SHORTER CONTRIBUTION

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AN UNUSUAL CLOUD FORMATION AT HAMPTON, 26TH DECEMBER 1961

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The accompanying photographs of a cloud of unusual form were taken at Myrtle Road, Hampton, on 26th December, 1961, at about 1545 hr. Subsequent sighting, using a theodolite and magnetic compass, made it possible to fix the horizon and orientation of the camera, which was measured as 305. 2 deg. T. and 310. 3 deg. T. respectively, in the photographs, Figs. 1 and 2.

Figure 3 represents in plan the outline of the cloud, which was assumed to be horizontal. This outline does not appear altogether satisfactory. In particular, the width, increasing rapidly northward according to the computation, does not appear to accord with the parallel bands visible in the cloud sheet. This may well be an error due to relatively small inaccuracies in fixing the horizon. While the movement indicated between the photographs, Figs. 1 and 2, is fairly regular over most of the field, the lack of movement in the north-west portion again points to errors there, where the elevations are low.

Nevertheless, we can confidently assert that the cloud band, with its indications of cellular structure, (the cells, as indicated by the component bands, having a dimension of about 300 m), was strongly curved (concave towards the north or north-east) and was moving from the west. Since the time interval between the photographs is not precisely known, the speed cannot be determined.

The scale of Figure 3 can be fixed if we can estimate the cloud height. The Laverton radio-sounding, at about 0900 hr, showed a lower moist stable layer up to 730 mb, with steeper lapse rates and no measured humidity above this level. A reconstruction of the sounding at the time of the photographs suggests the probability of a thin layer with cloud between 7000 and 8000 ft. Higher cloud (apart from cirrus, which was certainly also present) was out of the question. The layer of smoke, seen just above the roof-tops, was evidently due to a grass fire in the vicinity of Broadmeadows, which commenced at 1528 hr. There were several thunderheads in the distance during the afternoon.

Essendon's upper winds at 1500 hr were as follows:-

1000 ft	:	160 deg.	12 kt	7000 ft	:	280 deg.	11 kt
3000 ft	:	100 deg.	13 kt	8000 ft	:	270 deg.	8 kt
4000 ft	:	100 deg.	8 kt	9000 ft	:	260 deg.	6 kt
5000 ft	:	030 deg.	5 kt	10000 ft	:	170 deg.	1 kt
6000 ft	:	310 deg.	7 kt	15000 ft	:	230 deg.	5 kt

These support our conclusion that the cloud was at 7-8000 ft, at the level of westerly winds.

The possibility that our cloud band was caused by aeroplanes has been considered. There were no Air Force flights during the afternoon, and single aircraft do not seem to have been capable of producing such a structure.

The synoptic situation affords no clue to the origin of the cloud; a low level ridge from the east gave way at high levels to a broad col.

FIG.1 Photograph (1) of the cloud looking towards 305.2° T at approximately 1545 EST 26 December 1961

FIG.2 Photograph (2) of the cloud looking towards 310.3° T a few minutes after photograph (1)

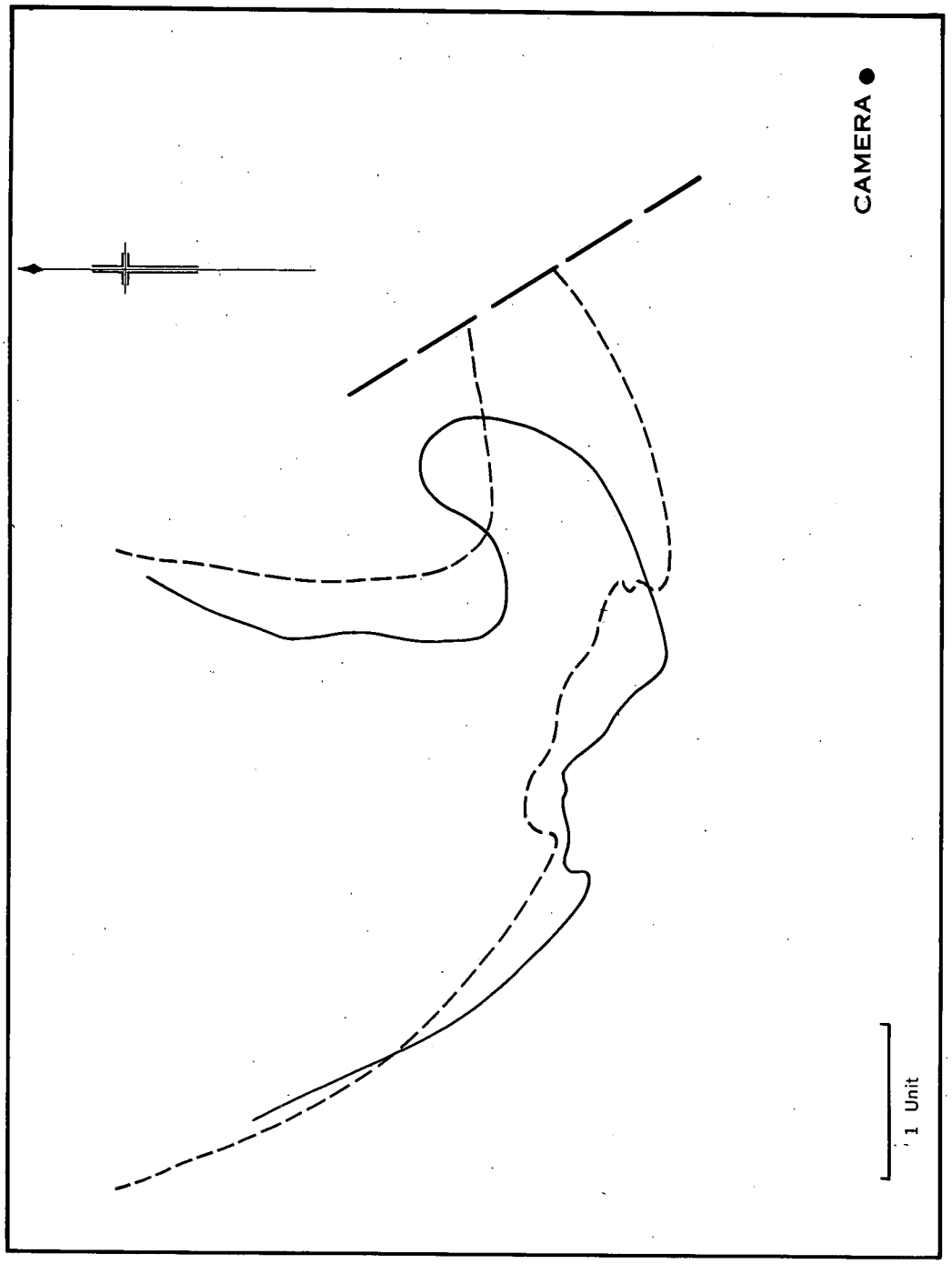

FIG.3 The cloud outline in plan from 1st Photograph (full line) and 2nd photograph (broken line). The unit of length is the height of the cloud, approximately 8000ft.

The "easterly change", a large scale seabreeze phenomenon probably affecting much of southern Victoria on warm summer afternoons, and extremely well marked on most such days at Aspendale, evidently occurred at Hampton near the time of the photographs, but there seems to be no reason to link it with the cloud form.

Furthermore, there seems little reason to suppose that the Broadmeadows fire has a bearing on the problem.

It has been pointed out that if the cloud were not horizontal, but sloping upward towards the eastern end, the upper wind structure could explain its shape. It is thought, however, that this is an unlikely explanation.

Further information, especially in the form of photographs, which might give further insight into this unusual formation, would be most welcome.