

## V. Papers on Physiology and Health.

### 1. PURIFICATION OF FOUL WATER—AN IMPORTANT DISCOVERY.

The *London Builder* says that Mr. Thomas Spencer, the discoverer of electrotypes, has made another important discovery. He has ascertained that the magnetic oxide of iron, which abounds in rocky strata, and in sands, &c. attracts oxygen, whether it exists in water or in air, and polarise it—that this polarised oxygen is the salubrious ozone—that this ozone, so formed, destroys all discolouring and polluting organic solutions in water, and converts them into the sparkling and refreshing carbonic acid of the healthful spring. Even sewage water can be thus almost instantaneously purified. Moreover, Mr. Spencer has discovered that the apparently mechanical process of filtration, is itself magnetical, and it is now known that all substances are constitutionally more or less subject to magnetical influence: thus all extraneous matters suspended in water may be rapidly attracted in filtration, and so separated; and this may be done whether on a great scale or a small, either by the magnetic oxide or black sand of iron, by a mixture of this with ordinary sand, or by various other means; and Mr. Spencer has discovered a solid porous combination of carbon with magnetic oxide, prepared from Cumberland hæmatite, which is said to have very great filtering power.

### 2. INSTANTANEOUS DISINFECTION—VALUABLE SURGICAL DISCOVERY.

The Paris correspondent of the *New York Express* gives the following account of a valuable discovery, destined to effect a great amelioration in the treatment of ulcers, abscesses, flesh wounds, &c. "At the last sitting of the Academy of Sciences, the celebrated Dr. Velpeau demanded permission to make an important communication, and announced that two young practitioners in question, Messrs. Corne and Demeaux, had paid him a visit for the purpose of presenting to his notice their discovery and explaining to him its results. Messrs. Corne and Demeaux have found a process for the complete and instantaneous disinfection of animal matter. The action of the disinfecting agent arrests the progress of decomposition, and effectually prevents the generation of insects. The substance, prepared for use, costs here about one franc for a hundred pounds, and the expense in America would probably be still less. The following is the formula, as given by the inventors themselves: Plaster of commerce, reduced to fine powder, 100 parts; coal tar, one to three parts. The mixture of the two substances is effected with ease by the aid of a mortar, or by any other appropriate mechanical means. The application of this composition to the dressing of sores and wounds requires a particular preparation. A certain quantity of the powder, prepared according to the formula, is diluted with olive oil to the consistency of a paste or ointment. This species of paste or salve is of a dark brown color, has a slightly bituminous odor, and may be kept in a closed jar for an indefinite period. The oil unites the powder without dissolving it, and the composition has the property of absorbing infectious liquids the instant it is applied to the sore which produces them. The application may be mediate or immediate. In the latter case, that is to say, placing the composition directly in contact with the sore, no pain whatever is produced; on the contrary, the salve has a decisive action, cleanses the sore and favors cicatrization."

### 3. NECESSITY OF UPPER AND LOWER VENTILATORS IN A SCHOOL ROOM.

It has commonly been supposed that the impure air (carbonic gas) which is expelled from the lungs, descended to the floor. This has been shown by Professor Dalton and other eminent chemists, to be entirely erroneous. It has been ascertained by repeated experiments that carbonic gas diffuses itself rapidly into every part of the room. This being the case, the impure air must be drawn off from the upper stratum of the room, as well as from the lower. Some have supposed that an aperture half way between the upper and lower one, would draw off the impure air as it escapes from the lungs, and thus retard its diffusion; this, however, has not yet been established by satisfactory experiments. The deleterious effect of impure air is no longer questioned, and the necessity of some more thorough and effectual means of ventilation is urged by the most weighty considerations. In a room of 50 scholars, from 200 to 500 cubic feet of air are vitiated every minute, and unless some effectual means are devised for expelling the impure air, the most serious consequences must ensue.

### 4. SINGLE AND DOUBLE SCHOOL DESKS, &c.

Single desks are generally to be preferred to double ones. The whole expense for room and desks is about twenty per cent more. When practicable, the house should be so placed that pupils as they sit, may face the north. In rooms to be used in summer as well as winter, it would be better that there should be no windows on the south. In all cases there should be outside or inside blinds. Outside blinds are to be preferred to keep the room cool. Inside blinds can be more easily managed to modify the light. The gable end should also be toward the south, since by this arrangement the roofs would be much less heated in summer.

On the ceiling of every school-room the four points of the compass might be painted in distinct colors, with letters designating the several points.

## VI. Papers on Colonial Subjects.

### 1. COLONIAL POSSESSIONS OF GREAT BRITAIN.

A blue book of 430 pages has just been published, full of statistical tables relating to the colonial and other possessions of the United Kingdom. It is drawn up in the commercial department of the Board of Trade, and bears strong evidence of the labor and skill with which that department is managed. From the abundance of its contents we are only able to notice a few of the most prominent articles of information which it contains. It appears from this publication that the trade of the East Indies greatly surpasses in extent that of any other dependency of the British empire. In the last year of which we have an official account, the value of the imports was £28,608,284, of which enormous amount £16,739,897 was from the United Kingdom. In the same year the exports amounted to £26,591,877, of which £10,635,607 was to the United Kingdom. The whole trade, therefore, of India, was thus of the value of upwards of £55,000,000. Next in importance was the trade with the six colonies of Australia, namely, New South Wales, Victoria, South Australia, Western Australia, Tasmania, and New Zealand. The united value of the imports of these colonies was £25,823,283, of which sum £16,282,022 was from the United Kingdom. The value of the exports of the Australian colonies was £22,954,033, of which sum of £14,653,370 was to the United Kingdom. Next in extent and importance was the trade with the five colonies of British America, namely, Canada, New Brunswick, Nova Scotia, Prince Edward's Island and Newfoundland. The trade with these extensive and flourishing colonies amounted to £13,412,257, of which £5,743,962 was from the United Kingdom. The value of the exports was £9,807,084, of which £3,470,796 was to the United Kingdom. Next in importance was the trade with the 15 colonies of the West Indies. The value of the imports of these colonies was £3,716,892, of which £1,233,690 was from the United Kingdom. The value of the exports was £2,697,488, of which £2,306,618 was to the United Kingdom. In addition to these great groups of colonies, the trade of several of the detached colonies are very great. Thus, for instance, the value of the imports into the island of Ceylon was £3,106,664, of which £631,368 was from the United Kingdom. In the same year the value of the exports was £2,588,460, of which £1,348,614 was to the United Kingdom. The value of the trade with the Cape of Good Hope was £2,637,192, of which £1,911,122 was from the United Kingdom. The value of the exports was £1,988,406, of which £1,426,614 was to the United Kingdom. The trade with the Mauritius and with Malta was scarcely less extensive, and that of the Ionian Islands was about half as much.

### 2. BRITISH NORTH AMERICAN COLONIES.

The two Canadas have an area of 350,000 square miles, with a population of 3,000,000; New Brunswick 27,700 square miles, with a population of 225,000; Nova Scotia 18,746 square miles, with a population of 300,000; Prince Edward Island has 2,134 square miles, with a population of 62,398; and Newfoundland 57,000 square miles, with a population of 120,000—total area, 553,446 square miles and an aggregate population of 4,000,000.

### 3. THE POSITION OF CANADA.

Canada is just becoming to America what England has been to the Continent. The only reliable abode, free from public oppression; Canada, of all the divisions of this broad continent, is the only land of true liberty—the only safe shelter and permanent asylum for the slave, and instead of the equality of our laws being subverted by the man-hunter, and the conservative nature of our institutions becoming eclipsed by the superiority of American inde-