

as also tuberculous taint, till with some accidental disturbance of the health its specific characteristics may become developed. Localized irritations as from pressure (tobacco-smokers' cancer) or presence of tissue of low organization (cicatricial) are well-known seats of cancer, due apparently to their low vitality or lack of resistance to some morbid agent.

Summing up the various conditions of irritability, low vitality, hereditary tendency, etc., Paget says: "We are apt to speak of potentiality, tendency and predisposition as if they were forces independent of matter as of structure; but when we try to think of the very things on which they depend, we find ourselves in a cloud-land of mystery where the difficulty of discovering truth is as great as the facility of guessing."

The main interest, he says, is in the biology of primary cancer, and this being so, we may justly hope that by careful study, both chemical and experimental, we may find the morbid material, microbe, or ptomaine, or one or more of their products to which cancer is due. And if this be attained then may we hope to be much nearer to a remedy, preventive or curative. While cancer may be attacked locally, yet he asks: If syphilis, ague, etc., may be cured by special remedies, why not cancer, even as other specific diseases?

#### EXPERIMENTAL WORK IN STATE MEDICINE.

UNDER the caption of "Practical Work in Public Health," was discussed in MEDICAL SCIENCE for December, the scope of Hygiene in its general aspects, as well as the position assigned to Public Hygiene in Ontario, the machinery by which the Public Health Acts are to be carried out, and some of the defects evident to this system, as at present existing, owing to the want of opportunities by both central and local health authorities for obtaining practical knowledge of the many difficult problems which Boards of Health are constantly encountering. In the present article we propose to indicate what is being done elsewhere, and how an advance in this department of work in Ontario is both desirable and possible.

Until recent years Institutes of Hygiene have existed nowhere except in England and France, where the work of Burdon Sanderson, Thudicum, Klein etc., under the directions of the Local Gov-

ernment Board in the one case, and of Pasteur, Duclaux, Chamberland, Chauveau, etc., under the direction of the Department of Agriculture in the other, may fairly be said to have been public health work. Since, however, the remarkable distinction gained by Prof. Koch, by means of his bacteriological researches, State Medicine has been greatly advanced in Germany, and in the United States.

The real advances made, however, until quite recently have been due in most instances to the self-sacrificing labors of the few teachers of Hygiene in connection with some Faculty of Medicine, and the examples of practical instruction in such institutions have been almost as varied as the energy, and abilities of the different professors. Until now the State has done comparatively little anywhere, and to the medical profession, to its credit, has been due most that has been done in the field of preventive Medicine. To Chemistry first, and next Biology, have we to look for those faint streaks of dawn, now grown into the full light of day, which are shed upon this department of scientific work, widening so greatly in every direction that in the study of it as Proust says, "there is truly enough to frighten the spirit the most intrepid, the most athirst for knowledge."

To indicate the character of work which has led us to our present position of practical knowledge in Hygiene, we need but indicate the work done. In 1875 Burdon Sanderson reported to the Local Government Board on "An Experimental Study of Infective Inflammations," Klein reported on the "Intimate Anatomical Changes in Typhoid Fever," and Baxter reported on "An Experimental Study of certain Disinfectants." In 1876 the chemical, geologic and meteorological conditions of the questions were discussed in a large report to the same Board on "Modes of Treating Town Sewage." Pasteur's experiments, started originally from the chemical standpoint, on the "Phylloxera, the Silk-worm Disease," and on Anthrax, and the generous appreciation of his work by the French government are equally well known. To-day we have Koch established in the Institute and Museum of Hygiene in Berlin, doing independent work, and directing practical courses of instruction to students, increasing year by year, while coincidentally with his bacteriological researches, chemical researches are carried on with disinfectants; while similarly the ven-