

of treatment (good as it may be, irrespective of the germ-theory on which it has been based) pressed upon our attention on the assumption that the germs of putrefaction and the germs of disease are living organisms similar in nature. The strange persistency with which this view is advocated is not a little surprising, when it entails the obvious contradiction that germs which do, under all ordinary circumstances, develop into well-known organic forms, should, when concerned in the production of the diseases in question, induce all the effects supposed to depend upon their prodigious growth and multiplication, and yet never develop, never become visible. And, whilst *Bacteria* and other organisms with which the unknown disease-germs are compared, flourish and reproduce in the much-vaunted, germ-killing, carbolic lotions;* still carbolic acid continues to be recommended solely on account of its germ-killing powers, and the theory on which the practice is based is thought to derive support from the results obtained by the use of this agent. Surely no theory could be weaker on which to base a successful method of treatment; and if, as its distinguished originator says,† its general acceptance is principally hindered by the "doubt of its fundamental principle," then I would deliberately say that the blame, if any, cannot fairly be said to lie with those "who have opposed the germ-theory of putrefaction." The "Antiseptic System" of treatment needs no support from a germ-theory; it can be surely and unassailably based upon the broader physico-chemical doctrines of Liebig.‡

The last blow, however, seems given to the "germ-theory" of disease, when we are told that the blood and the secretions in sheep-pox are not infective, though this disease is most closely allied to, and even more virulently contagious than, human small-pox. If germs had existed in th's general disease, and their multiplication was the cause of it, then most assuredly would they have existed in the blood and in other fluids of the body; and yet, as Prof. Burdon Sanderson tells us,§ "In sheep-pox all the diseased parts are infecting, while no result follows from the inoculation either of the blood or of any of the secretions; the liquid expressed from the pulmonary nodules has been found by M. Chauveau to be extremely virulent—certainly not less so than the juice obtained from the pustules." Now, although in other of these diseases the blood does undoubtedly exhibit infective properties, still the ascertained existence of even one exceptional case amongst maladies so contagious as sheep-pox, seems to be absolutely irreconcilable with the theory of the "germ-theory," more especially when this theory was started principally to explain the phenomena of such highly contagious diseases.¶

vegetable organisms the germs have nothing to do. They have originated in man's organism. Man himself has imposed the conditions favourable to their development. Man alone is responsible for their origin. Human intelligence, energy, and self-sacrifice may succeed in extirpating them, and may discover the means of preventing the origin of new forms not now in existence." This is undoubtedly a very much less objectionable form of the germ theory, though much additional evidence would be needed before we could accept the view that contagious diseases are due to the rapid multiplication of the contagious particles within the body of the creature affected. The non-contagiousness of the blood is as irreconcilable with this as with the other form of the germ theory.

* See "Modes of Origin of Lowest Organisms, 1871, p. 85. And in a recently published paper "On the Relative Powers of Various Substances in Preventing the Generation of Animalcules on the Development of the Germs," Dr. Dougall says: "If, as is alleged, germs are the source of putrefaction, then the strongest preventives must be the best antiseptics, and vice versa. Now, as seen in the table, carbolic acid occupies a very mediocre place as a preventive, therefore it is legitimate to conclude that it stands no higher as an antiseptic," p. 13.

† *British Medical Journal*, August 26, 1871, p. 225.

‡ These doctrines do not seem to have been adequately grasped by Prof. Lister. Fragments of organic matter are believed by Liebig to be capable of acting as ferments; he, however, holds that their potency is deteriorated by heat almost as much as are the qualities of living ferments. The experiments with boiled fluids in bent-neck flasks, therefore, upon which Prof. Lister so strongly relies in proof of the germ-theory, prove absolutely nothing as between the two theories of fermentation of Liebig and of Pasteur. Amongst the atmospheric particles there are sure to be dead ferments in the form of mere organic fragments. Now the doubt that previously existed was, as to whether they could initiate fermentation and putrefaction, or whether the presence of living germs was absolutely essential. In the experiments with bent-neck flasks, both fragments and germs must be simultaneously excluded or admitted to the fluids. Prof. Lister's readers might suppose that Liebig had no objection to his ferments being boiled, and that the issue lay between the relative efficiency of oxygen and living germs. (See Gerhardt's *Chimie Organique*, t. iv. p. 545.)

§ Report "On the Intimate Pathology of Contagion," in Twelfth Report of Medical Officer of Privy Council.

¶ Inoculation with the blood of a person suffering from measles has also in several cases failed to reproduce the disease. The different severity of small-pox taken in the ordinary way, and that induced by "inoculation" of the matter of a small-pox pustule, is also quite inexplicable in accordance with the "germ theory."

Dr. Bastian tabulates the whole of the communicable diseases in the following manner:—

PARASITIC DISEASES AFFECTING:		
Many of them capable of arising "de novo."	External (cutaneous) surface.	Caused and propagated by the presence and self-multiplication of living units.
	Internal (mucous) surfaces.	
All inoculable and capable of arising "de novo."	Closed (serous) cavities.	Principally Sporadic.
	Tissues of organs or parts. (<i>Psorospermia</i> , <i>Cysticerci</i> <i>Nematoids</i> , etc.)	
All contagious and capable of arising "de novo."	Blood. (<i>Bacteridia</i> in 'Malignant Pustule,' <i>Psorospermia</i> in 'pébrine,' etc.)	Caused and propagated by chemo-physical agencies, and not by the multiplication of living units.
TISSUE DISEASES.		
All inoculable and capable of arising "de novo."	A. Diseases of Internal Formed Tissues and of Mucous Membranes.	Principally Sporadic.
All contagious and capable of arising "de novo."	B. Diseases of the Blood (principally).	Principally Endemic.
Contagiousness either absent, little marked, or more or less virulent; all probably capable of arising "de novo."		Often Epidemic.

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