

as it was from an exchange—the Am. Jr. of Med. Sci.) on this subject, which was strongly favorable to the proper employment of sulphur fumes; and in former issues much more like evidence has been given.

Experiments recently made in Paris should set this question at rest. A correspondent of the *Therapeutic Gazette* (of Phila., Pa.) sends to that Journal for October the report detailed below:

Drs. Thoinot and Masselin had just completed a thorough investigation of the efficacy of sulphurous acid gas as an antiseptic. It should be explained that the experimenters, both skilful and well-trained gentlemen, had at their disposal the resources of the Pasteur Institute microbiological laboratory and the use of some vacant wards at the Charite Hospital. Owing to these facilities, they were enabled to procure or prepare the various septic agents; to test their virulence before and after exposure to sulphurous gas; to conduct the disinfecting operations under conditions closely similar to those of current practice; and, in fine, to bring into play all the nice exactness now indispensable in scientific researches that are to stand the fire of modern criticism.

The conclusions from these experiments are that, sulphur fumes may be considered useless with septic vibriones and charbon; but in 60-gramme doses to the cubic metre (28 grains per cubic foot) and after twenty-four hours' contact, they may be relied upon to destroy tuberculosis, glanders, farcy, typhoid fever, diphtheria and probably cholera germs. The germ of scarlet fever remaining as yet unknown, as the report states, no experiments could be instituted.

The following were the viruses tested: (a) Pasteur's septic vibrio; (b) bacterial or symptomatic charbon; (c) bacteridial charbon; (d) tuberculosis; (e) glanders; (f) typhoid fever; (g) diphtheria; (h) Asiatic cholera; and (i) Guadeloupe farcy. Each virus was simply exposed to the sulphurous acid in a room of fifty cubic metres (seventeen hundred and sixty-five cubic feet) capacity, tightly closed with putty. The gas was evolved in various proportions,

but the quantity of sulphur consumed noted in all cases. Now as to the results: (a) Septic vibrio, or Pasteur's septicemia, was tried under four forms, and proved, even in large proportions, utterly powerless in all cases. (b) Symptomatic and (c) bacteridial charbon remained unaffected, as a rule, though large proportions of sulphur fumes continued for forty-eight hours will occasionally have some effect. (d) Tuberculosis in cultures supplied by Professor Nocard, and in the form of sputa, fresh and dried: in all cases Koch's bacillus was found to have been destroyed by a twenty-four hours' exposure to the fumes, in the proportion of 60 grammes of sulphur to the cubic metre (28 grains to the cubic foot). Even in the most refractory form, the sputa, the bacillus will be killed, but the full dose of sulphur is necessary. (e) Glanders; cultures of full virulence will be destroyed after twenty-four hours' exposure to the fumes of 60, and even 50 or 40 grammes (28, 23, and 19 grains) of sulphur to the cubic foot. (f) Typhoid fever; cultures of Eberth's bacillus from the morbid spleen: complete destruction after twenty-four hours with 60 grammes of sulphur. (g) Diphtheria; cultures supplied by Dr. Roux: after twenty-four hours and 60 grammes of sulphur all Kleb's bacilli were entirely destroyed. (h) Asiatic cholera; the only cultures procurable being rather old, the proof cannot be said to be quite satisfactory, yet the bacilli were easily affected by even small doses of sulphur. (i) Guadeloupe farcy; virulent cultures of this peculiar affection of the ox, obtained from Professor Nocard, were invariably rendered inert after twenty-four hours' exposure to 60 grammes of sulphur, but smaller proportions were unreliable.

Evidently therefore as our knowledge of antiseptics widens, the fact becomes more evident that each disinfecting agent has its special province, and each micro-organism its peculiar antagonists.

This instructive series of discriminating experiments explains why some good authorities speak so highly of sulphur fumes as an antiseptic, while others have pronounced them nearly worthless.