

seas shipowner, the same factors may not be applicable and a different type of reactor may prove to be more suitable. In general, it should be borne in mind that, even at the present stage of British land gas-cooled reactor development where commercial organisations are offering plants abroad, the guarantees given are unlikely to be as firm as those for conventional power plant, for some time to come.

It is too early to decide in what manner the advanced gas-cooled reactor designs will be placed on the marine propulsion market, although it is possible that the existing British consortia for land power stations would all be interested in entering the field. It may, however, be some considerable time before competitive tendering organisations already well established in the marine field are set up for this particular design of plant once its feasibility has been established. In the interim period, there may well be scope for firms currently offering American designs and enabling shipowners to gain experience at a reasonable cost.

Pressurised-water reactor

Babcock & Wilcox Limited, of London, have been working in conjunction with The Babcock & Wilcox Company of New York to develop a British made pressurised-water design of nuclear propulsion plant for merchant ships, based on the American Babcock & Wilcox Company's designs. This plant is similar to that being built for the *n.s. Savannah*. Also, as announced previously, Babcock & Wilcox Limited have, for some time, been collaborating, under a non-exclusive agreement, with Cammell Laird & Company (Shipbuilders & Engineers) Limited, in feasibility studies on the application of nuclear propulsion to merchant vessels.

On the Babcock & Wilcox Limited stand in the Engineering, Marine, Welding & Nuclear Energy Exhibition at Olympia next April, will be seen some details of a typical pressurised-water design, and it is anticipated that during 1959 it will be possible to discuss such designs on a firm basis with interested shipowners and builders.

Nuclear science chair for Naval College

A new chair of nuclear science and technology has been established at the R.N. College, Greenwich, which is responsible for the advanced scientific and technological education of Naval and Admiralty civilian officers.

Mr. J. Edwards, B.Sc., A.M.I.-Mech.E., A.C.G.I., recently employed as the senior principal scientific officer in the Naval section at Harwell, has been appointed to the new chair, on secondment from the Royal Naval Scientific Service.

Existing plans provide for courses for design specialists, technical officers and commanding officers and others.

New radar installation at Liverpool

A NEW radar installation with £72,000 worth of the latest equipment, has been opened by the Mersey Docks and Harbour Board, pioneers of harbour radar.

Mr. M. Arnet Robinson, chairman of the Board, performed the opening ceremony at the newly-constructed building at Gladstone Dock, Liverpool, on Monday February 2. The installation once again puts the Mersey in the forefront in the matter of radar control.

Liverpool was the first port in the world to install a major radar coverage,

Crosby Channel over an area of 2½ miles, at a quarter of a mile to an inch; and another display is available as an operational safeguard and can be switched to cover the function of any of the other six displays.

Apart from the choice of these range scales and off-centring facilities each display will incorporate one interscan line. Variable by simple controls in range, bearing and origin, this type of continuously painting electronic line is the most accurate method of obtaining measurements between any two points



The seven 15 in. display units at Gladstone Dock

in 1948. Since then 5,332 ships of almost 28 million tons have received assistance and the service has proved a valuable asset both as a time saver and as an aid to safe navigation.

Although the results obtained from the original installation have been satisfactory there have been technological advances in radar and the Board decided to bring the equipment up to date, and provide a new building to house it.

The new radar is a Decca Type 32, specifically designed for ports with high traffic densities. It consists of 3 cms. radar equipment of exceptionally short pulse length and V.H.F. F.M. radio equipment. The 20 ft. high-gain narrow beam radar reflector is sited on the original tower.

To ensure continuous operation during routine maintenance there are two entirely separate radar channels with remote control changeover facilities.

There are seven advanced coil displays, all fed from the one radar source. One display is off-centred to show a small-scale long range general warning picture out to a range of 20 miles, at a scale of about one mile to an inch.

Three displays show in large scale the harbour and its approaches covering an area of five miles, scaled to half a mile to an inch. Two displays cover the

on the face of a radar display, it is claimed.

An additional facility is the use of Deccaplot reflection plotters on which are engraved channel limits and buoy numbers.

New transit shed for Southampton

The British Transport Commission announce that a new single-storey transit shed is to be provided at Quay 26/27, Empress Dock, Southampton, in replacement of two sheds which were destroyed by enemy action during the war. The restoration of transit shed facilities at this quay will avoid the unnecessary use of deep-water berth elsewhere in the port and will encourage the development of additional traffic Empress Dock.

The new shed will be 725 ft. in length, 95 ft. wide, with an adequate roof height to allow the use of mechanical handling appliances. The work will include a rearrangement of rail tracks on the quay and the provision of a platform at the rear of the shed for the loading and unloading of rail and road vehicles.