

SOME RESULTS OF LIDAR PROBING OF THE TROPOSPHERE*

I WOULD like to draw attention of the authors of this excellent paper to the paper by my co-workers VIEZEE and OBLANAS (1969) which discusses the relationship of lidar returns to the nature of atmospheric stratification. The paper by MACKINNON (1969), is also pertinent. Changes in the volume back-scattering coefficient, in our experience, can be as much dependent upon the changes of relative humidity as upon changes in number density of particulates.

We have also adopted the form of presentation used by LANE's group. We have used a magnetic recording technique however to generate two dimensional time/height, and range/height displays. This approach has the advantage that successive data can readily be integrated over intervals of time.

*Atmospheric Science Laboratory
Stanford Research Institute
Menlo Park, California 94025
U.S.A.*

R. T. H. COLLIS

REFERENCES

- MACKINNON D. J. (1969) The effect of hygroscopic particles on the backscattered power from a laser beam. *J. atmos. Sci.* **26**, 500.
VIEZEE, W. and OBLANAS, J. (1969) Lidar-observed haze layers associated with the thermal structure of the lower atmosphere. *J. appl. Met.* **8**, 369.
* J. A. LANE, G. E. ASHWELL and A. DAGNALL *Atmospheric Environment* **5**, 49-54 (1971).

MEASUREMENTS ON THE RELEASE OF GASEOUS ACTIVITY FROM A SHORT STACK*

MODEL scale and full scale experiments indicate (HUNT, 1970; SLADE, 1968, FIG. 3.20 p. 112) that the region of recirculating air behind a large cube shaped building (the "bubble") extends about $1\frac{1}{2}$ building heights down wind. Therefore when the wind is from the South, the end of the bubble created by the reactor buildings may lie on top of the turbine house (FIG. 1). The detectors $S_1 S_2 S_3$ then lie in the "bubble" of the turbine house. It may be that this is why the greatest concentrations are observed when the wind is from the South (Fig. 6). Clearly such a flow is not remotely described by Scriven and Moore's model.

When the wind is from the West, the detectors W1 and W2 may be just on the edge of the "bubble". In that case the Scriven and Moore model is not really valid, because their assumption that the velocity is 0.7 of the upstream value is really only valid some way down wind of the re-attachment zone.

These points have been made to show where the simple model fails. Such models are very useful, but their limitations ought to be pointed out.

*Department of Applied Mathematics and Theoretical Physics,
University of Cambridge,
Cambridge*

J. C. R. HUNT

REFERENCES

- HUNT J. C. R. (1970) Further aspects of the theory of wakes behind buildings and a comparison of the theory with experimental results. *Central Elec. Gen. Board RD/L/R 1665*.
SLADE D. H. (1968) *Meteorology and Atomic Energy*, U.S. Atomic Eng. Comm.
* R. S. RODLIFFE and A. J. FRASER, *Atmospheric Environment* **5**, 193-208 (1971).