## AUTHOR'S REPLY

PERHAPS the large intradiurnal variation in turbidity I reported (RANDERSON, 1973) has not been normally observed because, in the United States, turbidity observations are frequently collected only two or three times daily (FLOWERS *et al.*, 1969), at local noon and 3 h before and after local noon, weather permitting.

I believe that Dr. Bullrich misinterpreted my second possible explanation for the strong intradiurnal variation in turbidity. The selenium photocell in the sunphotometer is sensitive from 0·3 to 0·68 $\mu$ and the wavelength of maximum intensity of solar radiation shifts toward 0·7 $\mu$ as the air mass value increases (MOON, 1940). Thereby, the idea was that proportionately more solar radiation might be sensed by the sunphotometer near 0·7 $\mu$ rather than at 0·5 $\mu$ for $m = 5$. TABLE 1, containing data provided by FLOWERS (1972), supports this contention; however, I would like to point out that Flowers has recently shown that this contribution is quite small and doesn't appear to explain the observed intradiurnal variation in turbidity.

TABLE 1. SOLAR FLUX VS AIR MASS AND WAVELENGTH (ly min$^{-1}$)

| | $m = 1$ | $m = 5$ |
|---|---|---|
| $I_1$(0·44–0·56 $\mu$) | $4{\cdot}04 \times 10^{-2}$ | $9{\cdot}15 \times 10^{-3}$ |
| $I_2$(0·70–0·73 $\mu$) | $7{\cdot}0 \times 10^{-6}$ | $3{\cdot}5 \times 10^{-6}$ |
| $I_2/I_1$ | $1{\cdot}7 \times 10^{-4}$ | $3{\cdot}8 \times 10^{-4}$ |

Dr. Bullrich has offered forward scatter as another possible explanation for this intradiurnal variation. To my knowledge, there are no quantitative data available to permit an evaluation of the contribution of forward scatter to local turbidity. A noteworthy study by HULBURT (1941) showed that forward scatter can be greatly increased by the presence of dust and haze particles in the atmosphere. I certainly agree that forward scatter might explain a significant portion of the intradiurnal variation in turbidity I observed, using two Volz sunphotometers. If further study does explain forward scatter as the primary culprit, then it should be accounted for in the observations.

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### REFERENCES

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MOON P. (1940) Proposed standard solar radiation curves for engineering use. *J. Franklin Inst.* 230, 583–617.

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## DISCUSSION

### ASBESTOS FIBRES IN THE AIR OF TOWNS*

HOLT AND YOUNG are unduly reserved about the potential for quantitating the asbestos content of city air. Other studies have shown that such measurement can provide very useful data concerning asbestos air pollution, even serving as a basis for the implementation of abatement procedures.

* P. F. HOLT and D. K. YOUNG (1973). *Atmospheric Environment* 7, 481–483.

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