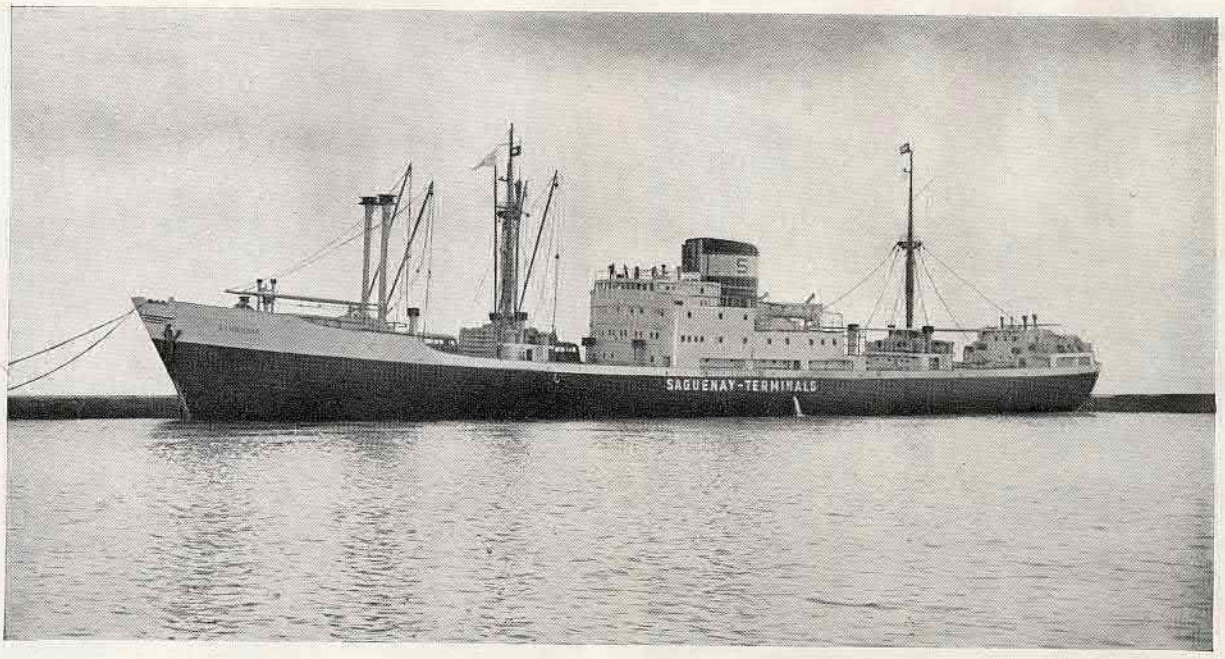


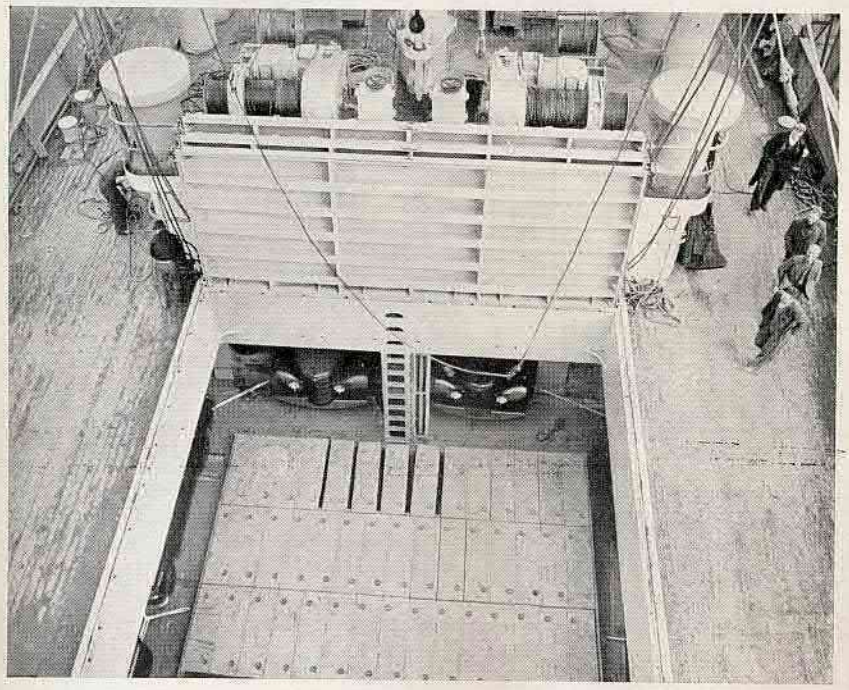
THE 6,290-TON M.V. "SUN-ADELE" AFTER TRIALS.

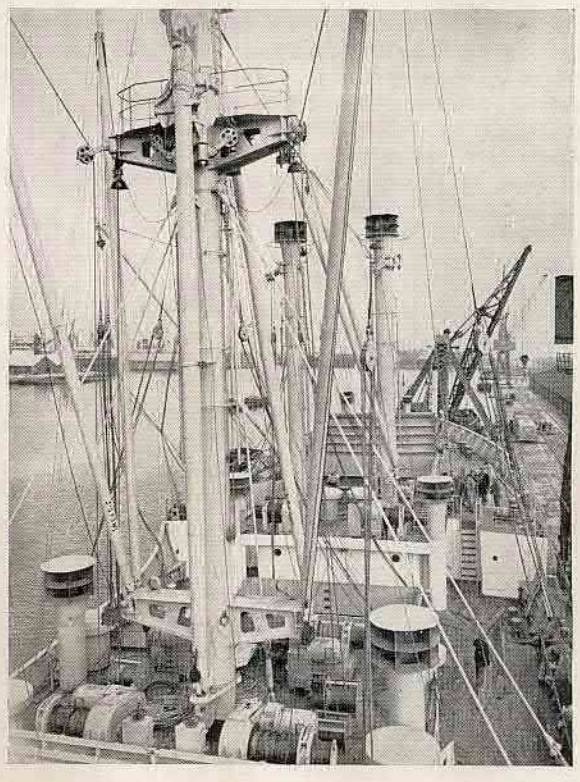
THE SWISS CARGO LINER "SUN-ADELE"

German-built 16½-knot Closed Shelter-decker. 7,160 i.h.p. C.R.D.A.-Sulzer Engine Running on Boiler Oil.

THE first of two fast motor cargo liners ordered by Rederi Zürich A.G., Zürich, from the Hamburg yard of H. C. Stülcken Sohn, is the "Sun-Adele," a vessel of 6,290 tons d.w.c., and the largest ship yet to be delivered by these shipbuilders. She entered service less than two months after launching, is jointly owned, and is managed by Messrs. C. Clausen, Copenhagen. After leaving Hamburg she sailed to Rotterdam and Antwerp, then to Tilbury for general cargo, which included cars and a deck cargo of motor coaches. On time charter to Saguenay Terminals, Ltd., Montreal, she has now sailed for Barbados, Trinidad, Carapito and thence to British Guiana. It is expected that she will call at Montreal.

By arrangement with the owners' London agents, Joseph Constantine and Sons (London), Ltd., we visited the ship at Tilbury with our staff photographers and found the "Sun-Adele" to be of attractive design and to have a notably high standard of accommodation for 12 passengers and for the officers and crew. A feature of the machinery installation is the particularly elaborate arrangement for the purifying and heating of the heavy oil used in the main engine.





(Above) View into one of the holds, and (right), the fore deck.

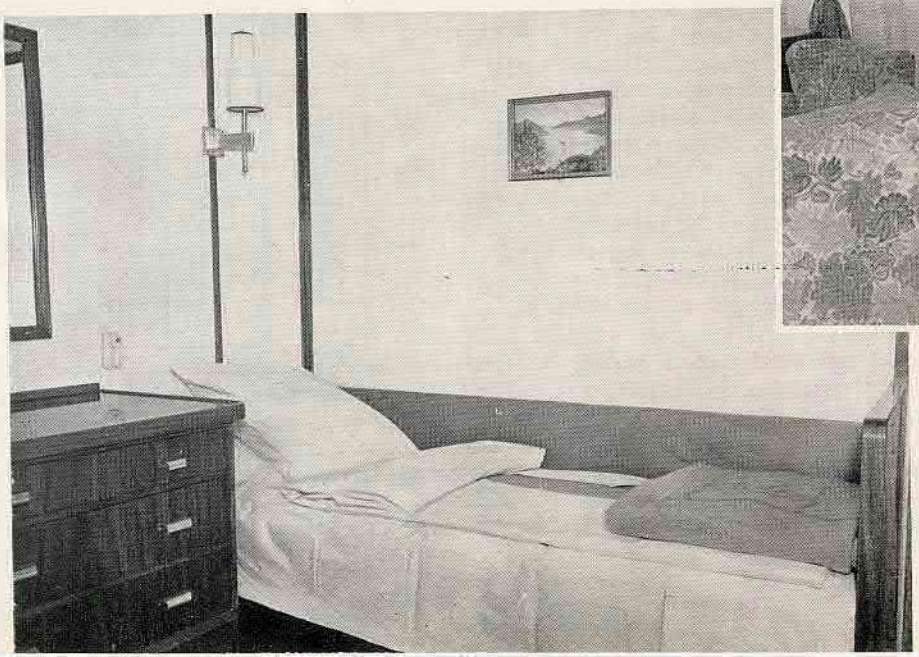
ACCOMMODATION ON THE 6,290-TON 12-PASSENGER M.V. "SUN-ADELE"

The passengers' dining saloon.

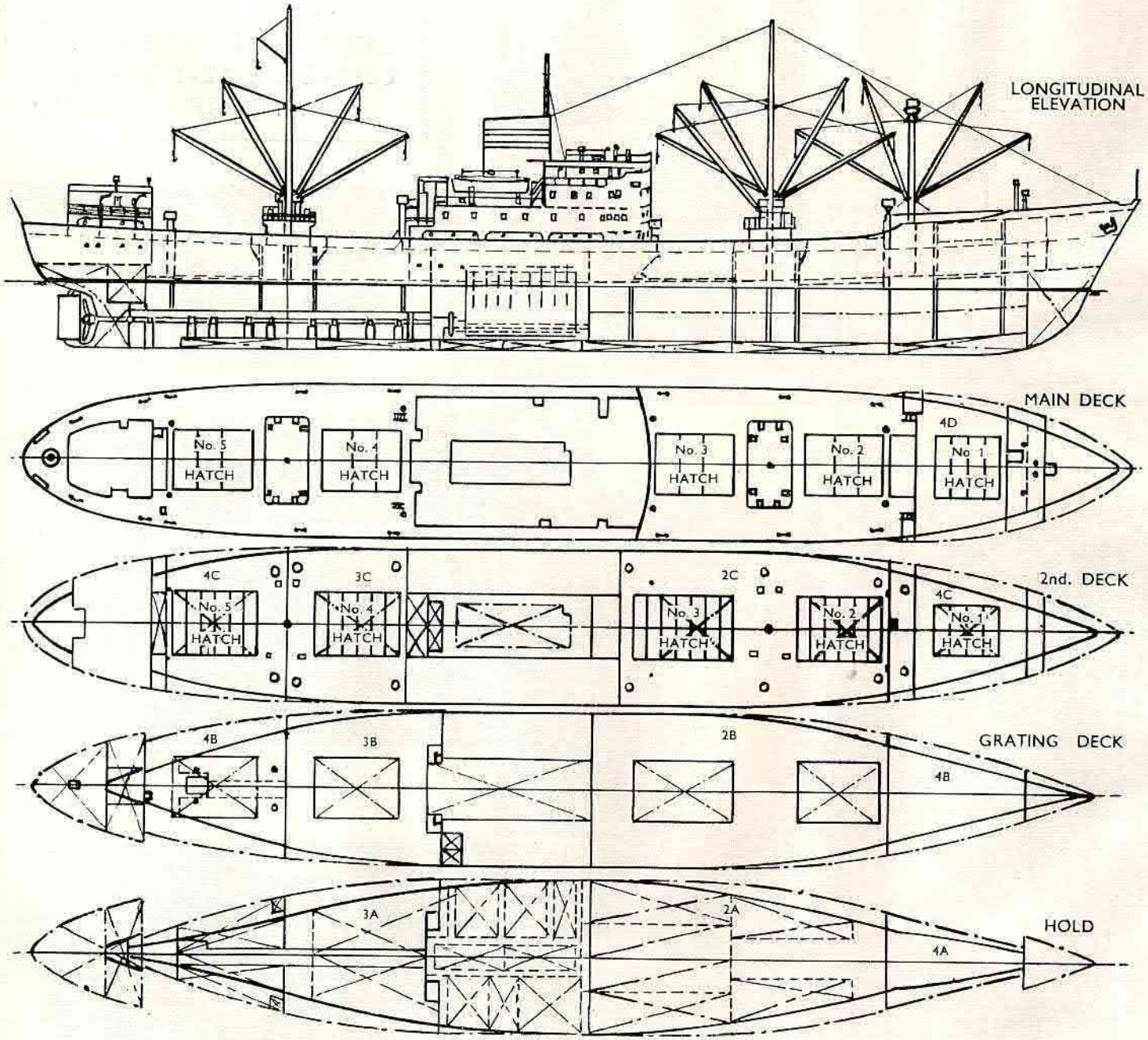
View of the chief engineer's day-room.

The mahogany-panelled bar, leading to the dining saloon.

(Above) Part of the passengers' smoke-room.



(Left) One of the passenger cabins; the bed shown is a settee by day.



OUTLINE GENERAL ARRANGEMENT PLANS OF THE M.V. "SUN-ADELE."

Built as a closed shelter-decker, the ship has a total grain capacity of 323,930 cu ft. (308,573 cu. ft. bales) and has four cargo holds served by five hatches and 12 5-ton and one 25-ton derricks.

The principal characteristics of the ship are:—

Length overall ...	385 ft. 7 ins.
Length b.p.	350 ft.
Breadth, moulded ...	52 ft. 9 ins.
Depth to main deck ...	33 ft.
Depth to 2nd deck ...	23 ft.
Draught at summer freeboard	26 ft. 7½ ins.
Corresponding deadweight	6,290 tons
Machinery	7,100 i.h.p. at 16½ knots
Trial speed	17.4 knots

The A.E.G.-type winches, manufactured under licence by Kampnagel Schaerffe, Hamburg, are designed to lift 3 tons at 30 ft. per min. in single gear, or 5 tons at that speed in double gear. Each is driven by an 18.4-kW electric motor and, as can be seen, winch deckhouses are interposed between Nos. 1 and 2 and Nos. 3 and 4 hatches. On each of these houses are four hoisting and four topping winches. Furthermore, there are four winches mounted at the after end of the extended forecastle. Mechanical ventilation is provided to all cargo spaces designed with the object of giving 20 changes of air per hour.

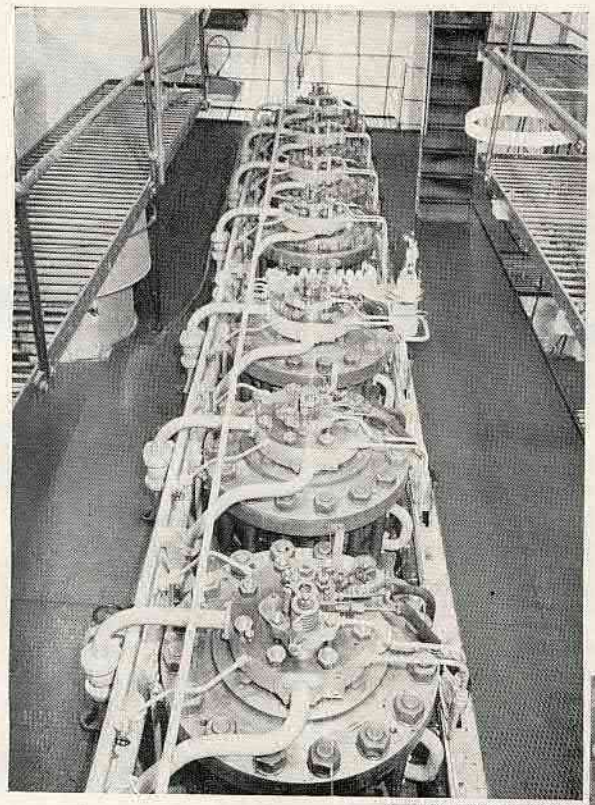
The hatches are fitted with a sliding steel hatch cover of German manufacture, and a further point of interest is that in order to facilitate the carriage of fruit, a portable grating deck is fitted. The top deck is sheathed with Oregon pine 63 mm. in thickness to prevent heat radiation.

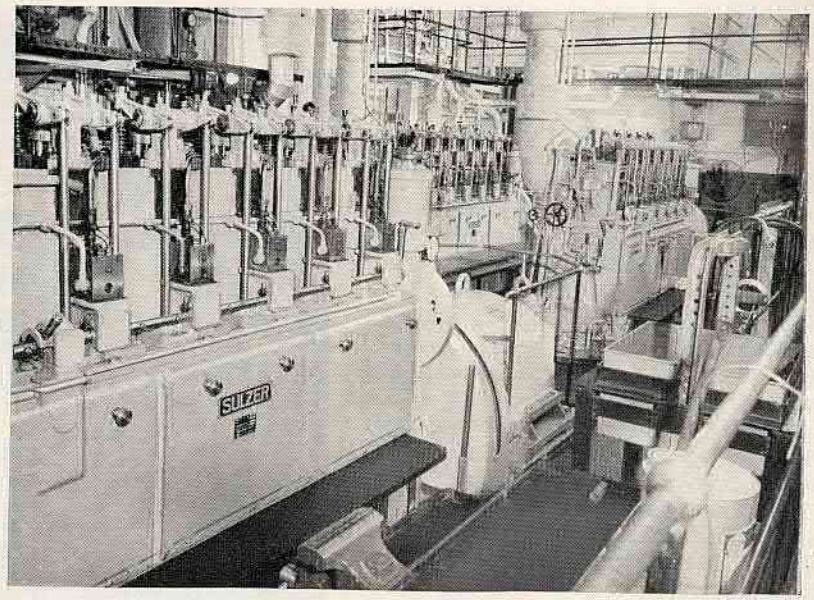
The hold capacities are as follow:—

Cargo Holds

Hold	Grain		Bales	
	m³	cbf	m³	cbf
1a	203	7,205	192	6,781
1b	442	15,609	418	14,762
1c	490	17,305	465	16,423
1d	424	14,974	402	14,197
2a	1,271	44,888	1,216	42,945
2b	1,588	56,083	1,512	53,400
2c	1,461	51,598	1,385	48,733
3a	556	19,636	530	18,718
3b	709	25,039	667	24,663
3c	720	25,428	683	24,122
4b	517	18,259	490	17,305
4c	716	25,187	679	23,981
Tonnage well	77	2,719	72	2,543
Total	9,174	323,930	8,711	308,573

The C.R.A.-Sulzer engine for propulsion has eight cylinders, each with a bore of 720 mm. and a stroke of 1,250 mm., and its normal service rating is 5,600 b.h.p. at 125 r.p.m., with an m.i.p. of 9.5 kg. per sq. cm. At that power the main piston





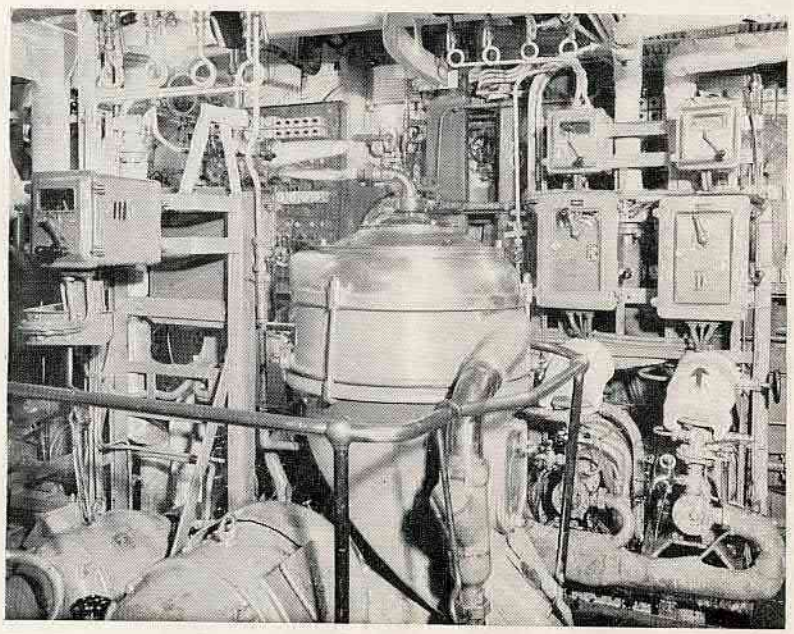
Three of the 160-kW Diesel generators.

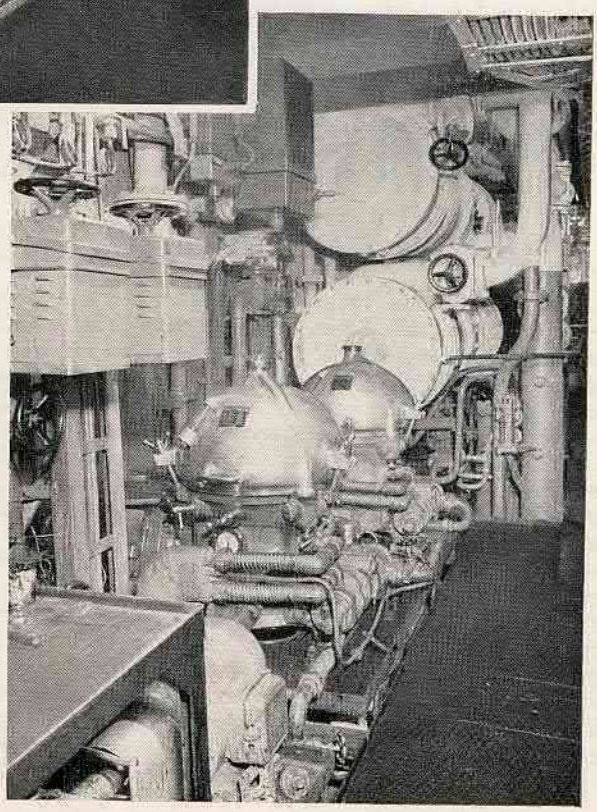
(Above) View of the main engine cylinder tops; the fuel circulating arrangements can be seen at each fuel injection valve.

(Right) The fresh water circulating pumps.

ENGINE - ROOM INSTALLATION IN THE M.V. " SUN - ADELE "

View of fuel transfer pumps and a fuel purifier (below) and the Diesel and lubricating oil centrifuges (right).

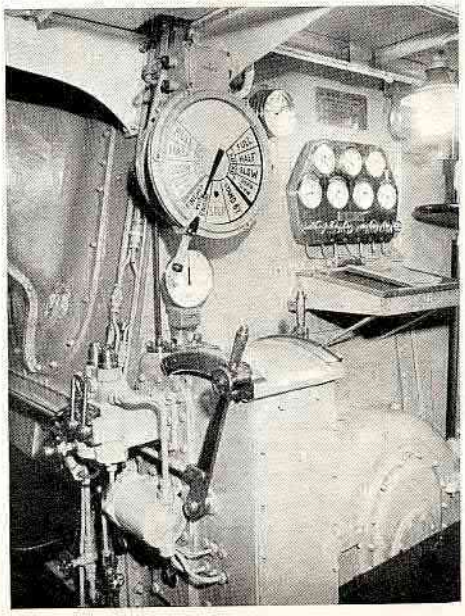




speed is 5.2 m. per second, and the engine drives a Karl Zeise right-hand four-bladed propeller 4,800 mm. in diameter with a mean pitch of 4,333 mm. The stern gland is of the Cedervall type.

The main engine is generally of standard Sulzer design of the crosshead type, with an independent scavenge pump to each cylinder. It is arranged for operation on heavy oil, and at present is running on fuel with a viscosity Redwood No. 1 of 1,500 secs. at 100 degrees F. The only departure from standard on this engine is that the fuel valves have special provisions to enable the fuel to be circulated. The pistons are oil-cooled and the jackets fresh water-cooled. On the starboard side of the engine-room are three A.E.G. 160-kW 120-volt d.c. generators, each driven by a Sulzer four-stroke Diesel engine having a bore of 220 mm. with a stroke of 320 mm., and running at a maximum of 500 r.p.m. These engines run on Diesel oil, and there is also an emergency set comprising a Motorenwerke Mannheim A.G. two-cylinder 31 b.h.p. engine, which drives, at 780 r.p.m., a 20-kW A.E.G. generator, also a two-stage compressor capable of delivering 26 cu. m. of free air per hour.

For the forced lubrication service to the main engine there are two Leistritz pumps, each delivering 215 cu. m. an hour against a 50-m. head and driven at 1,400 r.p.m. by a 72 h.p. motor. The heavy-oil transfer pump of the same make has a 9½ h.p. motor running at 1,450 r.p.m. and delivering 40 cu. m. an hour against a 30-ft. head.



The main-engine controls.

Starting air for the main engines is supplied at a pressure of 30 atmos. by two two-stage Balcke air compressors, each capable of delivering 300 cu. m. of free air per hour at 1,000 r.p.m., and driven by a 95 h.p. motor.

We have referred to the particularly elaborate arrangements made to enable the main engine to run on heavy oil, and it is hoped to publish a diagram and a more detailed description of this system at a later date. There are two heavy-oil purifiers of the Titan type with a capacity of 3,000 litres per hour, and also a clarifier of the same make. Two similar units are installed, each of 3,000 litres per hour, for centrifuging the Diesel and lubricating oils. There is a 12-kW water heater, through which fresh water is passed before going into the purifiers for cleaning purposes. The three pumps for transferring the clean oil from the separators to the clean-oil storage tank and the three dirty-oil transfer pumps are all designed to deliver 2,000 litres per hour.

Other equipment installed includes an A.E.G. alarm system for the levels in the Diesel oil tanks, and another which gives warning for the heavy-oil tanks, settling tanks, overflow tanks, etc. At the top of the engine-room is a composite boiler with a working pressure of 10 kg. per sq. cm. Also in the engine-room, on a flat at the port side, are two Sabroe refrigerating compressors of the four-cylinder, single-acting type.

We are informed that the fuel consumption of this vessel, when running at full speed and on heavy oil, is 24 tons a day, while the Diesel-oil consumption of the three generators is approximately 3 tons per day.