

The Communicability of Tuberculosis.

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IT is now generally conceded that pulmonary tuberculosis, or as it is usually termed, consumption, is a communicable disease. Formerly it was the general belief that the disease was hereditary. And even at the present time echoes of this conception are sometimes heard. Frequently people are heard to remark that they cannot understand how a certain person came to have the disease, "because there never was any such trouble in his family." And such a misconception on the part of the laity is of course pardonable when it is remembered that the frequency with which tuberculosis has been met in the family history of those affected is a circumstance, perhaps, which has contributed in a very great measure to the belief in the hereditary transmission of the disease. By those of course who attach importance to such a circumstance it is usually forgotten that children of an affected parent are usually very much exposed to accidental contamination, and have as well to fight against the handicap of the inheritance of tissue of low vitality. Among medical men, however, the hereditary theory has been abandoned. The disease is now known to be transmitted not from father to son by inheritance but from one person to another by contagion.

THE PRIMARY FACTORS

in the spread of the disease are two in number. Caused as it is in the first instance by a small vegetable micro-organism, the tubercle bacillus, the disease is propagated by the transmission of the germ from one person to another. From it comes all the infection. In the pus of the tuberculous sore, or in the sputum from the diseased lung, it is the tubercle bacillus which conveys the disease and every person infected with tuberculosis becomes on this account a centre for the spread of the disease unless adequate measures are adopted to prevent the dissemination of the disease producing micro-organisms.

It is to be remembered, however, that while the disease germ may be inhaled by anyone almost anywhere, the disease itself cannot be communicated to any who are in a good condition of bodily health. It is only those with tissues of low vitality or constitutions of poor resisting power who become the victims of the disease. The germ must have for its development a favorable soil and it is only when such has been prepared and is present in the form of what is known as a run down condition that there is any danger of the disease being contracted. Everything, however, which tends to produce this condition contributes likewise to the spread of the disease.

THE METHOD OF TRANSMISSION.

The process by which this transmission of the germ takes place is a very simple one and one which can be very easily understood. The bacilli are contained in the material discharged from a diseased lung, often to the number of many billions in twenty-four hours. This expectorated matter, or sputum, as it is called, is carelessly deposited in various places by the very prevalent and disgusting habit of spitting, or by the common practice of discharging expectorated matter into a handkerchief, carried in the pocket or placed beneath the pillow. Thus exposed to the air it soon becomes dry and is then taken up into the atmosphere, carried here and there by air currents, and of necessity inhaled by all, whether they will or not. Or it may be that the sputum is carried while moist from one place to another and it is possible in this way for it to be ingested. This method of transmission is not of course common, because it is only when the sputum has been carried into the mouth directly either from the hands or from food which has been contaminated, perhaps, through the agency of flies, that there is any danger of infection in this way.

The common method of infection is that by inhalation, and the chief danger lies in the germs of the disease as they are contained in the dried sputum.

That infection by inhalation is the most common method by which the disease is spread is shown by the fact that primary tuberculous lesions are in a majority of all cases connected with the respiratory system, and further proof is furnished by the greater prevalence of tuberculosis in institutions in which the residents are confined and restricted in the matter of fresh air and a free open life—conditions which would favor on the one hand the presence of the bacilli in the atmosphere and on the other lower the vital resistance of the individual. In this connection it may be mentioned that the mortality among persons confined in prisons has been shown to be four times as great as that among people living outside, while the death rate from consumption among certain religious orders is a further illustration of the same point.

ENVIRONMENT

is a very important predisposing factor. Dwellers in cities are much more prone to the disease than are residents in the country, because not only is the liability to infection very much greater, but the conditions of life are such that the powers of resistance are apt to be materially weakened. Darkness, dampness, and close foul air are most favorable for the preservation of the life of the