AIR-BORNE INFECTION¹

By Professor O. H. ROBERTSON, M.D.

DEPARTMENT OF MEDICINE, UNIVERSITY OF CHICAGO

An increasing awareness on the part of the medical profession of the rôle played by the air in the transmission of respiratory disease makes it seem appropriate just now to survey briefly the recent rapid growth of knowledge in this field. While it has been long known that bacteria can be carried on air currents, the general belief has grown up that certain physical agents such as sunlight, heat and drying are very effective in destroying such air-borne microorganisms. However, during the past few years our knowledge of the wide distribution of bacteria in the air has been greatly increased. Apparently the whole of our atmosphere is contaminated since microorganisms have been recovered from the stratosphere and from freshly fallen snow in the south polar regions.

¹An address given before the Rochester Academy of Medicine, N. Y., October 6, 1942.

Some of the most striking evidence of aerial transmission of infection comes from the investigation of the spread of certain plant diseases. Epidemics of wheat-stem rust have been shown to be wind-borne from infected areas far distant. Spores of this infection have been found to be carried as much as 1,000 miles in 48 hours and cause an outbreak of the disease a week or ten days later. Similarly, plant viruses have been shown to be disseminated to some extent by wind, at least in an indirect manner, through the agency of leaf-hoppers and plant-lice.

While we have no evidence that any specific agent of human disease is spread through the outside air, except in the case of insect vectors, there is a growing body of data in support of the conclusion that air transmission within enclosed spaces plays an important rôle in the communication of many bacterial and