

"DE-GAUSSING" SHIPS IN NEW ZEALAND

How the Magnetic Mine was Overcome

(By "23/762")

THE Minister of Defence, the Hon. F. Jones, stated recently that the "de-gaussing" of ships has been and is being undertaken in New Zealand. By fitting this apparatus to sea-going vessels, they are made immune from destruction by magnetic mines.

When Hitler's secret weapon, the magnetic mine, was first released, fear for our ships was greatly increased. Then a mine was washed ashore. Officers of the Royal Navy, risking their lives, carefully took the stranded mine to pieces. It was no longer a "secret weapon"—but an antidote had still to be found.

Science to the Rescue

Eminent scientists came to the aid of the authorities; within the space of two or three months the "D.G." apparatus was born and the danger was over. "D.G." brought a new word to the British language and complete immunity to our ships from the evil effects of the magnetic mine.

"D.G." implies the process of "de-gaussing" a ship, and that in turn means de-magnetising or de-polarising a ship—any ship, from the tiniest launch to the largest warship or transport. This "de-gaussing" equipment consists of a girdle, or a "snake" of wire round the hull of a ship at the level of the upper deck. This wire is ordinary insulated electric cable, energised in a special way which still remains a secret. Its effect is to demagnetise the "field" through which a ship is passing. The highly sensitive magnetic detonators of the magnetic mine are not affected when the ship passes above it.

How the Mine Works

And this is how the magnetic mine works. First, it is laid only in comparatively shallow water, by parachute from an airplane or from a mine-layer or submarine. When a ship passes over a sunken mine, the magnetic field of the ship's metal hull affects a magnetic needle in the mine. This closes an electric circuit and the detonator is automatically fired. The high explosive with which it is filled is thus touched off. A magnetic mine is 8 feet long, 2 feet in diameter, and weighs 1,500lb., which includes 700lb. of high explosive.

One of the greatest advantages of the "de-gaussing" apparatus is that it can be fitted to a sea-going vessel of any size. A ship can be equipped with it very swiftly, the time depending on the size of the vessel, and taking anything from one to four days. So far as cost is concerned, it is not unduly expensive. In fact, considering its powers and the ships it has saved from destruction, the "de-gaussing" apparatus may be reckoned as an extremely cheap "gadget."

It may be explained that a "gauss," in the technical language of physics, is a unit of magnetic flux. Like the volt, the watt, the ampere and the ohm, it is named after one of the pioneers of electric research—in this instance, Karl Gauss, a German professor, who died in 1855 after devoting a quarter of a century to the investigation of the problems of magnetism.

Since the introduction of the "de-gaussing" apparatus, not one ship so equipped has fallen a victim to a magnetic mine.

Courageous Seamen

The Rt. Hon. Winston Churchill was First Lord of the Admiralty when the secret of the magnetic mine was revealed. He described that and the introduction of the "de-gaussing" process as instalments of a detective story. Slowly but surely, it was unfolded, with all the attendant thrills of a mystery story re-

True Story

Scene: Army Hut at Trentham.

Time: Near midnight.

Effects: Utter confusion. The men have come back from leave and found their beds "ratted." Some sleep, some snore, some fumble after their belongings in the dim light.

Officer opens door. Officer asks in a loud voice: What unit is this?

Voice from the rear: The fifth column.

Officer retires, banging door.

vealing itself. When the final chapter ended, the British Admiralty breathed a sigh of relief.

Here, briefly, is the story of how the secret was revealed and the courage of the men who revealed it. On the evening of November 22, German airmen dropped a magnetic mine in shoal water off Shoeburyness. Fortunately, it could be reached at low tide. After firing a few shots at it, fortunately without effect, the Royal Artillery stationed at Shoeburyness informed the British Admiralty. At 2.30 o'clock in the morning the mine was photographed by flashlight. Two hours later a party of experts arrived from H.M.S. Vernon (the Portsmouth Torpedo and Mining School), under the command of Lieut.-Commander J. G. D. Ouvry, R.N.

After securing the mine so that it could not be moved by the tide, paper rubbings were taken of its various outer fittings. This enabled special tools of non-magnetic material to be made in the experimental department at Shoebury-

ness during the time the mine was submerged by the rising tide.

As soon as the mine was again uncovered, Lieut.-Commander Ouvry began his perilous task of taking it to pieces. He explained to the rest of the party what he was going to do at each step, so that if he caused the mine to explode, which would have blown him to pieces, the others, who remained at a safe distance under his orders, would have known what to avoid when another mine was secured for investigation.

Fortunately no accident occurred. By the time Lieut.-Commander Ouvry had found and extracted a small fitting, which was evidently the detonator, the remaining members of the party joined him, laughing over their success, confident that there was no longer any danger of an explosion.

Second Detonator

A few minutes later they were startled to find a second detonator of a different

type, but this was also safely extracted and by 4.40 p.m. the following day the mine was no longer harmful. It was then loaded on to a lorry and taken to Portsmouth for further dissection in the workshops of the Vernon Torpedo School.

The mine itself is constructed of non-magnetic material and is detonated by the delicately-balanced electric needle referred to above. The second detonator is a cruder contrivance and comes into play only when the mine is dropped on a hard surface.

Lieut.-Commander Ouvry showed great courage when he took the mine to pieces. Nothing was known about it; no one knew how it operated, and he had nothing to guide him except his knowledge of mines and explosives, yet he set to work on the cold beach, knowing that any moment might be his last. One of his assistants in the hazardous task, Chief Petty Officer Baldwin, has since been killed in an explosion while on similar experimental work.

LONG DISTANCE FLIGHT

Record by N.Z. Squadron of R.A.F.

THE New Zealand Squadron of the Royal Air Force, which is now commanded by well-known New Zealand airmen, has been doing magnificent work since it was formed. During the German drive through the Low Countries and France, until the French capitulation, the New Zealand Squadron played its part valiantly. American journalists, writing of the last phases of the campaign in France, stated recently that both men and machines of the Royal Air Force fought beyond the endurance of both men and machines.

At present the New Zealand Squadron is being brought up to full strength by the addition of personnel from the Royal Air Force, but eventually it will be 100 per cent. New Zealand. Technicians, observers, air-gunners as well as pilots will be absorbed into the New Zealand Squadrons as they arrive in England until every member of the squadron, from the ground staff to the fighters and pilots, is a New Zealander.

But not only in France has the New Zealand Squadron made history. The longest reconnaissance flight to date goes to its credit, states a recent number of "Flight."

In a Vickers Wellington machine, fitted with long-range petrol tanks, the New Zealanders left Scotland at daybreak for a trip to reconnoitre the whole Norwegian coast to the Lofoten Islands and the Vest Fjord to Narvik. Heavy rain and snowstorms were encountered on the outward journey to the north, and for a long time they were flying in 27 degrees of frost.

Describing his experiences after the flight, the pilot said: "As we reached the Norwegian coast we got ready for anything. The wireless operator manned the front gun; the second pilot stood at the astro-hatch, acting as a fire-control officer, and the rear gunner took his place in his turret.

"Norway, covered in deep snow, was an awe-inspiring sight, and at the time, any land was very welcome to us.

"Our real work had now begun, though the weather was steadily deteriorating. There was a high wind, and we were flying in and out of snow and sleet about 300 feet above the sea. There were such terrific bumps that the gunners frequently banged their heads as they were flung upwards out of their seats.

"We met an enemy aircraft as we went towards the Vest Fjord, but he sheered off when he saw us. We flew up the fjord through driving snow at only 200 feet. The clouds and cliffs seemed to be closing in on us, and when we got to the end, we swung round, made a sharp turn and continued the reconnaissance southward down the coast as far as Kristiansand. Then we turned for home.

"Up to this time, none of us had eaten any of the rations we carried. We had been too excited about doing the job, but now we all had a cup of hot coffee and some sandwiches.

"The trip back was without incident, apart from the weather. We saw British Naval units in the North Sea, circled round them and exchanged signals by Aldis lamp. We had seen a couple of British destroyers and a merchantman at the entrance to one of the fjords. We had a strong wind against us on this homeward trip, and we were very glad to see the Shetlands as we approached Scotland.

"The crew comprised my second pilot, a Sergeant Observer, who acted as navigator, an L.A./C, who was the wireless operator, an aircraftsman, who was the air gunner, and myself as captain.

"The whole crew was interchangeable. Anyone could do anyone else's job, even to piloting, at a push. There was no automatic pilot in the aircraft. The second pilot and I, before we finished, had shared 14½ hours at the controls, over a distance of more than 2000 miles."