R.R.S. RESEARCH

The following particulars relating to the Royal Research Ship *Research* being constructed of non-magnetic material by the British Admiralty to continue investigations in connection with Terrestrial Magnetism and Atmospheric Electricity previously carried out by the *Carnegie*, and the proposed programme of her first cruise, have been provided by courtesy of Rear-Admiral J. A. EDGELL, C.B., O.B.E., Hydrographer of the British Navy.

PARTICULARS OF "R.R.S. RESEARCH".

Length on W.L.	142 ft. 6 ins.
Breadth (moulded)	34 ft. 0 ins.
Draught (maximum)	13 ft. 2 ins.
Load Displacement.....	770 tons.
Rig	Brigantine.
	Full sail area about 12,000 sq.ft.
Propelling machinery	160 B.H.P. Petter Atomic Diesel — driving a 2 bladed feathering propeller.
Auxiliary machinery.....	Two 9 H.P. and one 18 H.P. Diesel engines — for dynamos, refrigerator, air compressor and winch.
Speed	6 1/2 knots.
Endurance	3,000 miles.
Fuel	14 tons Diesel oil.
Dynamos	Two 4 kilowatt 110-115 volts.
Hull	Teak planks on brass frames sub-divided by 8 water-tight bulkheads.
	Keel, stem and stern posts — Teak False Keel — Canadian rock elm.
	Copper sheathed.
Ballast.....	20 tons lead on keel — 60 tons in bilges.
Anchors and cables	Aluminium bronze.
Wire for rigging	Aluminium bronze.
Cold Storage	120 cubic feet.
Fresh water	37 1/2 tons in specially designed teak tanks.
Accommodation	6 Officers.
	4 Scientists.
	22 Petty Officers and men.

The principal scientific instruments will be as follows :—

For magnetic work.

C.I.W. Magnetometer — Earth Inductor.
Collimeting compass.
Marine Deflector.
Dip Inductor.

Marine Earth Inductor.
Smith portable magnetometer.
Unifilar magnetometer.
Dip Circle.

For atmospheric-electric work.

Point discharge apparatus.
Potential gradient recorder.
Wulf electrometer for standardising potential gradient observations.
Modified EBERT apparatus for ionization measurements.
Modified WILSON apparatus for conductivity measurements.

For meteorological work.

Mercury barometer ; aneroid ; barograph.
Thermometer screen and thermometers.
Mercury in steel thermograph (dry and wet bulb).
Mercury in steel thermograph (for sea temperatures).
Sea temperature thermometers.
ASSMENN Psychrometer.
AITKEN nucleus counter.

For oceanographical work.

Echo sounding apparatus.
Oceanographical winch.

The greatest care is being taken to eliminate, so far as is possible and practicable, all ferrous material from the hull, machinery and stores.

Considerable research work had to be carried out by Messrs. PETTERS at their works at Yeovil in order to reduce the quantity of steel in the Diesel engines, a bronze alloy is being used extensively and the crank-shaft is of special non-magnetic steel.

The main engines are four cylinder, two-stroke direct air reversing type.

The oceanographical winch will be driven from the auxiliary engines through line shafting and a fluid flywheel.

Consideration is also being given to such matters as iron nails in packing cases, tin containers for food and cigarettes, cooking utensils, cutlery, razor blades, drums for paint and lubricating oil, typewriter, all of which must be non-magnetic.

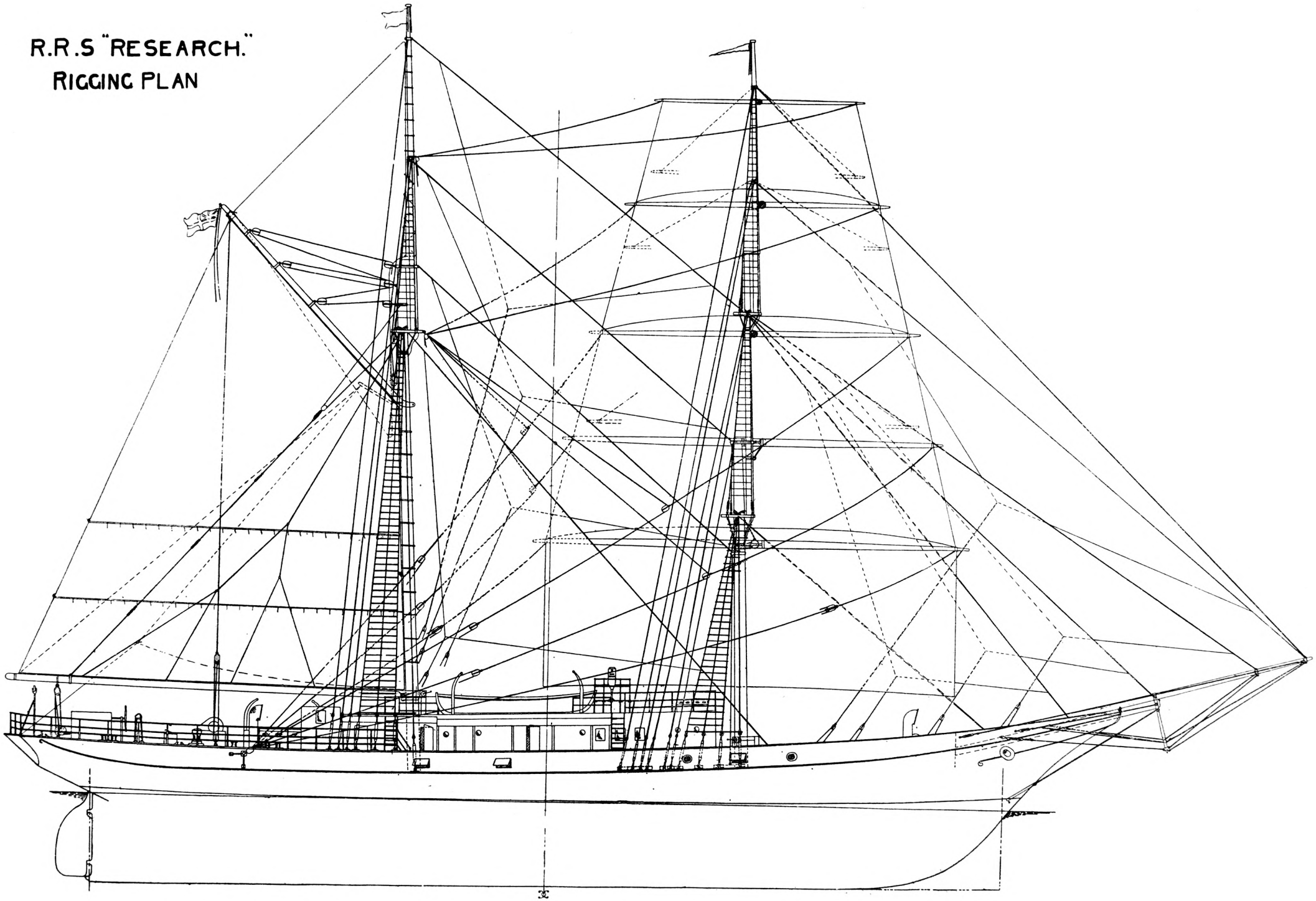
The principal work of the ship will be investigations in connection with terrestrial magnetism and atmospheric electricity but she will also carry out meteorological work and oceanographical work for which purpose she will have both observatories and laboratories.

The *Research* will probably be launched in February, 1939, and be ready for her first cruise in October, 1939. She will visit the Carnegie Institution at Washington and, after calling at South American ports, will examine an area in the South Atlantic between Tristan da Cunha and Capetown.

When this is completed she will make a circuit of the Indian Ocean probably calling at Perth, Cocos Island, Colombo, Seychelles, Mauritius and Durban, where she should arrive about November, 1940.

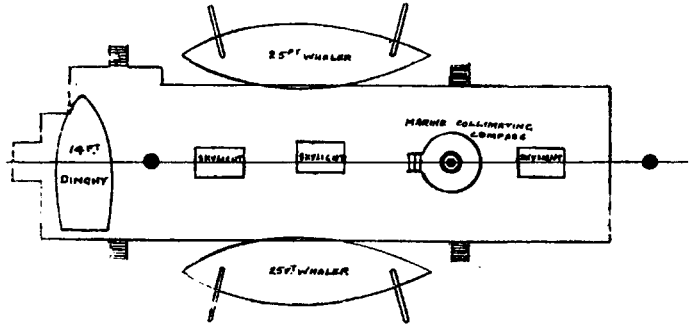
R.R.S "RESEARCH."

RIGGING PLAN



MAGNETIC SURVEY SHIP "RESEARCH"

BRIDGE & BOAT DECK



RAISED QUARTER DECK

UPPER DECK

FORECASTLE DECK