

**HMS
HERMES**





Admiral's day cabin



Lieutenant Commander's cabin



Wardroom anteroom



Officer's cabin

Officers...

THE VICKERS MAGAZINE

The overseas house magazine of the Vickers Group of Companies

SPRING 1960

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AN INTRODUCTION

by Admiral Sir Peter Reid KCB CVO Controller of the Navy

IT gives me great pleasure to write a foreword to this issue of *The Vickers Magazine*, as *Hermes* is the first new aircraft carrier to join the Fleet for some years. I have been able to watch her transformation from almost a bare hull into the fine ship she is today.

Hermes is the first aircraft carrier we have built to operate the modern aircraft now coming into the Fleet. She is equipped with the latest flight deck machinery and deck landing aids. Her radar and air direction equipment are the most up-to-date in the world today and we believe that it is also the best. The accommodation for the whole ship's company is up to the latest standards; every man has his own bunk and the hammock, in this ship, is a thing of the past.

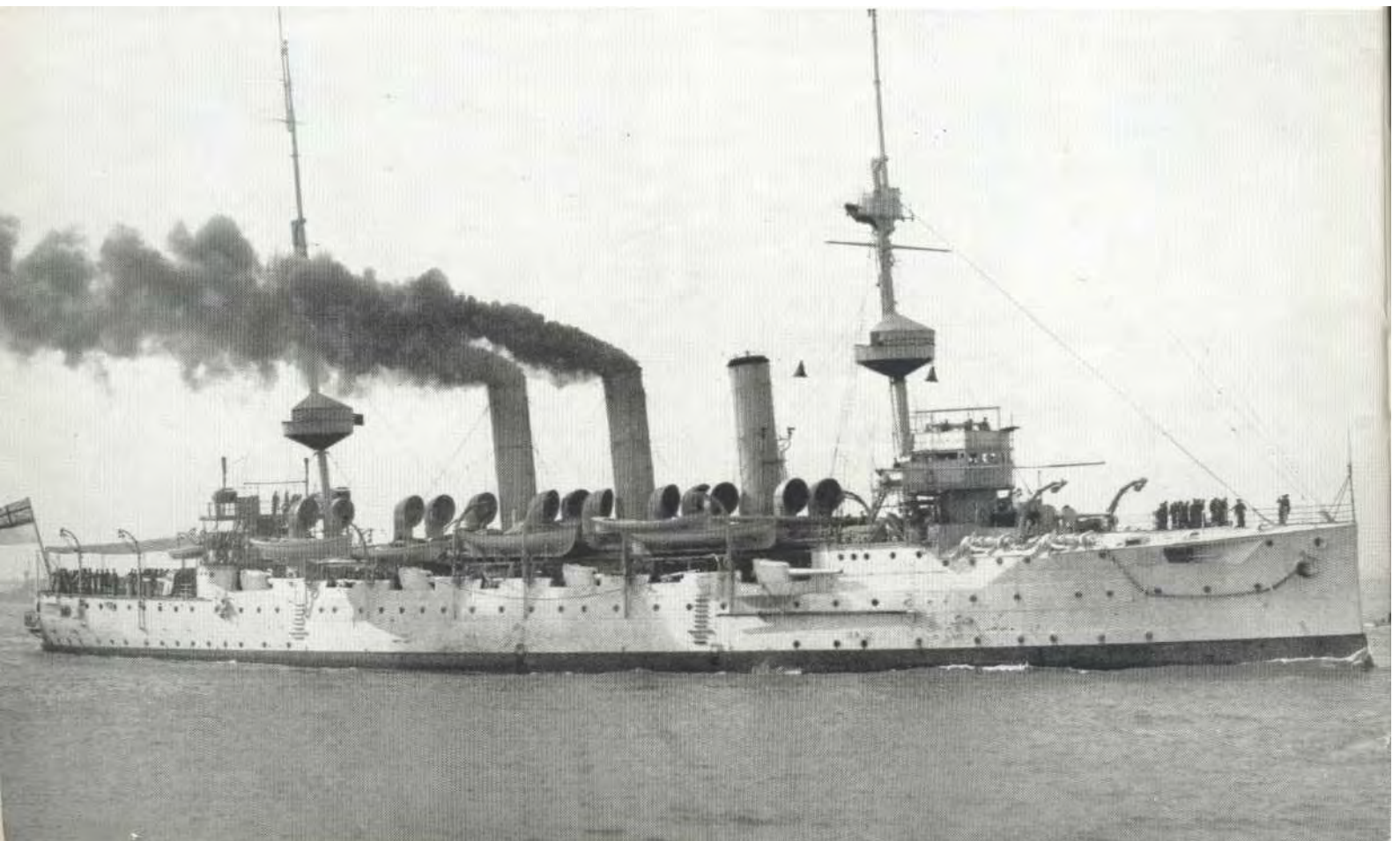
It is of some interest that the old *Hermes*, completed in 1923, was the first ship ever to be designed and built as an aircraft carrier. She was, of course, much smaller and had a complement of under 700 compared with nearly 2,000 in the new *Hermes*, to whom she bore little resemblance. Radar had not even been thought of and no-one

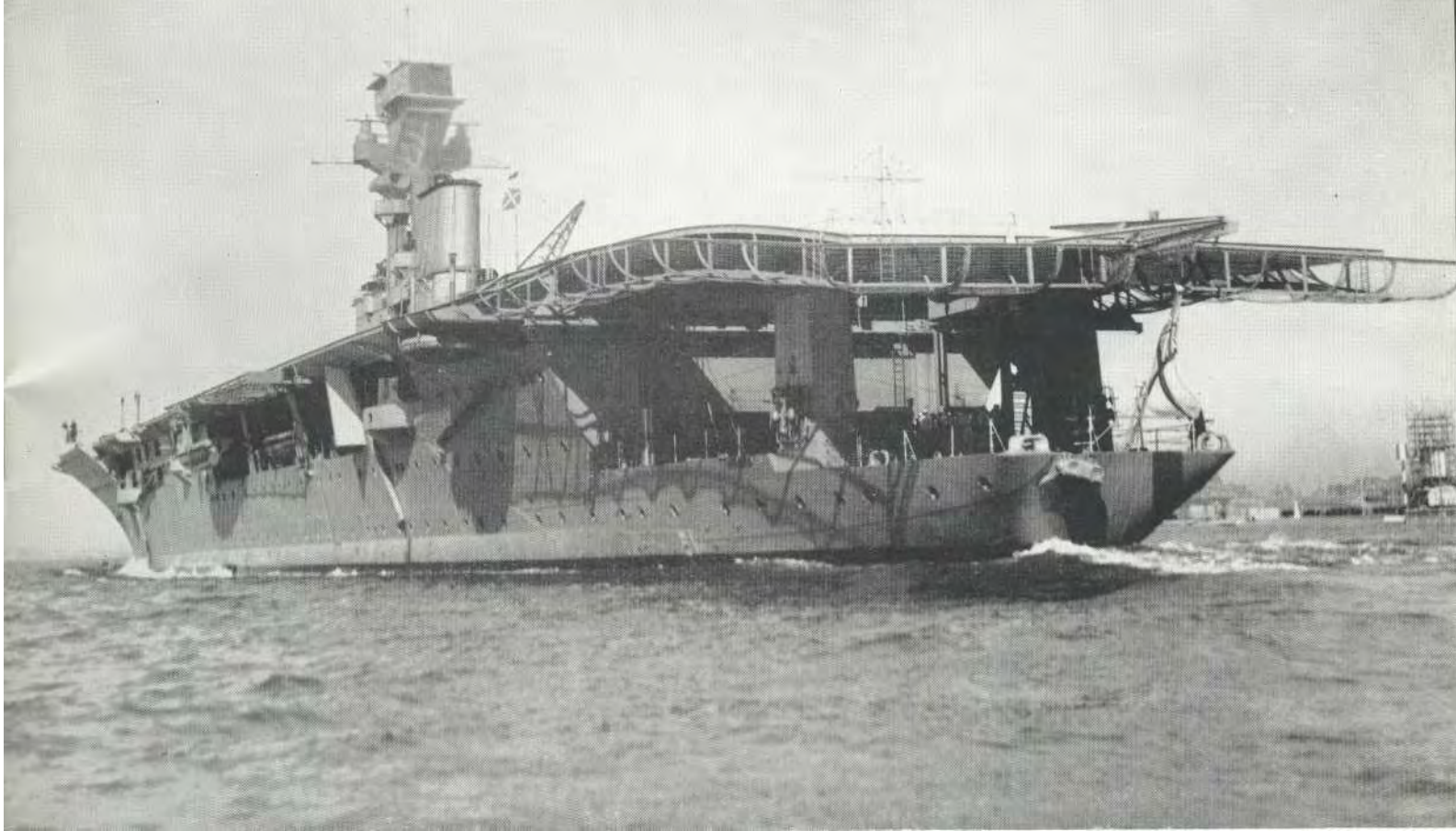
would have dreamed of the remote control of her main machinery. Her first aircraft were Parnell *Panthers* (wooden land planes) and Fairey *Flycatchers*, both far removed from the *Scimitars* and *Sea Vixens* of today. She did have one great advantage, however, over the new *Hermes*; she was, not unnaturally, a lot cheaper to build and run!

This issue of *The Vickers Magazine* gives some idea of the immense complexity of a modern aircraft carrier and the concerted effort needed by the whole team of designers, shipbuilders, engineers and suppliers of equipment to enable her to take shape as the fine fighting ship she is. Nevertheless, over two years ago Vickers gave me the assurance that they would finish *Hermes* by the end of October 1959; in the next two years there were times when more than 2,000 men of Barrow, to say nothing of sub-contractors, were working on board or for this ship. *Hermes* sailed from Barrow on 1st November 1959. I congratulate all those whose efforts have contributed to a splendid result.



Above: One of the highlights of the eventful life of the fourth 'Hermes' was the running down of the French privateer 'La Mouche', depicted in this aquatint by J. Clark after an original by Captain P. Brown, in command. **Below:** A protected cruiser, the eighth 'Hermes' served in many parts of the world and towards the end of her career was used as a seaplane carrier.





The ninth 'Hermes', launched in 1919, was the first ship to be designed by the Admiralty purely as an aircraft carrier



Tale of ten ships

TEN ships bearing the name *Hermes* have joined the Royal Navy through the years. The name is apt enough for a ship; it is particularly so for Britain's newest aircraft carrier. For was there not St Hermes (alias St Elmo), the curious phenomenon of light seen occasionally on ships' masts, of which De Loier wrote in his *Treatise to Spectres* 'They shall see the fire which saylors call St Hermes, fly upon their shippe, and alight upon the toppe of the mast'; and was there not Hermes Trismegistus, to whom was ascribed a host of inventions? Yet, curiously, the first use of the name *Hermes* by the Royal Navy was more or less fortuitous. It so happened that in 1796 Commander (afterwards Vice-Admiral Sir) John Chambers White of the *Sylph*

captured a 201 ton Dutch sloop rigged as a brig off the Texel. She was the *Mercurious* and it was natural enough that when the ship joined the Royal Navy she should be renamed *Hermes*, which is another name for the god Mercury.

The first *Hermes* foundered at sea, with all hands, in 1797 and in the following year an armed vessel of about 330 tons (her armament was twenty-two guns) was bought. This, the second *Hermes*, was sold in 1802. Again within a year the name was perpetuated when a sloop, built at Whitby and named *Majestic*, was purchased and renamed *Hermes*. Her career seems to have been a quiet one. She finished Naval service as a store ship in the Mediterranean and was sold in 1810.

Then came one of the more spectacular

ships to bear this famous name - the 512 ton Sixth Rate built at Portsmouth and launched in 1811. Commanded by Captain (afterwards Vice-Admiral) Philip Brown, the fourth *Hermes*, with her twenty guns and 121 men, captured an American ship laden with naval stores, and two vessels from New York and Baltimore carrying tobacco and ivory. This fourth *Hermes* ran down *La Mouche*, a French privateer, and assisted at the capture of the American privateer *Sword Fish*. In 1814, then commanded by Captain (later Rear-Admiral) the Hon. William Henry Percy, *Hermes*, in an unsuccessful attack on Fort Bowyer, Mobile, USA, was grounded. Disabled, she was burnt by Captain Percy to prevent her falling into enemy hands.

It was sixteen years before another *Hermes* joined the Royal Navy. She was a steam vessel of some 730 tons, built at Blackwall in 1824 and originally named *George the Fourth*. Bought by the Navy, she did nothing more exciting than packet service, became a coal depot ship at Woolwich under the new name of *Charger*, and was broken up at Dartford in 1854. Presumably her name was changed - in 1834 - to make way for a new *Hermes*, a paddle wheel steam sloop whose career was in marked contrast to that of her immediate predecessor.

This sixth *Hermes*, built at Portsmouth and launched in 1835, served five years on the Mediterranean Station, four years on the North American Station and four particularly exciting years, commanded by the gallant and resourceful Commander Edmund G. Fishbourne, on the Cape of Good Hope and East Indies Station. Commander Fishbourne, sailing for the Cape of Good Hope, united in the hostilities of 1851 against the Kaffirs, and rendered services to the value of which the strongest testimony was borne in the Dispatches of the Governor, Lieutenant-General Sir Harry Smith'. He then sailed for the East Indies, where he gained fresh laurels by his conduct during the Burmese War. For his services Fishbourne was promoted Captain.

In 1854 *Hermes*, with HM's Plenipotentiary, Sir George Bonham, on board, sailed up the Yangtse-Kiang as far as Nanking, for the purpose of assuring the rebels of Britain's neutrality. Off Nanking the Tartars sent a fire raft out toward her, which she avoided by getting rapidly under weigh. On her passage down the river she found it necessary to shell the heights in front of Chin-Kiang-Foo, which were crowded with stockades. Later, at Shanghai, she sent her boats up the same river to seek out deserters from H M S *Salamander*. They courageously advanced as far as Chin-Kiang but failed to discover the missing men.

Captain Fishbourne continued in *Hermes* until, having been in commission four years and five months (in which period she had steamed 75,000 miles and consumed 7,000 tons of coal) she was paid off at Woolwich in 1854. Another five years service and she was sold for breaking-up.

The seventh *Hermes* (1,726 tons), named the *Minotaur* when launched at

Chatham in 1816, was renamed *Hermes* forty years later and was employed as a cholera ship at Gravesend. She was broken up at Sheerness in 1869 and it was as long as twenty-eight years before another *Hermes* was laid down. This was the 5,600 ton twin screw protected cruiser (eleven guns, 477 men) commissioned in the last year of the nineteenth century. She served for fifteen years in many parts of the world and for many purposes. She was, at least for a short part of her life, the first 'aircraft carrier' *Hermes*. Immediately before the first World War she was the Depot Ship of the Naval Wing of the Royal Flying Corps and when war came she was used as a seaplane carrier in operations off the Belgian coast. In October 1914 she was torpedoed and sunk off Calais.

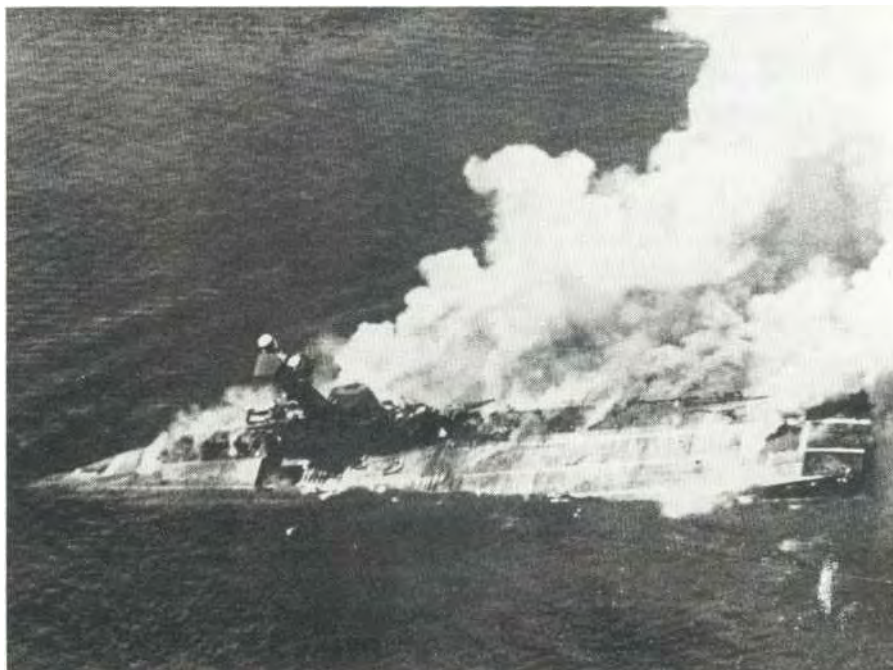
It was 1919, however, when the first vessel specially designed by the Admiralty as an aircraft carrier was launched. And once again, when she was commissioned in 1924, there was a *Hermes* in the Royal Navy. Built at Elswick by Armstrong-Whitworth, this 10,850 ton carrier added lustre to her name. At the start of the second World War she helped protect the transport of the British Expeditionary Force to France. From Dakar, with the French battleship *Strasbourg* she hunted German raiders on the trade routes and

then became part of the South Atlantic hunting group covering convoys.

After the fall of France she was ordered to keep a watch on the French fleet at Dakar. In July 1940 action was taken against the battleship *Richelieu* at Dakar. A motor boat from *Hermes* succeeded in getting through the boom and four depth charges were dropped under the battleship's stern with the object of damaging her propellers and steering gear.

This first-ever genuine British aircraft carrier came under the orders of the Commander-in-Chief East Indies in 1941 and did a great deal of valuable hunting, escorting and intercepting in the Indian Ocean. In 1942 she was ordered to sail from Trincomalee harbour, Ceylon, because of expected Japanese air attack. Unfortunately she was spotted by a Japanese reconnaissance plane and, attacked by some fifty aircraft, she was sunk off Batticaloa. Her commanding officer, Captain R. F. J. Onslow, eighteen other officers, and 268 ratings were lost.

And so to the tenth *Hermes*, a far cry - with her remarkable radar system, her angled flight deck, her fast, powerful striking force of *Scimitar* aircraft - from that sloop of 1796. Her motto, *Altiora peto* (I seek higher things) is eloquent of her aim to serve even more illustriously than her nine predecessors.



After being attacked by a force of Japanese aircraft, the ninth 'Hermes' sank off Batticaloa on 9th April 1942 with the loss of 287 lives



HMS HERMES

meets a full Atlantic gale

On her shakedown cruise Britain's newest aircraft carrier encountered a full Atlantic gale. 'It is a source of great satisfaction to her officers and crew that she rides well in these conditions and she handles well, both when turning at sea and when entering and leaving harbour.' That is the tribute paid by Captain DAVID S. TIBBITS DSC ROYAL NAVY who tells here the dramatic story of the new aircraft carrier's 'baptism' at sea.



IT is early days yet to talk of HMS *Hermes* as a commissioned ship of the Royal Navy or as a unit of the Fleet. Nevertheless, we can claim that she has made a most promising start. From the days when she sailed for the contractors' sea trials, there was a feeling within the ship that she was going to be a happy one, and the

co-operation between the Royal Navy, the Admiralty overseers and the shipbuilders was most satisfactory. This feeling continued through the final stages of building so that she set off from Barrow on 1st November last year with high hopes for what the future had in store for her.

On completion *Hermes* was finally

accepted at a very simple and rather moving ceremony on the flight deck, after which the Red Ensign was hauled down and the White Ensign hoisted. She then went to Portsmouth and berthed at Pitch House Jetty. Her arrival at her home port for the first time was an auspicious one, for the Sea Lords of the Admiralty and



The documents are signed for the Admiralty by Captain D. S. Tibbitts, for Vickers by Mr L. Redshaw - and the White Ensign is hoisted and saluted



most of the Commanders-in-Chief of the various stations in the Royal Navy happened to be on board HMS *Tyne* for a meeting and watched her enter. She berthed beautifully, as if she really wanted to be there and all on board felt relief and great satisfaction.

The commissioning ceremony which took place on 25th November at Portsmouth was attended by Admiral Sir Manley Power (Commander-in-Chief, Portsmouth) and Lady Power. Some members of the company of the ninth *Hermes* who had been sunk in her in 1942 were also present. Chief among them was



The compass platform

Admiral Sir Robin Durnford-Slater, now Commander-in-Chief, The Nore. Many of the wives and families of the present ship's company joined in the dedication service which was conducted by The Venerable Archdeacon F. D. Bunt assisted by the ship's Chaplain. This association of the families with the work and life of those who man this ship is much valued and it is intended to keep it alive by every means possible.

Next day HMS *Hermes* sailed for her shakedown cruise before the sun had risen. It was just the sort of day that the Captain of a new ship would wish to have. There was a strong south-westerly wind and quite heavy seas off the Isle of Wight, so that everybody had to take considerable pains to look after their part of ship and it was possible to see straight away what needed securing and what, if any, were the deficiencies. As she proceeded westward down channel, she very soon steamed clear of the bad weather, so that conditions were pleasant across the Bay of Biscay and down the Spanish and Portuguese coasts. Trials of the stabilisers for the big radar set, and many drills and tests in the various departments, were carried out and this was all valuable. It is essential

to walk before learning to run, and by the time we got to Gibraltar, all departments had taken this vital step forward.

We entered the Straits of Gibraltar during the night and arrived off the Rock about 0900 on 30th November. The ship steamed round close to the Spanish shore and in through the North entrance. This was an anxious moment, for it was not at all well known how the ship would handle and what she would do in a fairly strong wind and a very confined space. As at Portsmouth, she came into the harbour and went alongside as if she liked doing it, and was berthed without incident on the South Mole.

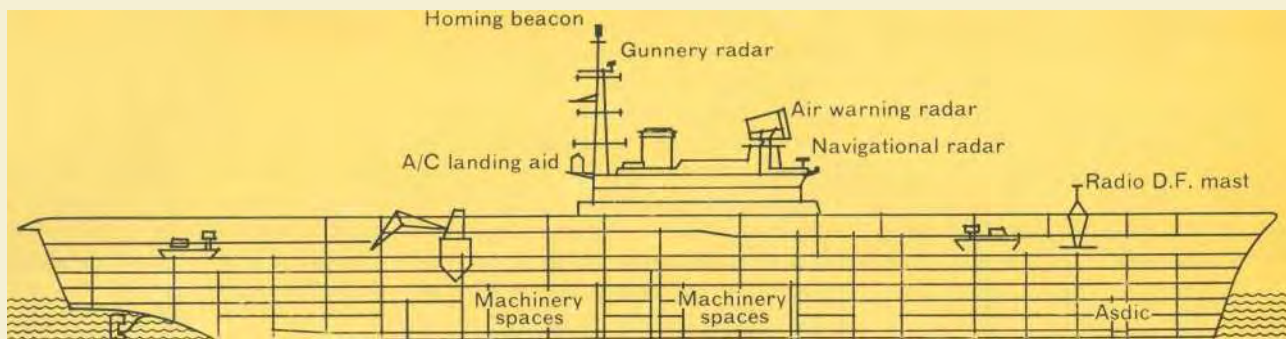
That night Gibraltar experienced one of the worst gales ever recorded there, which was indeed, a 'baptism of fire' for a new ship and her company. Happily she rode well at her berth, and tested the strength of the nylon hawsers now supplied to the Fleet.

On 4th December *Hermes* set sail for Portland. For the first part of the trip home the weather was excellent and things went as smoothly as they had on the way out. However, on passing Cape Finisterre, the weather forecasts were not good and a very large and severe depression seen to be coming across the Atlantic arrived off Ushant at the same time as the ship. The ship had the best test possible and she came through admirably. At one point heavy seas were washing over the end of the flight deck, and she rolled up to eleven degrees.

To sum up, *Hermes* on her maiden voyage as a unit of the Royal Navy came up to expectation. We like her as a ship, we are pleased with the comfort which she provides and we admire the skill and finish with which her builders have endowed her. Her capacity as a fighting unit is as yet an unknown quantity and it will be sometime before it can be practised. We pray that it may never have to be tried in anger.



'Hermes' enters Gibraltar harbour



THE first step in the design of a new warship for the Royal Navy is to settle the main characteristics required to fulfil her function. For the designer's purposes this means the numbers and types of the principal weapons and equipments (including aircraft in an aircraft carrier), how far and at what speed the machinery and fuel will take the ship, and the number of officers and men who have to be accommodated.

There is much more in this than the mere statement of what the Naval Staff considers the new ship should be like. There are always restrictions, particularly financial ones, on the size of new ships and therefore on the incorporation in them of all that might be thought desirable. In the selection of what is to go in, a great variety is possible; for instance in the proportion of offensive to defensive qualities, or in the relative claims of equipment and mobility.

To help to decide these questions the designer is usually called on to produce studies, in the form of outline drawings and particulars, of ships that could be built to carry out the tasks the Naval Staff has in mind. The studies are necessarily approximations and are often based on very early information about future weapons, including aircraft, so that a large element of judgment enters into their preparation.

The main features having been decided, the Naval Staff then has to develop from the outline of the new ship's qualities a statement in detail of the staff requirements. In this process, also, the designer has to make his contribution by advising whether the demands are practicable. When the fully developed staff requirements have been approved the work of design can start on a firm basis.

The main dimensions of the ship are

arrived at by selecting tentative figures and working out how they fit the requirements. The weight of the ship and its contents has to match the buoyancy in such a way as to give the desired trim and stability. There must be sufficient space, suitably disposed, for everything that has to be carried, and

How a new warship is designed

by G. BRYANT

Deputy Director of Naval Construction

the underwater form must use the minimum propulsive power to give the desired speed. Freeboard, structural strength and any limits set by the sizes of docks and harbours, are among other important matters affecting the dimensions of the ship. The adjustment of one factor reacts on all the others so that a repeated process of trial and error is necessary. Each trial investigation enables a closer approximation to be made until eventually the designer is satisfied that practicable dimensions have been arrived at.

The term 'designer' has been used, but in fact, although, under the ultimate authority of the Director General Ships, the Director of Naval Construction necessarily takes the lead and controls the ship

design, the outcome is the joint work of naval constructors, marine engineers, electrical engineers, draughtsmen and others at the Admiralty and, in the later stages, at the shipyards as well. In its preparation, weapon designers, scientists in experimental establishments and the users, represented by the Naval Staff, have very important parts to play at all stages.

The first approximation to the dimensions is obtained from experience with ships of similar type and speed, allowing for the known differences. In an aircraft carrier the need for the flight deck to be able to cope with the aircraft operations will play a decisive part in settling the size of the ship. One of the first steps is to confirm on the drawing board that an acceptable flight deck layout, with the hangar suitably disposed below it, is possible. The drawing must include all the important topside features as well as the means of operating aircraft.

The early shots at displacement and length give an idea of the power of the machinery needed for the designed speed and therefore of the size of the machinery spaces and the number of shafts. These arrangements, together with the magazines, bomb rooms and similar spaces, are drawn out and any necessary adjustments made to dimensions.

A closer examination is now undertaken by making estimates of the weight of hull, protection, machinery, equipment, &c., based on the new dimensions to see that the total matches the buoyancy of the proposed hull form and produces the desired trim and stability. The process of calculation and drawing needs to be repeated several times with an examination of accommodation and other space requirements. Investigation is also necessary into the longitudinal strength of the

ship, when subjected to bending in waves, and into the refinement of the underwater form. The hull form undergoes model tests in an experimental tank to check its suitability and to determine the appropriate propeller characteristics.

Eventually the Director General Ships has a set of outline drawings and a statement of particulars of the new ship which he can with confidence submit to the Board of Admiralty as a sketch design for the new ship. It is no longer a rough approximation but an accurate forecast of the ship which the Board can expect and is supported by calculations of all the essential features. It is accompanied by an estimate of the cost and time required to build the ship and an assurance that the staff requirements will be met.

If the Board approves further development of the design, the outlines are elaborated by consideration of the requirements in more detail into a set of building drawings on a larger scale. They show not only the general arrangement of the ship and propelling machinery but an outline of the arrangements for electrical power supply and distribution, the important details of construction, the armour protection if any, and the rig. A sheer drawing which determines the geometrical form of the hull is included. The building drawings must be acceptable to the Naval Staff and other Admiralty departments and must also receive Board approval. Together with a set of specifications, prepared concurrently with the building drawings, and a list of items which the Admiralty undertakes to supply for fitting into the ship, they are the design element in the documents which

Below: *A scale model of 'Hermes' undergoes wave tests in the tank at Admiralty Experiment Works, Haslar*

form the basis of the contract between the Admiralty and the shipbuilder.

With the placing of the contract for the ship, the design work enters into a new phase in which the shipbuilder and main machinery contractors make a big contribution. Before materials can be ordered and the actual work of construction undertaken, working drawings must be prepared by the contractors. This is no mean task, since the score or so of building drawings have to be expanded into some thousands of detailed drawings.

The modern warship is so complicated that the contract documents have to be supplemented by a large number of explanatory drawings prepared at the Admiralty or its establishments for the guidance of shipbuilders in interpreting Admiralty intentions in detail. These are sent to the shipbuilders as soon as they can be produced and this process continues as the details develop. Sometimes the contractor is asked to make full scale mock-ups of certain important spaces in order to secure the best possible layout.

In order to check that the design intentions are being realised, to keep control of weight, and to enable any necessary changes to be embodied, the contractor is required to submit most of the working drawings for Admiralty approval. This is not the time-wasting formality it must sometimes appear to be from the shipbuilder's point of view. Ship design is a process of development in greater and greater detail as the work proceeds, and while it is going on much of the equipment is necessarily being developed too, since a warship must be up-to-date in its weapons and outfit. Changes often have to be made to the ship arrangements, therefore, as more becomes known about the equipment, and the structural require-

ments of the ship may in turn react on the arrangement of the equipment. All these adjustments require to be embodied in the working drawings, and take time, but they are an inescapable part of the design work. In the later stages of construction further changes may be required as the result of experience during trials.

Suffice has been said to show that warship design is far from a straightforward process which merely requires a set of staff requirements to settle everything for the designer. A further complication is that the staff requirements themselves are subject to change. This is because naval warfare, and particularly naval air warfare, is in a state of rapid development as new weapons and means of communication are being perfected. The longer a ship is in being designed and built, the greater the changes that are likely to be necessary to her.

Hermes suffered this fate to a greater extent than most ships since her original design and dimensions were settled as long ago as 1943. She has now completed, after many changes in the requirements, to a modernised design and joins the Fleet fully up-to-date and capable of the most advanced tasks. Some idea of the extent of the changes may be evident from the facts that the weight of the useful load carried by the ship - aircraft, aircraft fuel, armament, radar and the like - has increased by a third, and the number of men accommodated by a quarter and to a much higher standard of habitability, since the ship was first designed sixteen years ago. That so much has been achieved is a tribute to Vickers skill and patience.

Right: *The first stage of building complete, 'Hermes' is launched at Barrow by Mrs Winston Churchill*

