Fig. 1

Fig. 2

Photographs by G. P. Können

HALO OBSERVATIONS FROM AN AIRCRAFT

By G. P. Können

Bussum, Holland

Fig. 1 shows a bright mock sun with a long irregular tail photographed from an aircraft of K.L.M. Royal Dutch Airlines soon after take off from Amsterdam at 1630 GMT on 9 March 1972. A simple mock sun on the right was also visible. As the aircraft climbed higher in the cirrus layer the mock sun became more subdued and a bright, coloured, mock sub-sun appeared, Fig. 2. A faint vertical arc connecting the mock sun and the mock sub-sun was also observed. After a few minutes the mock sub-sun grew in vertical extent, eventually subtending 4° (estimated from another photograph not reproduced here). Finally, as the aircraft climbed above the cirrus layer the mock sun disappeared, but the mock sub-sun persisted for another 10 minutes.

Somewhat later on the same flight, at 1900 GMT, a sub-sun and the lower tangent arc to the 22° halo were observed. The lower tangent arc had the form predicted by Tricker (1970) and by Greenler and Mallmann (1972). The light from the sub-sun was polarised (as expected for a single external reflection) whereas the mock sub-sun, dependent on a total internal reflection (Visser 1954) was not.

REFERENCES

Greenler, R. G. and Mallmann, A. J.	1972	Circumscribed haloes. *Science*, **176**, p. 128
Tricker, R. A. R.	1970	*Introduction to meteorological optics*. Mills and Boon, London
Visser, S. W.	1954	*Optische verschijnselen aan de Hemel*, K.N.M.I