

Conclusions from the relatively few sets of samples taken so far, these sample pairs give average ratios (unelutriated to elutriated) of 1.3 for total fibers and 1.6 for fibers longer than 10μ . In 58 per cent of the cases the total fiber count was higher in the unelutriated sample, and in 59 per cent of the sets the $10+ \mu$ fiber count was higher in the unelutriated sample. These results suggest that the major portion of those fibers counted on the membrane filter are "respirable" as the respirable fraction was defined by the Johannesburg Pneumoconiosis Conference.*

SUMMARY

Two hundred and thirty pairs of samples taken by two widely-used sampling and counting methods were compared. These methods were counting of total dust in impinger samples, and counting fibers only on a membrane filter.

At the present time, based on samples collected in four asbestos textile plants, the over-all ratio appears to be one mppcf by impinger (10x objective) to 10 fibers per ml., 6 fibers per ml. longer than 5μ , or 3 fibers per ml. longer than 10μ when the membrane filter samples are counted with phase contrast illumination on the transparentized filter using a 4 mm. (43x) objective. Individual operations may have ratios differing from these values by a factor of two. Size selective sampling using horizontal elutriators ahead of the sampling device indicated that the major portion of the fibers counted would reach the lung if inspired.

ACKNOWLEDGMENTS

Data in this paper were the result of sampling and impinger counting by C. M. Brown, H. L. Byrd, G. H. Edwards, R. G. Edwards, G. W. Fisher, J. C. Lumsden, S. B. McKee and J. R. Stanton. Membrane filter samples were counted by T. E. Beaver and K. M. Kelly. Electron micrographic staining was done by G. H. Edwards.

REFERENCES

1. LANZA, A. J., W. J. MCCONNELL & J. W. FENNEL. 1935. Effects of the inhalation of asbestos dust on the lungs of asbestos workers. Public Health Rep. 50: 1-12, Reprint No. 1665.
2. DONNELLY, J. 1936. Pulmonary asbestosis: Incidence and prognosis. J. Indust. Hyg. 18: 222-228.
3. MCPHILKEY, S. B. 1936. A survey of a group of employees exposed to asbestos dust. J. Indust. Hyg. 18: 229-239.
4. SHULL, J. R. 1936. Asbestosis: A roentgenologic review of 71 cases. Radiology 27: 279-292.
5. FULTON, W. B., A. DOOLEY, J. I. MATTHEWS & R. L. HOUTZ. 1935. Asbestosis. Part II. The nature and amount of dust encountered in asbestos fabrication plants. Part III. The effects of exposure to dust encountered in asbestos fabricating plants on the health of a group of workers. Pa. Dept. of Labor & Ind. Bull. 42.

6. LUNDGREN, W.
7. SAYERS, H.
8. bestos textil
9. BLOOMFIELD, J.
10. of Industria
11. CRALLEY, L. J.
12. LAINHART.
13. dustry in th
14. Transactions
15. Government
16. methods, W.
17. Subcommittee
18. in air analy
19. Hith. Asm.
20. Air Hygiene a
21. Method for
22. asbestos tex
23. FITZGERALD, J.
24. tration thro
25. LINDEKEN, C.
26. face collect
27. 10: 7.
28. FRASER, D. A.
29. airborne pa
30. and electro
31. HAMILTON, R.
32. able Dusts.
33. held in Oxi
34. ORENSTEIN, A.
35. held at the
36. Little Brown

8000 1006