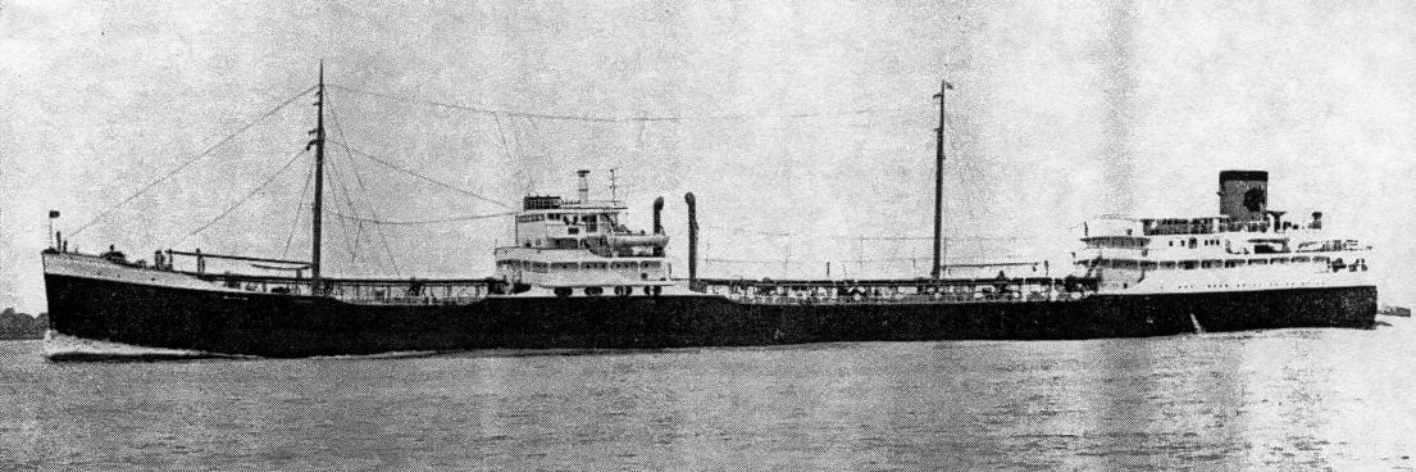
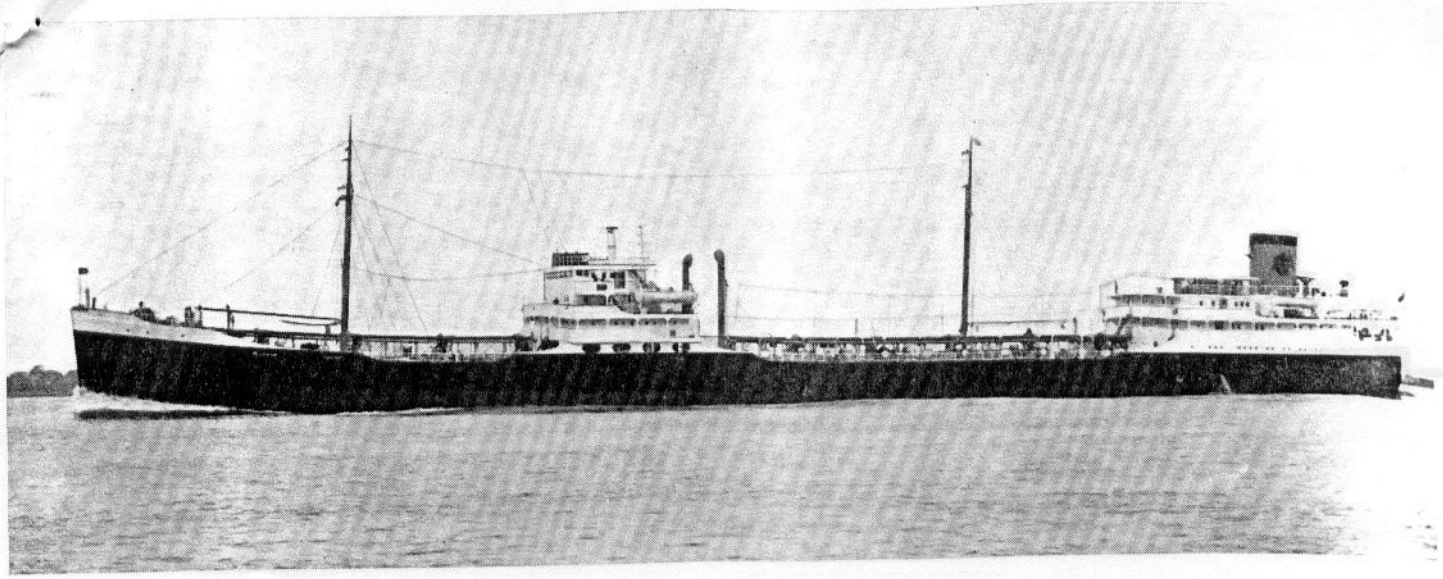


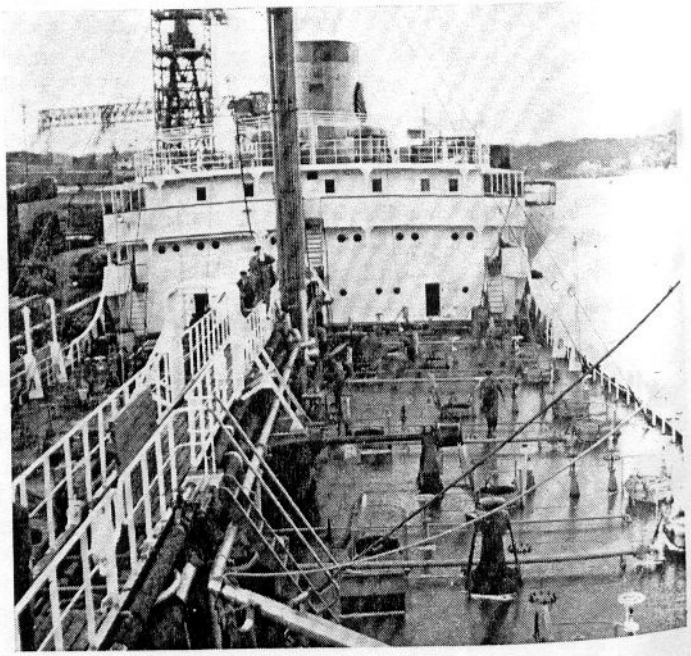


Plagiola, Tanker for the Carriage of Asphaltic Bitumen

The world's Largest Bitumen Carrier

The s.t.s. "Plagiola" is the first of two tankers for the carriage of asphaltic bitumen in bulk, built by the Deutsche Werft, Hamburg for the Royal Dutch/Shell Group. The two tankers, a sistership, the "Platidia" is under construction with the same yard, are intended for service on the route between Curaçoa and the U.S. East Coast. They are the world's largest asphaltic bitumen-carrying tankers, and the first ships to be constructed in Germany for the Royal Dutch/Shell Group since the end of the second World War. The advantages of bulk carriage are that a high temperature can be easily maintained in the cargo, and that drums are no longer required.

View of afterdeck



The *Plagiola*, 15,000 tons d.w., is constructed on the orthodox longitudinal system of framing. Welding has been extensively used in her construction, and the subdivision of the hull is the one generally met with in tankers comprising, in a fore and aft direction, the forepeak, fore deeptank, dry cargo hold, fore pumproom with fuel, fire and cofferdam pumps, built into the fore deeptank. The cargo spaces comprise ten compartments divided into centre and wing tanks by two longitudinal bulkheads. The main pumproom is arranged between No. 5 and No. 6 tank.

The leading particulars of the *Plagiola* are as follows:

Length overall	160.02 m.
Length b.p.	153.92 m.
Breadth overall	20.27 m.
Depth to upperdeck	11.58 m.
Deadweight	15,000 tons
Draught, summer	8.76 m.
Gross tonnage	10,700
Cargo capacity	532,000 cu.ft. (15,100 cu.m.)
Ballast capacity	236,000 cu.ft. (6,700 cu.m.)

Propelling machinery:

One A.E.G. compound turbine geared to the propeller shaft and developing 6,000 s.h.p. at 100 r.p.m. of the propeller.

Loaded speed in service . . 14¼ knots

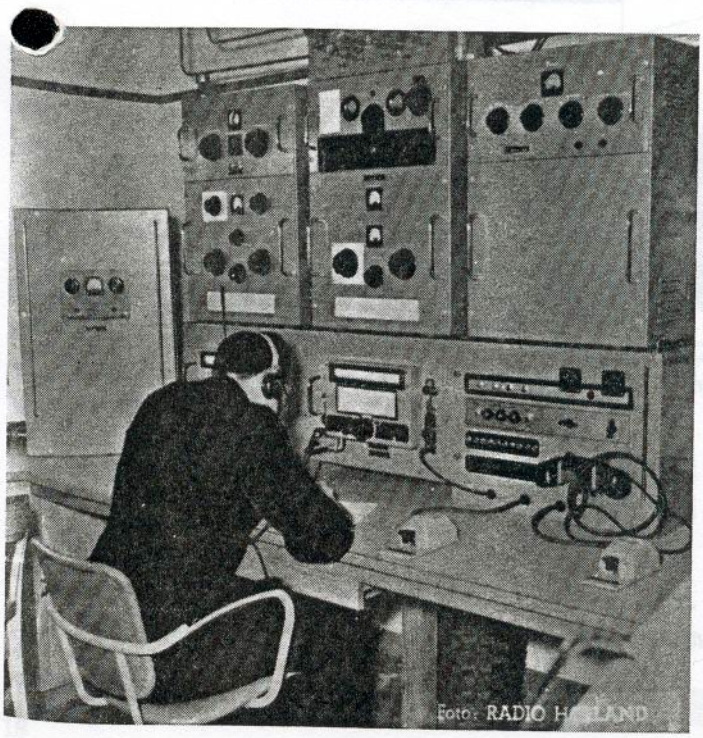
The s.t.s. *Plagiola* has been built to Lloyd's Register of Shipping classification 100 A1 "carrying petroleum in bulk". Her construction was supervised by the technical department the N.V. Petroleum Maatschappij "La Corona", which handles the Dutch shipping interests of the Group. Of the tank spaces only the centre tanks are destined for the carriage of cargo as the greater specific gravities of the asphaltic bitumina prevent the filling of all the tanks. In this arrangement the wingtanks are used as ballast tanks, which has the advantage that the centre tanks will never have to be filled with seawater. This prevents coagulation of the bituminous rests and wastage as well as the boiling of the water present in the bitumina. In addition, the empty wing tanks have an insulating effect on the heated cargo.

Heating of the asphaltic bitumina is necessary to keep the cargo fit for pumping, the temperature required to maintain sufficient liquidity being in the region of 200 deg. Fahrenheit. To this end heating coils in the heavy tanks are fitted to the bottom as well as to the sides of the centre tanks. Pyrometers, readable on deck, enable the crew to watch the temperatures in the holds.

Owing to the nature of the cargo, the cargo-mains consist of double-walled piping and are steam-heated. The pumps, of special construction and fitted with ball valves, have steam jackets around the cylinders and the valve housing. The pipelines are constructed so that ballast and cargo lines are completely segregated. The pumproom bulkheads are insulated to keep the temperature down at a working level.

Accommodation. All members of the crew are housed in single-berth cabins disposed over the midships and poop deckhouses. The standard of this accommodation is high and in keeping with the traditions of the Royal Dutch/Shell Group. The master, wireless officer and navigating officers are housed in the midships superstructure, where, in addition, two spare cabins are arranged on the upper bridge. All quarters are mechanically ventilated, and a heating installation, which is regulated by thermostats is fitted. The accommodation includes a laundry with up-to-date equipment, and a tiled swimming pool on the after deck. The lining of the cabin bulkheads includes fire-resisting Marinite. Where possible the conventional port-holes have been replaced by windows.

Fixed aluminium alloy awnings have been fitted where necessary.



Dry-Cargo Handling Gear. Five derricks are fitted, one on the foremast of 5-ton lifting capacity to serve the dry cargo hold, one pair of 3-ton derricks on two samson posts on the afterdeck, and two one-ton derricks abaft the funnel to serve the provision spaces.

The steering engine is of the electric type. Two units are provided,one of which acts as a stand-by. The steering gear is arranged for full automatic and manual steering.

The *Plagiola's* navigating equipment is in accordance with the best modern practice. It includes radio, radar, direction finder, echosounder, etc. Electric telegraphs provide the communication between bridge and engine room.

With the exception of the Automatic Alarm, which is of the "Seaguard" type, the entire wireless communications equipment and navigational aids, are identical to that placed on board the *Katelysia* (see HOLLAND SHIPBUILDING, June, 1954). This equipment, which was supplied by Radio Holland, N.V., Amsterdam, includes among other things a cabinet in which the major portion of the wireless installation destined for communication purposes is mounted. The cabinet contains the medium wave telegraphy transmitter, type SMZ 219 (aerial output 200 Watt, 6 crystal-controlled frequencies); the short-wave telegraphy transmitter, type SMZ 218 (aerial output 200 watt, 6 crystals for 6 frequencies bands); the medium wave telephony transmitter, type RH 52 10-Z (aerial output 80 Watt, 9 crystal-controlled frequencies); the "Mercury" long-wave and medium receiver; the "Electra" medium-wave and short-wave receiver.

All the apparatus can be controlled by the operator from his seat.

The emergency transmitter, type "Reliance", and the emergency receiver, type H2L7UB, are fed by an accumulator battery.

Navigational aids consist of a Lodestone" direction finder, MS 26 BX echo sounding gear and "Radiolocator" Mark IV radar.

The echo sounder is of the graphic type. When switching to "shallow" or "deep" the ranges are basically 0-120 feet and 0-120 fathoms. These ranges can be stepped up to either 720 feet or 720 fathoms.

One of the lifeboats has been equipped with a transmitter-receiver type RH 5308.

The *Plagiola* carries four aluminium alloy lifeboats supplied by Messrs. Verhoef, Aalsmeer. Each of these boats is seating 32 persons, and one of them is fitted with a Coventry-Victor diesel engine. The boats are carried under four sets of deck gravity davits supplied by Davit Company, Utrecht. They are equipped with "Hand-power" type boat winches. In addition, a portable electric motor for quick hoisting is provided.

Machinery. The main propelling machinery of the *Plagiola* consists of an A.E.G.-built compound turbine of the

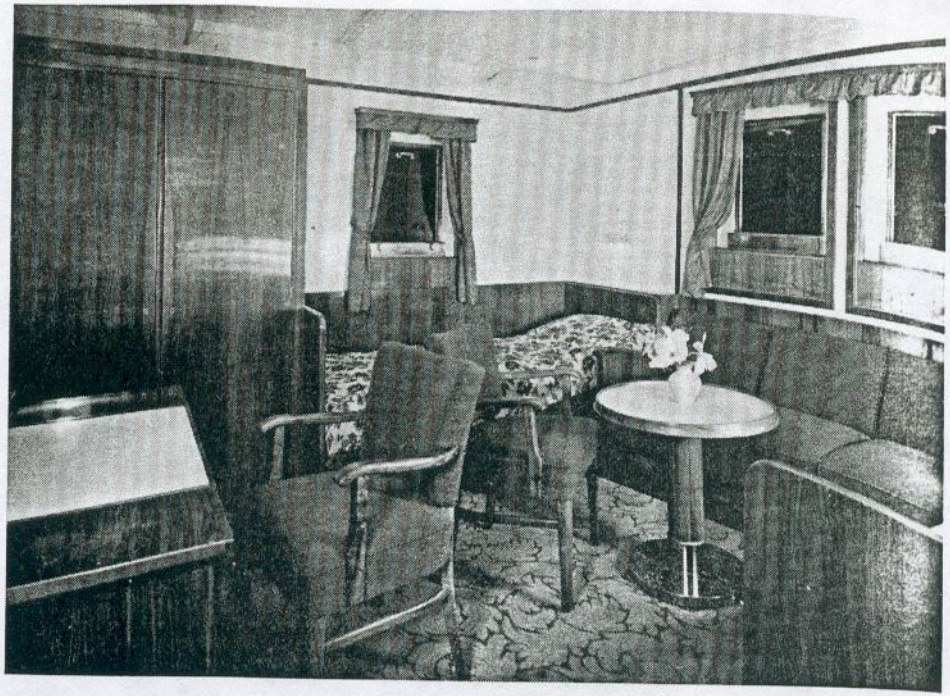
impulse type with an output of 6,000 s.hp. The built-in astern turbines, which are also of the impulse type, have a output to 65 per cent. of the normal.

Double reduction gearing brings the number of revolutions of the propeller down to 100 per minute.

Steam is raised in two Babcock & Wilcox boilers of the two-drum type. They deliver each 35,000 lbs of steam per hour, which maximum can temporarily be raised to 50,000 lbs. The heating surface in each boiler is 5,800 sq.f., that of the superheater 607 sq.ft., while the air preheater has a surface of 5,210 sq.ft. The number of burners per boiler is 4, steam-pressure 500 p.s.i., and the temperature at the superheater outlet is 800 deg. F. The feedwater temperature is calculated at 320 deg. F.

Combustion control equipment has been fitted to obtain the greatest possible useful boiler effect. CO_2 recorders are also fitted, in addition to air heater control. The usual instruments for feedwater control complete these facilities. Electricity is widely used for auxiliary purposes. Current is supplied by two 400-kW turbo alternators which are entirely indepedent aggregates and fitted with their own condensers and pumps. In addition, there is a 150-kW diesel-driven alternator acting as a stand by. The pumps and deck machinery are steam-driven.

Also mounted in the engine room are two evaporator plants, each with a capacity of 40 tons per 24 hours; they are connected to the Weir's closed feed system. The exhaust steam of the deck machinery and cargo pumps is led to a separate condenser in order to prevent contamination of the main system. The condensed steam for the heating of the cargo passes through an observation tank, showing any leakage that may occur in the heating coils.



Owner's cabin