life " a keen mountain air " is breathed, and something of the tonic air of this must always serve to brace and to elevate the general community.

The true worker in natural science can owe no allegiance to any tradition however venerable, or to any master however beloved. In his work he can only serve and express the truth, and for him the truth is that which can be tested by the touchstone of an appeal to Nature. He must forswear any selfish or sectional allegiance : he is " nullius addictus iurare in verba magistri ", and that phrase of Horace has become in shortened form the familiar and honourable motto of the Royal Society. If we attempt to measure the value of the scientific life within the community, we must put in the first place not the material fruits that spring from it, but the service it does to our reverence for truth and for the beauty it portrays.

The Royal Research Ship *Discovery II.*

THE launch of a ship specially built for oceanographic research is an event sufficiently rare to merit some notice in these columns. She is intended for the work of the Discovery Committee, and is for service in the South Atlantic and Antarctic, where she will be employed in biological and hydrological investigations concerned mainly with whaling. She was designed by Messrs. Flannery, Baggallay, and Johnson, consulting naval architects to the Committee, and was built to the order of the Crown Agents for the Colonies by Messrs. Ferguson Bros. of Port Glasgow. She was launched on Nov. 2 by Mrs. J. O. Borley and has been named *Discovery II.* The title ' Royal Research Ship ' has been approved by H.M. the King.

The R.R.S. *Discovery II.* has an overall length of 232 ft., a beam of 36 ft., a moulded depth of 20 ft., and a draught of 16 ft. when fully loaded. She is built of steel, and in several structural features is specially designed for ice navigation. Her stem is cut away at the fore foot and is rabbeted to protect the edges of the plates from chafing. The shell plating is doubled in the bow and at the water line throughout her length, while in the fore part the frames are closely spaced and transverse beams fitted in order to resist ice pressure. She is driven by a single propeller and reciprocating engines and on her steam trials developed a speed of 13½ knots. Her furnaces burn oil fuel, and the bunker capacity is sufficient to enable her to steam 7800 miles at full speed and more than 10,000 miles at economic speed.

The general arrangement is sufficiently shown in the illustration opposite. The wardroom is on the boat deck, with the chart room, a survey office, and the captain's accommodation above it. On the flying bridge there is a wireless direction finder and an indicating anemometer, both reading in the chart room. The wireless room is equipped for both long and short wave-lengths and is at the after end of the boat deck. Abaft it is the sick bay, which is provided with an X-ray apparatus. The main accommodation is on the lower deck, the petty officers being berthed aft.

The equipment for sounding comprises a Kelvin machine on the bridge deck, a Lucas deep-sea machine on the forecastle head, and both shallow and deep water echo-sounding apparatus of the latest Admiralty pattern. Bottom sampling instruments of various kinds will be carried, including two patterns designed to bring up cores of ooze in glass tubes.

For hydrological work and for vertical plankton nets three small winches are installed. Those on the forecastle head and abaft the engine room each carry 3500 fathoms of wire for deep-water observations. The third winch, placed on the well deck, has two drums of 500 fathoms capacity. These winches are used in conjunction with special davits, fitted with accumulators and recording sheaves and with electric lights for work at night. The hydrological instruments include a full equipment of water bottles of both insulating and reversing patterns, the Lumby surface sampler, the Merz-Ekman current meter, and two Carruthers current meters.

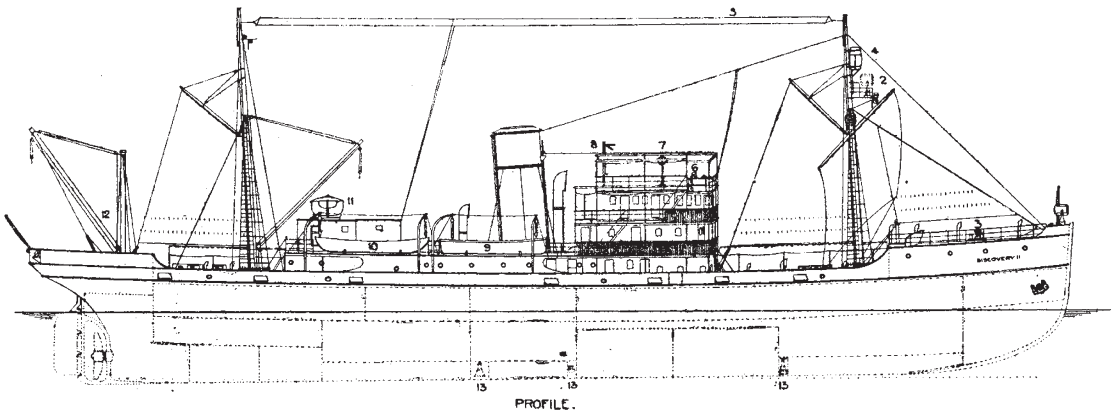
The main winch is placed abaft the engine room ; it carries two drums of wire rope, one 1000 fathoms, and one 5000 fathoms in length. The wire is led outboard by way of pedestal and stern fairleads, two of the former (one on either side of the ship) being fitted with recording dials to indicate the amount of wire paid out. A derrick is fitted on the poop deck for lifting heavy gear. The biological apparatus includes plankton nets of all sizes up to 4½ m. in diameter of opening, the continuous plankton recorder designed by Prof. A. C. Hardy, traps, dredges, and 40 ft. otter trawls. Closing mechanisms and depth gauges are provided for use with the plankton nets and a Watts current meter for registering slow speeds in towing.

The internal accommodation for scientific work includes spacious biological and chemical laboratories on the upper deck, both lighted by square windows. The former has a large gimbal table, special arrangements for supplies of preserving fluids and racks for reagents and specimen jars. The latter is fully equipped for chemical analysis of water samples, and includes also a distance thermograph, giving a continuous record of sea temperature, a chart-tracing table lit from below, and the large oceanographic slide rule recently designed by Dr. Sund.

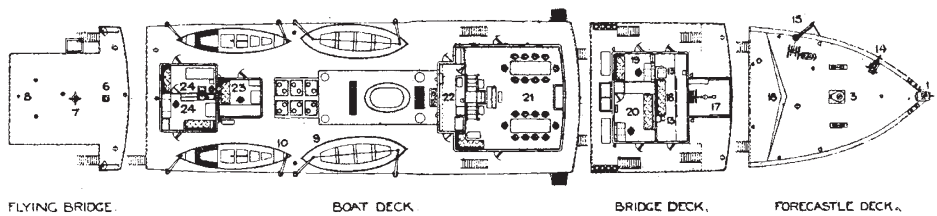
Immediately below the laboratories, and communicating with them by means of a service lift, is a laboratory workroom with a bench, tools, and other fittings. In this room is a large vertical camera with special lighting for the photography of marine organisms, and the dark room is at the forward end. Farther aft, in the accommodation on either side of the engine room casing, are an instrument room, a laboratory for rough work in which an electric centrifuge is fitted, and a store room for plankton nets.

The ship carries 15 officers (including a scientific staff of 6) and 35 petty officers and men. She is expected to sail from London about Dec. 14, and will be under the scientific leadership of Dr. S. Kemp, with Commander W. M. Carey, R.N. (retd.), in executive command.

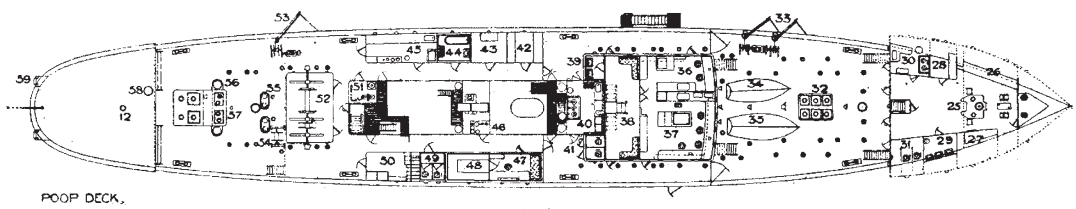
Royal Research Ship "Discovery II".



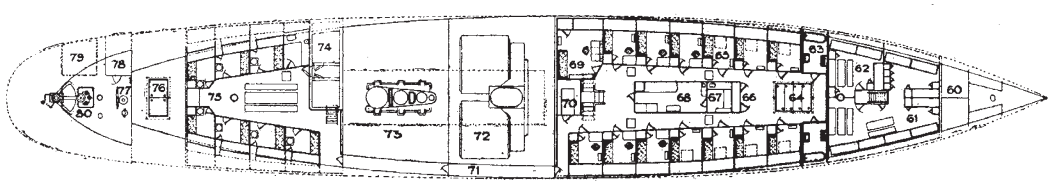
PROFILE.



FLYING BRIDGE. BOAT DECK. BRIDGE DECK. FORECASTLE DECK.



POOP DECK. UPPER DECK.



LOWER DECK.

SCALE OF FEET.

1. Searchlight.
2. Alternative position for searchlight.
3. Capstan.
4. Crow's-nest.
5. Wireless aerial.
6. Standard compass.
7. Direction finder.
8. Semaphore.
9. Life boat.
10. Whaler.
11. Motor boat.
12. Derrick.
13. Echo sounding apparatus.
14. Lucas sounding machine.
15. Deep water hydrological machine and davit.
16. Breakwater.
17. Steering-house shelter.
18. Chart room.
19. Survey office.
20. Captain's cabin.
21. Wardroom.
22. Pantry.
23. Wireless office.
24. Sick bay.
25. Windlass.
26. Carpenter's bench.
27. Boatswain's store.
28. Drying room.
29. Crew's wash-house.
30. Crew's galley.
31. Crew's W.C.
32. Skylight to officers' accommodation.
33. Shallow water hydrological and plankton machines and davits.
34. Pram.
35. Dinghy.
36. Chemical laboratory.
37. Biological laboratory.
38. Lobby.
39. Lavatory.
40. Officers' galley.
41. Officers' W.C.'s.
42. Boot and oilskin drying room.
43. Instrument room.
44. Petty officers' bathroom.
45. Rough laboratory.
46. Fire extinguishing apparatus.
47. Office.
48. Canteen store.
49. Petty officers' W.C.
50. Plankton net store.
51. Refrigerating engine.
52. Winch house and winch.
53. Deep water plankton machine and davit.
54. Auxiliary winch drum.
55. Pedestal fairlead.
56. Recording fairlead.
57. Skylight to petty officers' accommodation.
58. Torpedo hatch to steering engine.
59. Stern fairleads.
60. Chain locker.
61. Seamen's mess.
62. Stokers' mess.
63. Officers' bathroom.
64. Hatch to forehold.
65. Officer's cabin.
66. Linen locker.
67. Dark room.
68. Laboratory workroom.
69. Cabin of Director of Research.
70. Steward's store.
71. Communicating alleyway.
72. Boiler.
73. Engine room.
74. Refrigerating chamber.
75. Petty officers' accommodation.
76. Hatch to after hold.
77. Hand steering wheel.
78. Lamp room.
79. Vegetable locker.
80. Telemotor steering engine.