame 94 feet long.

To "walk", the W1800 uses the Cameron and Heath walking gear, the rectangular shoes being lowered to the ground by eccentric-operated legs. In the walking position, the whole machine is tilted and is slid along the ground in a series of strides each 7 feet 7 inches long.

The shoes are of welded steel plates and sections, and are 55 feet long and 9 feet 6 inches wide. Each weighs 58 tons. The walking speed does not exactly qualify the machine for an Olympic Gold Medal, but to raise the 0.11 m.p.h. which it can

achieve four 225 h.p. motor units are employed.

In a machine of such huge dimensions, it is supremely important that the maintenance of the equipment and replacement of parts, when necessary, should be as speedy and as easy an operation as possible. In designing the W1800 the makers have arranged to have the motors used in the hoist and drag drives to be interchangeable. Many other parts are also interchangeable and a minimum number of spare parts may be carried.

To facilitate carrying heavy replacements, etc. an overhead crane operates inside the W1800! This 16-ton travelling crane, which is controlled from an underslung cabin, conveys some idea of the huge proportions of the "master" machine which also carries, on its deck, a well-equipped fitters' bench complete with welding equipment.

The giant dragline has two control cabins, the controls being duplicated so that the operator can work the machine from either side, depending on his field of vision. There are hand levers to operate

the hoist, drag and walk motions and pedals for swinging. Pistol-grip switches control motion parking brakes and the drag-walk changeover switch. Toggle switches control both the lights on the boom and floodlights.

The "Big Lady" has two sisters, one built for Stewart and Lloyds Ltd. and the other for the United Steel Company at Roxby, near Scunthorpe.

Engineers have progressed a long way from the picks and shovels used by brawny, human navvies. Today, a gigantic, walking, electrically-driven, man-made machine, which not so long ago could only have existed in science fiction, is eating its way through a Welsh mountain.

MORE A.E.C. TRUCKS

More orders for A.E.C.'s largest selling truck model, the "Mercury", have been received from Scottish operators. William Russell of Bathgate Ltd., who already operate a large A.E.C. fleet, have called for fifteen more "Mercury" tractors to haul semi-trailer outfits. The new prime-movers will be employed on general and long distance haulage duties, mainly on the carriage of agricultural produce from Scotland to London and the South of England.

James Kemp (Leslie) Ltd. of Leslie, another well-known Scottish firm of haulage contractors, have ordered six "Mercury" flat platform trucks. Based on the 17 ft. 3 in. wheelbase chassis the new vehicles will join the Kemp fleet on general haulage work including the transport of paper and newsprint to the south.

All the "Mercury" models destined for Scotland will have 138 b.h.p. diesel engines, six speed constant mesh gear-boxes, incorporating overdrive on sixth gear, and direct air-operated brakes.

Also in demand is the A.E.C. "Mammoth Major" eight-wheeled truck. The Road Motor Services division of Rhodesian Railways recently placed repeat orders for nine of these vehicles, which will be operated as truck and trail outfits similar to those already in service. They will be powered by 192 h.p. A.E.C. diesel engines.