

A similar result follows from unhygienic surroundings.

(2) *Lameness of an uncertain commencement.*—A slight stiffness of the joint in the morning, with a scarcely noticeable limp, and a history that is indefinite as to the time when the limp was first manifested, is a valuable indication.

(3) *Some rise of temperature, especially in the evening, both local and general.*—Too little attention has been paid to this symptom. From observations made by Bradford and Lovett, of Boston, it is manifest that it is an early and valuable indication of incipient disease.

(4) *Limitation of the functions of the joint nearest the disease.*—This is, no doubt, the result of reflex action and manifested long before the joint has become infected by direct communication with the tubercular focus.

(5) *Atrophy of the muscles which control the neighboring joint.*—This is a sign that occurs so early and in so marked a degree that it cannot be accounted for by disuse only. There is manifestly a direct trophic disturbance as well. By careful comparison of the two limbs this will be found a very early and very constant indication of disease in the joint neighborhood.

(6) *Early enlargement of the bone.*—Where the deposit is at all considerable it causes a perceptible inflammatory thickening of the bone around, and careful observation will reveal a local enlargement that will be all the more manifest because of the adjoining muscular wasting. By careful measurements made from day to day, and comparison being made with the corresponding part on the other side, very slightly increasing enlargement may be observed. There will probably be some tenderness also, and a less resonant note upon percussion over the affected area of bone.

(7) *Flexion of the joint.*—In slight degree unobservable except by the most careful comparison, this sign is generally manifested at the hip, knee, and elbow. There is one special feature of great importance in arriving at a diagnosis in suspected cases—the element of chronicity. When the onset of disease is sudden and definite one may well conclude that it is not tubercular; but when there is a history of disability of a limb of uncertain beginning, particularly if accompanied by an account of exacerbations, sometimes apparently nearly recov-

ering, and most of the evidences of disease just named are found present, the clinical picture may be considered complete.

*Treatment.*—The frequency of tubercular affections is something appalling, and though the virulence of tuberculosis has made it one of the greatest scourges of humanity, yet the more complete knowledge of its natural history, its pathology and terminations, and the influences which modify its course, have done much to bring it under the control of science. At least one person of every seven dies of some form of this disease. Its ravages are seen not only in its death-roll, but in disfiguring scars, crooked spines, and stiff and deformed joints. While pathology has been showing the natural course of the disease, surgery has been making advances which enable us to utilize the added knowledge.

Though the bacillus is the essential cause of tuberculosis, yet the element of fitness of soil is one of great importance. No doubt many persons, from birth, possess a degree of resistance to infection that would insure their safety even against direct inoculation. On the other hand, there are certain conditions that may be considered as promoting the fitness of the tissues for the development of the bacillus. Chief among these may be named *inheritance, defective hygienic surroundings, poor food, and age.* Bone tuberculosis manifests itself especially between the ages of three and nine years, and its time of greatest frequency of occurrence corresponds with the period of greatest activity at the places of growth in the long bones.

The medical treatment of those suffering from osteo-tuberculosis must be tonic and supporting. As in other forms of tuberculosis, bitter tonics, arsenic, quinine, iron, and cod liver oil, must be given. Of these, the last is most to be depended upon. Of much greater importance, however, is the dietetic and hygienic treatment. The most potent agents for good are found in sunlight, fresh air, and physiological rest.

*Case 1.* T.H., male, æt. 32; good family history; of good habits; had always been healthy till eighteen months previous. At that time he fell into a lake, and after removal was resuscitated with difficulty. Did not regain his usual health, and twelve months afterward felt pain about left hip, groin, and thigh. Was soon confined to bed; had much pain in thigh and