When you bury a putrid piece of meat in the soil the smell disappears, but the piece of putrid meat disappears also. The porous character of the soil conducts oxygen to the substance, and burns the smell, but the piece of meat gradually is burnt away also and wholly disappears. I think I can show you this action experimentally. I am now going to burn a body which is very difficult of combustion, but which, under the circumstances, I think I shall be able to succeed in burning. I have here some ammonia, which is always one of the products of the change of organic matters which contain nitrogen, and I am going to pass this body over oxygen under conditions in which I can get oxygen condensed. This is spongy platinum, and I think I can thus show you that the oxygen which is condensed in that platinum will unite with the body I wish to burn, just as the oxygen which is condensed in the porous soil. Now, oxygen is passing over from this receiver, and ammonia from this vessel; and these two, acting together, will cause a burning or the formation of nitric acid and nitrate of ammonia, which you will observe by the fumes which will take place. You already see the fumes, but you will observe the action more distinctly presently. Look how abundantly the fumes are being produced there from oxidation. You see it is now going on so fast that the platinum becomes red hot. You see there how beautifully the oxygen is burning that ammonia—converting it into nitric acid and nitrate of ammonia, and completing the combustion. Those disinfectants which act in this way,—either by means of porosity or by their chemical character,—are bodies acting exactly as ozone does. Now, here is a very common disinfectant, and a very interesting one. Charcoal also has the power of condensing gases within its pores. If I take a piece of charcoal and heat it, it will absorb this ammonia gas. Here I have the means of applying this charcoal disinfecter in various ways devised by Dr. Stenhouse, and which form a complete example of the disinfecting character of a soil which absorbs oxygen and then passes it over to other substances. These different forms of application on the table are cases which may be filled with this porous substance—charcoal. When this perforated box, for example, is filled with charcoal and used as a filter for air, the organic matter in the air which passes through is brought into contact with this charcoal and becomes consumed, just as the fuel of a fire is consumed, and is converted into carbonic acid, water, and ammonia. Supposing you take a dead animal—a dead cat or a dead pigeon—you may make a grave for it of charcoal and keep it for a length of time. You must not suppose that it is not decomposing because there is no odour from it. You might as well deny that there were fires in a house because you do not see any smoke coming from the chimneys. If the combustion is perfect, inodorous invisible gases escape in both cases. In the case of this decomposition, the oxygen absorbed by the charcoal burns the organic matter completely, and prevents a smell. This circumstance has been applied to various purposes, such as filters and respirators. Here are various examples of them. Here is a respirator used for respiration in infected or badly ventilated places, or for removing the effects of foul breath in disease. Here are ventilators of various kinds to filter out effluvia from air before it enters our habitations.

The next disinfectant to which I shall direct your attention, which acts by burning up the noxious organic matter, is "Condy's disinfecting fluid," which is no doubt familiar to you. There are various samples of it which Mr. Condy has been good enough to send me, and which you may examine after the lecture. They are all compounds containing manganic acid, or permanganic acid. Manganic acid is a substance consisting of two equivalents of manganese and six of oxygen. In permanganic acid there are seven equivalents of oxygen and two of manganese. Both of these acids give over their oxygen readily to organic bodies, and in this way act as true disinfectants by burning them or destroying them. Look at the bottle into which I breathed some time since, the colour is nearly destroyed, the permanganate of potash which I employed having burnt out the organic matter; and so this substance, if it be used as a disinfectant, destroys the putrid effluvia by giving over its oxygen to it, and burning the organic matter. This can be illustrated. If I allow this fountain to act, the liquid will gradually become totally decolorised, because it burns away the organic matter which is present in the air of the lecture theatre. These permanganates have, in consequence of this property, become familiarly and extensively useful; but these are local disinfectants, and necessarily local disinfectants, although we try to increase their surface by moistening a cloth, and hanging it in the air. When we desire, however, to disinfect a whole room or the wards of an hospital, we must resort to some gaseous compound which can diffuse itself throughout the air, and combat the enemy in every inaccessible nook and corner, as is the case with the sulphurous acid which was employed by Ulysses. Perhaps the most effective of these gaseous oxidising disinfectants is nitrous acid. It was for this that in 1802 Parliament gave a reward to Dr. Carmichael Smith. In contact with the air, it forms nitrous fumes. Now, these nitrous fumes form an excellent disinfectant, but they are irritating to the lungs just as chlorine is. It may appear odd to those who know sulphurous acid gas chiefly in its character of an absorber of oxygen, that I should allude to it as an oxidising disinfectant; but, according to Schönbein, in the act of taking one portion of oxygen to itself, it converts another portion into ozone, which produces the disinfecting result.

The other class of disinfectants of which I have spoken are the non-oxidising, and I must allude to these very shortly. Their action is to prevent putrefaction by arresting it in a singular way without destroying the organic matter, and they do not allow the decay to go on. The most useful of this character of bodies is a mixture of sulphite and carbolate of lime—sulphurous acid united with lime—and carbolic acid united with lime. It is better known under the name of "McDougall's disinfecting powder." Now, in this case the carbolic acid prevents any decay. As an illustration of the preservative action of carbolic acid, I have on the table sheep-skins sent from Australia preserved by this means; they have simply been washed over with carbolic acid. When the disinfecting powder is applied liberally to organic mat-