TWO TROPICAL CLOUD FORMATIONS

(See photographs on pages 22 and 23)

These photographs of cloud formations were provided by the Director of Naval Weather Service, Department of the Navy.

Plate 1 Lt. I.S. Pullar of H.M.A.S. Moresby has reported that this photograph was taken at 1600 EST (0600 GMT) on 3 December, 1964, at approximately 9°46'S, 141°24'E looking westward. The low cloud was about three miles away and the portion shown is about six miles long. The wind was NW at the time and the formation moved SE with squalls up to 45 kt. Excluding the period within two to three hours of the squall, the ship's temperatures 24 hours apart before and after the squall passage differed by no more than 2°F. The same applied to the wet bulb temperatures.

Lt. Pullar also reported "During our season in Torres Strait in 1964, in the period between the SE trades and the NW monsoon we experienced two or three of these formations accompanied by high squally winds and heavy rain. The duration generally was less than one hour but the effects were none the less quite spectacular".

The M.S.L. streamline analysis at 0900 EST on 3 December, 1965 (Fig. 1), shows a tropical cyclone just inland from Darwin with a convergence zone extending in a general easterly direction from the centre. Thursday Island, about 75 miles SE of the ship's position, was reporting cumulonimbus and altocumulus with thunder at 1500 EST and with showers in the area at 1800 EST, but no rain was recorded. At Thursday Island, surface winds of E 10 kt at 1800 EST decreased to less than 5 kt and turned through NE to N between 1800 and 2100 EST. Calms or light N continued until 0900 EST on 4 December, after which NE to N winds gradually freshened and turned NW. Thursday Island upper winds to 10,000 ft were as follows:-

Height (ft.)	0900 EST 3 Dec.	1500 EST 3 Dec.	2100 EST 3 Dec.	0300 EST 4 Dec.	0900 EST 4 Dec.
Surface	130° 5 kt	090° 10 kt	040° 2 kt	360° 3 kt	310° 28 kt
1000	120 7	070 12	100 5	350 9	320 28
3000	150 6	100 5	090 6	340 10	310 37
5000	160 10		290 4	340 9	
7000	190 12		260 9	290 14	
10,000	240 12			290 17	

From the Thursday Island observations it is difficult to determine the width of the convergence zone, but it seems that the formation in Plate 1 was located near the northwest edge of a convergence zone about 100 miles wide and photographed from within the zone.

Plate 2 Commander J. Osborn, Captain of H.M.A.S. Moresby, has reported that this photograph was taken by the ship's photographer at 0930 WST (0130 GMT) on 25 September 1965 at 18° 00'S, 119°12'E. Surface wind at the time was 260° 11 kt, pressure 1016.2 mb falling slightly. The cloud was five miles distant and its height 2000 ft. The bearing of the left hand edge of the Plate is 330° and that of the right hand edge 140°. The cloud was moving in a direction of 220° towards the ship, not passing overhead, but dropping astern (ship's

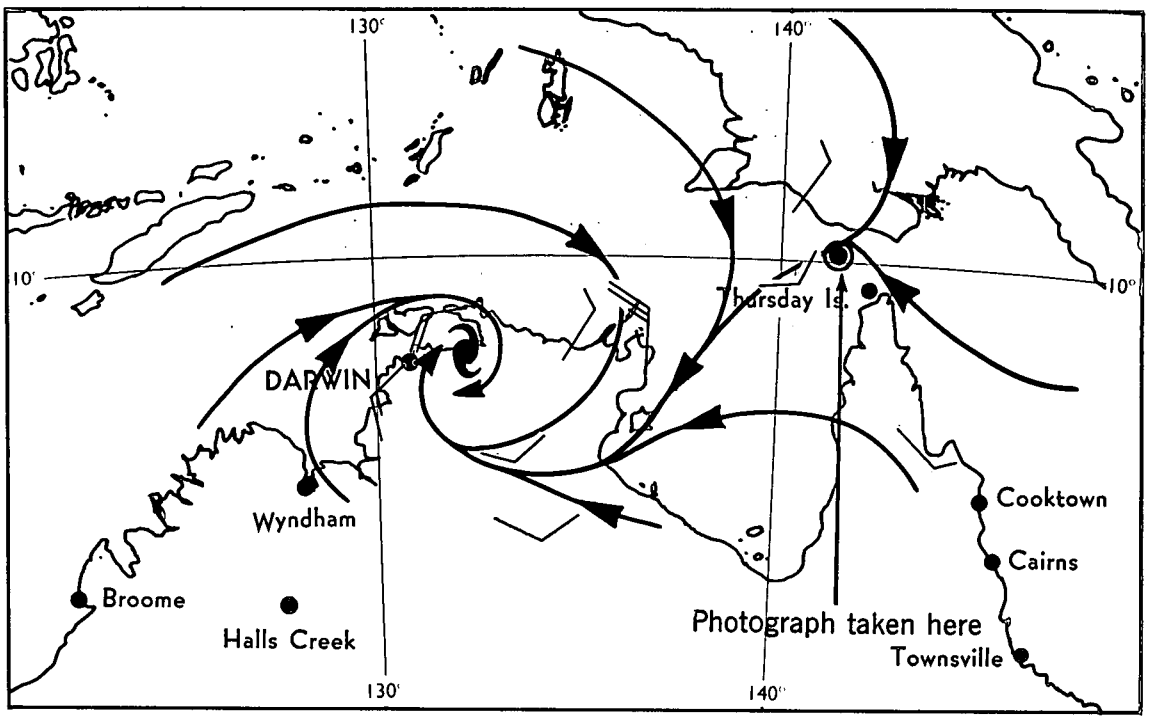

Fig. 1 Surface streamline analysis 0900 EST 3 December (2300 GMT 2 December) 1964.

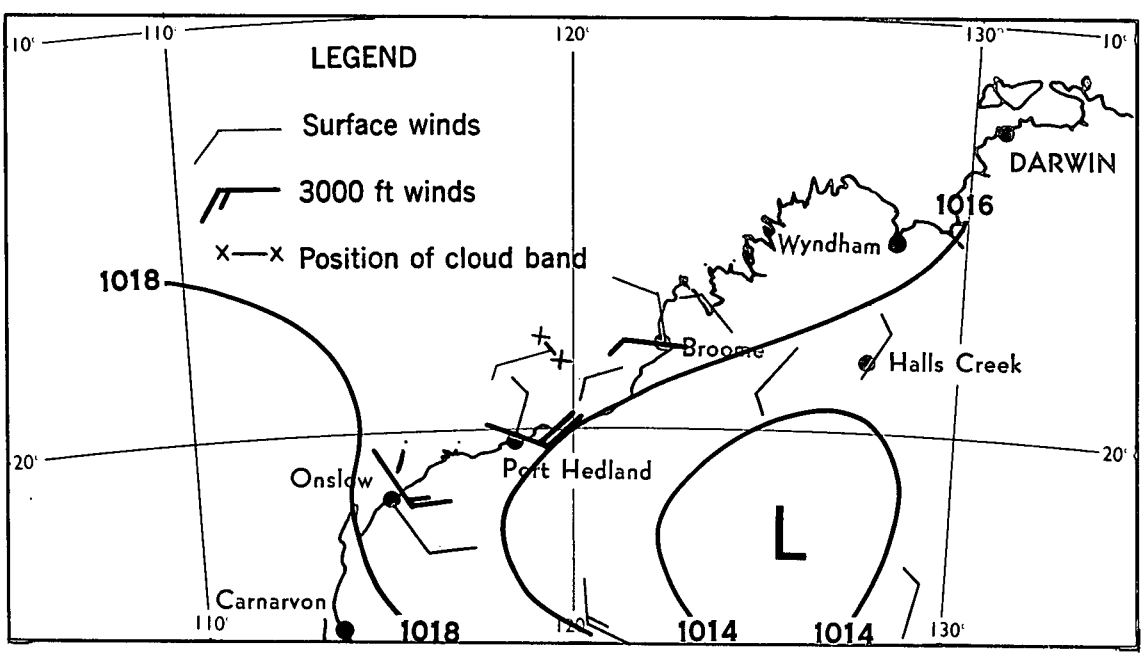

Fig. 2 MSL isobars 0900 WST (0100 GMT) 25 September 1965.

head 180°) and dissipating. A photograph taken at 1015 WST was supplied illustrating this dissipation but has not been reproduced.

The M.S.L. situation at 0900 WST (0100 GMT) and the 3000 ft winds (Fig. 2) indicate that the line of cloud occurred in a trough orientated NW/SE across the northwest coast of Australia.

Later in the day a trough developed parallel to and just inland from the coast between Port Hedland and Onslow - quite a common occurrence in the warmer months with the development of coastal sea breezes. This development may have commenced to produce low level divergence about the cloud band at the reported time of its dissipation. However, the reported SW movement of the cloud cannot be explained from the wind pattern.