

I have shown you that disease spreads by means of particles of living matter. I will now detail their chemical characteristics. They are organic, and as such easily destructible if proper means are taken for the purpose. No organic matter can act upon the human body as they do. Arsenic or phosphorus kills by acting chemically upon the constituents of the tissues. Inorganic matter depends for its effect upon the consequences of the dose; and if it is not large enough, no effect follows. This is not the case with the organic particles about which I am speaking; a single granule of small-pox matter may produce sufficient of its kind to inoculate the whole human race, whilst no amount of arsenic can reproduce a single particle of extra matter of the same kind. It grows, therefore.

The next important point is that it is nitrogenous, and as such requires nitrogenous matter for its growth and reproduction. This exists in the particle in the albuminous form. Albumen is a constituent part of its body; just as every seed in every form of plant life contains some albumen in its structure, so every germ or atom of a contagium particle has some albumen as a part of its material structure.

We need not stay to enquire how this albumen acts upon the body when it sets up disease. But it is important to know that if it be coagulated, its chemical state is altered, and its vital power is lost. No seed will grow after the albumen contained in it has been coagulated, and no power on earth can get a chicken out of a boiled egg. Whether the contagium particle be animal or vegetable, whether it act by chemical or vital means, is of no moment to you; the result is the same; and in a very large proportion of cases, though not in all, the life of a contagium particle is lost if it be exposed to a temperature of 212° , provided the heat is continued long enough to penetrate the envelopes with which it is covered. I shall have something further to say upon this point when I come to the details of prevention.

I have shown you that the contagium particle is a solid, that it is albuminous, and that it requires nitrogenous matter for its reproduction. What is your duty with regard to it? It is, first, to destroy the particle itself by coagulation if it finds its way into your district; and, secondly, to see that organic matter in a state of change shall not exist in those positions in your district into which it is possible for the contagium particle to be transplanted. It may not be possible for you to destroy all the germs given off by a particular case, but it is your duty to get them diminished to the smallest possible amount by the means that I am about to detail to you. It will also not be possible for you to remove all nitrogenous matter in a given district, neither will it be necessary. Disease particles do not feed upon living and growing substances, but they increase and multiply upon the excreta of living bodies; upon the used-up material which living substances have done with, and upon those substances themselves when any part of them has lost its vitality. Your duty will consist in giving orders for the removal of the excreta