

regions and structures sometimes independent to some extent of the method or site of their introduction.

2. To know and to recognize the gateways in the body by which particular infections enter is very important, if our attempts to close them are to be successful. Penetration of the skin as in certain blood poisonings of surgical importance, yellow fever, malaria, hookworm disease, venereal and other diseases must be kept in mind. Bacteria may be breathed into the nose and mouth and carried deeper into the respiratory passages. Amongst the most important diseases contracted through the respiratory mechanism are tuberculosis, pneumonia, diphtheria, cerebro-spinal, meningitis and probably anterior poliomyelitis. We are exposed to certain infections, such as typhoid and cholera through food and drink, and we must not forget that dust that falls into the eyes and particles which are inhaled may lodge in nose or mouth and be swallowed. To what extent this is of importance in tuberculosis we cannot as yet be sure. Bad conditions of mouth and teeth are now recognized as important causes of disease and oral prophylaxis is receiving increasing attention.

A third important consideration is the distribution of the virus or microbe in the infected individual and the means by which it is normally eliminated. The paths by which the bacteria or their toxins or poisons spread and the methods by which they work harm to the tissues, cells and fluids of the body must be known, too, in order to afford intelligent protection. Certain of the bacteria remain pretty well confined to the locality where they enter. Tetanus is a good example of this, although the soluble poison is distributed. Certain of them spread slightly as in diphtheria, and here, too, the toxin is widely distributed. Cerebro-spinal meningitis and anterior poliomyelitis are rather localized, and seem to have a very different kind of poison from the two already mentioned. In tetanus only the wound and objects which come in contact with it are likely to spread the infection. The guarding of the mouth and nose in diphtheria and pulmonary tuberculosis is the really intelligent step in the prevention of the diseases.

In typhoid fever the chief sources of danger are the excrement and urine which should be easy to safeguard. In cholera,

the bowel discharges alone seem to be dangerous. In scarlet fever, measles and small-pox where the whole skin surface is involved, we have been led to believe it very difficult to prevent the spread of infection. We are accustomed to neglect the nose, mouth and ear, and now find, particularly in scarlet fever, that undetected troubles in these localities are frequently operative in the causation of the disease long after the skin be exonerated.

4. A fourth consideration of very great importance is our need of knowing the vehicles of transmission or the carriers of disease. Flies, ticks, mosquitoes and other vermin belong to this group. Domestic and other animals may act as intermediaries in the spread of disease, especially in those which require more than one host to complete the life cycle of the living cause of the disease, as in tapeworms of various kinds and certain cystic diseases, trichina and kindred conditions.

But of all the living carriers of disease man is the worst offender. It is now well known that human beings may harbor and transmit living virulent bacteria without themselves showing any ill effects. Typhoid Mary, over whose destiny Dr. Biggs presided for so long, was shown to have spread typhoid fever to numerous households. During many years, whilst well herself, she has infected many others with the disease. Similar instances are being found elsewhere. Well people may carry diphtheria bacilli to others who are susceptible. Our means of detecting such sources of danger in the various diseases have been improved, although much remains to be done yet. These carriers constitute a constant menace to public welfare and tax the ingenuity of our sanitarians and the erudition of our legal experts in order to know what is at once just to the individual and protective of public rights.

In addition to the well carriers, we have also those individuals in whom the disease is so mild or atypical as to evade detection, and also those who have been sick, but in whom after recovery the virus persists in some undiscovered or inaccessible locality.

The inability of the public to realize that the tendency for a disease to spread has no relation to the severity or mildness of the disease is a constant stumbling block. In case of doubt as to diagnosis of some of the children's diseases we find the ordinary