

Report of the Investigation

into the loss of

MFV MARGARET AND WILLIAM II

with two lives

in the Western Approaches

on 4 September 1991

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1. SUMMARY

On 5 September 1991 mfv MARGARET AND WILLIAM II with five men on board was expected to berth at Newlyn early in the morning, but did not do so and was reported overdue. HM Coastguard initiated a search, and at 1343 hrs GMT a liferaft was found, with three survivors. The two remaining members of the crew were missing.

The survivors reported that MARGARET AND WILLIAM II had been in collision with an unidentified vessel the previous afternoon and, in consequence, had sunk very quickly. Search continued for the missing men without success. It is known that they were below in their bunks at the time of the accident and they were not seen at all after the collision: almost certainly they went down with their ship.

The Dutch chemical tanker JACOBUS BROERE reported that she had been in the area of the accident and although her watchkeeper had seen nothing, paint scrapings of unknown origin had been found on her bow. Subsequent investigation makes it almost certain that JACOBUS BROERE and MARGARET AND WILLIAM II had been in collision.

NOTE :

Times are significant. MARGARET AND WILLIAM II was keeping British Summer Time (GMT + 1) and JACOBUS BROERE was keeping GMT + 2. HM Coastguard keep GMT. In this Report, critical times are given in both the time being kept by the ship referred to and in GMT.

2. BACKGROUND

2.1 MFV "MARGARET AND WILLIAM II"

MARGARET AND WILLIAM II was a wooden fishing vessel built in 1978 in France. She was originally built for trawling, but in her final ownership was used as a gill netter. There are no drawings available for reference purposes. A photograph of the boat is at Figure 1.

She was 10.9 metres long, and therefore, being below 12.0 metres in length, was outside fishing vessel certification requirements. She was 15.5 tons GRT; operated out of Newlyn, Cornwall; and was jointly owned by the last voyage Skipper and one of her crew (referred to in this report as "the Mate" though he was not formally appointed as such), both of whom survived the accident. She was bought by her owners in December 1986 and has been used all-the-year-round since then, usually with a crew of four. On her final voyage she also carried a supernumerary, who wished to see if he could undertake a full voyage without being overtaken by seasickness. He also survived. He had no financial interest in the venture. All of the crew members with the exception of the supernumerary, had undertaken survival, first-aid and fire-fighting courses organised by the Stevenson Company of Newlyn. No certificates of competency were held by anybody on board, nor are they required in a vessel of this size.

The boat is reported to have been well maintained. The life-saving appliances consisted of four lifejackets, one lifebuoy and one Avon non-SOLAS six-man inflatable liferaft, with "offshore E-pack" equipment. This liferaft had been serviced by Cosalt in Newlyn on 30 August 1991, and returned to the fishing vessel prior to her sailing on this voyage. The previous service was dated November 1985.

The raft was stowed in a wooden cradle on top of the wheelhouse, secured with a light lashing and the painter was apparently tied to a leg of the radar scanner platform. No hydrostatic release unit was fitted.

The offshore E-Pack contains two parachute flares and three red hand flares for distress purposes.

The boat was equipped with the following navigational equipment:

Furuno Radar FR 24, ship head-up stabilisation only;

Sailor 144 series VHF set;

Kelvin Hughes Navstar Decca Navigator Model 601D;

Shipmate RS 5300 C GPS navigation system;

Cetrek 727 Automatic pilot system with fluxgate electronic compass;

Magnetic compass (details unknown);

Echo sounder CVS 8808;

The survivors reported all these items in full working order at the time of the accident.

Navigational equipment was maintained by Kernow Marine Electronics of Newlyn and there are comprehensive records of maintenance undertaken on board MARGARET AND WILLIAM II since purchase, which indicate diligence on behalf of the owners in all respects.

The wheelhouse was of wooden construction with windows on all sides, with the exception of one area on the starboard side adjacent to the one-person seat. Behind this seat was a solid partition to deck-head. All navigational equipment was visible from this seat with the exception of the radar which was in the port corner and viewed through a daylight hood. The steering wheel was on the centreline, the autopilot control unit being on the front bulkhead, in front of the starboard side seat. A settee extended down the port side and partly across the afterpart. There was an access hatch in the deck, down into the after compartment which was used as sleeping quarters.

The hull was divided into four compartments: a small ice compartment forward with hatch to deck, fish-hold with hatch to deck, engine compartment with two ventilators to deck and sliding access door in the after bulkhead which led into the aftermost compartment, used as sleeping quarters. All bulkheads were wooden.

The engine exhaust pipe was led horizontally through the after engine compartment bulkhead into the sleeping quarters and vertically through the main deck at the rear of the wheelhouse, up the aftermast. The pipe was open ended.

The hull was painted blue above yellow above the waterline except for the stern which was totally white with black lettering. The registration number SU 96 was painted white on a black rectangle. The wheelhouse was blue on the lower parts, white on the upper parts. The masts fore and aft and the radar scanner platform were all buff colour. The wheelhouse had been newly painted on 31 August 1991.

The radar scanner was sited on the centreline, forward of the original trawl gantry. A thick pipe containing the exhaust was in the rear line of sight of the radar scanner. Adjacent to the scanner and clear of its rotation was a metal pipe, welded to the rear of the scanner platform in a vertical position and used as a support for radio aerials.

The freeboard of the vessel aft is estimated as 1.2 metres to 1.5 metres at the time of the accident.

Noise from the propulsion unit was a drone, but apparently not enough to make shouting necessary in the wheelhouse.

Sound signals could be made by an electric hooter situated on top of the wheelhouse, reported to have been in working order when last checked, date unknown.

The wheelhouse door on the starboard side was hinged, opened outwards and could be kept open at 90 degrees, on a hook.

The vessel had a small radar reflector permanently hoisted on the foremast.

2.2 JACOBUS BROERE

The Dutch flag chemical tanker JACOBUS BROERE arrived in Avonmouth partly laden with 1056 tonnes of CTC. She is a modern chemical carrier with aft superstructure and a small foremast.

She is a very identifiable vessel, her hull orange and superstructure white, with a large orange stern-launched lifeboat positioned on a launching ramp over her stern. She was clean and obviously well run in this specialised trade.

She had commenced loading in Porto Marghera (Italy) for the United Kingdom, cargo being loaded into the after tanks in anticipation of further parcels being loaded en-route. This did not materialise. The voyage was undertaken with a trim of 3.15 metres by the stern.

Her certification was in order as were her officers' watchkeeping qualifications. All personnel had been aboard the vessel for over one month.

She had two radars : Sperry RASCAR TM 3400 M (10 cms)
Sperry RASCAR TM 2500 M (3 cms)

3. NARRATIVE

3.1 MARGARET AND WILLIAM II sailed from Newlyn, Cornwall at 2300 hrs local time (2200 hrs GMT) on Sunday, 1 September 1991. She was bound to an area well known to her crew, for the purpose of "wrecking". This is a method of fishing wrecks using gill nets. There were five persons on board. On the morning of Wednesday, 4 September 1991 she spoke to MFV CONFIDE giving her position and stating that it was her intention to return to Newlyn first light Thursday, 5 September 1991.

3.2 During the late afternoon of 4 September, at a time which cannot be accurately ascertained, when steaming towards the last of the 'tiers' to be reclaimed before her return to Newlyn, the MARGARET AND WILLIAM II was struck on the starboard quarter by another vessel.

The weather at the time was hazy, with a moderate sea and low swell, wind ENE force 5. Visibility in the general area was variable, reported in patches as less than half a mile and elsewhere as two to three miles; it is recalled by the survivors as about 1½ miles. Air temperature in the area was 19°C and seawater temperature 18°C.

3.3 The Skipper and Mate were both in the wheelhouse; the Skipper was seated on the starboard side and the Mate was sitting on the settee. The three other crew members were below decks in the after sleeping quarters.

The vessel was on automatic pilot, the radar operating on the six mile range and VHF tuned to Channel 8. The survivors cannot recollect when they had last looked at the radar screen. No sound signals were being made; the navigation lights were probably on but this is not certain. A basket was hoisted in the forepart of the vessel, and a radar reflector was fixed to the foremast.

3.4 The Skipper recalls seeing a face of horror on the Mate sitting to his left. He sprang up from his seat to look astern, and recalls seeing a white wall of water before glancing at the GPS Decca unit, which gave co-ordinates of 19 and 37, and an analogue watch hanging on the wheelhouse front bulkhead, which he states showed 1720 hrs (1620 hrs GMT). The Mate recalls the time as 1700 hrs to 1730 hrs. He saw a "wall of orange" before the wheelhouse went dark and both men found themselves under water. The colliding vessel was described as being visible through the windows on the starboard side and starboard rear of the wheelhouse. Neither of them know how they escaped from the wheelhouse, except that they found themselves on the surface of the water uninjured. The supernumerary, who was resting on the aftermost bunk below decks, recalls feeling a crunch and finding himself in the water, and swimming through a gap in the hull. He recalls hearing the other vessel going over the top of him, before he surfaced. The ship passed close to them, and was described as having an orange hull and white superstructure. The name was not observed.

3.5 The Skipper saw MARGARET AND WILLIAM II with her bow vertically in the air for about one third of her length. He also recalls that there was no boat wreckage in the area, only flotsam from the deck, such as fish boxes, buoys and floats. The bow of MARGARET AND WILLIAM II disappeared vertically in front of his eyes, whilst the other two survivors inflated the liferaft which had floated free. No lifejackets were being worn at the time of the accident.

Meanwhile, the ship sailed on, apparently unaware of what had happened.

3.6 Once on board the inflatable liferaft the Mate tried to fire a distress rocket, but at the first attempt only succeeded in firing it into the sea. The second rocket was fired successfully, apparently within 15 minutes of them entering the raft. A lookout was kept for the other two crew members but they were not sighted. The survival training was put into practice and the three survivors made themselves as comfortable as possible in the circumstances.

3.7 At 0655 hrs (0555 hrs GMT) on Thursday, 5 September 1991 CONFIDE arrived in Newlyn harbour and proceeded to land her catch. Her Skipper was concerned that MARGARET AND WILLIAM II did not appear to be in port as expected, as a VHF radio conversation the previous morning had indicated her intention to arrive first thing. The Coastguard were notified of this fact and Pan messages were broadcast through Landsend and Brest Le Conquet radios.

3.8 No response was received and the broadcast action was upgraded to a Mayday Relay at 0935 hrs GMT, with a Nimrod aircraft tasked to search the trackline from Newlyn to MARGARET AND WILLIAM II's last known position at 0600 hrs GMT the previous day, as provided by CONFIDE.

3.9 At about 1220 hrs ship's time (1020 hrs GMT), the Dutch flag chemical tanker JACOBUS BROERE at anchor in Barry Roads, received the Mayday Relay message through her Navtex unit. Previously, when JACOBUS BROERE had dropped anchor at 0650 hrs GMT that morning crew members engaged in the anchoring operation had reported to the Master that there was white, yellow and blue paint on the starboard bow at the waterline, the origin of which was unknown. Upon receipt of this message the Master realised that his vessel had been in the vicinity of the fishing boat's last reported position, the previous afternoon. Onboard enquiries revealed nothing out of the ordinary, except that the two duty officers (on the Bridge and in the Engine Room) had felt something "like a bit heavier than normal sea" at about 1645 hrs (1445 hrs GMT). The Master contacted Swansea Coastguard and advised them of a possible contact and the fact that JACOBUS BROERE had white, blue and yellow paint on the bows.

3.10 A Nimrod aircraft located an inflatable liferaft at 1343 hrs GMT, a helicopter from RNAS Culdrose consequently rescuing the three survivors. The search continued for the remaining two crew members but was finally called off at 1950 hrs GMT with nothing further being found.

4. INVESTIGATION

- 4.1 JACOBUS BROERE was boarded upon her arrival alongside in Avonmouth that afternoon. Initial inquiry was centred upon the report of the two duty officers. However, there was a discrepancy of approximately 20 miles between the 1445 hrs GMT position given by JACOBUS BROERE and MARGARET AND WILLIAM II's last reported position. The vessel proceeded to Swansea during the night where paint samples were obtained from the bow.
- 4.2 The survivors from the fishing vessel were interviewed at Newlyn between 8 September and 11 September. Inquiries relating to the maintenance and operation of MARGARET AND WILLIAM II were made in the Newlyn area. No wreckage from MARGARET AND WILLIAM II has been found, but containers of the paint used on the fabric of the fishing vessel were obtained from the survivors, and samples of their content were analyzed for comparison with the paint scrapings taken from JACOBUS BROERE. Three pairs of samples were compared by infra-red analysis; one pair gave a very good match, one a fair match and one pair did not match.

5. OBSERVATIONS AND DISCUSSION

- 5.1 The crew of MARGARET AND WILLIAM II had attended first-aid, fire-fighting and survival courses organised locally by the fishing industry. This fact contributed greatly to their good condition when rescued by the helicopter. However, no radar training or certificates of competency were held by anybody in the crew. The Skipper had been at sea for 17 years, the last five as Skipper.
- 5.2 The construction of the wheelhouse, with a solid bulkhead on the right-hand side and rear of the person sitting on the starboard side seat, gave a very definite blind-area from 90 degrees on the starboard beam to slightly aft of the port beam, through the stern area, unless that person moved from the seated position. A blind-area would also exist for a person sitting on the end of the port side settee, also from 90 degrees on the starboard beam to some point on the starboard quarter. Without plans the angles are undeterminable.
- 5.3 The radar may also have had a blind-sector astern due to the after mast size (sizes and dimensions unobtainable), and aerial support which was secured to the radar scanner platform.
- 5.4 The Decca co-ordinates remembered by the Skipper were read off the digital read-out on the Shipmate RS 5300C GPS navigation unit.
- 5.5 The watch which indicated the time of the accident to the Skipper had an analogue face with a second hand. It is possible that in the heat of the moment, the second hand may have been mistaken for the minute hand, giving an incorrect time for the accident.
- 5.6 The wheelhouse door was secured in the open position at the time of the accident.
- 5.7 MARGARET AND WILLIAM II was loaded with 400 stone of wet fish, in the fish hold. This is almost two and a half tons weight and would have affected the boats condition when she was bilged.
- 5.8 All access hatches to below decks, except that in the wheelhouse, were apparently secure at the time of the accident. The only ventilators were two, of the cowl type, situated on the main deck, forward of the wheelhouse, serving the engine compartment. No means of closure was available for these ventilators. The cowls usually pointed aft at the deckhouse.
- 5.9 The inflatable liferaft was lightly lashed in a cradle. It is possible that it was only released when the vessel moved into a vertical position, causing the container to slide through the lashing.

5.10 In respect of JACOBUS BROERE, it was observed that the paint on her bow was very identifiably blue above yellow at and slightly above the 4.7 metres draught mark. These marks were horizontal from the vertical stempost for a distance of approximately 1.1 metres, whereupon they became vertical to the waterline, and became mixed. A scrape under the flare of the port bow was also noted and there was a white paint mark at 6.8 metres draught. No other paint marks or scrapes were visible on the hull. No indentations were observed in the bow area, which is of Ice Class D construction.

Her hull colour is orange. However, both peeling and scraped areas away from the bow revealed blue paint beneath the orange top coat.

5.11 The evidence of the paint samples compared with the original paint as used on MARGARET AND WILLIAM II, indicates that there was almost certainly contact between these two vessels. The yellow samples revealed a very good match. The possibility that MARGARET AND WILLIAM II had earlier been in collision with another vessel and that JACOBUS BROERE hit her wreckage has been considered but is discounted: she appears from the survivors' evidence to have sunk quickly after contact and, in addition, the horizontal - then - vertical direction of scraped paint on the tanker's bow indicates that the fishing vessel was probably floating normally prior to contact.

Further, the white paint marks at the 6.8 metres mark possibly originated from the deckhouse roof, whilst the blue over yellow horizontal paint at the 4.7 metres to 5.0 metres level match the hull colours of MARGARET AND WILLIAM II when afloat normally. The scrape on the flare of the port bow could possibly have been caused by the fishing vessels aftermast.

5.12 Both radars on board JACOBUS BROERE were seen in operation, and they appeared to be in full working order.

5.13 In relation to the radars, the Second Officer who was the watchkeeping officer during the afternoon could not remember the ARPA guard-ring settings.

5.14 No lookout was posted during the afternoon watch to assist the Second Officer, though a seaman is reported to have been on stand-by on the Bridge undertaking general cleaning duties.

5.15 Observations from the wheelhouse prior to the commencement of discharge indicated that the stern trim did not cause an excessive blind-sector beneath the bow. The thin foremast can also be discounted in this respect.

5.16 The chartlet at Figure 2 shows the track of JACOBUS BROERE, as taken from her chart, the approximate course of MARGARET AND WILLIAM II, and the probable area of collision based upon the Skipper's recollection of the Decca readings. Figure 3 shows the deduced approach of the two

vessels to each other, and their aspects. The course and speed of JACOBUS BROERE is taken as 020°T and 13 knots (from her charted positions) and that of the fishing vessel as 070°T and 4½ knots. It will be seen that on this basis JACOBUS BROERE was coming up from a direction very close to two points abaft the beam of MARGARET AND WILLIAM II; however, there is uncertainty as to the exact courses and speeds (especially of the fishing vessel) and any error in those assumed would lead to an appreciable difference in this bearing. In strict terms, therefore, the approach may have been a crossing situation under the International Collision Regulations, when Rule 15 would apply and MARGARET AND WILLIAM II was required to give way; or an overtaking situation, when under Rule 13 JACOBUS BROERE should have given way.

5.17 The exact approach bearing is, however, very limited in its significance in this accident, for two reasons. Firstly, Rule 13 says: "When a vessel is in any doubt as to whether she is overtaking another, she shall assume that this is the case and act accordingly."

Secondly, the Collision Regulations also say at Rule 19 that in restricted visibility, a vessel detecting another by radar shall "determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time" The visibility at the time of the accident was sufficiently restricted for it to be likely that other vessels would be detected by radar well before they were seen by eye. Either or both vessels would be expected to have taken early avoiding action under this Rule had their radar watch been such that the other vessel was so detected.

6. COMMENTS

- 6.1 The three survivors from MARGARET AND WILLIAM II owe their lives to the liferaft. For a vessel of her size, provision of a liferaft is recommended by the Department of Transport but is not a statutory requirement; the owners are to be commended for having responded positively to the recommendation. However, it was only by good fortune that the survivors were able to use the raft, for no hydro-static release or other float-free arrangement was fitted, and had the raft not escaped from its lashing it would have sunk with the ship.

The current recommendations on LSA for small fishing vessels are in Merchant Shipping Notice No M.1467, issued in September 1991 (very soon after the casualty though not because of it). As well as advising the carriage of an inflatable liferaft provided with float-free arrangements, the Notice reminds Skippers of the need for the raft to be serviced at the proper intervals - that is every year - and also recommends that an EPIRB should be provided.

- 6.2 Although it cannot be certainly established whether in terms of the International Collision Regulations JACOBUS BROERE was an overtaking vessel or a crossing vessel, this point is not significant to the main cause of the accident, which was the failure in each vessel to keep a proper lookout.

Merchant Shipping Notice No M.1111 points to the need for visibility from the wheelhouse of a fishing vessel to be obstructed as little as possible, but it must be recognised that some blind sectors to a stationary watchkeeper are almost inevitable. It is therefore essential for the man on watch not to remain seated for long periods but to move about - which also helps to keep him alert. Clear advice on this is given in another Merchant Shipping Notice No M.1190, and many accidents have stressed how valid it is.

As to JACOBUS BROERE, there appears to have been almost total reliance on the radar alerting the watchkeeper to targets coming within the guard rings. It cannot be too strongly emphasised that even modern sophisticated ARPA equipment does not always pick up small targets entering the guard zones; and it is manifestly such targets which are the most vulnerable. Merchant Shipping Notice No M.1158 (issued to British ships) warns that the use of operational warning signals does not relieve the user from the duty to maintain a proper lookout. The requirement of the International Collision Regulations is absolutely clear: every vessel shall at all times maintain a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances.

- 6.3 Having inevitably made these points of criticism of the watchkeeping in both vessels, it is only right to add that the evidence of the investigation is that both ships were in general well run. It should also be said that the honesty of the Master of JACOBUS BROERE in volunteering the information to Swansea Coastguard is to be admired. Equally, the crew obviously took great

care of MARGARET AND WILLIAM II, and appeared to be conscious of their own safety.

- 6.4 Whilst it is believed that the Decca position stated by the Skipper is correct, the time he read off the analogue watch-face may be inaccurate. Bearing in mind what was happening about him, it would be very understandable for the second hand to be confused with the minute hand. The Mate's recollection of between 1700 hrs and 1730 hrs local time (1600 hrs - 1630 hrs GMT), and the charted position of JACOBUS BROERE at 1800 hrs (1600 hrs GMT) together with the Decca coordinates as recalled by MARGARET AND WILLIAM II's Skipper are so close as to be almost coincidental.
- 6.5 JACOBUS BROERE has a vertical ice-strengthened bow; with this cutting into a wooden boat at speed, any resistance would hardly be felt and there is no reason to doubt that those on board were unaware of the collision.

7. FINDINGS

- 7.1 MARGARET AND WILLIAM II foundered as a result of collision, in all probability on the evidence available with the Dutch chemical tanker JACOBUS BROERE at a time close to 1600 hrs GMT on Wednesday, 4 September 1991. She sank immediately. The approximate position of this accident was latitude 49°01'N : longitude 6°25'W, in about 120 metres of water.
- 7.2 The loss of two members of the crew of MARGARET AND WILLIAM II was a direct consequence of the collision.
- 7.3 The International Collision Regulations require all vessels to maintain a proper lookout by sight and hearing as well as by all available means appropriate to the prevailing conditions. Visibility was restricted, though not very poor, and the conditions therefore required careful lookout both by eye and by radar. Neither vessel kept such a lookout. JACOBUS BROERE neither saw MARGARET AND WILLIAM II nor detected her by radar. MARGARET AND WILLIAM II did not observe JACOBUS BROERE until immediately before collision took place.
- 7.4 At the time of the collision both vessels were on passage. MARGARET AND WILLIAM II was not fishing and neither vessel was restricted in her ability to manoeuvre. It is not possible to establish positively whether in terms of the Collision Regulations the vessels were crossing or JACOBUS BROERE was overtaking; but whichever is the case it is reasonable to assume that if either vessel had detected the other in sufficient time action to avoid collision would have been taken.
- 7.5 It follows from the preceding Findings that the cause of the collision was that neither vessel was keeping an adequate lookout.
- 7.6 The likely circumstances of sinking are that the bow of JACOBUS BROERE entering the after sleeping compartment, opened up the fishing vessel on the starboard quarter and possibly pushed downwards causing MARGARET AND WILLIAM II to float vertically. The engine compartment may also have been breached; in any event its two open ventilators would have allowed water to enter that compartment and subsequently sink the vessel. The after end of the fishing vessel must have been opened-up, as the supernumerary escaped from this compartment uninjured.

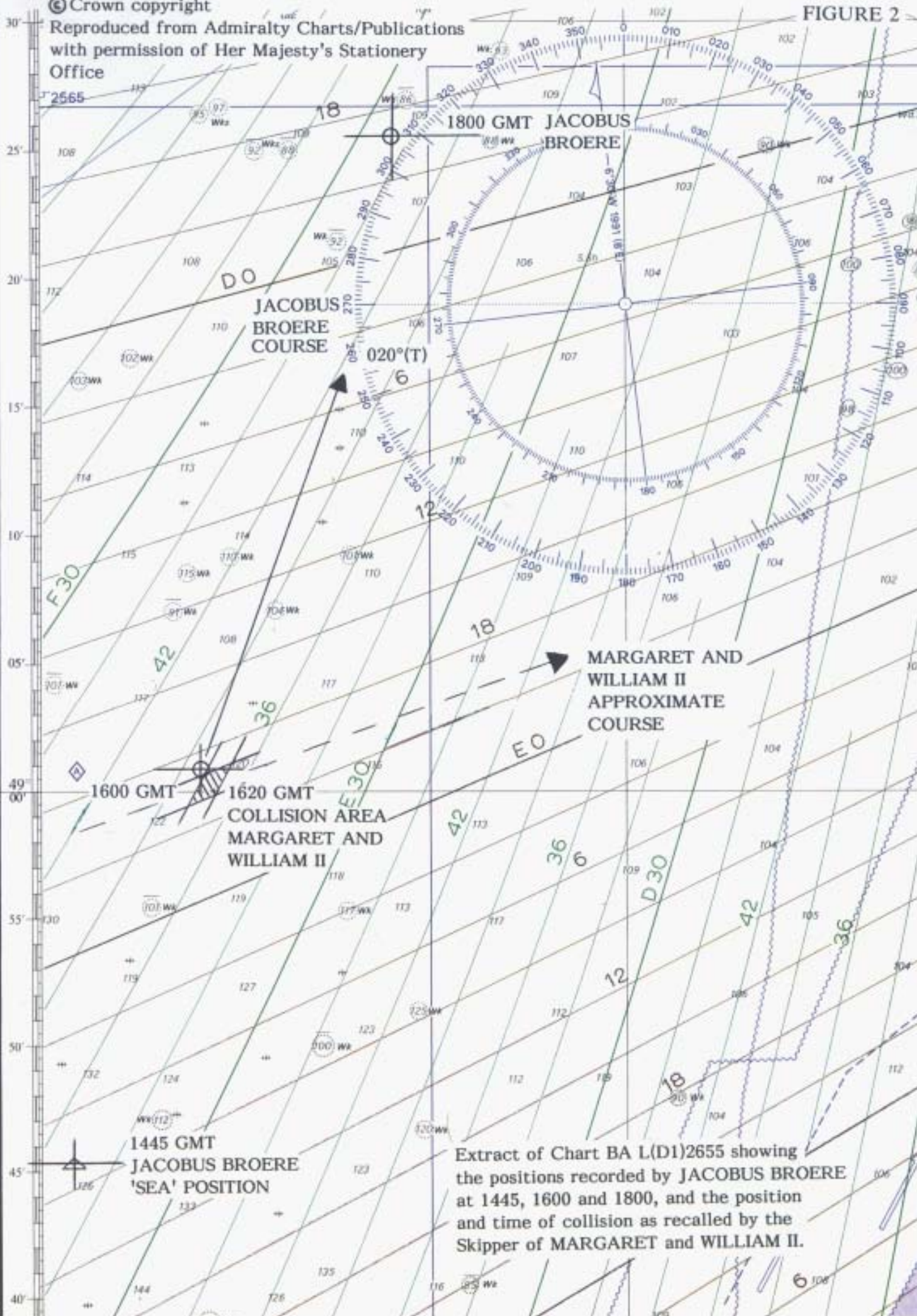
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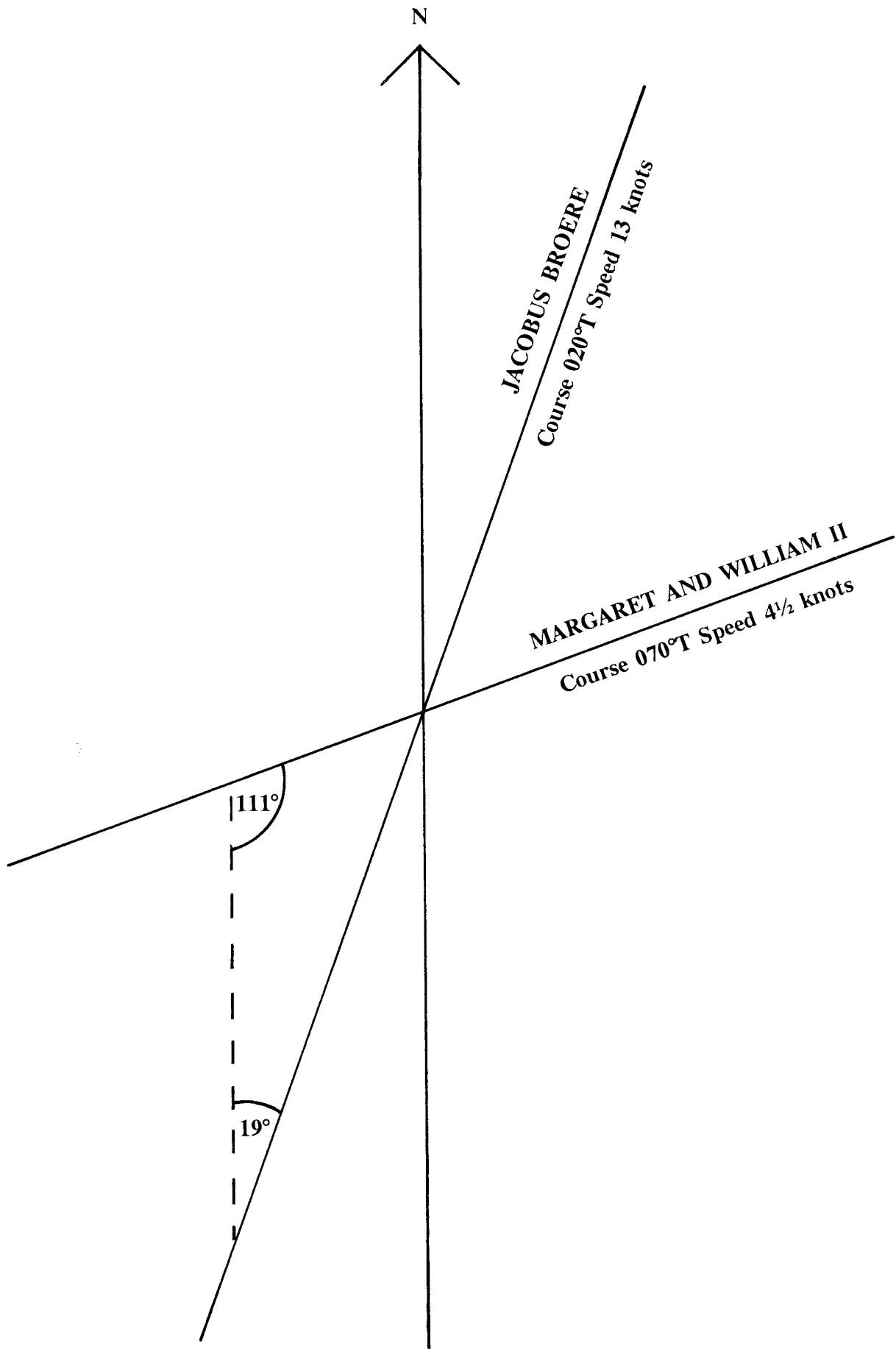
Note This photograph was taken when the boat was under her previous owners and does not show the Radar Reflector which was fitted by her final owners.



MARGARET AND WILLIAM II



Extract of Chart BA L(D1)2655 showing the positions recorded by JACOBUS BROERE at 1445, 1600 and 1800, and the position and time of collision as recalled by the Skipper of MARGARET and WILLIAM II.



DEDUCED APPROACH OF VESSELS