

Selected Articles.

THE DISSEMINATION OF TUBERCULOUS DISEASE BY MEANS OF INFECTED DUST.

The theory has been so readily established that tuberculous disease may be, and probably often is, conveyed into the receptive lung by means of inhaled dust, and precautions against the possibility of such conveyance have been so widely advocated, that it would seem to be superfluous at the present time to offer any observations or criticisms which might tend to throw doubt upon so simple and satisfactory a demonstration; but, however satisfactory the facts may appear to be when looked at from the purely experimental point of view it must be confessed that from the clinical standpoint they admit of considerable discussion. In order to satisfy the clinical mind it is necessary that evidence should be forthcoming to prove that those who are especially liable to the inhalation of infected dust should also be more prone to tuberculous disease than others who have not been so exposed. It is to the records of the hospitals for the treatment of phthisis that we should naturally turn for such evidence, and more especially to the records of the years anterior to the publication of Dr. Cornet's observations. It has, however, been abundantly proved that no such evidence is obtainable in this country. To take the experience of the chest hospitals at Victoria-park and at Brompton respectively, the figures collated and published by Dr. Andrew and Dr. Theodore Williams made it clear that no special liability to tuberculous disease could be demonstrated amongst the medical and nursing staffs of these hospitals during a period of twenty years. Quite recently Drs. Heron and Chaplin, in an article entitled "The Relation of Dust in Hospitals to Tuberculous Infection," published the results of a series of experiments made upon susceptible animals by actual injection of dust taken from wards occupied almost exclusively by tuberculous persons, and have shown that such dust possessed but little infective power. From these observations it must be concluded that the dust of a consumption hospital is not especially dangerous to those who must of necessity inhale it, nor does it always set up tuberculous disease in susceptible animals when introduced by way of direct inoculation. It is an old-established theory that dusty occupations are to be reckoned amongst the predisposing causes of tuberculous disease of the lung, and modern research has grafted upon that the view that such dust must be infected with tubercle, and that it becomes so infected by admixture of particles of dried sputum containing the bacilli. In the trades of the miner, the grinder, or the feather-sorter, although there is much dust,

there is no direct likelihood of its being infected with bacilli, although such infection is not impossible if there be any sufferers from tuberculous disease amongst the workers. By far the larger quantity of tuberculous sputum finds its way—or, until the enforcement of recent precautionary rules, did find its way—into pocket handkerchiefs, diapers and cloths of all kinds. Sputum thus preserved soon becomes dry, and when the handkerchief or cloth containing it is shaken, minute particles of tuberculous sputum must be scattered broadcast. A special danger must therefore theoretically attach to those occupations which involve the handling, shaking, or tearing of old and dirty linen. Foremost among these must be placed the occupation of paper making. Anyone who has visited a paper factory and has passed through what is generally known as the "sorting-room" will appreciate what the danger (theoretically) must be. It is in these rooms that the large bales of linen rag are unpacked and are sorted into different classes by large numbers of pickers, mostly young girls or young women. The rags themselves are of the most varied description. Old handkerchiefs, old aprons, dusters, diapers, sheets, towels and every variety of wearing apparel may be recognised among them. Some are clean, but others are extremely dirty. In the process of picking and sorting, shaking, and tearing these rags an amount of dust is produced which in some rooms is so dense as to give the appearance of a mist around and above the heads of the pickers. The rooms as a rule are admirably lighted and ventilated, but on first entrance the cloud of fine dust is very decidedly irritating to the unaccustomed larynx. Under such conditions it would seem more than likely that some cases of tuberculous disease would arise amongst those who were required to inhale this dust for many hours in succession day after day, and who would most likely include in their number some who might be assumed to be predisposed to tuberculous disease by heredity or otherwise. Nearly all the workers, too, are of the period of life when such disease is apt to declare itself. In order to test the question I instituted a series of inquiries amongst some of the largest paper mills in England and Scotland, and by the courtesy of the respective boards of management and medical officers I am enabled to present the following results. In each case I asked the same series of questions, as follows:—

1. Does tuberculous disease of the lungs or other organs often occur amongst the young adults employed at the paper mill?
2. Is there any reason to believe that the inhalation of the dust in the rag-sorting rooms may be a cause of such disease?
3. Are the rags—such as old pocket handkerchiefs, etc.,—cleansed, disinfected, or wetted before they are sorted?