

BY A SENIOR HYDROGRAPHER

'As it Was'

On 8th October 1993, with the introduction of the Laser Airborne Depth Sounder (LADS) flown in a Fokker F-27 aircraft, the Australian Hydrographic Service could claim to be among the first to use airborne Lidar systems for surveying. However, this was by no means the first time aircraft had been employed in Australia for hydrographic surveying.

In 1922 an Australian port chart was prepared with aerial photographic assistance of a Royal Australian Air Force (RAAF) Fairey IIID aircraft. This resulted from an experimental aerial survey undertaken in conjunction with Lieutenant Commander C. W. Stevens' boat survey of Western Port, Victoria. As a result of this success, the opinion was expressed that aircraft could advance the survey of the Great Barrier Reef by photographing large areas difficult to access by conventional hydrography. HMAS *Geranium* embarked a Fairey IIID seaplane A10-2 on 10th June 1924 for sea trials, stowing it aft and hoisting it in and out using the ship's derrick. This is the first recorded instance of an aircraft being used for seaborne hydrographic survey operations.

The Great Barrier Reef off the Queensland coast was an area of particular interest for the new Royal Australian Navy (RAN) Hydrographic Department, that had been established on 1st October 1920. Despite knowledge of the existence of the Reef since Captain Cook's voyage, detailed knowledge was still sparse.

HMAS *Geranium* was modified to carry and operate the Fairey aircraft; the balloon deck above the superstructure at the stern was enlarged and wooden chocks and tie-down points were fitted to secure the aircraft. The aircraft joined the ship for surveys in late July 1924 and over the ensuing months nineteen reefs were photo-graphed before the aircraft returned to resume its operations at Point Cook, the RAAF base in Victoria. The Fairey IIID proved to be a most useful acquisition for *Geranium*. Not only did the aircraft provide useful information beyond easy reach of the ship or her boats, but it also increased the safety of the sloop working within the reefs. *Geranium's* commanding officer subsequently reported that a seaplane was essential for ship safety when working inside the Barrier Reef, where the possibility of finding a reef by striking it was a matter of permanent concern (in 1923 *Geranium* had discovered Disaster Reef in the Gulf of Carpentaria by becoming stranded on it).

Flight Lieutenant E. A. Mustard DFC and Flying Officer T. Swinbourne were the aircrew involved in field operations. The named features, Mustard Patches, Swinbourne Patches and Raaf Shoals, still appear on charts of the area.

In 1926 the newly acquired HMAS Moresby (ex-HMS Silvio) began work in the Great Barrier Reef, also assisted by the RAAF 101 Flight which was relocated to a coastal base near Bowen, in Queensland. The shore-base was established in an old sailing club, supplemented by a number of tents. For aircraft repair, plus the photographic section, an old Army drill hall was acquired nearby, and a temporary hanger deck was erected to accommodate three Seagull IIIs with wings in folded position. A path of railway sleepers was laid from the high-water mark up to the hanger entrance for the aircraft to move along under their own power.

Flying operations involved photography of the islands in Whitsunday Passage, the coast from Cape Palmerston to Townsville, and the outer reefs between those east of the Whitsunday Islands to the outer edge north-east of Townsville. Flights were controlled by dead reckoning and the reefs were plotted by compass bearings and sketched onto field boards for transfer to the ship's collector tracing. The reefs were later positioned by astronomical observations made by landing parties from the ship.

Working under orders from Moresby, Flight 101 was continuously employed on the Great Barrier Reef survey until the end of 1928. In July 1935 the Commanding Officer and Executive Officer of Moresby made an aerial reconnaissance of Bathurst Island, Cape Hotham and Bynoe Harbour in a Westland Wapiti aircraft, A5-37, of RAAF North Australia Survey Flight. Aerial photo-graphy of Bynoe Harbour was carried out by another Wapiti aircraft, A5-32. In late August 1935 a Seagull Mark V Amphibian of No.101 Flight was despatched to Darwin to undertake aerial photography in conjunction with Moresby's surveying operations.

Other aerial survey support was provided by various craft of opportunity, including Moth aeroplane A7/62, which arrived at Darwin in June 1934 to assist Moresby with aerial reconnaissance from Cape Hotham to Cape Don and in Bathurst Island area. Two weeks later a work party landed at Myllie Beach Darwin with rigging, scaffolding and sheerlegs and converted this aircraft into a seaplane by fitting impromptu floats. Finally, in May 1937 Seaplane A2-4 provided aerial reconnaissance for Moresby in the Vanderlin Island and Groote Eylandt areas.

Nearly three decades were to elapse before regular airborne survey support was re-established as part of Australian survey operations. A second HMAS Moresby was commissioned in 1964 and carried a dedicated helicopter, initially a Westland Scout, replaced in 1974 by a Bell 206B-1. While the aircraft was primarily intended for logistic support for shore-based boat camps and infrastructure, it regularly conducted general reconnaissance and was latterly engaged in coastline mapping and reef delineation using the same positioning systems (ARGO, followed by GPS) used by the ship.

The Laser Airborne Depth Sounder (LADS) Flight entered service in 1993 and continues today. The further use of air assets is set to continue, with the

Australian Hydrographic Service now actively pursuing research into new airborne technologies, including the use of Aerial Electromagnetic Bathymetry, perhaps even from remotely controlled or autonomous aerial vehicles.

Acknowledgement

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Further Reading

- Leadline to Laser, The Hydrographic Service, Royal Australian Navy, 1920 –1995 by Commander R. J. Hardstaff RAN Retd. ISBN 0-646-25053-1 (available from AHS)
- Wings Across the Sea by Ross Gillett; Aerospace Publications, 1988. ISBN: 0-958-79780-3
- Seagulls, Cruisers and Catapults – Australian Naval Aviation, 1913-1944 by Ray Jones; Pelorus Publications, 1989. ISBN: 0-731-65419-6

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