

smallpox—those germs being disclosed and multiplied, and producing others capable of reproducing in other bodies the same succession of changes—other lethologists have supposed that the atmospheric poison acts on the blood chemically, by giving rise to what may be termed catalytic actions—while the author is disposed to believe, from what he saw during the cholera epidemic in Newcastle in 1853, that some of these volatile organic matters in the atmosphere are capable of acting on the human body as direct poisons, and that this inanimate volatile poisonous matter also furnishes nutrition to the organic germs suspended in the air. After these preliminary remarks he proceeded to refer briefly to a number of scattered facts, which seemed to him to indicate the existence of a great principle, which might hereafter be found applicable to the prevention or mitigation of epidemic diseases by the direct use of substances capable of arresting the process of morbid fermentation. He mentioned the following facts as converging to this conclusion: 1. Antiseptic substances, ranging from simple innocuous matters, such as sugar, up to the powerful metallic poisons, such as corrosive sublimate, and forming a very numerous and diversified group, have long been known to be capable of arresting the putrefaction of animal and vegetable structures. 2. The same substances prevent the formation of fungi, as is seen in the use of solutions of metallic salts in the taxidermy in the prevention of dry rot, &c. 3. Many of those agents are also known to arrest at once the process of fermentation, as, for instance, sulphurous acid, and Emi and other chemists have observed under the microscope the rapid stoppage of the vitality of the yeast plant when a solution of arsenious acid was added to the fermenting liquor. 4. The formation of the fungus in and on the plant, which causes the vine disease, is prevented by applying sulphur to the affected vines. 5. In Cornwall it is believed that the arsenical fumes from the tin-calcing furnaces exercised an influence over the potato-plants in the neighbourhood, which preserved them from the disease then affecting other parts of the same county. [A statement to this effect, signed by Captain Charles Thomas, Sen., of Dolwath, and sixteen cottagers, was here read.] 6. It has been found that when a species of fermentation has taken place in the human stomach resulting in the development in large quantities of a minute organism (the *sarcina ventriculi*), this morbid action can be controlled and stopped by the direct anti-zymotic influence of certain salts, such as sulphate of soda, in doses perfectly compatible with the patient's safety. 7. In different parts of the world, among different races, a belief has long existed that certain antiseptic substances, of which arsenic may be taken as the type, are capable of acting as antidotes or preservative and curative agencies against atmospheric and other poisons, and in some cases that popular belief has proved to be well-founded. The experience of the multitude discovered the value of arsenic as a cure for ague long before it was recognized as such by physicians. The arsenical fumes of certain works in Cornwall were stated by the late Dr. Paris to have stopped the ague, previously endemic there. More recently it has been stated that the arsenic caters of Styria are peculiarly exempt from fevers and other epidemic diseases. And in India the natives have long used arsenic as an antidote for the poison of snakes. Dr. Robinson concluded by expressing a belief that these scattered observations were not only sufficient to justify and necessitate further inquiries in this direction, but seemed in themselves to shadow forth the outline of a great law which might at some future time be productive of immense benefit to mankind.—*Med. Times and Gaz.*, Sept. 26, 1863.

41. *Iodine as a Deodorizer and Disinfectant.*—Dr. B. W. RICHARDSON, at one of the recent meetings of the British Association for the Advancement of Science, at New Castle, made some remarks on this subject. He said: The iodine should be placed in a common chip-box, such as is employed by pharmacutists, the lid of the box being replaced by a covering of "leno," or the iodine may be placed in the ornamental vases on the mantle-shelf of a room. The smell of iodine could thus be communicated to the air of an apartment, and air so purified was not only fresh and agreeable to the sense of smell, but any organic matters present in it were destroyed. In extreme cases the iodine should be placed on a dish or plate, and the heat of a candle being applied beneath,

the iodine was volatilized, and a room was quickly purified. Dr. Richardson said that in cases of smallpox a knowledge of the facts he had named was most valuable. In rooms occupied by sufferers from this painful disease, organic matters floated largely in the air, rendering the air most offensive. He (Dr. Richardson) had succeeded, in all cases, in rendering such air inodorous by the volatilization of iodine. He had also observed the singular fact that when the air was greatly charged with organic materials, the smell of the iodine was for a long time imperceptible, so that, in truth, the iodine method of purification was also a ready and practical test of the purity of an air. Dr. Richardson thought the iodine plan was quite as effective as the liberation of free ozone—it was, indeed, in principle the same, and was so simple that every person could employ it.—*Med. Times and Gaz.*, Sept. 26, 1863.

42. *Effects of Surat Cotton on the Health of Operatives in Mills.*—Mr. JESSE LEACH, of Lancashire, makes (*Lancet*, Dec. 5, 1863) the following interesting observations on this subject, which are well worth the attention of proprietors of cotton factories in this country.

“When viewing a sunbeam in the comparatively still atmosphere of a room, the air is seen filled with dust and short textile fibres. Placed in the same situation while the room floor is being swept, the sunbeam appears completely glutted with larger quantities of the same floating materials, causing an oppression of the chest and disposition to sneeze. What is manifestly revealed to us through the medium of a sunbeam in a private room more forcibly applies to the rooms of a cotton mill, where the short fibres and dirt of the staple material are effectually separated by the teeth of machinery revolving at a rapid speed.

“It is necessary to say a few words on the cotton staple to correctly estimate the amount of dust in different samples of cotton. Whatever name it bears, much loss is sustained during the processes of manufacture: the American the least; the East Indian or Surat the most. Twenty-five per cent. is an average loss during the manufacture of Surat. The greater amount of loss sustained the more damaging to the constitutions of the operatives employed. The higher the rooms of a mill and the better their ventilation, the more harmless to the health of the workers; the lower the rooms of a mill and the more imperfect their ventilation, the greater the amount and extent of bodily sufferings of the mill operatives. The following remarks more particularly apply to operatives working in low, narrow, ill-ventilated rooms, where Surat cotton is used.

“The first process the raw cotton undergoes is the mixing of one staple with another. Much dirt and dust is disengaged in this operation. The respiration is affected from the dust irritating the respiratory passages of the mixers, and coughing and sneezing are the frequent consequences, which disengage from the bronchial membrane a quantity of slaty-coloured expectoration, which, when placed under the microscope, is seen to consist of very fine short fibres of cotton in air-bubbles and mucus. The sneezing is occasioned by the same material irritating the olfactory nerves during nasal breathing. The arms and hands of mixers are not unfrequently affected with a cutaneous rash, much resembling nettle rash. This may partly arise from fine sand and short fibres of cotton destroying the epidermis, and irritating by their presence the true skin. Their complexion is pale and sickly. After passing from the mixers, the cotton passes through the hands of the willowers and scutchers. When ventilation is not assisted by ventilating chimneys of tin or wood, which take off more effectually the dense atmosphere with which these rooms are charged, the willowers and scutchers suffer in the same manner as the cotton mixers. From the immense velocity of the machines used, the revolutions being 1500 per minute, the quantity of short fibres of cotton set afloat in these rooms is very great. It would be difficult to recognize a man at twelve yards’ distance, from the density of floating fibres, modified, of course, very much by a wet or dry day. The strippers, grinders, and card-room hands are engaged in the next process of cotton manufacture. They mostly suffer from a spasmodic cough, sore throat, expectoration of blood, pneumonia, and confirmed asthma, with oppression of the chest. Various expedients are resorted to to liberate the small cotton fibres by expectoration from the pulmonary air-cells: tobacco chewing, the use of gin,