

## DISSEMINATION OF INFECTION BY AIR.

THE following practical extracts are from a paper by Prof. Eben Duncan, M.D., Pres. Sanitary and Social Economy Section of the Glasgow Philosophical Society, read at the Annual Meeting of the Sanitary Association of Scotland, July, 1888 :—

I shall begin by dividing the contagia of communicable human diseases into two classes: 1. Those which are shed from the body of the patient in a dry form; and 2. Those which are shed from the body of the patient immersed in liquid matters.

The first class comprises all those fevers in which the skin is the seat of a copious eruption, such as small-pox, typhus fever, scarlet fever, and measles and erysipelas. Of this class of fevers I observe first, that, *ceteris paribus*, in direct proportion to the abundance of particles shed from the skin of the patient during convalescence is the danger from aerial infection in the vicinity of the patient. Secondly, I observe that in proportion to the minuteness of these particles shed from the body of the convalescent is the distance to which they are likely to be carried by air currents, and the area through which they may be disseminated. In the diseases I have named as belonging to the first class, a susceptible person is liable to be at once infected by breathing the air of the room in which the patient is lying.

There is, however, an exception to be made in the case of typhus fever. Experience in this disease has proven that if the infectious particles shed by the skin or breath of the typhus patient are exposed to pure currents of air through a distance of a few yards from the body of the patient they are so acted upon by the air as to lose their infective property. In the treatment of the other members of this group, small-pox, scarlet fever and measles, we do not find that the infectious particles shed from the skin of the patient are so easily robbed of their power of self-propagation. In these diseases the whole atmosphere of a house may become infective by the dissemination of infectious particles through the ordinary air currents of a house; and this even where there is such a measure of good ventilation that the standard of purity of the air, as regards its gaseous elements, is well maintained.

But even among these diseases there are differences as to the extent to which the infectious particles may be intercepted and prevented from being spread by the air currents throughout the atmosphere of a house. In the case of scarlet fever, by isolating a patient in the top flat, and arranging wet sheets at the door of the sick room so as to intercept the particles of infectious matter which tend to escape into the passages when the door of the sick room is opened, I have usually been quite successful in preventing the spread of that disease to the other inmates of the house, who were limited to the lower flat. But in measles I do not believe that any such precautions as I have found to prevent the spread of scarlet fever in a household will ensure the same safety in the treatment of a case in the upper flat of a dwelling in which there