HEAD, WRIGHTSON & CO., LIMITED.

Head Office:
THORNABY-ON-TEES.

Subsidiaries:
HEAD WRIGHTSON STEEL FOUNDRIES LTD.
HEAD WRIGHTSON STAMPINGS LTD.
HEAD WRIGHTSON PROCESSES LTD.
THE HEAD WRIGHTSON MACHINE CO. LTD.
HEAD WRIGHTSON ALUMINIUM LTD.
HEAD WRIGHTSON & CO. SOUTH AFRICA (PTY.) LTD.

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20, BUCKINGHAM GATE,
LONDON, S.W.1.

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VICTORIA 6581-2.

TELEGRAMS:
TEESDALE, WESPHONE, LONDON.

WCP/SG

6th October, 1959

The Editor,
Pathe News,
133-135 Oxford Street,
London, W.1.

Dear Sir,

Bradwell Nuclear Power Station - October 20th, 1959

On May 16th 1958 the first giant heat exchanger for Bradwell, measuring 95 ft long and 20 ft diameter was launched into the river Tees and floated down the east coast to the Nuclear Power Station. This was the first time that this novel method of transportation had been attempted and on Tuesday 20th October the last heat exchanger (number 12) will arrive at the site.

Movement on the roads of this very large vessel is normally made in the early hours of the morning to avoid dislocation, but in order that the Press may witness this adventure, the tractors will begin moving it at 11.30 a.m. The enclosed photograph gives you some idea of the size of the vessel and the considerable task involved when moving it through a small village.

Lunch has been arranged for all our visitors and transport provided if necessary.

I look forward to hearing from you.

Yours faithfully,

Bill Paterson

W.C. Paterson.
Chief Publicity Officer.

encl: Programme
Photograph.

Possible provided we can get pictures of the Power Station progress towards Completion.

How far by Road Watermark ? 1 1/2 hours
How long on road 42 hrs 280 miles
by Tug
Wt 200 tons

PROGRAMME

OPEN DAY - BRADWELL NUCLEAR POWER STATION

8.45 a.m.	....	Bonva coaches for Bradwell at Embankment entrance of Charing Cross Underground Station. Coaches marked 'Press Visit to Bradwell'.
9.00 a.m.	....	Coaches leave for Bradwell.
11.15 a.m. (approx)	....	Arrive Bradwell Waterside.
11.30 a.m.	....	Heat Exchanger leaves Bradwell Waterside for site.
12.45 a.m.	....	Heat Exchanger arrives at site.
1.15 p.m.	....	Buffet lunch.
2.15 p.m.	....	Tour of site.
4.15 p.m.	....	Question time.
5.00 p.m.	....	Coaches leave for London.

THE HEAD WRIGHTSON ORGANIZATION

Head Wrightson Teesdale Ltd.	Iron and steel plant; dock and harbour equipment; main line and special purpose wagons; heat exchangers; condensers; evaporators; fractionating columns; stainless steel heat exchangers and vessels and welded vessels to Lloyds Class I requirements; heavy constructional steel works, and heat exchangers, boilers, pressure vessels and special equipment for nuclear energy.
The Head Wrightson Machine Co. Ltd.	The design and manufacture of heavy machinery for steel and non-ferrous metal production and fabrication.
Head Wrightson Processes Ltd.	Contractors for plant and equipment to the petro-chemical, petroleum, chemical and nuclear industries.
Head Wrightson Aluminium Ltd.	The design and fabrication of light alloy structures.
Head Wrightson Stockton Forge Ltd.	The design and manufacture of equipment for collieries and mines; cement and chemical plant and a large variety of general engineering products.
Head Wrightson Stampings Ltd.	The production of stampings varying from one to 150 lbs. for the motor, railway, colliery, oil, shipbuilding and general engineering industries.
Head Wrightson Steel Foundries Ltd.	Steel castings ranging from a few pounds to twenty tons in weight, and the production of components to almost any material specification embracing carbon and manganese steels, alloy, heat resisting and stainless steels.
Head Wrightson Iron Foundries Ltd.	General and special castings weighing from a few pounds to in excess of forty tons, serving primarily the steel and engineering industries. Cast iron segments, chairs and base plates for railway tracks; hematite ingot moulds and bottom plates etc.

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Head Wrightson Colliery Engineering Ltd.	The planning, design, supply construction and installation of complete coal preparation plant, stone or dirt handling plant, and colliery surface re-organization.
Head Wrightson Iron and Steel Works Engineering Ltd.	The design and erection of iron making plant and ancillary equipment, including blast furnaces, materials handling and sinter plant, gas cleaning plant etc.
The Head Wrightson Export Co. Ltd.	The promotion of trade in overseas countries for the Head Wrightson companies.
Head Wrightson South Africa (Pty) Ltd. Wright Boag and Head Wrightson (Pty) Ltd.	The design and manufacture of mining equipment, industrial and general plant, including earth moving equipment.
Head Wrightson (Australia) Pty. Ltd.	The supply and installation of Head Wrightson equipment and the manufacture of general engineering products.
Cupola Mining and Milling Co.	The processing of minerals and the production of barytes, fluorspar, lead etc.

ASSOCIATE COMPANY

McKee Head Wrightson Ltd.	Consultants and contractors to the petroleum and petrochemical industries.

Members of: The Nuclear Power Plant Co. Ltd.,
The Metallurgical Equipment Export Co. Ltd.
The Indian Steel Works Construction Co. Ltd.

INTRODUCTION.

Today, Tuesday 20th October, 1959, the last of the 12 heat exchanger shells will be landed at Bradwell in the Black Water Estuary after its long sea journey from the Thornaby-on-Tees Works of Head Wrightson & Co. Ltd.

We are attaching some notes giving details of these vessels and of the novel method of transportation.

12 huge vessels each weighing 200 tons, 20 ft. in diameter and nearly 100 ft. long, have been safely launched, towed down the east coast and landed at Bradwell, without incident. This operation has saved serious congestion which would have been caused on the main trunk roads had these vessels been transported by conventional means.

SIZE OF HEAT EXCHANGERS.

Each of the twelve heat exchangers is a vertical pressure vessel of 1.9/16 inch thick plate, 19ft. diameter over the major portion of its length, with a 20ft. diameter section at the base. The overall height of each shell is 92ft. 4½ inches and the weight 200 tons. These shells are each large enough to house eight London double-decker buses. A corrosion allowance on the plate thickness has been included.

METHOD OF CONSTRUCTION.

On account of their size these vessels could not be delivered in one piece by road or rail, neither was it possible to deliver the vessels broken down into rings (as was done at Calder Hall) for the same reason. It was possible to deliver them broken down piece small, i.e. each plate separately, but the complexity of operations and the need for specialised supervision in the assembly on site away from the works made it advantageous to look for another alternative.

The geographical position of the fabricating shops and the site of the Power Station both being situated on rivers on the East Coast appeared to offer a solution, and it was considered that by completely fabricating these vessels in the works under strict control, launching them into the river, towing and hauling out of the river at site, was the best answer to the problem.

FABRICATION DETAILS.

All plate material used in these vessels was supplied by Consett Iron Co. to BSS 1501-154, the shell plate being from Grade C quality with an O.T.S. of 28/32 tons/sq. inch and an elongation of 20% on 8 inch gauge length, the dished ends from the more ductile Grade B quality with an U.T.S. of 26 - 30 tons/sq. inch and an elongation of 23% on a similar gauge length.

It was chosen for its suitability at service temperatures in excess of 700°F, its weldability, notch ductility and freedom from cracking.

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The size of the plates was governed entirely by the disposition of the banks of tube elements and consisted of 4 plates round the circumference, in 12 tiers or rings - 3 @ 20ft. diameter, 8 @ 19ft. diameter, 1 transition piece 20ft. - 19ft. diameter, a top and bottom dished end, a bottom skirt plate and a diffuser.

TRANSPORTATION.

Due to the possibility of damage to the thermal sleeves during towing, these are protected by timber fenders bolted into position over each bank of sleeves. Preparation for launching these vessels is made at the Head Wrightson slipway on Teeside. The shell is run on rails to the head of the slipway, and turned through 90° on a steel plate turntable before being jacked down to declivity on to the sliding ways.

The orthodox method of ship launching was followed with tallow and soft soap. The Tees Towing Co. Ltd. of Middlesbrough, were responsible for transporting the heat exchangers to site.

ARRIVAL AT BRADWELL.

At the Bradwell Site a concrete slipway was built, down which a road low loader was run. The vessel was floated into position yesterday above this vehicle and as the tide fell the weight of the vessel was taken on the vehicle. This is then hauled out of the river with the aid of powerful tractors and taken to the Power Station site under the Goliath Crane for lifting into its final position by the reactor. It is this operation you will be witnessing today.

The complete fabrication of these Heat Exchanger Shells was carried out at the Thornaby Works of Head Wrightson Teesdale Ltd., a subsidiary of Head Wrightson & Co. Ltd., the Teeside engineers.

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