

CORRESPONDENCEAN UNUSUAL PRESSURE FLUCTUATION IN THE GREAT AUSTRALIAN BIGHT

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Having read with interest the article by Mr. K. P. Lynch (Australian Meteorological Magazine No. 8), I wish to submit an alternative analysis which in my opinion could also explain the pressure fluctuations experienced by S. S. "Irish Cedar" on passage south of the Bight between 9th and 12th March, 1954.

This analysis does not involve one anticyclone remaining in a quasi-stationary position over the waters well south-east of the Bight for a period of more than 48 hours, but shows two eastward-moving anticyclones with their centres between latitudes 35 and 40 degrees south latitude.

Reference to the three figures (p. 86, 87, 88) showing, respectively, surface charts for 2300 G.M.T. 9th, 10th, and 11th March will give an outline of the sequence of events suggested. At that time upper charts showed a fairly consistent west wind component across southern parts of Australia and southern fronts appeared to be moving along rather rapidly.

Estimated positions of the vessel at the time of the charts are shown by an X, and readings from the barograph trace appear to agree quite well.

The vessel passed the front labelled (11) at about 1100Z on 10th and remained near it for some hours since the front was orientated NW-SE and the ship's course was slightly north of west. The slow rise of pressure up to a maximum of about 1019 mbs at 1200Z on 11th may be explained by passage through the next anticyclone (Figure 2). The following very unsteady fall up to about 0300Z on 12th could be associated with the approach to the troughline (Figure 3), during which time the vessel would have been buffeted by strong north to northeast winds. According to the present analysis the vessel would have been exposed to northerly beam winds of 30 to 40 knots with higher gusts for some 10 or 12 hours (Figure 3). Since the period of the strong winds corresponded with the period of the large fluctuations, it is possible that the mechanical effects of the wind made the greatest contribution to the irregularity of the trace.

It appeared that "Irish Cedar" passed the northern portion of the front labelled (12) at about 1500Z on 12th, and by this time this front had weakened considerably in conformity with the rapid south-south-eastward movement of the wave cyclone (Figure 3).

It was found necessary to discount pressures from the vessels "Asphalion" (Figure 1) and "City of Capetown" (Figure 2) to fit this analysis

References:

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| C. A. W. D. Section,
Bureau of Meteorology | 1954 | Analysed charts for March
(unpublished) |
| | 1955 | Aust. Met. Mag. 8,
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R E P L Y

by K.P. Lynch

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With regard to the first period of pressure fluctuations which began on 9th March, Mr. Hannay's explanation appears similar to mine. Mr. Hannay says that the "Irish Cedar" remained near front labelled (11) for some hours since the ship's course and the orientation of the front were nearly in the same direction, i.e. north-west - south-east.

My explanation of the pressure fluctuations quote "The course of the ship followed closely that of the quasi-stationary front and this could account for the long period of fluctuations."

Thus both explanations are that the course of the fluctuations were caused by the ship moving along a course parallel to a front for several hours.

The question whether the front was quasi-stationary or a rapid moving front is difficult to answer owing to lack of sufficient data in the area.

Mr. Hannay's explanation for the second period of fluctuations - "the vessel was exposed to winds of 30 to 40