

AVIATION ARCHAEOLOGY IN DARWIN

1997-2001 Master of Arts' research at Charles Darwin University

It should go without saying that archaeological evidence can be of any period before the present. This is a point which has been made many times: O.G.L.S. Crawford referred to obsolete aircraft as strictly archaeological, while Gordon Childe usually speculated about the remains of his picnic lunch on Fisher Common (Dymond 1974:13).

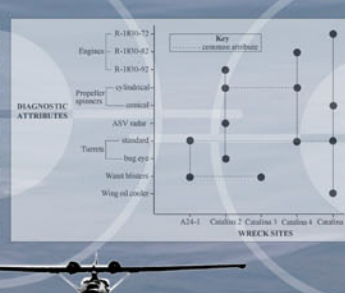
This thesis re-establishes links between significant historical events and forgotten 'Catalina' flying boat wreck sites that were sunk in Darwin Harbour, Australia's Northern Territory, during and immediately after World War Two (WW2). This is a study in aviation archaeology.

A subdiscipline of archaeology, in its infancy worldwide, the field addresses both the archaeology of single airplane wrecks and the archaeology of the support structures of aviation, such as airfields and related structures (air operations centres, flight controls etc.). Research issues focus on the archaeological site formation process of air wreck and patterns therein; on the study of modern mass transportation systems, and their social and political impacts; as well as on the interpretative uses of such sites for educational and recreational purposes (Spennemann 2000).

The United States Navy (USN) lost three Catalina on 19 February 1942, without loss of life. These flying boats were PBY-4s, an earlier variant of the PBY-5. PBY-5(A) and PBY-5(B) used by the Royal Australian Air Force (RAAF) in the latter part of WW2. The RAAF lost three Catalinas, with the death of two aviators, during 1945. The attributes of the different types of Catalina air evidence on the archaeological record, providing clues, as to which flying boat is which. Determining wreck site formation processes, based on the physical evidence i.e. wreck site attributes, re-establishes the link between where historical events occurred and the material evidence left behind. Shown on this poster are site plans of the located wrecks, together with a hypothetical link between site recording and interpretation of that data. This provides an understanding of how each of the flying boats sank, a crucial factor in verifying the identity of each of the wrecks.



ANALYSIS



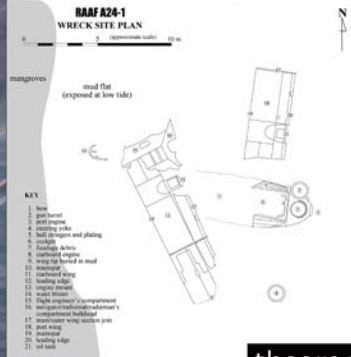
LOCATION



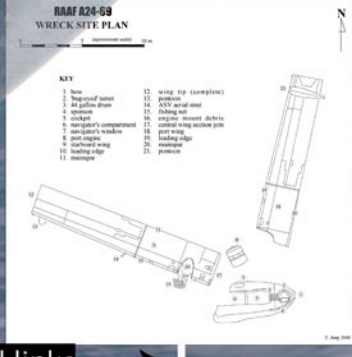
SITE RECORDING

interpretation

RAAF A24-1



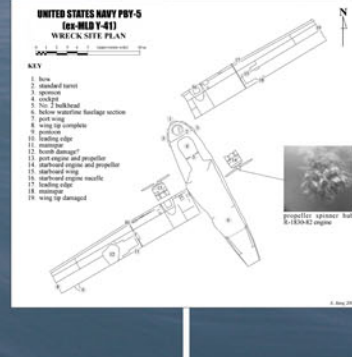
RAAF A24-69



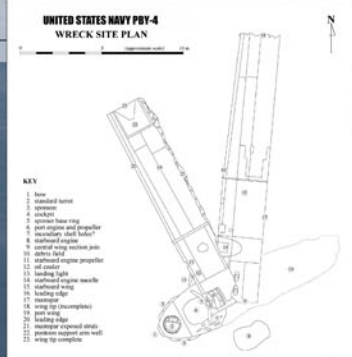
RAAF A24-206



UNITED STATES NAVY PBY-5



UNITED STATES NAVY PBY-4



theoretical links

EMPERICAL SURFACE



Crew who ferried the first Catalina from the USA, to Australia for the RAAF. Left to right: Flight Engineer D. Wright, Captain E. J. Dean, W/O W. Homers, Captain G. U. Allen, W/O Richmond, Corporal F. G. Taylor (Photo: Quanta via Frysh, 1968, facing pages 100 and 101).

CATALINA 2 WRECKING SEQUENCE



1. A fire starts in the flight engineer's compartment below the wing. Fuel tanks in the wing above the compartment ignite. The fire spreads, burning the fuselage to the water line, causing the aircraft to sink.



2. The fire destroys the central wing section and adjacent areas of the fuselage, compromising the wing and fuselage integrity. They subsequently separate during the descent to the bottom. The engines turn with the wings, but then break from their mounts.



3. The starboard wing has turned 180 degrees around its axis during the descent to the bottom and has settled upright on the port side of the fuselage. The port engine has detached from the wing and has settled behind the main spar of the starboard wing.

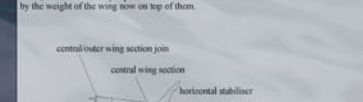
CATALINA 3 WRECKING SEQUENCE



1. A depth charge is accidentally dropped from the wing, crashing through the bottom of the bomb scow below it.



2. Once reaching its prescribed depth, the charge explodes, blowing off the outer starboard wing and buckling the fuselage, causing the aircraft to sink rapidly.



3. The port and central wing sections sink intact. The entire wing, however, slumps forward of the broken wing pillar and comes to rest on top of the fuselage. The engines break, but do not entirely separate from their weakened mounts and are driven into the mud by the weight of the wing now on top of them.

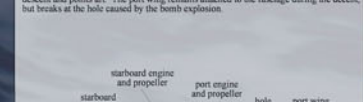
CATALINA 4 WRECKING SEQUENCE



1. Strafing by Japanese Zeros sets fire to fuel tanks in central wing section, destroying the wing pillar. This compromises the integrity of the wing, which begins to collapse. The fuselage is also holed by many hits and begins to sink, but slowly. The aircraft is then bombed.



2. Fire destroys central wing section, separating the mainplane. Aircraft descends to the bottom with a list to starboard. Engines break from their mounts; the starboard engine spins 180 degrees. The port wing is damaged by the bomb and sinks with the fuselage. The starboard wing drifts forward towards the bow during the descent.

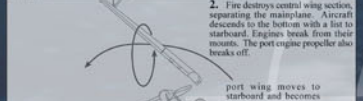


3. The aircraft settles with a list to starboard. The starboard wing comes to rest forward of the starboard bow. The wing's engine turned upside down and back to front during the descent and points aft. The port wing remains attached to the fuselage during the descent, but breaks at the hole caused by the bomb explosion.

CATALINA 5 WRECKING SEQUENCE



1. Strafing by Japanese Zeros sets fire to fuel tanks in central wing section. The fuselage is also holed by many hits and begins to sink.



2. Fire destroys central wing section, separating the mainplane. Aircraft descends to the bottom with a list to starboard. Engines break from their mounts. The port engine propeller also breaks off.



3. The port wing has settled on the starboard side, in front of the starboard wing. The starboard engine has fallen from its mount and collapsed the navigator's compartment and the cockpit roof. The port engine comes to rest on the port side of the fuselage, but its propeller is under the port wing.

known wreck

unknown wrecks

*For further information see below or e-mail: silvano.jung@cdu.edu.au

Jung, S. 2001. Wings beneath the sea: the aviation archaeology of Catalina flying boats in Darwin Harbour, Northern Territory. Unpublished Master of Arts (M.A.) thesis. Northern Territory University (now Charles Darwin University), Darwin NT

