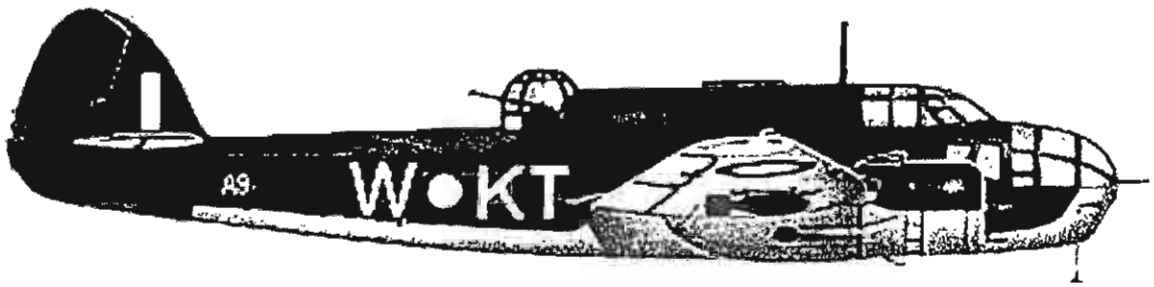
Learmonth's Beaufort Bomber

A study into the loss of Beaufort Aircraft A9-346 that crashed into the sea near Rottnest Island on January 6 1944, defining a search area, recommendations of search method and a discussion of related issues.



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Cover Illustration: Beaufort Bomber
Source : Peter Dunn : www.ozatwar.com

Report – Department of Maritime Archaeology, Western Australian Maritime Museum, No 183

Abstract

After becoming aware of the story of the loss of WCDR Charles Learmonth's Beaufort bomber as a result of fieldwork then being conducted by the Department of Maritime Archaeology at the Western Australian Maritime Museum at a site originally believed to be that of the bomber, the author elected to undertake detailed research into the loss with a view to narrowing the search area. In advising the Museum staff of this intention , the author was then invited to consider extending the research into a more comprehensive document of which this report is the result.

The report covers a brief history of the Beaufort bombers which were built in Australia, as well as some of the background of the crew who were killed in the crash. It then moves on to retrace the incident and the subsequent Court of Inquiry which determined the probable cause of the crash.

A discussion of the determination of the location of the crash site using the available information, suggested search methodology and discussions of the likely problems and issues to be dealt with are covered.

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Introduction

On January 6th 1944 a group of three Beaufort bombers took off from Pearce airbase just north of Perth in Western Australia, to engage in a routine practice of formation flying and simulated attack exercises. Less than half an hour after takeoff and some 20 miles off the coast off Western Australia, the lead aircraft, A9-346 piloted by Wing-Cmdr Charles Learmonth developed an instability and subsequently crashed into the sea killing the 4 crew.

The flight crew aboard the other two aircraft circled the area looking for survivors until two naval vessels were able to get to the site. As there was nothing further they could do, they reported the incident to base and both returned there shortly after.

The crew aboard two US Navy ships in the area witnessed the crash and immediately sailed towards the crash site to render assistance. A US Navy diver from one of the ships conducted a dive within a half hour of the crash at the site, which was still clearly visible as a swirl in the water and marked by a parachute. The diver was unable to locate any survivors from the aircraft.

The following day diving operations were commenced under the supervision of a RAAF officer from Pearce with the intention of recovering the crew and any large pieces of the aircraft that could be salvaged. Of particular interest was the tail section as it was considered to be a key piece of evidence, given that Wing -Cmdr Learmonth had reported problems with stability shortly before the crash, and crew from one of the other aircraft had seen what they believed to be a failure in that area.

A Court of Inquiry was subsequently held at Pearce airbase to determine the circumstances surrounding the crash and made a number of recommendations including proposed changes to the Beaufort aircraft, as there had been a number of unexplained crashes of these aircraft previously.

Wing-Cmdr Learmonth was later posthumously awarded a bar to the Distinguished Flying Cross, which he had been earlier awarded for action in PNG.

In 1998 a company undertaking survey work for a proposed undersea cable, found what was believed to be a shipwreck and reported the find to the WA Maritime Museum and the Royal Australian Navy. Staff from the museum later returned a number of times in May 2000 with a side scan sonar and magnetometer in an effort to identify the mystery object.[1] Staff later returned aboard a TAFE research vessel with assistance from the ROV school at TAFE. The mystery object was then inspected by an ROV and identified as an abandoned wellhead. Apparently it was one of several in the area which had not been completely removed after test drilling was conducted.

It was as a result of publicity surrounding the museum's bid to identify the mystery object that I first became intrigued as to whether this important part of W.A.'s aviation history could be found. A year or so later I became involved as a volunteer

[1] The West Australian May 25th 2000, WAMM File 13/86

in a WAMM project to locate and identify shipwrecks in the graveyard off Rottnest Island. It was during this period that I got to know the staff at the museum and discussed the possibility of locating the aircraft. I was informed by Mike McCarthy that he was happy for me to look at the museum's file on the subject and to conduct my own research. Beginning with the museum's own records and those held in the Alexander Library, I then began a search through the national archives to see if there were any signal packs or other information which would help identify the crash site. It was during this process of searching the archives that I came across the Court of Inquiry into the crash upon which the majority of this report is based. After a preliminary version of this report was given to the museum in June 2002, it was discovered that the museum was holding some notes from the manager of the Aviation Heritage museum at Bullcreek Mr. Al Clark, regarding the search in May 2000. In July, purely by coincidence, the maritime museum was contacted by Mr. Charles Page who had also come across the Court of Inquiry documents while researching a forthcoming book on Charles Learmonth. Further information was then discovered which gave further weight to the information already collected. Both these developments have been discussed in this version of the report.

It is hoped that the information contained in this report and the Court of Inquiry is sufficient to enable the WAMM to undertake a more detailed search of the area using available technology, and hopefully, positively identify the crash site. It is my hope that any surviving relatives would then be able to visit the site and pay their respects, thereby closing another chapter on Western Australia's wartime history.

Background and History

The Bristol Beaufort Bomber

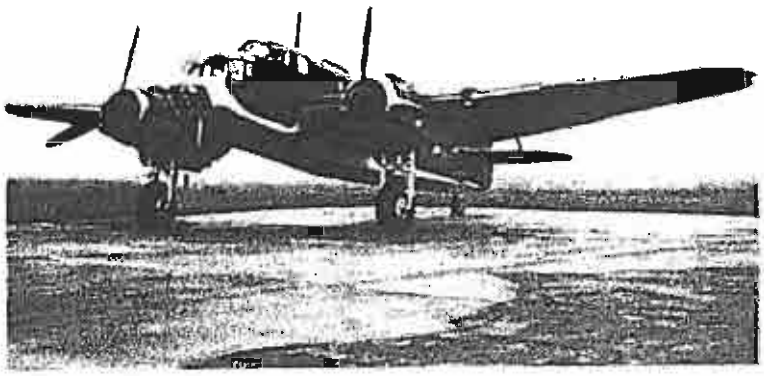

Figure 1- Beaufort Bomber

In January 1939 a British Air Mission visited Australia with the intention of determining whether aircraft could be built in Australia for both the RAF and the RAAF. This was as a result of a policy to spread the construction of aircraft among several factories and countries, presumably for security reasons and in order to make the most efficient use of the resources available. As a result, the

Department of Aircraft Production was created, of which the Beaufort Division was created to produce the Bristol Beaufort bomber, based on a prototype of which had already been produced and flown in October 1938.

The construction of aircraft during this time was contracted out to firms for the production of components and then to 7 larger factories for sub assembly before final assembly at workshops at Fishermen's Bend at Port Melbourne and Mascot in Sydney.

The first Beaufort produced by the DAP was test flown in August 1941 with production then continuing for a batch of 180 destined for use by the RAF. Changes in the direction of the war, notably the rapid Japanese advancement throughout Asia resulted in the decision to retain the Beauforts for the defence of Australia. These aircraft were then reallocated numbers beginning with the prefix A9. The production of this first batch of 180 aircraft was completed in November 1942 and during this time a number of modifications were made to the design resulting in the suffix Mk I - Mk VII use to signify the various models made during this period. The number of modifications and alterations made during this period was a consequence of the short lead-time between the prototype and full-scale production being commenced.

The Beaufort bomber was designed as a single bomb/ torpedo tactical bomber and carried a crew of 4: Pilot, navigator, W/T operator and turret gunner.

The full specifications of the Beaufort Mk VIII are listed in Appendix A. The dimensions of the aircraft are as follows:

Wing Span	17.63 m
Length	13.59 m
Height	3.78 m

Beauforts produced in Australia were fitted with two Pratt and Whitney Twin Row Wasp engines Type R 1830 SC3-G, manufactured in the United States (later produced in Australia). These were a mostly cast aluminium alloy construction, 44" in diameter and weighed about 1400 lbs. The full specifications are shown in Appendix B. The serial numbers of the engines fitted to A9-346 were:
Port: 44770
Starboard: 45473

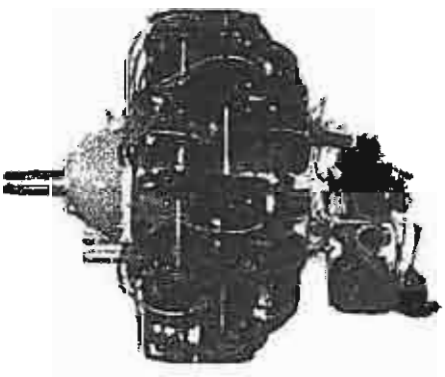

Figure 2- Pratt & Whitney Twin Wasp

The Beaufort Mk VIII was produced for the RAAF until August 1944 by which time 700 Beauforts had been produced in Australia. A9-346 was one of these aircraft and was allocated to 14 Squadron at Pearce airbase in Western Australia on 3rd June 1943.

There appears to have been a number of unexplained crashes of the Beaufort bombers with over 90 crashing in training. It appears that there were a number of problems with the tail section in particular, and the other pilots in "A" flight made reference to this during the inquiry. In addition there appears to have been a number of Directorate of Technical Services (DTS) and Beaufort work orders issued regarding the Beaufort.

With the end of the war, most of the squadrons were disbanded and the Beauforts mostly sold for scrap, 218 of them being sold to Aust. Aluminium Co. for £ 20 each. There is reference to some of the later models being used for spraying operations in 1945-46.

A number around the world have been restored including one at the RAF museum at Hendon UK which has been constructed from a number of different DAP aircraft, as well as one which is being fully restored to flying condition in Queensland. In September 2001, the government granted funding of $200,000 to restore a Beaufort for display at the Australian War Memorial by 2003.

A number of wreck sites have been located, one being a dive site off the coast of Queensland (no crew died as a result of this crash) another north of the Bamaga airfield, and more recently a team with the assistance of the RAAF recovered the remains of a Beaufort crew who had crashed into the ocean off Kawa Island in Papua New Guinea. Another Beaufort is still listed as missing off the coast of Busselton.

14 Squadron

The 14 squadron was formed at Pearce in February 1939.

In late 1942 the squadron was equipped with Beauforts and carried out patrols of the W.A. coast until the end of the war when the squadron was disbanded. Wng-Cmdr Learmonth took over the command of 14 Squadron from Wng-Cmdr T. MacBride Price DFC in December 7th 1943 and commanded it until his death in the crash only one month later. Wng Cmdr I.L. Campbell AFC replaced him on 3rd March 1944.

The Crew

The crew of Beaufort A9-346 on Jan 6th 1941 consisted of 4 people:

Wing Commander Charles Cuthbertson Learmonth DFC and Bar (385) - Pilot

Born in Portland Victoria 2nd May 1917 and educated at Geelong Grammar School 1931 – 1935.

Joined RAAF in 1938 aged 21 at Pilot Training School at Point Cook, Victoria and graduated the following year. At the outbreak of war he was sent to serve with 14 squadron on ocean patrol duties at Pearce.
In April 1942 he married Marjorie Chapple.
In September 1942 he was posted to 22 Boston Bomber squadron at Richmond NSW. The squadron was later posted to New Guinea until October 1943. During this time he was promoted to Wing Commander and was also awarded the Distinguished Flying Cross. He was recognised as a brilliant pilot who flew over 130 sorties while in New Guinea including an attack on a Japanese destroyer in the battle of the Bismarck Sea. He also managed to land a badly damaged plane at Buna without injury to his crew.

He took 1 month's leave before being transferred as commander of 14 Squadron based at Pearce . At the time of the crash, Learmonth had logged 2120.30 flying hours on all types of aircraft including about 20 hours on Beauforts.

After his death on 6th January 1944, he was awarded a posthumous bar to the DFC, the citation referring to his previous flying in New Guinea rather than the common misconception that he received it for his bravery in the crash which killed him. In 1944, Potshot airbase near Exmouth was renamed Learmonth in his honour.

Flying Officer Gordon Gwynne Moore (401523) – Navigator

From Toorak Victoria
Born 1919, Brighton Victoria
Single
formerly University Student Melbourne

Flying Officer Douglas Raymond Cullen (406095) – Crew (W/T operator)

Born 1910, Northam.
From North Perth
Married, had five brothers, all in the armed forces during the war.
First grade cricketer for East Perth and Mt Lawley
Formerley Process Engraver, Perth

Flight Sergeant Frederick Erick Chidlow (406689) – Crew (gun turret)

Born 1917, Northam
Previously married, but wife appears to have died in March the previous year.
Formerly schoolteacher, Geraldton area.

The Crash of Beaufort A9-346

The sequence of events that follow has been largely reconstructed from the Court of Inquiry assembled at Pearce on January 7th 1944 by the order of Air Commodore R.J. Brownell (Air Officer Commanding Western Area) under the direction of Wng-Cmdr E.J.Brunkhurst, in addition to various other sources listed.

On 6th of January 1944, approval was sought and given for a proposed practice formation flying exercise off the coast of Perth which was scheduled to last for 1 ½ hours and which was planned to begin at 1330 hrs. Learmonth ordered the flight for his own plane, while Hewett ordered the flight for both his and Kelly's plane.

Between 1350 – 1400 hrs in the "A" flight offices, a discussion was held between the pilots of the aircraft A9-346, A9-331 and A9-343 about the proposed exercise. The pilots were Wng-Cmdr Learmonth, Flt/Lt Hewett and F/O Kelly. The crews for these aircraft comprised:

A9-343	Pilot	F/L Kenneth Vernon Hewett (407676)
	Navigator	F/O Maurice Flynn
	Crew	F/O Park
A9-331	Pilot	F/O Keith William Daniel Kelly (409129)
	Navigator	F/S Maher
	Crew	F/O Cooper
		F/S Murray
A9-346	Pilot	Wng Cmdr Learmonth
	Navigator	F/O Moore
	Crew	F/O Cullen
		F/S Chidlow

At about 1420 the three planes of "A" flight taxied out on the runway and carried out the necessary preliminary checks, before each of the aircraft took off at approx 30 - 40 second intervals. Learmonth's plane took off first, followed by Kelly and finally Hewett. After taking off, each of the aircraft performed a left turn around the base before forming up in a "V" formation at 800 - 1000ft. The group then climbed to 4000 ft before proceeding in a westerly direction, making slight left and right turns until the squad was over the ocean. The weather at the time of the flight according to Hewett was "cloudless, slight haze, visibility 10-15 miles"[2]

After some minutes Learmonth gave the order to form up for a mock dive attack on some "white caps" at a height of 1000ft. The formation was a "starboard echelon" in

[2] NAA: 32/22/477, Court of Inquiry, statement of Hewett.

which each plane would lose height to gain a speed of 180 knots, then in turn peel off and dive for the mock attack. Upon all of the aircraft finishing the manoeuvre, the group once again returned to formation at 1400ft.

Learmonth then radioed his intention to carry out a low level dive to 200ft "tree top level ". The group lost height to between 100 - 400ft and turned 180 degrees.

At some point in this manoeuvre Learmonth reported trouble handling the aircraft and Kelly (on Learmonth's right) noticed the elevator vibrating and that the elevator trim tab was fluttering freely and advised Learmonth of this fact by radio. At this time Kelly stated that their wingtips were no more than 4 feet apart laterally, and he had a clear view of the tail section. Learmonth then began a steady climb while advising the other two aircraft to break away from formation.

Kelly broke away to starboard, but lost sight of one of the planes under the port mainplane, and so continued to break away until he was 500-600 yds away. Meanwhile as Learmonth turned to port, Hewett passed under him and formed up on his starboard side. Learmonth then stated his intention to head back towards a small naval vessel the group had just passed over and which was now some 5 miles away.

Learmonth radioed and asked if the other two could see the problem and said that the plane was shuddering violently and to stay by him. Kelly reported that the tailplane rudder and elevators appeared undamaged but were fluttering badly. Hewett twice radioed and advised that starboard elevator trim tab was free and oscillating up and down, to which Learmonth replied "Good. Thanks."
This was the last transmission that was heard from A9-346.

The group then initiated a climbing turn to the left and headed back towards the naval vessel on the starboard side. Kelly was now 400 - 500 yards astern of Learmonth at 1000 ft and Hewett "in close formation" directly above Learmonth's plane also at 1000 ft. After levelling out and coming up along side the naval vessel some 900 - 1000 yards away, Beaufort A9-346 went into a progressively steeper dive until it crashed into the ocean at an angle of 60 - 70 degrees 5- 7 seconds later. Some witnesses stated that one wing tipped up slightly just before impact, and that the aircraft had appeared to "break in two near the cockpit"[3] before immediately sinking and leaving a swirl in the ocean at the impact site. There did not appear to be any evidence of parachutes leaving plane before the impact. By most witnesses accounts the time was now around 1500 hrs.

Kelly immediately dropped altitude to 200 ft and circled the naval vessel, which had altered course. He did one circuit around the swirl where the crash was, looking for survivors and noticed what he thought was a life jacket. The naval vessel had by this time arrived on the scene and Kelly reported the incident by radio to base. Knowing that there was nothing further they could do, Kelly returned to Pearce and landed at 1510 hrs, before reporting the accident to S/Ldr Kessey at 1517 hrs.[4]

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[3] NAA: 32/22/477, Court of Inquiry, statement of Tyndall p.25
[4] Confirmed by flight logs in Appendix to Court of Inquiry

Hewett had also dropped to 200 ft and circled the crash site but could see no survivors and only a small amount of debris, which was too small to identify. Shortly after the crash he noticed a parachute "which had floated to the surface". Hewett recalls the naval vessel and a submarine being on the scene within 10 minutes. He also returned to the base, landing at 1530 and reporting to S/Ldr Kessey. In all, according to the flying logs, Kelly's plane had been in the air for 50 minutes and Hewett's for 1hr 10 min.

The Gato class submarine *USS Tinosa* (SS –283) and submarine rescue/tender *USS Chanticleer* (ARS-7) were part of fleet that had been in Perth during the Christmas break. The *Tinosa* arrived in Perth on 16th December 1944 as part of a well-earned R&R having recently returned from action in Midway and Truk/Palau where she had suffered some damage from a depth charge attack on 22nd November 1943.

USS Chanticleer arrived at Fremantle Australia, 8 May 1943. With her primary assignment the support of the submarines based at Fremantle, the *Chanticleer* provided tender services to the submarines as they came in to refit between war patrols, trained divers, cared for small craft, repaired anti torpedo nets and carried out salvage operations. In October 1944 *Chanticleer* moved north to provide similar services at Port Darwin, Australia, returning to Fremantle in January 1945. The port of Fremantle was a major submarine base during WWII especially after the fall of Singapore and submarines from many nations including the Dutch and Americans were stationed there or used it as a resupply port. Apparently the crew of *Tinosa* developed a taste for Australian beer while on leave, and subsequently restocked their ship with it for post action celebrations, whereupon each man was given one cold 8 oz glass of the Australian brew.

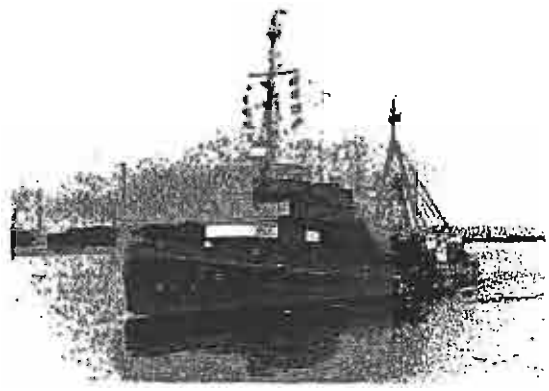


Figure 3 -USS Chanticleer

On the afternoon of Jan 6th 1944, the *USS Tinosa* and *USS Chanticleer* (commanded by Commander Richard E. Hawes) were steaming back towards port on a heading of 140° when the lookout aboard the *Chanticleer* drew the officers attention to the three planes coming from the east on the port bow bearing 246° at a distance of 5-7 miles. This occurred sometime between 1445 and 1455 hrs. The planes circled to the stern of the *Chanticleer* before coming up on the starboard side whereupon the lead plane crashed into the sea some 900 yards away. Lt Sownowsky ordered stop and full right rudder while continuing to observe the area and steamed towards the crash site, which was now marked by a swirl in the water. After 5 minutes he saw a parachute come up and what appeared to be a portion of the wing floating on the surface. At 1500 hrs the *Chanticleer* dropped anchor on the edge of the swirl where the plane had crashed, and buoyed the site. In the meantime the *USS Tinosa* had recovered the parachute.

By 1541 USN diver Wilson had commenced a dive on the site to a depth of 132ft.[5] The first thing he noticed upon reaching the bottom was a parachute with the pack broken open, a small piece of wing and a window frame. The rear portion of the fuselage and tail section was nearby. The ocean floor was covered with pieces of metal 12" square and the fuselage appeared to have been broken at the turret and turned over. 20ft behind the fuselage lying on the ocean floor on it's right side was the body of a crew member. Wilson endeavoured to retrieve the body but was forced to let go when his lines became entangled in the anchor chain. He did not see any other bodies during the dive. The *Chanticleer* left the site at 1925 hrs.

At 1550 hrs at Pearce airbase F/O Frederick Fenwick was advised of the crash and made arrangements to attend the site the following day with Flt Lt Ralph Arkley to supervise the salvage efforts.

The *Chanticleer* returned to the site the next day the 7th of January at 0907 and commenced salvage efforts with Fenwick and Arkley supervising. According to testimony by Cmdr Hawes the ship remained there until 1216 before returning again at 1431 and leaving at 1705 after "salvaging the plane"[6]. The reason for this break in the salvage is not clear, as it is not mentioned anywhere. Possibly a break was taken due to the conditions, or the ship returned to port to pick up more equipment. In any case none of the divers recalled seeing any bodies and reported that some sections of the aircraft were badly damaged. Fenwick was keen to recover the tail section, as it was obviously a crucial part for any inquiry that would be held. He recalls that a portion of the port side tail unit broke off on impact with the ship as the plane was being lifted in the heavy seas and was washed away. On the advice of the divers Fenwick considered that recovering the rest of the plane was not economically feasible and stated that about 30% of the plane was recovered.[7]

Memos indicate that further attempts may have been made to recover the lost tail unit up until the end of the month, but were apparently unsuccessful and abandoned according to a memo dated 2nd February 1944. The parts, which were recovered, were allocated to No 17 RSU (Repair & Salvage Unit) for conversion.

[5] NAA: 32/22/477, Court of Inquiry, statement of Wilson p.26
[6] NAA: 32/22/477, Court of Inquiry, statement of Hawes p.29
[7] NAA: 32/22/477, Court of Inquiry, statement of Fenwick p.30

The Court of Inquiry

A Court of Inquiry was immediately ordered by the Air Officer Commanding Western Area Air Commodore R.J Brownell on 7th January and indeed some statements were taken on that very day. The court panel was composed of 3 men:

President: Wing Commander E.J. Brunkhurst (270293) Headquarters Western Area
Members: F/O A.V. Holland (406056) 14 Squadron
F/O A.J. Morgan (266477) Headquarters Western Area

A total of 36 witnesses were called to give statements on the incident and the total report is 73 pages. The Inquiry was completed on 20th January 1944, although several officers later made a number of statements after matters were raised by the Inquiry and are contained in the same file as the Inquiry.

The findings of the court are reproduced in appendix C and there is no need to repeat them all here. However the findings do state the coordinates for the crash presumably from the evidence of officers aboard *USS Chanticleer*, and give the probable cause for the crash as a fault in the elevator trim tab control, although the exact cause of the failure could not be determined.

One of the most interesting outcomes of the court is that there appears to have been some breakdown in procedures in several sections of the R.A.A.F., which may have contributed to the crash, and that faults with the tail unit appeared to have occurred previously and were the subject of two DTS instructions and a work order.

Some interesting issues raised in the inquiry are as follows:

- The tail unit of Beaufort A9-346 was repaired on the 21-22nd December 1943 after damage caused by gunfire from the rear turret (presumably during training). A test flight was carried out on the 5th January 1944 at 1645 hrs for 45 minutes during which time no defects were noted.[8]

- DTS Special Instructions 9/34 and 9/36 apparently refer to problems with the tail unit. The officer responsible for the daily checks on the aircraft did, not carry out DTS 9/36, which referred to the inspection of the tail unit before flight, on the day in question. This was apparently due to a breakdown in procedures, which was examined in depth by the court.

- Parts to carry out Beaufort Work Order 104 which were designed to prevent the failure of the tail unit were delayed in transit to 14 Squadron, although it appears unlikely that the parts would have arrived in time to be fitted before the crash in any case. This also seemed to be an area of concern for the court.

[8] NAA: 32/22/477, Court of Inquiry, statements of Delomote p.19 and Lang p.22

Determining the Search Area

Largely due to the discovery of the Court of Inquiry into the crash among records in the National Archives, I believe it is now possible to define a relatively small proposed search area, which I will outline below.

The single best piece of information comes from the findings of the court of inquiry which states that the incident took place at position **31°45'00 S, 115°19'30 E**[9]. This information is referred to a number of times in the report but it is likely that the original information came from the deck logs of the *USS Chanticleer* and is contained in the statement of the Officer of the Day aboard the Chanticleer, Lt. Edward Sosnowsky.

Given that the site was buoyed and the *USS Chanticleer* returned there a number of times the next day and possibly during the following weeks, it is likely that the coordinates are correct within the range of error which would be expected with the navigational technology of the day, perhaps within a nautical mile or so. This is probably the reason why the coordinates are given to the nearest half-minute. The fact that the ship was so close to the coast and Rottnest, rather than on the open sea, would lend further weight to the accuracy of the coordinates. The site is also generally in line with the approach to Fremantle Harbour, which is to be expected if The *USS Chanticleer* and *USS Tinosa* were returning there.

The statements of Sosnowsky and Tyndell aboard the *Chanticleer* that the ship was on a heading of 140 degrees when the planes were spotted further supports this general position, although possibly slightly north. (attached diagram). The ships heading of 140° puts it directly in line with the Bathurst lighthouse on the eastern end of Rottnest Island. If the site was any further south the ship would be heading directly onto the reefs at Rottnest, any further east and the ship would have been on the western side of Rottnest and would have had missed the entrance to Fremantle.

The coordinates given by Mr. Al Clark to Mike McCarthy of the museum are : 31° 45' 03" 115° 19' 00". Curiously, these coordinates are slightly different to those in the Court of Inquiry, but close enough to the general area in consideration.

The next critical piece of evidence comes from Edward Wilson the USN diver who was the first diver on the site half an hour after the crash. His statement says that he "conducted a dive to 132ft" (40m) on the wreckage site. This piece of information is important for the following reasons. The precision of 132ft rather than an approximate depth probably comes from an entry made in the diving log for the day. The depth was probably calculated by a depth sounding prior to the dive or by pnuemo-fathometer on the diver's equipment. The reason for the precision of this measurement comes from the necessity of a diver to know the exact depth of the dive in order to calculate his maximum bottom time and any decompression obligation at the conclusion of the dive. The USN dive tables, which had been in use for some time, were constructed in 10ft intervals. Taking into account the variation of tides in

[9] NAA: 32/22/477, Court of Inquiry, statement of Sosnowsky p.23

the region averaging a metre or so, this still gives us a fairly accurate depth to use in conjunction with the other evidence.

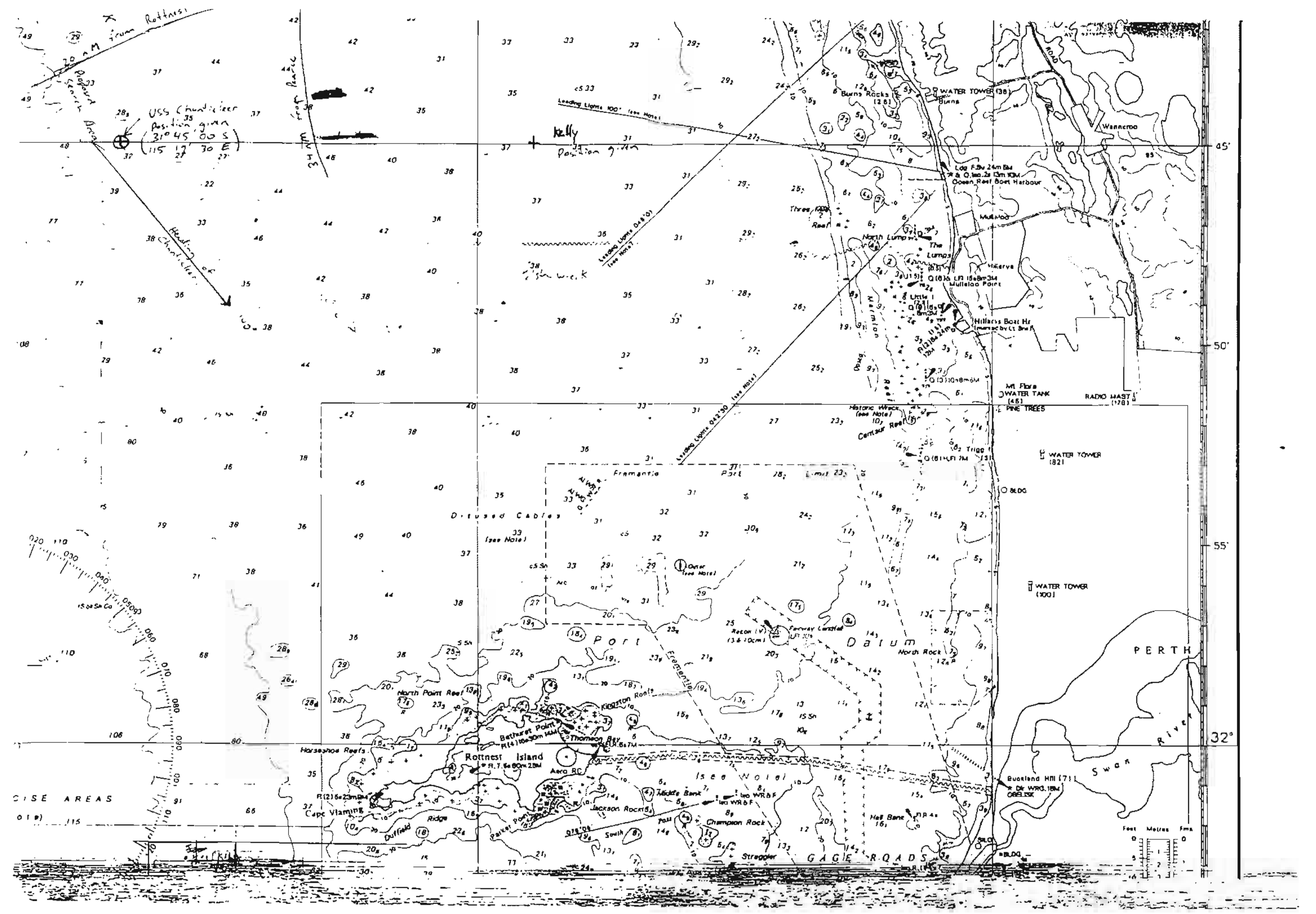
This is an important fact because combined with the coordinates given earlier; it gives us the means to further narrow down the search area. The slope of area in question is fairly gradual with depths changing from 30m to 40 over a distance of 10-15 nm before beginning to drop off to depths from 50m to 100m within 2-3 nm. If we refer to the navigation charts of the area we can see that this immediately rules out the area to the west due to the more rapid change in depth. If we accept that the coordinates are fairly accurate to start with, the result leaves us with a fairly narrow band running parallel to the coast, perhaps a nautical mile wide or so. The surrounding area in the immediate area (within 2-3 nm) ranges up to 18 metres shallower than the reported dive depth and effectively rules out areas to the east. If we consider that the original coordinates are not accurate then looking at the chart clearly presents a huge amount of possible sites in that depth.

Further research by Mr. Charles Page resulted in a chart of a more detailed bathemetric survey of the area from the Australian Hydrographic Office becoming available to the author. An excerpt from this chart is shown in Appendix C. This further limits the area which corresponds to both the coordinates and the reported depth. There are clearly only a limited number of areas in the immediate area of the coordinates which can be considered.

Next we come to the statements given by the remaining crew of "A" flight on the day in question. F/O Kelly states that the crash site was "10 miles west of the coast and 20 miles north of Rottnest" [10] If taken literally, this would place the site much closer to the coast in the position shown on the diagram. It is likely that these figures were given as a rough guide to the crash site and not as an accurate fix. They appear to be rounded to the nearest 10 miles and probably are a result of F/O Kelly's impressions of the path taken by the group during the flight and possibly from discussions held at the base after the incident.

Flt. Lt. Hewett the captain of A9-343 reported that bearings from radio beacons put the crash site "20 miles from Rottnest and 34 miles from Pearce" [11]. The flight logs show Hewett's plane landing at Pearce at 1530, twenty minutes after Kelly's aircraft landed at 1510 (who reported the incident to Kessey at 1517). It is likely that Hewett therefore continued to circle the crash site for some time, and probably took a fix from the beacons at that time, knowing that the information would be required later. The direction and distance of the radio beacons is shown in the diagram. My calculations indicate the approx. distance from the coordinates to Pearce is 39 nautical miles and to Rottnest 18 nautical miles, which roughly coincides with the figures given by Hewett. The intersection of these lines indicates a position 5nm to the northeast also in a depth of about 40m.

[10] NAA: 32/22/477, Court of Inquiry, statement of Kelly p.6
[11] NAA: 32/22/477, Court of Inquiry, statement of Hewett p.4



X 20 n M from Rottnest
Proposed Search Area
USS Chanticleer Position given (31° 45' 00 S 115 17' 30 E)
Heading of Chanticleer
Kelly Position given
Wreck
Leading Lights 100° (see Note)
Leading Lights 042°30' (see Note)
WATER TOWER (38)
Burns Rocks
Wanneroo
Ocean Reef Boat Harbour
Three Fathom Reef
North Lumps
The Lumps
Mullaloo Point
Hillarys Boat Hr
Marmion Reef
Mt Flora WATER TANK (46)
PINE TREES
RADIO MAST (178)
Historic Wreck (see Note)
Centaur Reef
Trigg
WATER TOWER (82)
WATER TOWER (100)
BLDG
Fremantle Port Limit
Disused Cables (see Note)
Fairway Lanterns
Racon
Port Datum
North Rock
PERTH
Swan River
Buckland Hill
Kingston Reefs
North Point Reef
Bathurst Point
Thomson Bay
Rottnest Island
Aero RC
Horseshoe Reefs
Cape Vlaming
Duffield Ridge
Parker Point
Jackson Rocks
Jacksons Bank
Isee Wotel
Champion Rock
South Passage
Straggler
Hall Bank
GAGE ROADS
45'
50'
55'
32°
CISE AREAS
Feet Metres Fms

Various memos and notes in the file mention the site at 18 miles or 20 miles northwest of Rottnest, but are probably for discussion purposes, derived from the findings of the inquiry. These coincide with the general area in question.

In general terms the fact the coordinates are in a south-west direction from Pearce and that the records show that Kelly landed at Pearce approx 10 minutes after the crash show once again that the general area is correct, although with much less precision than the coordinates and radio beacons. Kelly in his statement that the group headed in a westerly direction after takeoff, although the completion of manoeuvres after this time clearly confuses the issue somewhat. The maximum speed of the Beaufort as shown in specifications is 423 km/h. Calculating ten minutes between the time of the crash and Kelly's landing at Pearce while travelling at maximum speed, gives 70km. Pearce airbase is 62 km from the coordinates given.

By considering all the available evidence, it is clear that a relatively small search area is suggested centred on the coordinates discussed previously, that is 31° 45' 00 S 115° 19' 30 E, running along a small band 1-2nm wide adjacent to the 50m contour line, and 2-3 nm north and south of the central point. The methods and further issues surrounding the search are considered below.

Method of Search

If a decision is made to search for Beaufort A9-346 and appropriate method of searching and investigation of the crash site should be determined. Some of the options are examined below:

Side Scan Sonar

Dual frequency side scan sonar is the probably the most appropriate method to be used for an initial search of the area. The abilities of this equipment will not be discussed here in detail, as there are many sources that cover the subject in great detail. Suffice to say that location, depth and size of the search area lends itself to using this technology in the early stages of the search for the crash site. A 150/600 kHz side scan sonar can cover a 200m swath at low resolution and about 50m at high resolution at this depth. The suggested target area could probably covered in one day with ideal weather conditions. This method has worked fairly well with the Rottnest Deep Wrecks project in depths between 60 - 100m in identifying possible shipwreck sites.[12]
Side scan sonar has also been used in several other projects conducted by the Maritime Museum of W.A. with varying results.

There are some potential problems with this case which need to be examined. The first is the actual size of the remaining target which is examined later, and the second is the topography of the proposed search area. If the remaining target is small and in the middle of rock and reef outcrops, a search with side scan sonar is likely to be difficult at best.

[12] Green 2001

Magnetometer

Once again without going into the theory of this technology, a magnetometer used in the early stages of the search, perhaps in conjunction with the side scan sonar, may be useful in finding the crash site. The crash site must contain a detectable amount of ferrous metal such as steel or iron for this method to be useful. The most obvious magnetometer target in this case would be the two engines from the plane which weigh about 1200 lbs and are 48" in diameter. Unfortunately it appears that most of the engines were constructed of an aluminium alloy, as was most of the fuselage. Other potential targets are the guns and various other steel parts used in the construction of the aircraft, provided they are still at the site and were not salvaged.

ROV

An ROV may be useful when the two previous methods have located the site or when a number of targets must be eliminated. An ROV is probably not useful in the early stages of the search due to it's low speed of coverage and narrow field of view. It could be used a last resort if the topography does not lend itself to successful use of side scan sonar. The disadvantage is the cost and time required for a larger search area

Laser

The Navy is currently using this technology to map the topography of the Australian coastline, as part of the ongoing upgrade of coastal charts and waterways. The equipment is used from a plane allowing high rates of coverage at high resolution at depths of up to 70m. This is probably the last option if other more cost effective methods have failed. The cost would be reasonably high, but given the small area concerned may be able to be undertaken on an opportunistic or public relations basis.

Divers

Divers will obviously be used when the site has been detected. They could also be used to examine targets found by sonar or magnetometer. As one of a number of last options they could be used to cover larger areas using scooters to look for small pieces of wreckage. In this case bottom times of around 15 minutes are the maximum available unless technical diving techniques are used. In any case, the main concerns with this type of dive are the open ocean conditions and the strong currents that can move through this area. This was alluded to in the statements of the USN divers in their statements to the inquiry, and my own personal experience having dived in similar areas. Having said that, 40m is within the accepted limits of recreational diving, and there is no reason why a competent diver with experience at this depth could not conduct a dive on the site in good weather and conditions.

Commercial diving to search for the site is likely to be both expensive and impractical due to the use of fixed lines etc.

The Crash Site

The discussion can now be turned to what can be expected at the site in terms of conditions, likely remaining wreckage and the possibility of human remains. This section of the report is obviously going to be largely guesswork based on the available evidence. This section discusses these issues in order to highlight problems that might be encountered in the search and inspection phase of the project.

Conditions

It is fairly evident that the site lies in around 40m of water, which is the accepted upper limit for recreational diving.
The statements of the USN divers on the crash site make mention of the rough conditions and strong current on the bottom.

From my experience in diving in similar areas off the coast of Perth, I can confirm that these conditions are possible, particularly a strong current from the north which can sometimes change direction and speed at various levels in the water column. This is of particular concern with divers on the surface or doing decompression. During our team's experience with the Rottnest Deep Wrecks project we have been forced to cancel dives at the last minute due to strong surface currents.

The swell and wind chop are also problems for the operation of the side scan sonar, with swells of less than 1m giving the best results.

The ocean floor on these areas tends to be mostly sand and shell, with ridges of limestone reef covered with weed rising a few metres off the sand. Depending on the area, it can range from large areas of sand without any rock to a mostly limestone bottom without any sand. In either case, the terrain will make it difficult to find the remains of a small plane which will probably rise up from the floor a few metres at the very most. The area to the east of the coordinates appears to be a reef outcrop area judging by the soundings on the chart. In addition, the passage of nearly 60 years in an ocean environment will tend to hide the wreckage with the deposit of sand, and organic growth on any remaining wreckage. Severe corrosion of the aluminium frame is also likely.

Remaining Wreckage

It is clear now from the Court of Inquiry records that a salvage operation was undertaken and that there is no prospect of an intact plane on the site. The question is what is likely to remain, whether it is detectable using the above methods, and whether it is worthwhile to conduct a search for this type of site. The dimensions of the Beaufort with a wingspan of 17m and height of 3m make this a fairly small target in the first place.

Even without the information that is now available, it seems obvious that a plane hitting the water from 1000 ft at an angle of 60-70° will sustain serious damage. The statements of witnesses who saw the plane break in half, and those of the divers confirm this. One of the divers reported the ocean floor being covered with metal plates 12" square, which sounds like the aluminium plating the fuselage was covered with. He also stated that the plane had broken at the turret and turned completely over. The depth of water would probably not allow for a long tail of debris, and most of the debris will probably be within a small area on the bottom perhaps fanning out in the direction of impact (southeast), and/or from the direction of the current/surface conditions.

Clearly some parts of the plane were salvaged but there does not appear to be any mention of what parts they were anywhere in the file. Fenwick reports that part of the tail section broke off when the "plane" was being lifted out of the water. It is unclear whether this referred the whole plane or merely a large section of it. The Beaufort was constructed of a number of sub assemblies as shown in the diagrams in the appendices and it is possible Fenwick was referring to the middle and tail sections when he made this statement. It also seems unlikely that the wings remained intact and attached to the main body after the impact of such a crash. He later states that the remainder of the plane was described by divers as badly damaged, and so he did not consider it economically feasible to recover it. He also states that about 30% of the plane was recovered. Some newspaper accounts also tell of "grappling" the wreck and recovering part of the rear section, although the source of these reports is unknown. Whether or not the remainder of the plane was recovered for scrap later that month is anyone's guess. There would probably not have been the sort of cleanup that is common for investigation of modern air crashes.

It may be possible to find more RAAF archival material, which lists the parts recovered to build up a clearer picture of what now remains at the site. Alternatively, it may be possible to contact people who were directly involved with the salvage or at the squadron at the time in order find out further information.

Unexploded ordinance

There is no mention in the flying logs of any ordinance carried by the aircraft and none mentioned in the Court of Inquiry. Because the flight was a training flight it is reasonable to assume the plane was not carrying any, except perhaps ammunition for the rear gun turret. The Beaufort's were used mainly as a reconnaissance plane for this squadron although capable of carrying a single torpedo or various combinations of bombs. It is possible however that the aircraft was equipped with it's normal load in order to give realistic performance and handling for the training flight.

Human Remains

This is a sensitive subject but one that needs to be addressed as part of the report. In May 2000 due to the publicity surrounding the apparent discovery of the crash site, Learmonth's widow, Mrs Le Souef quite understandably voiced her opinion that the

site should be left alone[13]. It is possible that Mrs Le Souef was never fully informed about the salvage efforts after the crash, probably out of respect rather than secrecy although some papers in Learmonth's personal papers archive shows that the RAAF did mention that some sort of salvage was immediately undertaken but that no survivors were found.

It is clear from the statements given in the Court of Inquiry that no bodies were ever sighted apart from the one seen by the USN diver immediately after the crash which was not recovered. The other divers did not see any bodies either in the fuselage or in the immediate area. Throughout the report it is stated repeatedly by different witnesses that no bodies were ever recovered and this is the finding of the court.

The force of the impact mostly likely threw the crew from the aircraft and their bodies were swept away in the strong current, so it is extremely unlikely that any human remains or personal belongings of the crew are in the immediate area. Nevertheless, it is probably appropriate to treat the site with the respect normally afforded a war grave and have measures in place to deal with any discoveries of a personal nature.

Should a Search be Conducted?

It is appropriate that a discussion of whether a search should actually be carried out forms a portion of this report.

Historical considerations are one aspect of this discussion, and as Wng-Cmdr Learmonth was a decorated war hero and obviously one of the better known names in W.A.'s history, this certainly makes the eventual re- location of the crash site important in historical terms and an opportunity to protect it before it suffers damage or looting.

The wishes of any surviving family and friends are also a prime consideration and should quite properly be taken into account. After being informed of the new information about the crash they may be more willing to allow a search and documentation of the site. It would also then be possible to conduct some sort of service at the site for relatives with the assistance of the RAAF if that is their wish.

Finally the decision has to be made whether a search and location of the crash site is achievable in an economic and time efficient manner using the technology currently available, given the lack of information about what now remains at the site.

[13] The West Australian May 26th 2000

How Should the Search be Carried Out?

Assuming a decision is made that a search for the crash site of Beaufort A9-346 be conducted, some discussion of the way in which the project should progress is given here.

From the previous discussions regarding the types of resources that can be used in the search, it is fairly obvious that a preliminary investigation of the proposed search area should initially be carried out using side scan sonar, possibly in conjunction with a magnetometer. Given the small size of the target, it is important that this be carried out when sea and weather conditions are most favourable, in order to obtain the best resolution images possible. At the same time as this survey is being carried out, it is suggested that accurate depth information be collected in order to make a more detailed contour of the ocean floor for subsequent search efforts. Only when this survey has been carried out and assessed will it be possible to determine targets for further investigation by ROV or divers. There is a slim possibility that an obvious target will be located during the survey, which requires immediate investigation. It is therefore prudent to have the ability to carry out this investigation, and more importantly to have already decided what to do in terms of informing relatives, authorities, media etc in this case.

The more likely possibility is that the information will have to be examined for targets to be investigated at a later date, or that the topography of the search area is such that it will then have to be decided whether a search should continue using other methods or abandoned entirely.

Summary / Conclusions

- A relatively small area can be determined for a search area based on the information contained in the Court of Inquiry into the crash.
- It appears that that the crash site of Beaufort A9-346 is located in the area 31° 45'00" S , 115°19'30" E in a depth of 132ft (40 m).
- There was a salvage operation after the crash and some portions of the aircraft were recovered.
- The remains of the crew are unlikely to be at the site.
- Technology is available to undertake a fairly quick and inexpensive initial search of this area taking about a day or so.
- If an initial survey proves unsuccessful, a more thorough search of archival material may reveal exactly what parts were salvaged and what remains.

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Charts

AUS 754 Australia-West Coast- Western Australia- Lancelin to Cape Peron
Scale 1:150 000

Sheet SH 50-13 & Part 14 Edition 1- Yanchep
National Bathymetric Map Series Scale 1:250 000

Appendix A- Beaufort Specifications

Dimensions : Wing Span 17.63m; Length 13.49m; Height 4.83m; Undercarriage Track 5.49m; Total Wing Area 46.73 m^2.

Construction and Weight : All metal stressed skin construction (mostly aluminium). Normal loaded weight 9526 kg, empty 6382 kg.

Performance : Maximum speed 268 mph (232 kts);Range 920 nm (1076 km).

Engines : Pratt & Whitney R-1830-S3C4G 14 cylinder , air cooled, two row radial engines. Weight 662 kg (1460 lbs). Diameter 1.222m (48.13 in.).

Appendix –B – Copies of Court of Inquiry Documents

1. Lt. Edward Sosnowsky USN- Officer of the day aboard USS Chanticleer.

2. Ship Fitter Edward Wilson USN – Diver aboard USS Chanticleer.

3. Flt Lt Hewett – pilot of A9-343- RAAF

4. F/O Fenwick – Engineer No. 14 Squadron RAAF

[illegible] Page No. [illegible]

[illegible] Lieutenant Junior Grade [illegible], having been duly sworn, states:

I am Lieutenant (Junior Grade) [illegible], and on the [illegible] [illegible], 194[illegible], was [illegible] officer of the [illegible] aboard the U.S.S. "[illegible]".

The lookout called my attention to three aircraft on the port bow distance approximately [illegible] miles at 14[illegible] bearing [illegible] ship heading [illegible]. The planes went across our stern, made a sweep and came up our starboard side.

When the planes were [illegible] one plane appeared to fall away from the other two. He started to go into a dive what I thought to be just an inspection dive of the ship. His distance was about 9[illegible] yards from the ship. The angle of his dive became steeper until it reached approximately 70°. He crashed about three to five seconds from the time he started to dive.

The altitude of the planes was approximately [illegible] to 700 feet.

The line of approach of the aircraft during the dive was approximately parallel with that of the ship and in the same direction in which the ship was heading.

At approximately 50 to [illegible] feet above the water the aircraft appeared to bank slightly to the right, that is away from the ship. I formed this opinion because I appeared to get a glimpse of the under surface of the wing. Although it banked slightly to the right it did not appear to turn.

When the plane crashed a big column of water arose about 30 feet into the air and no more was seen of the plane.

As soon as the aircraft crashed I rang up "stop" over the annunciator, and ordered the helmsman "right full rudder" to turn the ships head toward where where the plane crashed.

After watching for about five minutes I noticed the parachute come up [illegible] and what appeared to be some canvas covering of the wing.

At 150[illegible] hours we dropped anchor at the edge of the swirl where the aircraft had gone into the water.

From the time I saw the aircraft go into the water until we dropped anchor I had the position at which the aircraft dived into the water in sight.

At 1[illegible]41 hours the diver went over the side to inspect the plane wreckage.

The position of the crash was latitude [illegible], longitude 11[illegible]-1[illegible]-[illegible].

[illegible], U.S.S. [illegible]
[illegible] January, 19[illegible]

[illegible]
Witness

Ship Fitter 1st Class, [illegible], Diver 1st Class, having been [illegible] sworn, states:

I am Ship Fitter 1st Class, [illegible], Diver 1st Class, on board U.S.S. "Chanticleer".

At 1421 hours on [illegible] I [illegible] a dive to [illegible] feet to examine the wreckage of the crashed aircraft Beaufort A9-346.

Having reached bottom I started away from the descending line and discovered a parachute with pack broken open. Twenty feet away was a small portion of [illegible] and a window frame. The rear portion of fuselage and tail assembly was nearby. At this juncture I had to clear myself from the anchor chain which fouled my lifeline and air hose.

I then started back towards my circling line and discovered a body about twenty feet to the rear of the fuselage on the ocean floor. The body was nude except for a shoe on the left foot. It was lying on the right side and was badly lacerated. The hair was a fair sandy colour and rather curly.

I attempted to bring the body back to the descending line but as the anchor chain was still fouling my lines I had to desist. I released the body and ascended to the surface.

The ocean floor was covered with small pieces of metal approximately 12" square. The fuselage appeared to have broken and at the turret and turned completely over.

While on the bottom I looked for but found no indication of any other bodies.

Taken aboard U.S.S. "Chanticleer"
[illegible] January, 1944.

[illegible]
Witness

[illegible]
President

A. I was almost directly overhead at approximately 1,000 feet and banked to port to keep the aircraft continually in sight.

Q. What flying experience have you had on Beaufort type of Aircraft?

A. Approximately 300 hours.

Q. Have you in your experience of this type noticed any similar occurrence to the one which you observed on the leader's aircraft?

A. No, but I have had two instances of trouble with elevator trim in Beaufort A9-209, when it jammed on 22nd March, 1943, and another occasion on 25th March, 1943, when it became free. On neither occasion was there any flutter experienced but each time it occurred going in to land. Both of these defects were entered on the Aeroplane Maintenance Form C.E 77, the Aircraft being marked U/S at the time of reporting it. There have been other occasions in the Squadron where defects have been experienced in the elevator and rudder trimming tabs. The elevators jammed a couple of times and the rudder was free once.

Q. Were you in a position to determine the exact point where the Aircraft crashed into the sea?

A. By means of our radio beacons we ascertained the position as 20 miles from [illegible] and 34 miles from [illegible].

Q. During the period of the dive were you in a position to verify whether any attempt was being made by the crew to correct the dive or was there any change in the speed of the airscrews?

A. No. I was not in a position to notice either.

Q. Did you know who authorised the particular flights of these Aircraft on this formation flight?

A. Yes, as Flight Commander of "A" Flight I authorised the flight of Aircraft A9-331 and my own A9-343, and tender herewith certified true copy of the Flight Authorisation Book which I submit marked "APPENDIX "A"". Wing Commander LAWRENCE authorised his own flight just prior to take off.

Q. What weather conditions were prevailing at the time of the flight?

A. The weather at the time of the flight was cloudless, slight haze, visibility 10 to 15 miles.

..... Flight Lieutenant.
Witness

..... Air Commodore.
President.

Flying Officer Frederic Wells [redacted], No. 1477, Engineer Officer, No. 14 Squadron, R.A.A.F. Station, PEARCE, W.A., having been duly sworn, states :-

I am Flying Officer Frederic Wells [redacted], No. 1477, Engineer Officer, No. 14 Squadron, R.A.A.F. Station, PEARCE, W.A.

At approximately 1550 hours I received advice that a No. 14 Squadron Beaufort Aircraft A-[redacted] had crashed into the sea North of [redacted]. The next morning in accordance with instructions received, I proceeded out to sea to the scene of the crash of A9-[redacted] with Flight Lieutenant ARKLEY, Equipment Officer of No. 14 Squadron. I advised on salvage operations carried out by H.M.S. "CHAMPION", endeavouring mainly to procure the Tail Unit without further damage, which was required for inspection purposes. I also requested the diver to salvage any large parts of the aircraft.

Owing to heavy seas, salvage of the Tail Unit complete was not possible. There was a portion of the port side Tail Unit attached to the aircraft when it was being lifted, but it was broken off by impact against the side of the ship, due to heavy seas. This portion was washed away and could not be recovered. I requested every effort to be made to obtain the tail unit without further damage as this component was required for inspectional purposes by the Court of Inquiry. The divers reported that the remainder of the aircraft left below was badly broken, so I did not consider them as economically salvageable. Approximately 30% of the Aircraft was recovered. I consider the aircraft is a complete write off and salvageable for recoverable scrap and components only, and a recommendation to this effect was forwarded to R.A.A.F. Headquarters and Western Area on this Unit's Signal S.[redacted] dated 8th January, 1944, in accordance with A.F.O. [redacted] and A.B.O. [redacted].

During the period I was present there was no sign of any members of the crew being recovered, although I did ask the diver to advise me if there were any signs of the bodies. He said he noticed one body when he first went down on the afternoon of the 6th January, 1944, but on going down on the 7th January, 1944, failed to see this or any other body.

I am satisfied that no bodies were recovered during the period I was there, and from enquiries made from the Captain and diver no bodies were recovered during the proceeding day, although they were on the scene of the crash almost immediately it happened, the diver having made a descent within 30 minutes of the crash.

QUESTIONS BY THE COURT:

Q. How long have you been engineer officer of No. 14 Squadron?

A. I was posted to No. 14 Squadron on approximately 29th November, 1943, but did not take over the duties of Engineer Officer until 3rd January, 1944.

Q. Have you carried out any inspection of the other Aircraft of the Squadron for any defects which may have a contributing factor in this particular accident?

Flying Officer

Appendix C – Excerpt from Sheet 50- 13 & Part 14