

to adopt the plan of European countries and control all theatres; but it is highly important that more than an incidental supervision and inspection,

both of existing public buildings and of the plans of those constructed in future, should be undertaken by a regularly-appointed and paid official.

INDEX OF PROGRESS

MEDICINE.

Secondary Mixed Infection in Typhoid Fever.

We have read with unusual pleasure a paper with this title in the August number of *The Medical Journal and Surgical Examiner*, as it admirably sets forth from the scientific standpoint of cause, certain clinical phenomena which are unfortunately too frequent adjuncts of Enteric fever. Says the writer, Dr. Holmes, "In this strict sense, typhoid fever is the infection of the typhoid bacillus and its direct consequences. Any symptoms and results which are due to other micro-organisms are not parts of the typhoid disease, and must be looked upon as accidental complications."

The course of the typhoid bacillus is well known. First found in Peyer's patches in great numbers, they gradually spread to the mesenteric glands and after a short time are poured into the thoracic duct, cause a pneumonia so common, an early symptom in the disease. Thence passing into the general circulation they collect in spleen and kidneys, thence into the urine whence they may be cultivated. Sometimes at an earlier stage they may force themselves by the portal circulation into the liver, and may be found in the portal capillaries. "The typhoid bacillus does not produce suppuration, nor completely destroy living tissues, except when in masses large enough to produce large infarctions as in spleen and kidneys. It does produce a toxæmia or sapræmia, and later, a septicæmia which has a tendency to self-limitation." Owing to the various and grave consequences following the disease, the writer says we must conclude that such results are due to secondary invasion with bacteria, which have nothing to do with the disease itself, and any of which may be absent in a typical course of typhoid fever. "Whenever the invasion of the typhoid bacillus takes place, whether in the superficial lymph glands of the intestinal or of the respiratory tract, the inflammation in these glands due to the irritation of the bacillus and its ptomaine so diminishes their resistance that a secondary invasion

with pyogenic and other bacteria is a very easy thing. Many of the pathogenic bacteria are only facultative parasites of man, living for the most part as messmates with him on the contents of his intestines, or as some think, being necessary even to mammalian digestion. When the intestine or any part of it is dead, or the barriers which ages of association have thrown up are torn down by traumatism or otherwise, the before harmless or even helpful bacteria, set up a destructive, saprophitic colonization of the tissues of their host, and in the neighboring living tissues they may produce suppuration, coagulation, necrosis, hæmorrhagic infiltration, lymphatic engorgement, or any of the results which are so frequently demonstrated in the infectious diseases, dependent of course on the peculiar anatomy and physiology of the invading parasite. Of all the bacteria capable of becoming pathogenic, the pus-microbes are the most ubiquitous, and their influence most disastrous to life."

So interesting are the following paragraphs that we quote them in full:—

"It will be well, then, to consider at some length the manner of infection with these parasites, alone, and then, afterward, some of the other kinds of microbic invasion separately.

In addition to the local lesion in the intestine, or larynx, the facility of infection with the pus-microbe is increased by the general condition of the patient brought about by the simple typhoid disease. The nutrition of the tissues is reduced to a minimum, the circulation is impeded directly by numerous capillary emboli, and indirectly by a diminished nutrition of the heart muscles. The poor quality of the blood and the retarded circulation invite the formation of thrombi. The lymphatic circulation is equally impaired. While under ordinary circumstances of health, the lymph apparatus has not only a great power of resistance to bacterial invasion, but also a remarkable power of destroying the invader, a few days of typhoid infection is enough to interfere with this function materially.

The infected and engorged Peyer's gland is very