

and renders easy the inception of treatment if the presence of tuberculosis be established. Moreover, the general practitioner would have no hesitation in seeking a second opinion from a consultant of recognized standing, and, if working on a contract system, would have a strong inducement to transfer the onus of treatment to the shoulders of others.

It would be cheap, because it would utilize all the existing mechanisms, and the additional expense for the occasional examination of the associates of notified patients would be comparatively small. If special officers were appointed for this work in each area, the expense in salaries alone would be very great, and the establishment of new institutions would add much to the cost.

The present seems a most opportune time to develop the usefulness of the out-patient departments of the hospitals and dispensaries in London on the lines indicated, and to encourage their harmonious working in a consultative capacity with the general practitioners of their districts.

DENTAL CONDITIONS IN TUBERCULOUS SUBJECTS.

BY GEORGE THOMSON,

L.D.S.,

Honorary Dental Surgeon to the Royal Hospital for Diseases of the Chest,
London.

THE principal change which has taken place in our *point de vue* since Miller's "Micro-organisms of the Mouth" was published in 1890 concerns itself with the opinion that the tubercle bacillus is not inspired, but that it is ingested through the alimentary tract. Miller is still a long way in advance of many later writers, both as to the cause of dental caries and oral sepsis. "The soil, much more than the seed, controls the disease." Professor Adami says: "The tubercle bacillus, we may be fairly sure, from living, it may be, on foodstuffs outside the body, accustomed itself first to living on the surface and in the passage of the organism as a harmless saprophyte, and only later gained the power of living, not on, but in the tissues; and from that moment it became pathogenic."

Dr. Sim Wallace says: "The mouth is so exposed to bacterial infection that whenever it presents a suitable soil for the development of any common species to bacteria, then such bacteria will gain a foothold, and without such suitable soil it seems impossible for any

species of bacteria to have more than a transient existence in the mouth."

Dr. W. Hunter and Dr. Peter Daniels, with many others, have realized that oral sepsis produces a lowering of vital resistance, and further renders the patient an easy victim to pyæmic and suppurative processes. It is obvious that a mouth containing carious teeth and diseased gingival margins, with deposits and spaces between the teeth and pockets from which there is an exudation of pus, is a predisposing cause of many infective diseases. It would appear from the foregoing that the first rational method of prevention in the pre-tuberculosis stage would be the restoration of the mouth to health.

Again, it should be strongly urged that the permanent cure of pulmonary tuberculosis must be greatly hindered if the mouth is allowed to remain in an unhygienic condition. That general feeling of wellbeing which is always felt when the mouth is clean is especially important in the case of consumptives. The importance of proper nourishment to tuberculous patients, and the thorough mastication of food, so necessary to normal digestion, make it imperative that the teeth and gums should be restored to health.

Pawlow has demonstrated that normal digestion is dependent on the pleasurable chewing of food, with its accompaniment of a natural flow of saliva. It is not the amount of food nor its quality which nourishes the patient so much as the influences that preside over the nervous system affecting its digestion, and it is in the act of eating that the whole mechanism of digestion is set in motion. "An efficient stomach is the greatest asset of the consumptive," says Muthu.

The first 3 inches of the alimentary tract is under the control of the patient himself, and if the oral cavity is septic, how is it possible to expect the remainder can be healthy? It is the pollution of the stream at its source. Muthu states that more than 50 per cent. of the patients entering the sanatorium have carious teeth, and points to a close relation between dental caries and consumption. "Diseased conditions of the teeth and mouth not only act as a breeding-ground for micro-organisms, but bring about catarrhal inflammation of the tonsils and the pharynx, which, if persistent, injure their epithelium, weaken their defensive power, and very likely help the spread of infection."

Dr. Etienne Burnett, referring to the experiments of M. Vausteen-burghé and M. Grysey, indicates that pulmonary anthracosis is not caused by the inhalation of dust, but by swallowing it, and is contracted by intestinal absorption. The dust reaches the lungs by passing through the wall of the alimentary tract. It seems from these

experiments that weight is to be attached to the importance of well-developed jaws, in which the teeth properly occlude and the mouth is normally closed in the act of breathing, and specially during sleep, so that the air breathed is filtered through the nasal passages, thus offering resistance to the introduction of foreign bacilli.

The fundamental condition, then, in the prophylaxis of the disease is normal occlusion of the teeth, as opposed to the common abnormalities of occlusion, such as post-normal occlusion, better known as anterior protrusion of the incisors of the maxilla or open bite, in which the molars meet, but the incisors do not. These conditions are associated with high palate, adenoids, and mouth-breathing. These conditions must be referred to malnutrition, the sucking of milk from bottles, the use of the "comforter," or dummy teat, and there is no evidence at present that they are referable to prenatal conditions.

"In the matter of tuberculosis, prophylactic hygiene is more powerful than any therapeutics."

"By means of the natural resources of the organism, tuberculosis is already curable. This is not a paradox, but a fact. It is certain that experimental medicine will find the remedy, whether preventive or curable, that will act in the same way as Nature."

But it must also be remembered that while antitoxins render the subjects of diseases such as diphtheria and smallpox to some extent immune, it is not so with tuberculosis or cancer, because the victims of the latter are always more susceptible to the disease when once they have been affected, whether treated or otherwise. Therefore, the careful examination of children's teeth at the age of three, and treatment if necessary, as is being done systematically in Germany, and recently advocated at the Congress of the Sanitary Institute at Belfast, will probably be far-reaching in its effects, and prove to be one of the greatest advances made in preventive medicine and personal prophylaxis.