

and its recent increase in towns is a point of much interest. With regard to this incidence upon town populations during recent years, I may point out a very remarkable exception which this city affords where, since 1873, the diphtheria mortality has gradually fallen from 0.31 to 0.11 per 1,000, or to about one-third, while in twenty large towns during the same period it has as gradually risen from 0.09 to 0.27, or three times as many. This exceptional position of Birmingham may possibly be owing to geological and geodesic conditions, though it is difficult to believe that this is the only explanation.

IMPORTANT COMMUNICATIONS ON SULPHUR DISINFECTION.

The following from the American Journal of Medical Sciences, will be valuable to all concerned with disinfection :

Lansing, Mich., August 23, 1890.--E. B. Fraser, M. D., Secretary of the State Board of Health, Wilmington, Del.—
DEAR DOCTOR: Your letter of August 18, acknowledging the receipt of a copy of my letter to Dr. Duffield (giving results of experience of health officers in Michigan, and an account of the experiments by Pasteur, Roux, Dujardin-Beaumetz and others relative to sulphurous disinfection), is before me. You ask me for further opinion, and refer to the report of the Maine State Board of Health for 1889, page 251, and Dr. T. Mitchell Prudden's estimate of the want of value of sulphurous disinfection. There are at least two valid objections to the acceptance of Dr. Prudden's conclusions to which you refer: (1) His experiments dealt with a micro-organism which seems to be different from the one most generally accepted as the probable cause of diphtheria. Therefore, he may not have been dealing with a micro-organism causing diphtheria. (2) The quantity of sulphur burned—the strength of the sulphurous acid fumes which he employed—is not stated. It having been proved by actual experience with disease, and by other laboratory experimenters (Pasteur, Roux, Dujardin-Beaumetz, Valin, Legouest, Polli, Pettenkofer, Dougall, Fatio, Pietra Santa,) that sulphurous acid gas is not always a disinfectant when employed in small proportions, and that it is a

disinfectant when employed in large proportions, such as result from burning of three pounds of sulphur to each thousand cubic feet of air-space, no different conclusion should be reached from Dr. Prudden's experiments as published. You mention that Dr. W. H. Welch, of Baltimore, "enters his protest" against disinfection by sulphurous acid gas. I respectfully submit that entering a protest should count for very little in science as against results of actual, practical experience in the restriction of diphtheria; it should not even take rank with definite statements of results of laboratory experiments. Laboratory experiments are very valuable, but they need to be repeated by the same observer and by other observers, in order to eliminate errors due to accidental or incidental conditions. Micro-organisms which, after subjection to a disinfectant, may yet have sufficient vitality to reproduce in a laboratory where the most favorable conditions are supplied, could not possibly do so in the human throat, or elsewhere in the human body, because of the well-known power of the fluids of the body to destroy micro-organisms, as proved by Dr. Prudden's and other laboratory experiments following, but not confirming, Metschnikoff's doctrine of the phagocytes.

Practical health officers need to employ a gaseous disinfectant that shall at once reach all surfaces, ledges, cracks, drawers and receptacles of dust, wherever it may be, in a room, that shall permeate all articles sufficiently permeable to admit disease-causing micro-organisms; that will not necessitate too much labor in the removal of furniture or other articles, and that shall have power to destroy or sufficiently weaken the vitality of the "germs" of such diseases as diphtheria and scarlet fever, and occasionally small-pox, as they are usually distributed in the sick-room, and that shall not destroy family portraits and similar articles. Only two such disinfectants are prominently before us for choice—chlorine and sulphurous acid gas. Of these two, sulphurous acid gas is made in proper quantity, with more certainty and less trouble than is chlorine gas; and, at present, I regard the weight of evidence in its favor as equal to that relative to chlorine gas, concerning which not so much evidence has been published. Practical experience in Michigan proves that by isolation of first cases of diphtheria, and disinfection of premises after death or recovery by burning sulphur, etc., four-fifths of the cases and deaths which would otherwise occur from that disease are prevented.