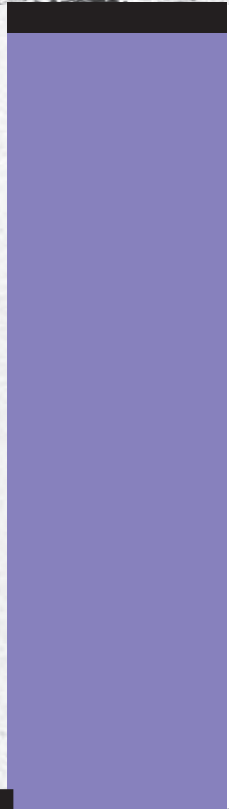
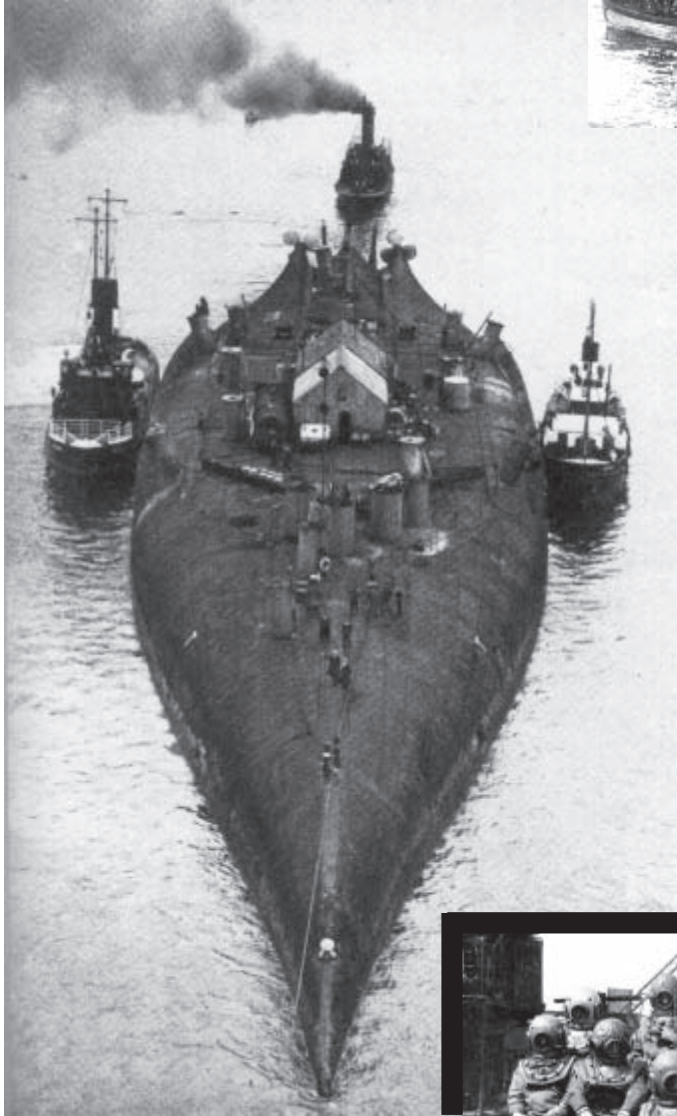


# THE MAN WHO BOUGHT A NAVY



**GERALD BOWMAN**



## **THE MAN WHO BOUGHT A NAVY**

**By the Same Author**

*Documentary and Biography*

THE WAR IN THE AIR

MEN OF ANTARCTICA

AMUNDSEN

LEWIS AND CLARK

*Novels*

SAWDUST ANGEL

PATTERN IN POISON IVY

THE QUICK AND THE WED





Ernest Frank Guelph Cox, the only private individual to own a navy—even though it was lying at the bottom of the sea when he bought it from the British Admiralty. He had no previous experience of salvage, yet he raised seven large scuttled German warships and twenty five torpedo-boat-destroyers.

*The Man Who  
Bought a Navy*



**The Story of the World's Greatest  
Salvage Achievement at Scapa Flow**

**by  
GERALD BOWMAN**



# Preface

This book is about a man who thought he could raise the German High Seas Fleet from the sea-bottom, where it lay scuttled by its crews during the Armistice of 1918.

So he bought it from the British Admiralty and attempted what every expert said was impossible.

He had no experience of such work, nor had the men he employed, yet in the course of eight years they achieved the greatest feat in the history of marine salvage.

His name was Ernest Cox, and he was the most vivid and contradictory character I ever met. So I thought him worth writing about.

For a mass of the information herein I am indebted to his joint Chief Salvage Officers, Mr Ernest P. McKeown and the late Commodore Thomas McKenzie, C.B.E.; also to Mr Alexander (“Sandy”) Thomson, all of whom worked on every ship raised by Cox at Scapa Flow. I have also to thank C. E. T. Warren M.B.E and Mrs. John Moore (nee Cox) and Mr Moore for checking the manuscript and also for free choice from the Moore family’s collection of photographs.

For skilful and tireless detective work in libraries and through newspaper files and engineering reports I have also to thank Miss Phyllis J. Court, whose value as a researcher is well known to other writers of biography.

1998 reprint. All photographs were provided by John Moore from his family’s collection.



# Contents



	page
1. A FLEET SINKS	13
2. NO BRITISH GUARDSHIPS	18
3. MUTINY AT WILHELMSHAVEN	21
4. ADMIRALS AND RED HERRINGS	29
5. CASUALTY LIST	33
6. “MEASURE OF PUNISHMENT”	39
7. THE PLAN	43
8. THE ENGINEER	46
9. THE OVERTON FORGE	55
10. COX AND DANKS	59
11. THE £24,000 GAMBLE	62
12. CHAINS AND CHAOS	65
13. RAISING THE V.70	77
14. RAISING A SHIP A FORTNIGHT	85
15. THE WHALES	88
16. THE BIG DESTROYERS	93
17. THE LAW OF CUSSEDNESS	96
18. THE <i>HINDENBURG</i>	106

12 *The Man who Bought a Navy*

	Page
19. EIGHT HUNDRED PATCHES	110
20. THE HUMORIST	114
21. PUMPING-OUT METHOD	118
22. HULK OUT OF BALANCE	127
23. <i>HINDENBURG</i> DISASTER	133
24. THE <i>MOLTKE</i>	139
25. ACCIDENTAL RAISING	148
26. THE FIRST BIG PRIZE	158
27. INSURING A CAPSIZED HULK	163
28. SHOOTING THE FORTH BRIDGE	168
29. UPSIDE DOWN IN DRY DOCK	178
30. SIDEWAYS LIFT	181
31. ALWAYS EXPECT THE UNEXPECTED	185
32. <i>SEYDLITZ</i> AND SUCCESS	190
33. THE WORST VOYAGE	194
34. EASY <i>KAISER</i>	204
35. THE <i>BREMSE</i>	209
36. THE <i>CELTIC</i> TRAGEDIES	213
37. THE <i>HINDENBURG</i> AGAIN	216
38. THE BIGGEST EVER LIFTED	226
39. EXPLOSION ON VON DER TANN	235
40. LAST CASUALTY	241

# CHAPTER 1

## *A Fleet Sinks*

.....

The fleet drifter *Trust-on*, commanded by Skipper William More, R.N.R., went alongside the German light cruiser *Emden* in Scapa Flow, Orkney, just before noon on June 21st, 1919. The morning was bright under a warm sun. The grey-green, tree-less islands around the Flow were softened in outline by a slight haze. Since the water was at a dead calm, everything befitted the languor to be hoped for even in turbulent Orkney on the longest day in the year.

*Trust-on's* company, a handful of naval ratings, laid aside their weatherbeaten 303 rifles and became busy transferring stores. For the past seven months the rifles—the drifter's only form of armament—had been carried by the crew solely in obedience to standing orders. During those months *Emden* and all the other ships of the German High Seas Fleet had been lying, impotent, disarmed, and empty of ammunition, where they had been anchored after being handed over at the Armistice of 1918 as payment for the lifting of the Allied blockade of Germany.

The battleships, battle cruisers, and light cruisers were moored in parallel lines forming a vast horseshoe round the north of the island of Cava. To the south, immediately opposite the little township of Lyness, German torpedo-boat destroyers were moored two and three to a buoy in lines along the whole of Gutter Sound, which lies between Hoy and Fara. At the southern end of the Sound was H.M.S. *Victorious*, a workshop and dockyard ship without any effective form of armament, but which

carried the dignity of flagship for Rear-Admiral R. J. Prendergast, commanding Orkneys and Shetlands. After the immense activity of the war period in the area the Rear-Admiral's responsibility was now little more than that of general maintenance.

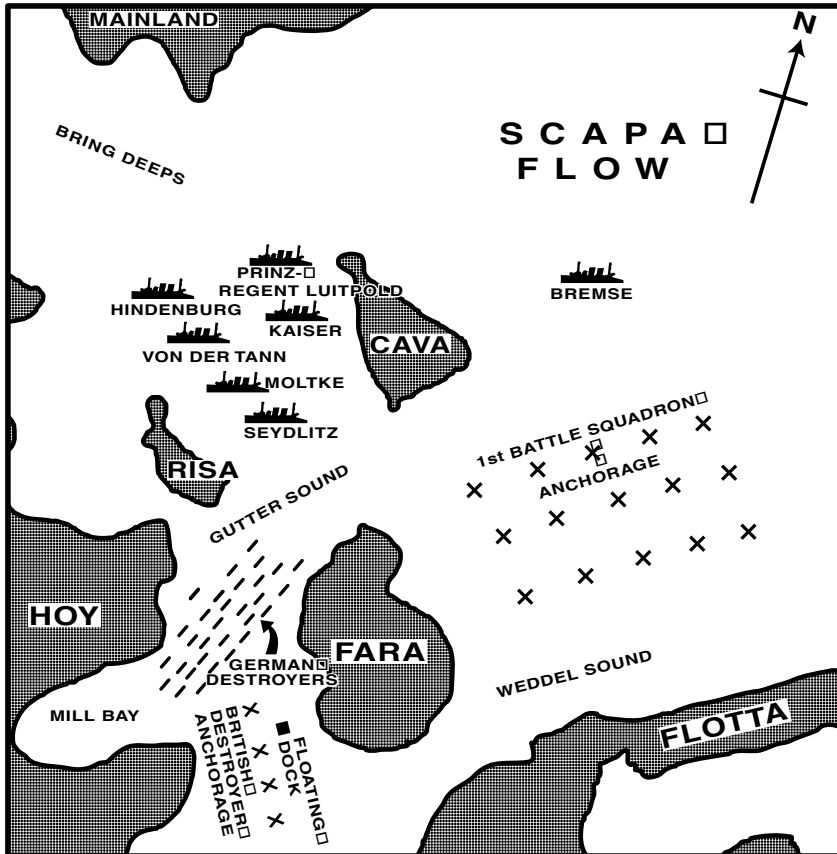
Only maintenance crews were allowed on board the German ships, and no ship was permitted to communicate with any other; nor were any German personnel allowed ashore, unless for hospital treatment under British guard.

All stores and supplies for the fleet came from Germany under British supervision. The only German allowed any sort of mobility was Admiral Ludwig von Reuter, who had originally led the fleet into durance, and who remained in command of its maintenance crews. Even he, however, could visit his ships only during daylight hours, having first asked and received permission from the British Senior Naval Officer on hand. Moreover, all German letters were censored, and von Reuter's official dispatches had to be submitted to British authorities for approval and forwarding.

These strict measures were in force because no terms of peace had yet been signed, and the position between the war enemies was still that of an armistice which could be ended, and a state of war declared, at any time.

No one in the world, however, regarded such a thing as even remotely possible. Germany, after total defeat on land, had handed over her fleet, and was bankrupt and in the power of a Communist regime. Even the maintenance crews technically under von Reuter had elected leaders from among themselves who could, and did, countermand the orders of any officer. The situation had become so bad that von Reuter had had to endure the added humiliation of asking British permission to move with his staff from the flagship *Friedrich der Grosse* to the light cruiser *Emden*, where the political colour was, apparently, not quite so lurid.

Apart from the attitude of the crews to their officers, however, they had given no trouble to their British naval guards, and had made no attempt to get ashore. During the past month their total number had been reduced by 2000 who had been repatriated by mutual agreement. The crew of *Trust-on* were therefore expecting no more difficulty than they had before in finishing their work and casting off. They were startled, therefore, when a crowd of German ratings came in a rush from amidships just too late to secure the last rope. The men were yelling, pointing aft, and gesticulating in obvious panic. One of them had enough English to give a reason for the uproar. He cupped his hands round his mouth and bellowed, "Der schiff is sinking! You help, please!"



Scapa Flow, Orkney, showing the battleships and battle cruisers eventually raised by Ernest Cox in the positions around Cava Island at which they were scuttled by their own officers on June 21st, 1919. The twenty-six torpedo-boat-destroyers he also raised are shown where they were sunk in Gutter Sound.

It was then that those on *Trust-on* realized for the first time that the *Emden* was settling down by the stern. As they watched she gave a slight lurch to port, and the movement of her maintop brought attention to the fact that the German ensign had been run up together with a red burgee, the latter being the official flag flown by German ships going into action.

A struggle developed among the Germans, and a party of officers headed by Admiral von Reuter himself forced their way through to the rail. All were dressed in what were obviously their best uniforms, and were carrying suitcases and parcels. Von Reuter made an imperious gesture.

“You will take us to your flagship,” he shouted. “You will come alongside now and take us aboard.”

The reply he got was short and to the point, as might have been expected from an R.N.R. skipper of the period. *Trust-on* swung away and headed for *Victorious* at full speed. Before she was beyond earshot one of the German officers imparted the news, in excellent English, that not only was *Emden* sinking, but all the fleet were sinking. He yelled that a general scuttling had been started and couldn't be stopped, and pleaded that in common humanity the crews should be rescued.

Nobody aboard *Trust-on* had, in the previous five years, found himself impressed by German interpretations of common humanity. The urgency of the moment was to carry the news to Rear-Admiral Prendergast (the drifter had no wireless) and take his orders for further action.

The Admiral, however, at that moment (12.05) was reading a wireless signal from the destroyer *Westcott*, commanded by Lieutenant Charles R. Peploe, on patrol in the Flow. The signal announced that the German flagship *Friedrich der Grosse* was sinking, and that all the vessels of the German fleet were wearing their ensigns and battle flags, contrary to standing orders.

Prendergast signalled back orders for the flagship to be boarded, her seacocks closed, her ensign hauled down, and the crew to be fired on if they resisted or refused orders. Then he made a signal for all British small craft to come to *Victorious* at once, his intention being to divide his available force of men and weapons among them and send them to board the torpedo-boat-destroyers in Gutter Sound, the point being that vessels of trawler size would be ineffective in dealing with battleships.

Finally, from the bridge of *Victorious* he looked out upon a scene such as no man had witnessed before and none is likely to see again.

Every ship of the German High Seas Fleet stretching out into the haze of distance was heeling over and settling. In Gutter Sound, opposite the little town of Lyness, many of the forty German torpedo-boat-

destroyers moored there were in the actual throes of going down.

Some capsized before they sank. Some were rearing up by the bows or by the stern. One he watched breathlessly, sliding with an oily motion into the depths, dragging with it the bows of two others to which it was moored. Their sterns rose up, gleaming, and raining water in the sunshine. Then, with a screw motion, they turned turtle towards each other, sinking in an explosive turmoil of foam as trapped air burst its way upward. There was a vague, distant sound of masts and top hamper buckling, breaking, and tangling together in chaos on the bed of the Sound.

## CHAPTER 2

### *No British Guardships*



The inhabitants of Lyness reacted to the astounding events with amusement. This sudden acceptance of total defeat by a hitherto arrogant enemy touched their humour. The little town in general gave up work and forthwith went afloat in anything and everything navigable that was to hand, quite undeterred by the sound of rifle-fire or by the rumour, quite correct for once, that Germans had been killed in a brush with the tiny British naval guard.

What amazed every one was the inadequate size of the force that had been left in Scapa Flow to patrol the German fleet that day. Since the vessels had arrived seven months beforehand, some of the ships of the British First Battle Squadron had always been on hand.

On this fine summer day, for the first time since the handing over, there was no major ship at all in the Flow, and only one destroyer, *Westcott*, with steam up.

At 9 A.M. the entire First Battle Squadron, under Vice-Admiral Sir Sydney Fremantle, had steamed away out of the Flow. In line they went, a fine show *Revenge*, *Ramillies*, *Royal Sovereign*, *Royal Oak*, and *Resolution*. Ahead of them had gone almost every other serviceable war-craft in the squadron, including the flotilla leader, *Spencer* and seven destroyers.

Within half an hour Scapa Flow was empty of the British Navy except for *Westcott*, her sister-ship *Walpole*, temporarily unserviceable, the older destroyer *Vega*, under extensive repairs, the depot-ship, *Sandhurst*, and a few guard-drifters and trawlers.

After seven months it was natural that the German ships had become a normal part of the landscape, of no special interest to the Orcadians. The local tugs *Flying Kestrel* and *Flying Breeze* sometimes took visitors along the lines, and on this bright morning they had chugged out there again, taking schoolchildren on a sightseeing picnic.

Thereafter the children packing the bulwarks of the tugs, the crews of the guard-drifters, and the excited townsfolk in their row-boats watched a hundred million pounds' worth of human constructive skill and labour engulfed in futility.

As the small craft, one by one, reached *Victorious* they were reinforced with what armed men were available, and given orders that the Germans were to be driven back aboard their ships at gun-point and ordered to stop the process of sinking.

The Flow waters were soon in a feverish activity of drifters, ships' lifeboats, and pinnaces, the crews of which boarded the German torpedo-boat-destroyers to try to save them. They moved through a chaos of debris which rose up, oil-covered, to float on the tide - lifebelts, hammocks, ships' furniture, clothes, hatch-covers, books, and spreading patches of documents. There was a background babel of shouting, the blasting of sirens, some sounds of ragged shooting.

Admiral Prendergast, after rapidly dictating a signal to the absent Vice-Admiral Fremantle, personally went off in his pinnace with a small party, and boarded the destroyer of the German flotilla maintenance commander, Lieutenant Steiner. They were received with due naval ceremony, but directly they stepped on board, the vessel lurched down by the head.

Prendergast began to demand that the scuttling be stopped, but the grinning Steiner told him blandly that it was already impossible. All seacocks were open, the spindles bent, the actuating spanners thrown overboard. Moreover, one of Prendergast's party, after a swift forage round, came back with the report that the destroyer's mooring-cables had been wired down to the bollards, and the anchor chain shackle-pin ends had been hammered over so that they could not be unscrewed.

In short it was impossible without engineering equipment to release the flotilla leader from the others alongside, nor could her anchor chain be cast off, so there was no hope even of towing her to be beached in shallow water.

She settled lower and began to list steeply. There was nothing for it but to leave. Prendergast told Steiner what he thought—in hearty naval terminology—and ordered him and his crew into the pinnace, informing them that they would now be treated as prisoners of war. All that could be done for the time being was to take them to *Victorious* and put them

under armed guard.

Meanwhile Captain Sells of the depot ship *Sandhurst* (ex-S.S. *Manipur* converted) had been busy. As Senior Naval Officer afloat (notwithstanding the Rear-Admiral, as naval people will understand), he had got every craft under his command moving that was movable. He led them towards the larger ships, and ordered back the crews which were putting off in boats and on rafts. He fired over their heads to start with, and at them when they refused his orders.

Sells and his men managed, one way and another, to drive enough crews back on the T.B.D.'s to get sufficient valves closed to keep four afloat. They beached seven more on the island fringes of Hoy and Fara. Then they took all prisoners to *Sandhurst* and clapped them below decks.

The local Admiralty Port Officers also did fine work in boarding eleven T.B.D.'s and getting nine to the beach of Fara and two to Risa. By this time *Westcott* reached *Victorious* with prisoners from *Friedrich der Grosse*, which had been found too far gone for there to be any hope of even beaching her. Indeed, as the British destroyer was moving off at 12.10 with a tow of boats crowded with Germans, the ship lurched and then rolled clean over on her beam ends.

The two towering masts crashed into the water only a matter of yards away from *Westcott*'s side. The blackened mouths of the funnels were like caverns into which green mounds of seawater were flooding. Then, with startling suddenness, they disappeared, and the 25,000-ton battleship completely turned turtle. For a few seconds she hung bows upward, a vast, glittering whale-back of steel, filled with an inner uproar of falling and smashing gear that sounded like subterranean gunfire.

Then she slid swiftly beneath the surface, and disappeared in an explosive chaos of air-pressure which sent up enormous bubbles and waterspouts which burst in deluges of black oil.

## CHAPTER 3

### *Mutiny at Wilhelmshaven*



The world Press in the days that followed openly charged Britain with having connived at the scuttling by withdrawing the guardian battle squadron. Even the most patriotic Britons had to admit to themselves that the whole thing seemed beyond belief as a mere coincidence.

Yet coincidence it was. In the first place, everybody forgot one all-important fact, which was that von Reuter and his officers could have scuttled their ships in perfect safety, with no risk of any casualties, by doing so on any overcast, moonless night. In the second place, there are the signals which passed between von Reuter and Germany, and Vice-Admiral Fremantle and the Admiralty, from the time of the surrender to the day of the sinking. Together they prove that von Reuter spoke the truth when he later told Fremantle that he accepted entire personal responsibility for planning the act and choosing the time.

Fremantle had from the first realised the danger that the ships might be scuttled at night, but there was nothing he could do beyond keeping up constant guard patrol round the clock. He knew that the German officers of the maintenance crews kept up what dignity they might on the fact that the ships were not surrendered, only interned.

By the terms of the Armistice of 1918 (Article 23):

The warships of the German High Seas Fleet indicated by the Allies

and the United States of America will at once be dismantled and then interned in neutral ports or, in default, in ports of the Allied Powers. The ports will be indicated by the Allies and the United States of America. Only ship-keepers will be allowed on board.

All ships indicated for internment must be ready and leave the German ports seven days after the signing of the Armistice terms. The route for the voyage will be ordered by W/T.

The German leaders accepted these terms and signed the Armistice on November 11th, 1918. But by that time their Army and Navy were in full-scale mutiny. Communist cells had been established in every warship. Many officers were murdered in their cabins, or slung over the side. Von Reuter was confronted on the bridge of his flagship in Wilhelmshaven by a soviet of sailors who told him that they had elected a stoker Commander-in-Chief of the Fleet; von Reuter was to be his "assistant."

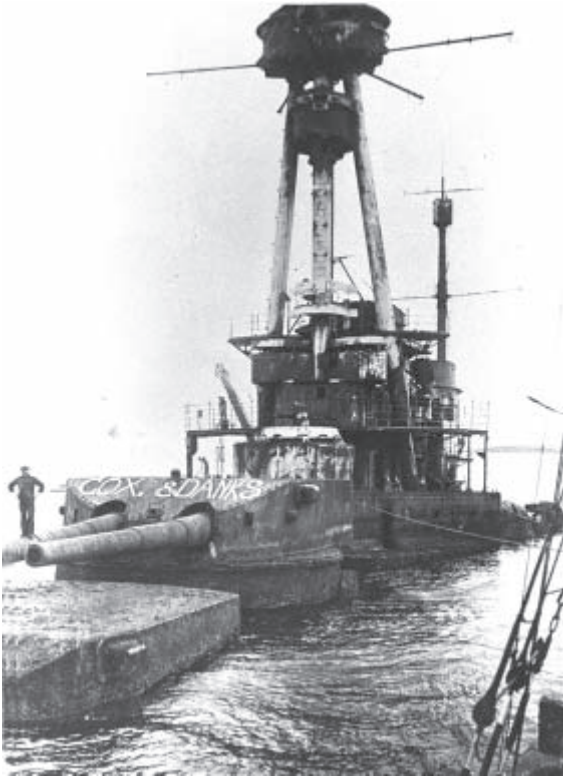
In such tragically farcical circumstances there is no doubt that the Armistice terms would not have been fulfilled, except for the fact that the British naval blockade had brought Germany face to face with starvation. The handing over of the fleet was a condition of the blockade being lifted. The sailors' councils were therefore brought to realize that if they and their wives and children were to eat they must disarm their ships and sail them across the North Sea to the port indicated, the Firth of Forth. But since none of them could navigate, they had to turn to their officers again for that purpose.

The officers refused the task unless prevailing conditions were altered. They demanded that, when at sea, the men should obey their technical orders immediately and without asking for any "higher decisions" from their own red-arm-banded deputies. In this way some working discipline even to the rough cleaning of ships was restored, and many of the men who were sick of the general dirt and chaos that had accumulated in their quarters were glad of it.

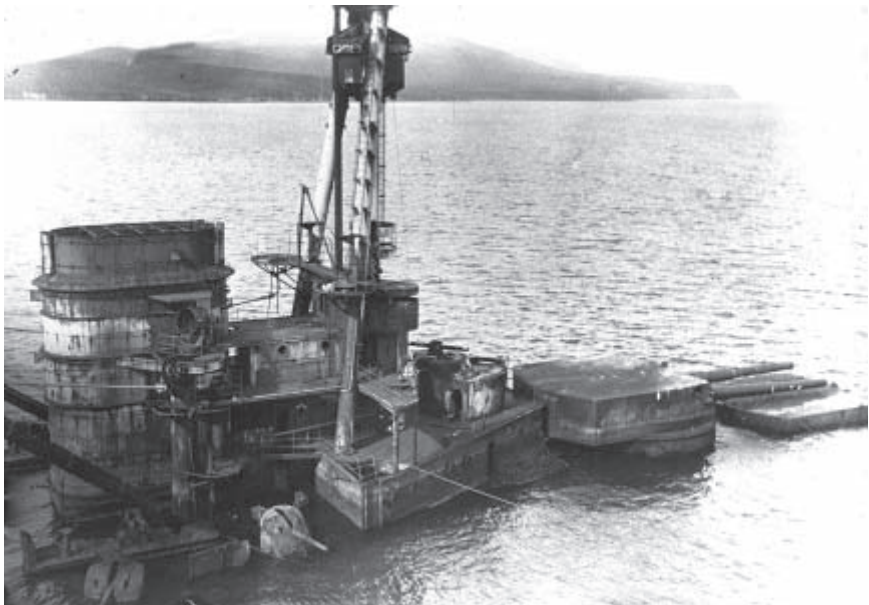
Admiral von Hipper, by then recognized as overall Commander-in-Chief, gave Rear-Admiral von Reuter command of the doomed fleet. In the battleship *Friedrich der Grosse* von Reuter led the ships from the Jade estuary out across the North Sea on November 21st, 1918.

He afterwards admitted astonishment that the red crews had got all the required vessels together at the correct time, but even then he was not allowed to organize an inspection. He had no idea if the ships had been disarmed and emptied of ammunition and explosives according to the Article, or if they were properly fuelled, watered, and provisioned.

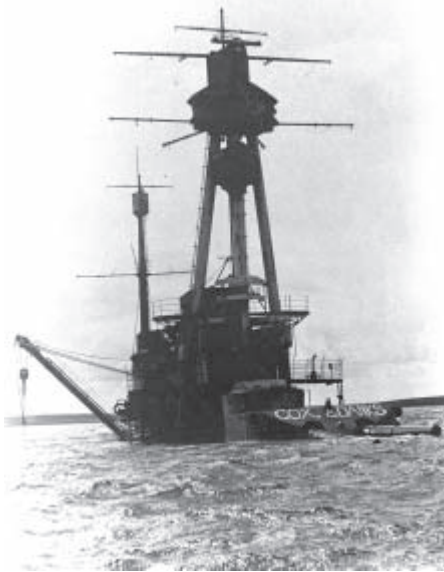
Each ship was being run by an officer whose position might have been called that of technical manager. The crew obeyed his orders as to



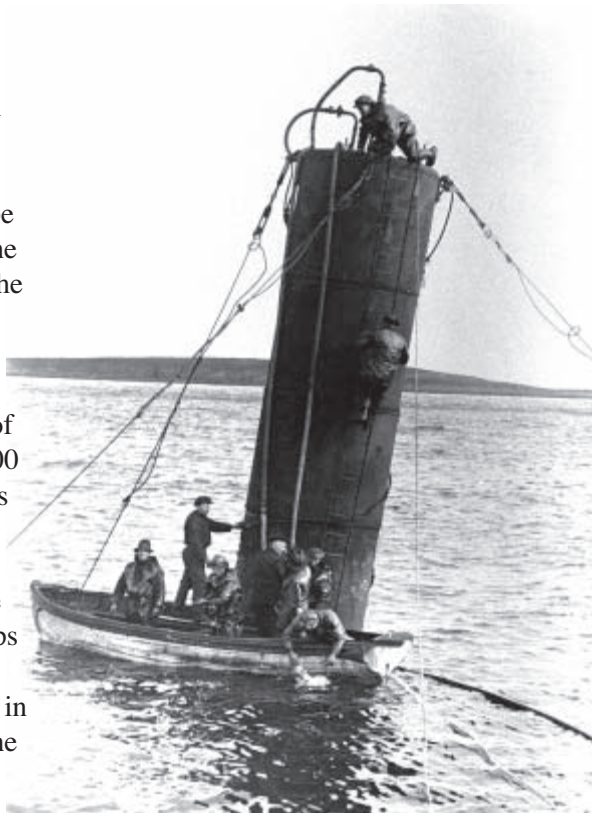
The *Hindenburg* the last ship to be scuttled, she was to prove the most difficult to raise. Requiring over 800 watertight patches, and several attempts before success was finally achieved., and reportedly costing Cox some £30,000, but at the time the 28,000 vessel was the largest ship ever salvaged.



The Battlecruiser *Hindenburg*, resting perfectly upright on the bottom of Scapa Flow. She was the only capital ship not to turn over and Cox was to be mistaken in thinking she would be the easiest to raise.



A shift of workers entering an airlock fitted to the upturned battleship *Kaiser*. Pipes carrying compressed air can be seen at the stern of the row boat trailing in the water from compressors on a nearby tug. The height of some of these airlocks was 100 feet, made in sections out of disused steel boilers six feet in diameter. They were craned out to the ships in one piece for installation and even in the best conditions the difficulties in fitting these was immense.



A Diver with his assistant. Cox relied heavily on his divers who worked long hours in often intolerable conditions.



A Diver prepares to descend onto the *Hindenburg*.

course and speed. For the rest, sailor “councillors” occupied the bridge, the best cabins, and the wardroom and dressed just how they liked.

When von Reuter made the signal to sail, red flags were run up on each ship, including the *Friedrich der Grosse*. He therefore had to delay while the information was passed that the fleet could not start until the red flags were hauled down since they were then internationally recognized as flags flown by German warships going into action, and would immediately cause the ships to be fired on by the British fleet which would be waiting to escort them to anchorage.

The crews at last obeyed, hoisted the old German national flags in place of the red flags, and the start was made two hours late. The German fleet then sailed out into the open ocean for only the second time since war had been declared, and for the first time since the Battle of Jutland—the first full-scale action since Trafalgar.

Jutland is a somewhat controversial subject of history. Neither of the commanders concerned dared risk a Nelsonian slogging-match because there was no doubt that he who lost the action would lose the war for his country. As a result, both Admiral Sir John Jellicoe and Admiral von Hipper tried to outmanoeuvre and entrap each other by the actions of their forward forces.

In this Sir David Beatty in the British van succeeded. He lured the German fleet into a trap at appalling cost to his own ships and men, but Jellicoe failed to slam the trap shut. Night was coming on, and he had to reckon on von Hipper’s much greater number of destroyers and torpedo power.

So on the morning after the main battle the German fleet was found to have slipped away home with only light losses—1 battleship, 1 battle cruiser, 4 light cruisers, and 5 destroyers. Jellicoe’s Grand Fleet was virtually unscratched, but the dashing Beatty had lost 3 battle cruisers, 3 armed cruisers, and 2 destroyers, together with over 6000 officers and men, against German casualties of only 2500.

On material showing the Germans claimed a victory. There was, however, the all-important fact that the British remained at sea while the Germans ran for the protection of their base in the Jade estuary. Apart from one tentative sortie they never ventured out again during the rest of the war. So the British, who remained in command of the sea, could rightly regard themselves the victors, although in terms of men and ships lost at Jutland they had fared worse than their enemy.

Admiral Jellicoe was promoted ashore to command the Admiralty, and Admiral Beatty took his place as Commander-in-Chief at sea, probably the most nationally popular appointment since that of Nelson. From then onward Beatty’s direction to his men was, “Let’s go on baiting them and

we'll make them come out again."

But the German High Command forbade their fleet to risk another fight. They reasoned that the one constantly active branch of their Navy, the submarine service, was doing more for Germany than could be guaranteed by another fleet action, which might well be lost.

It was the resulting years of inaction in Kiel and Wilhelmshaven which wrecked the spirit and morale of the German surface-fleet sailors and made them ripe for Communist plucking when the war was finally lost. When that happened they heard that the Emperor, their Kaiser, had deserted them and run for safety into neutral Holland, so that they had good cause to distrust any leadership based on his regime.

Von Reuter, according to orders, led the High Seas Fleet to a point south-west of May Island, where the cruiser *Cardiff*, with coastal airship N.S. 8 flying overhead, was awaiting them. The *Cardiff* then turned and led the way into the Firth of Forth at ten knots.

The British Grand Fleet was lying in two parallel lines ahead. As the *Cardiff*, followed by the German cavalcade, appeared out of the afternoon haze the crews of the waiting British ships jumped to action stations. All guns were loaded and trained point-blank on the approaching line. It was a tense moment in which an overstrained junior officer on the bridge of *Queen Elizabeth* gasped out, "They'll never stand this. No men could. They'll start shooting!"

His words echoed what was passing in the minds of his seniors grouped in front of him. It seemed impossible to believe that this tough enemy of years was approaching in meek surrender while still in command of fighting ships fully the match of the British Navy in fire power. Yet the impossible happened.

In slow procession the big grey German battleships passed without the slightest sign of resistance, obediently carrying out the orders which had been wirelessed to them by Admiral Beatty. As they did so the two British lines turned inward, each pair of ships escorting a German vessel to its appointed anchorage. Over the lines flew several aircraft, one of which, an Avro 504 K, had engine trouble and was forced to ditch in the water.

The incident seemed to break the almost unbearable tension. As the pilot was seen to climb up on to a wing, roars of laughter and cheers arose from every ship close by. Then came the moment when the first of the German vessels was escorted past the flagship *Queen Elizabeth*, on which Admiral Beatty was clearly to be seen standing a pace ahead of his staff, his gold-laced cap set at its habitual angle. The cheers were taken up all along the British lines, ship echoing ship, back into the afternoon mist.

Beatty smiled and raised his cap high. Over the water those on the nearest ships heard his acknowledgment clearly.

“Thank you,” he shouted. “Thank you—I told you they would have to come out.” It was an historic phrase which was forthwith repeated over the W/T to all British units.

From the flagship Beatty finally signalled an order to von Reuter, as the last Gemman ships were coming to their anchorages. It was not the polite request of an official dealing with an internment. It was peremptory and final.

“The German flag is to be hauled down at 3.57 to-day, Thursday, November 21st,” signalled Beatty. “And is not to be hoisted again without permission.” Von Reuter accepted meekly and without protest. Precisely at 3.57 the German ensigns came fluttering down.

Thereafter armed search-parties went aboard every German ship, and ordered the officers to lead them to ammunition magazines and weapon stores. None of the British would deal in any way with the sailors’ council leaders who met them and saluted with deep servility, although they were seen to treat their own officers with contempt, speaking to them at any time with cigarettes in their mouths and hands in pockets.

The British orders were strict. The German ships were to be escorted shortly to Scapa Flow, but while in the Forth and when they moved onward the Germans were to have no communication with the shore, or between ship and ship, whatever. They were to be provided with the necessary medical service and water, but their stores were to be obtained by escorted and searched transport from Germany.

All this was accepted without question. But if it was not handsdown surrender only a German mind could have described it as anything else.

## CHAPTER 4

### *Admirals and Red Herrings*



**V**on Reuter had, or pretended to have, the attitude of mind by which he could base the justification of his sinking of the ships on the ‘fact’ that they had not been surrendered.

As early as the following June 17th, while at Scapa Flow, he wrote out and had circulated to all his ships’ commanders (incidentally by a British dispatch-boat given him for his use) the following secret signal recovered from the water after the sinking, and literally translated by Lieutenant-Colonel Dibblee who was seconded for duty with the S.N.O. afloat at the time:

*B.N.R.P.39. Only to be seen by an officer. Personal. To the Commanding Officer. Commanding Officers are to make preparations to sink their ships on signal as quickly as possible. Make preparations after crews are taken off. [This refers to an agreed repatriation of 2200 men from the fleet to Germany, which was taking place that day]*

Select members of crews to be in the know to avoid betrayal to the English. Keep open all internal doors, hatches, longitudinal and athwart bunker doors, ventilators, scuttles, bulkheads *permanently*, in case British try to take by surprise.

Make ready opening of condensers, torpedo-tubes, valves, sluices. One boat ready for lowering with flag of truce. Go to nearest shore.

Sink:

- 1 If forcible intervention by British.
- 2 On orders from me.

3 If surrender demanded by British but not by me.

Prepare for signal: *Group Writing. First paragraph. Confirm Chief I.V.* Sink immediately. Acknowledge received. Personnel not be relied on. Officers must watch for signal. Commanding officers must keep this under lock and key. It must not fall into the hands of the enemy. Nothing must be done outwardly to warn the British.

Von Reuter also explained that the date for signing the peace treaty was at hand, but it was possible that the German Government would refuse to sign. If this happened the Armistice would have run out and, technically, a state of war would obtain. In this case he expected the British to board the ships and “demand surrender.” He said, in effect, that German naval pride could not accept this and therefore he would order all commanders to sink their ships before the British could take them.

On the other hand, he added, it was possible that the German Government would sign the treaty and agree to hand the ships over. If this was done, all German officers must obey and surrender their ships intact, although he, personally, was protesting to the home Government against the ships being used as articles of barter.

Four days before composing this peculiar study of German naval pride, von Reuter was wily enough to send Fremantle a heart-rending application for his own repatriation to Germany on the grounds of nervous overstrain, stomach-trouble, and sleeplessness.

Fremantle countersigned his approval and forwarded it to the German authorities.

The request may have lulled his suspicions about von Reuter, but those suspicions had been so strong that he had already sent a long memorandum to the Commander-in-Chief Atlantic and Home Fleets, Admiral Sir Charles Madden, on June 16th.

In this he said that he believed that the German officers, after the signing of the peace treaty, would do extensive damage to the ships, even if there was no attempt at scuttling, and that he had found in his dealings with them that no word they gave could be trusted.

He, Admiral Fremantle, therefore proposed to warn von Reuter that after the signing of the treaty all ships would be inspected, and no Germans, officers or men, would be allowed to go home until all inspection reports were satisfactory. He also gave Madden in detail his plans for taking over the ships, whatever happened, directly he was notified of the signing or non-signing of the treaty, notice of which he especially asked should be given to him without delay. To this he received Madden’s approval by signal on the 19th.

As a matter of history the treaty negotiations were extended by the Allies and the U.S.A. for a short period in order to help the German

delegation. Von Reuter took clever advantage of this when, early on the morning of the 21st, he could see for himself, as an experienced sailor, that the First Battle Squadron was preparing for exercise. This exercise, long-range torpedo-firing, was one that Fremantle had been wanting to carry out directly weather conditions were right for the sighting of and picking up of torpedoes after they had been launched at targets.

As a matter of routine he had sent Admiral Madden a copy of his orders for the exercise on the 17th, and received a signal of approval on the 18th. In that signal, however, Sir Charles instructed him to complete the exercise during the week ending Saturday the 21st, because the limit of Armistice for the Germans had been extended to 19.00 hours (7 P.M.) on Monday the 23rd.

If Saturday's weather proved unsuitable the exercise should be indefinitely postponed, since it must not be carried out on Signing Monday, when, if trouble was coming in the Flow, the Squadron must be there to deal with it.

Saturday the 21st dawned clear and tranquil, so that with the rising sun Fremantle ordered steam up and all preparations ready for sailing at 9 A.M. In that calm, invigorating period of a lovely summer morning von Reuter swiftly wrote a letter which he knew would have to pass through Fremantle's hands before he sailed.

*To Imperial Defence Minister. Chief of Admiralty.  
Chief of Baltic Station. Chief of North Sea Station.  
21st June, 1919*

In the English papers I have today perceived that in the German Counter-proposals the Government intend to use the ships as an object of trade. Even if economic distress is as great as this my feelings of patriotism and honour cannot accommodate themselves to such treatment of the interned German Fleet. In this view of the matter I am assured of the support of all officers in the squadron. Accordingly I request that a new adjustment of the peace terms may be caused, or, if this is not attainable, that we officers and officials may be definitely relieved before the surrender.

VON REUTER  
*Rear-Admiral*

This letter the German Admiral sent by his dispatch-boat to Fremantle in *Revenge* shortly before 9 A.M. It was translated immediately, and Fremantle, feeling that Madden, his Commander-in-Chief, should see it before it was forwarded on, set it aside for the time being.

At 9 A.M. the First Battle Squadron with its attendant destroyers and flotilla leader sailed majestically out of Scapa Flow.

At 10.30, when von Reuter knew they would be at a safe distance, on their way at full speed, he made his signal to his own ships: "Group writing. First paragraph. Confirm. Chief I.V."

In accordance with his secret instructions of June 18th, this was the order to scuttle ships immediately. Acknowledgments came in slowly. In almost all cases the officers dared not trust the men, but went below to open valves and torpedo-tubes themselves.

Forty minutes later at 11.10 the mighty battleship *Friedrich der Grosse* rolled over and sank, by which time many other vessels, seemingly intact, had been flooded beyond reclamation.

## CHAPTER 5

### *Casualty List*



The tiny force carrying out Rear-Admiral Prendergast's orders to save the German torpedo-boat-destroyers was remarkably successful. In addition to those dealt with by Captain Sells and the Admiralty Port Officers, *Westcott* beached two more. Her sister-ship *Walpole*, commanded by Lieutenant-Commander Charles G. Naylor, M.V.O., managed to get steam up after fierce work in the engine-room. Then she went into the fray and fired on deserting German crews, forcing them back on to their vessels with orders to shut valves. By way of extra persuasion *Walpole* sank the small boats in which the men had been trying to get away.

Then she turned to the nearest job in hand, which happened to be the deserted and sinking light cruiser *Nurnberg*. *Walpole*'s men hauled down her ensign and slipped her cables so that she drifted ashore on a strong current, and beached herself.

Meanwhile *Trust-on* and another drifter, *Ramna*, under Skipper George E. Lambert, were busy among the T.B.D.'s cutting cables wherever possible. Their sister-ship, Skipper Charles Yorston's *Caersin*, had been near the light cruiser *Frankfurt* when her crew started launching boats. *Caersin*'s men promptly drove them back with rifle-fire, but directly afterwards saw the near-by battleship *Konig Albert* heeling over and sinking by the stern while her captain and crew were frantically waving white flags. *Caersin* took them aboard only a matter of minutes before the vessel foundered.

The drifter *Clonsin*, under Skipper Harry Chapple, managed to get

the deserted light cruiser *Dresden* in tow, although she was so low in the water that her main deck was awash. At snail's pace *Clonsin* made for the beach of Cava, no more than a mile away, but just when success seemed certain *Dresden* suddenly lurched down by the head, and then capsized and sank so quickly that there was not time to cast off the towing-cable.

One of the famous little 'puffers' of Scottish waters, *Nellie Laud*, also acted promptly when deserters began putting off from the battleships *Kronprinz Wilhelm* and *Markgraf*. The puffer moved between them, firing at both. The *Kronprinz* actually began sinking a few minutes later, so the little vessel went alongside and took off more than a hundred men and carried them to *Victorious*.

Meanwhile Admiral Prendergast received a signal from the R.A.F. station at Houghton that Admiral von Reuter and his staff had been spotted on a trawler which was making for the flagship. Prendergast proposed to receive them as prisoners of war and assembled an armed guard.

The general scene in the Flow at this time could be described without exaggeration as fantastic. From the top of the hill above the little town of Lyness a schoolboy named Alexander Thomson, who had been cutting peat for his mother, had a unique view.

Far away to the north he had seen the vague, grey shape of the *Friedrich der Grosse* disappear beneath the water. Then, nearer at hand and clearly in sight, the battle cruisers *Von der Tann* and *Seydlitz* capsized and sank almost simultaneously. The *Moltke* went next; the *Nurnberg*, almost at sinking-point, drifted and finally ran ashore on Cava.

Young Alexander Thomson—nobody to this day has ever called him anything but "Sandy"—was so thunderstruck by the astounding spectacle spread out before him that he had no sense of time. As far as could be seen in every direction the waters of Scapa Flow were in a turmoil of explosive water-spouts and monstrous upsurges of oil as the great ships went down. Within an hour almost an entire navy was scuttled by the men who had undertaken to sail it and fight it.

No sooner had one battleship reared up its stem and made a final plunge than the masts and funnels of another canted over and whipped a livid white pattern in the water as she capsized. All the strange names young Sandy Thomson had come to know so well— names famous in German naval architecture— were drowned in tragic futility. Before two o'clock the bottom of the Flow was littered with battleships—*Kaiser*, *Kaiserin*, *Kronprinz Wilhelm*, *Konig*, *Konig Albert*, *Grosser Kurfurst*, *Bayern*, *Prinzregent Luitpold*, and the light cruisers *Koln* and *Karlsruhe*. Some had settled with mast-tops at an angle above surface. In shallower water several, capsized, looked like gigantic, stranded whales.

All about them small ships' boats were moving, rowed through the chaos of oil-streaked flotsam, within each a man holding up a white flag. The drifters and trawlers were shepherding them or taking them in tow. All British craft including the two destroyers were now, after delivering prisoners to *Victorious*, making for the First Battle Squadron's anchorage area to the south-east. Overhead in the brilliant summer sky aircraft from the Houghton base were droning, keeping watch for any Germans who might make for Kirkwall or the open sea via the Hoxa entrance to the Flow.

Prendergast, in obedience to a signal from Fremantle, had ordered all craft to go to the Squadron anchorage, ready to take aboard armed parties. In the signal Fremantle announced that his First Battle Squadron had immediately abandoned the torpedo-firing exercise and was returning to Scapa at full speed. Since he was at a point about forty miles off Duncansby Head, he gave the earliest time for the arrival of his first vessels, the six destroyers, as 2.30 P.M., and said he was following hard on their heels with the First Division, his flagship *Revenge*, *Ramillies*, and *Royal Oak*. Since the Second Division, *Royal Sovereign* and *Resolution*, were much farther away and strung out over several miles, he put their earliest arrival at 4.15. In the event all ships concerned were ahead of time.

In the interim Prendergast, who had done everything possible with the meagre forces at hand, had leisure for the first time to consider the whole position and the necessity of preparing a detailed report for future historians. In *Victorious* he had a cashier, C. W. Burrows, whom he knew to be an excellent photographer. Just before 1 pm he sent Burrows off in an armed drifter commanded by Lieutenant Frederick H. Grant, R.N.R., with instructions to take as many pictures as possible of ships in all stages of sinking.

The trip round the doomed fleet had its lively moments for all concerned. As the drifter neared the listing battle cruiser *Seydlitz*, which was obviously deserted, Grant thought there might be a chance of saving her, so a party went aboard, and while a couple of men hauled down her ensign and battle flag the rest tried to run out her anchor-chains so that she might drift ashore. The chain compressors were jammed shut, however, everything movable was wired fast, all shackle-pins in reach were hammered over. Since nothing could be done they left her and went on their way through the chaos of drifting wreckage and toiling small boats. *Seydlitz* rolled over and sank just before 2 pm.

As they passed the battleship *Bayern*, which was awash at the stern, a trawler approached them. On the foredeck Grant saw a German officer he recognized as Admiral von Reuter, who was shouting and waving to

attract his attention.

Von Reuter yelled that the cruiser *Emden*, some distance to starboard, was sinking fast and that men were swimming in the water. Grant altered course and ploughed round *Emden*, but no swimmers could be seen. While they were no more than a hundred feet or so from her side *Emden* gave a sudden lurch, bringing her funnel-tops almost to water-level. There she stayed for a few minutes while the sinister rumble of falling coal and general gear filled her hull. Then she turned turtle. Slowly and very smoothly she rolled upside down with cascades of water spilling from her bilge-keels. Burrows clearly saw her massive guns in their turrets beneath the inverted hull as she slid down on to the rocky bed of the Flow.

Sharp at 2.30 pm the First Battle Squadron destroyers led by *Spencer* appeared out of the afternoon haze, smoke cataracting under forced draught from their funnels. By the time their anchors had rumbled down the First Division also appeared, making a spectacular picture of a navy very much alive.

*Revenge*, Fremantle's flagship, and *Royal Oak* were 29,000 tonners, veterans of the Jutland battle, and *Ramillies* was of the same class. They were compact, single-funnelled monsters with high, armoured foretops, and they came at nearly twenty-two knots, smashing through the short seas into the Flow, a spectacle of power and aggression framed in foam and spindrift and smoke.

The waiting small craft forthwith went alongside those to which they had been nominated, and within minutes were away again bearing fully equipped parties armed with explosive charges for breaking gear that had been jammed.

At this time, 2.30 pm, Fremantle later reported that of all the once proud German High Seas Fleet only two battleships, *Baden* and *Markgraf*, still remained afloat, with one battle cruiser, *Derfflinger* and four light cruisers, *Minden*, *Nurnberg*, *Brummer*, and *Frankfurt*. Moreover, all of these vessels were clearly in a sinking condition *Derfflinger*, in fact, sank just fifteen minutes later, as the armed parties were setting out.

One of the first parties on Skipper Harry A. Skoyles' drifter *Cabalsin* went to the battleship *Markgraf*, which was low in the water and listing. The German officer still in command, Captain Schumann, refused either to order the few men with him to go below and shut valves or to allow the boarders to do so. In the circumstances his action was courageous because he could not hope to withstand a superior, well-armed force. The boarders, however, had their own clear orders to get all openings closed or close them and fire upon any German who obstructed their purpose. Naturally, they carried out their duty. In the ensuing scuffle Captain Schumann was

killed, and another German officer, Fleet Engineer Faustmann, was seriously wounded.

Thereafter the boarders found that it was impossible to close the bottom valves in any case, since the universal joints actuating them were many feet under flood-water, and the spindles leading down to them had been disconnected. All watertight doors had been opened and purposely damaged so that they could not be shut. The anchor-chains had been jammed in the same way as those on *Seydlitz*. In short, the *Markgraf*, which had been beyond hope of salvaging before the parties arrived, finally heeled over and sank shortly after those aboard her, and the body of Schumann, had been taken off at 4.30 pm.

Almost the same conditions, although without further examples of Schumann's courage, were found by all the boarding parties during what remained of the afternoon. Even so, by rapid work and first-class seamanship, three more of the German vessels were salvaged.

A party from *Ramillies* managed to close the inlets flooding the engine and boiler rooms of the battleship *Baden*, and also shut most of her scuttles and watertight doors which had been lashed open but not damaged. They restarted one of her diesel-generator units and got lights going so that it was possible to start systematic pumping. Once the ship was safe and the flood level falling, a search of her was carried out which brought to light copies of the secret instructions for scuttling from Admiral von Reuter to his officers, and notification of the signal he would make for all ships to be sunk.

The light cruiser *Minden* was freed from her anchorage by a party from the destroyer *Shakespeare*, who used small explosive charges to part her jammed anchor-chains. With help from a drifter and a tug, *Shakespeare* towed her into shallows, where she settled and was easily salvaged in the weeks that followed.

Her sister-ship *Frankfurt* was beached in Smoogroo Bay in much the same circumstances by a *Royal Sovereign* party in the destroyer *Wessex*, despite the fact that she had been more expertly sabotaged than most of the others. Not only were her valves locked open and the spindles detached and thrown overboard, but the rubbers had been ripped off all hatches, watertight-door clips had been battered askew, and even the steel ladders leading below had been cut through by hacksaws.

Meanwhile, parties from the destroyer *Walpole* and the drifter *Clonsin*, reinforced from *Resolution*, boarded the beached light cruiser *Nurnberg*, closed most of her inlets and watertight bulkhead doors, and reanchored her so that the next Orkney gale would not move her out to sink in deep water.

The light cruiser *Bremse* was got under tow by the destroyer *Venetia*

and a tug, after her anchor-chains had been parted by explosive charges. It was impossible for the boarding party to get at any of her valves and inlets, however, because she had settled too far, and before she could be got to the shallows of Cava Island she capsized and sank.

Finally, the destroyer *Westcott*, reinforced from *Revenge*, went to the great battle cruiser *Hindenburg* and freed her from moorings by the explosive method. Normal 2 1/21b. primers of the type used in the big naval guns were handy tools for the job. *Hindenburg*, although low in the water, was upright and looked a good prospect for salvage. However, once she was actually moving, hauled by a tow-line from *Westcott*, she listed over crazily and the boarding party who had gone below to try to close openings came up with understandable speed. Then the ship surprisingly righted herself, but at the same time settled down and sank. Nothing more could be done, and *Westcott* had to leave her as she was, resting on the bottom of the Flow in only about ten fathoms, so that her funnels and masts, even her forward upper gun-turret, was clear of the water.

By then it was past six o'clock, and all prisoners had been rounded up and put under guard on the various ships of the First Battle Squadron; the total was 1820 officers and men. The final casualty list consisted of the astoundingly low figures of 2 officers and 6 men killed plus 5 wounded—which says much for the British sailor's preference for using fists rather than guns against unarmed men, despite direct orders to shoot.

Then the excitements of the day died down and ended, as such things so often do, in high comedy. On a falling tide the trawler *Ramna*, homing with a few prisoners, ran aground in deep water in the middle of the Flow. As the tide fell the 'ground' beneath her showed as riveted steel plates. And an hour later, as Mr Burrows passed on his return journey, he was able, amid delighted laughter from all concerned (except *Ramna's* company), to take an excellent photograph of the little vessel perched upon the bottom of the sunken Moltke.

## CHAPTER 6

### *“MEASURE OF PUNISHMENT”*



**A** shore in the towns and villages of Orkney all who had watched the astounding spectacle were asking one question: why had the Germans been left unguarded so that they could scuttle their ships without let or hindrance ?

Could it be that the British authorities had known it was going to happen? There were reasons, very strong and well-known reasons, why this could be so.

Anyone who could read the daily newspapers knew that American naval experts, discussing the Armistice terms in Paris, had suggested that the surrendered German fleet should be taken out and sunk in deep waters.

To this the smaller naval powers, France and Italy, would not agree, but demanded that the ships should be fairly distributed to strengthen their own fleets. The general squabble had been headlined from one end of the world to the other.

It was only natural, therefore, that even Britons should wonder if Britain had solved the problem by secret agreement with Germany and withdrawn her guardian fleet from Scapa so that the scuttling could be carried out. The accusation was made openly in the world Press in the days that followed.

It was not directly disproved until von Reuter published copies of

his own letters and signals years later.

At the time of the scuttling the Armistice was in force and the Peace Treaty not yet signed, as he knew perfectly well. He therefore had no right whatever to damage or sink ships which had been handed over in return for Britain's promise to lift the blockade of Germany, a promise which had been carried out honourably from the day the German fleet hauled down its flags in the Firth of Forth.

His heroics about German naval pride, after the most abject factual surrender in history, his red-herring letters asking for recall on health grounds, and the plea to be relieved of command with his officers, were all part of an attempted smoke-screen which he hoped would cover an illegal act.

That smoke-screen was, however, quite transparent to Admiral Fremantle, who gave orders for the German Admiral and his staff to be brought before him. They were shepherded on to the quarter-deck of *Revenge*, trailing behind their leader: Commander Oldekop the Chief of Staff, Lieutenant Laughtenschlager, Flag Lieutenant Schilling, Staff Paymaster Habicht, Lieutenant (militia) Loesch, Lieutenant-Commander Ehlers, Staff Surgeon Dr Lange, and Chaplains Ronneberger and Esterkand. In the afternoon sunlight their over-embellished style of dress seemed tawdry by contrast with the restrained simplicity of British naval uniforms.

There was, however, nothing restrained about the words thereafter spoken to them by Admiral Sir Sydney Fremantle, which had an ice-and-vitriol quality.

"Before I hand you over to the military authorities," he said, "I should like to bring to your notice the reasons for my indignation at your act. This act is contrary to all feelings of propriety and honour. It is a traitorous action, a breach of trust, and a disgrace to you.

"You have committed an act of war by hoisting your war flags and at the same time sinking ships at a time when the Armistice is in full force.

"One sees from this that the spirit of the new Germany is no different from the old. Anyone who has not believed that until now will be convinced. How your act will be understood in your own country is beyond my comprehension.

"If you, however, Admiral von Reuter, maintain that the Armistice had expired, this was only based on an unfounded and false assumption. The letters were just completed and signed by me which would have informed you in accordance with the instructions from my Government whether peace had been signed or not. How would you believe that I would take my squadron to sea for exercise if this day had been such a

critical one? In the same way that Germany started the war by a military-treaty violation in the invasion of Belgium, you have ended it by a similar naval violation. The honour-loving seamen of all nations will be unable to comprehend this act— with the exception, perhaps, of yours.

“You will now be handed over to the military authorities who deal with prisoners of war.”

Von Reuter flushed at the reprimand. With what threadbare dignity was left him, he answered that the scuttling order had been entirely his own, and he accepted full responsibility for it.

Fremantle was naturally angry at the confidence trick played upon him that morning—the last-minute application to be “relieved of command”—and he was in no mood to stand further double-talk. He turned his back on the party, who were forthwith taken ashore under guard and thereafter routed to various prison camps.

Von Reuter and Oldekop were taken first to Nigg, then to Oswestry Camp, and finally to Donington Hall, the luxury prison for high-ranking officers. The rest of the thousand-odd German personnel were distributed throughout the prisoner-of-war camp system, conditions being according to rank.

Two days later at the Ministry of Marine in Paris a meeting of Allied and U.S. admirals was convened. This was to decide the “measure of punishment” to be exacted from Germany to pay for von Reuter’s action, which the German Government, in a letter to M. Clemenceau, the Prime Minister of France, on the 27th of the month, stated that they had not ordered and had no knowledge of whatever.

The admirals decided that to demand the few warships still left in German hands, they being obsolete anyway, would be “totally inadequate as compensation” for the fleet which had been sunk.

Their interim recommendation to the Supreme Council was that “some or all of the floating docks belonging to Germany should be handed over.”

The recommendation had a double effect. It was acted upon without delay, to the fury of the German nation, which was dumb-founded when the Allied Commissioners showed a detailed and uncanny knowledge of where such docks were lying and which were the best to commandeer.

At once the German Press, which had, after the scuttling, made a hero of von Reuter, rounded upon him. His name was vilified and he was branded traitor, since the Press held that he was the only man who could have passed on to the British such exact knowledge. Whether or not he did so is a matter on which the British Admiralty, to this day, will offer no comment.

The secondary effect of the decision of the admirals at the Paris

meeting was that it produced a working tool with which a man who had never been to sea, and knew nothing of salvage, decided he could bring the scuttled ships back to the surface.

He was the eleventh child of a Wolverhampton master tailor, in modest circumstances of business. He was practically self-educated. But he was neither crank nor visionary, merely an engineer, possessed of unique mechanical genius and vision, plus the faculties of blind concentration and drive.

His name was Ernest Frank Guelph Cox.

## CHAPTER 7

### *The Plan*



**E**.F. G. Cox decided that he could raise the scuttled German fleet after the world's top salvage experts had been to Scapa Flow and reported that the task was impossible. When he made that decision he had never raised so much as a sunken row-boat in his life, and had no knowledge of practical salvage technique. He was not even a qualified mechanical engineer.

Cox just went to Scapa and surveyed the gigantic job for himself without bothering to look at the experts reports. In his own unique way he rapidly planned a method of salvage. Then he sent a mass of equipment and a few carefully picked lieutenants north and began work, and with them went on working, in spite of any form of set-back or disaster (and there were many), for over eight years, until the thing was achieved.

That brief outline of facts also contains a statement of the imagination, the superlative driving force, and the stubborn pig-headedness that went to make up Cox's character.

One can call him genius because he had the capacity to achieve by instinct more than by precept, and his concentration on any task in hand so enveloped his thoughts that nothing beyond it had significance. Work, for Cox, was not something to be spaced by relaxation and change. Work was life itself, to be punctuated only when sleep became an undeniable demand. Relaxation was impossible. On occasions when factors beyond his control halted the task in hand he could not turn his mind to anything else. The nearest he ever got to rest while awake was sitting in an armchair rapidly leafing through the host of technical periodicals to which he

subscribed, and busily underlining or making notes wherever the text had reference to what was being done.

At this period of his life he had become a successful scrap-metal merchant and had just bought one of the great floating docks which Germany had been forced to hand over as compensation for von Reuter's sinking of the fleet.

The plan of action he worked out while puttering along in a motor-boat among the rusty funnels and masts spread across Scapa Flow illustrates the quality of his engineering common sense—and reckless disregard of difficulties.

First, the size of the task. The official survey carried out five years beforehand had stated: "There can be no question of salvaging the ships, and, as they offer no hindrance to navigation, they need not be blown up. Where they were sunk, there they will rest and rust."

The survey had shown the possibility only of salvaging some of the small and light destroyers lying in Gutter Sound. Divers could certainly attach them to pontoons at low tide so that when the water-level rose they would be lifted off the bottom and could be towed into the shallows, using the lifts of a succession of tides, and shortening the supports each time until they could be beached where they would dry out.

The experts, however, pointed out that the destroyers had sunk two or three to a buoy and were virtually lying in heaps on the sea-bottom, the upper vessels upside down with their masts and gear inextricably tangled with those beneath—a cat's-cradle ravel of solid steel which no diver could hope to clear.

According to the experts, this would make the cost of raising even the destroyers more than their worth as scrap-metal. As for the larger vessels, the great warships ranging from 25,000 to 28,000 tons each, the experts pointed out the obvious fact that there were no pontoons built large enough to lift them. And even if they could be raised by pumping out water or by air-pressure, how were they to be brought to a level keel with the enormous weight of 12- to 15-inch gun-turrets bearing them down to one side or the other or keeping them bottom upward ?

Cox did not look at the matter as an expert. He looked at it as a man who loved engineering problems and who could estimate the precise value of the metals lying there. The plan he then formed was based upon his new acquisition, the giant German floating dock. This had a lift of 3000 tons. The destroyers in Gutter Sound ran between 800 and 1500 tons. In his own scrapyards he had accumulated a mass of steel anchor-chain from ships he had already broken up. This would save the cost of buying lifting-cables.

The lifting power of the dock was such that even if the top hamper

of the largest destroyer in the Flow was interlocked with another one underneath both could be brought up together.

He therefore regarded the question of the destroyers as settled. They could be brought up as fast as divers could attach them to the dock, and the tides would do the rest—lift them in stages so that they could be beached and broken up—the whole lot in a matter of weeks.

Their value as scrap-metal would cover the cost of the whole operation, the cost of the floating dock, and leave an ample margin for the next stage of the plan, which was to raise the battle cruiser *Hindenburg*.

This 28,000-ton giant had sunk on a dead-even keel in less than ten fathoms of water on a shingle bottom. Her masts and forward guns were clear of the water at low tide. Cox decided he could soon have the gun-turrets off with oxy-acetylene burners and sell them in the scrap-market for a comfortable price.

After that it would be just a matter of patching every hole in the ship.

When all was sealed and secure she would be brought to the surface by the simple means of pumping all the water out. Once the hull was empty it would leave the sea-bed and float because it couldn't do anything else.

Thereafter the *Hindenburg* would be, in effect, a gigantic pontoon, bigger and more buoyant than any of the ships to which she could be attached.

The plan in broad outline was a mixture of sound engineering common sense and brilliant improvisation. When Cox eventually came to put it into effect, however, he made one depressing discovery.

It would not work.

With typical pig-headed tenacity he refused to admit defeat until he had poured more than £40,000 into the waters of Scapa Flow. Only then did he decide to cut his losses and work to a different scheme, by which he eventually brought the giant, self-imposed task to success.