

THE METROPOLITAN OFFICERS OF HEALTH.

It is not too much to say that one of the most important sections of this Act of Parliament is that making it compulsory upon vestries to appoint Officers of Health. By the 132nd section the vestries are called upon to appoint one or more medical practitioners "to inspect and report periodically upon the sanitary condition of their parish or district; to ascertain the existence of diseases, more especially epidemics, increasing the rate of mortality; and to point out the existence of any nuisance or other local causes which are likely to originate and maintain such diseases, and injuriously affect the health of the inhabitants; and to take cognisance of the fact of the existence of any contagious or epidemic diseases, and to point out the most efficacious mode of checking or preventing the spread of such diseases," &c. Or, in other words, as we gather from the instructions issued by the General Board of Health:—

"The officer of health is appointed in order that through him the local sanitary authority may be duly informed of such influences as are acting against the healthiness of the population of his district, and of such steps as medical science can devise for their removal; secondly, to execute such special functions as may devolve upon him by the statute under which he is appointed; and, thirdly, to contribute to that general stock of knowledge, with regard to the sanitary condition of the people and to the preventable causes of sickness and mortality which, when collected, methodised, and reported to Parliament by the General Board of Health, may guide the Legislature in the extension and amendment of sanitary law."

The duties of the officer of health should be twofold:—1st, Preventive; 2nd, Remedial.

1st, Preventive.—To inspect frequently and periodically, and to report upon the state of the sewers; drainage, cleanliness, and ventilation of houses; ventilation of streets and other public places; scavengers' work; cow-houses, stables, and slaughter-houses; certain trades and manufactures; over-crowded lodging-houses; delayed interments of the poor; operation of the vaccination Act; water, quantity and quality; articles of food exposed for sale—bread, vegetables, fish, milk, fermented drinks, and sweetmeats; impurities of gas, &c.

2nd, Remedial.—As far as possible, to discover the origin, and arrest the progress, of endemic and epidemic diseases, fevers, small-pox, cholera, diarrhoea, &c. In the event of an outbreak of either of these, to organise means of maintaining a daily supervision of every portion of the district.

The officer should keep a daily register of variations of the barometer and thermometer, and of atmospheric changes generally; also of the weekly mortality; and he should correspond with the officers of other districts, especially during the prevalence of epidemics.

"For the proper performance of these duties special qualifications in science are required. These lie in pathology, including vital statistics, and in chemistry, with natural philosophy:—

"In pathology, because the science implies an exact study of the causes of disease in their relation to the living body—a study of what they are, and how they act, and why they seem to vary in operation.

"In vital statistics (properly a section of pathology), because by analysing the composition of various death rates, and by learning how the pressure of particular diseases differs under different circumstances of climate, season, dwelling, age, sex, and occupation, definite standards of comparison are gained, without which the officer of health could not estimate the healthiness or unhealthiness of the population under his charge.

"In chemistry (accompanied by microscopical observation), because without such aid there can be no accurate judgment as to impurities of air and water, dangerous impregnations of soil, or poisonous admixtures in food; and because the same science also guides the application of deodorising and disinfectant agents.

"In natural philosophy, because many nuisances are traced and many questions as to ventilation and overcrowding are answered by its laws: further, because by its aid the officer of health studies the atmospheric changes, and learns the climate of his district, important steps in proceeding to speak of its diseases; and, finally, because natural philosophy, in conjunction with chemistry, renders him competent to report on many manufacturing processes alleged to be hurtful to health, and on the sufficiency of such means as are employed to reduce the evils ascribed to them."

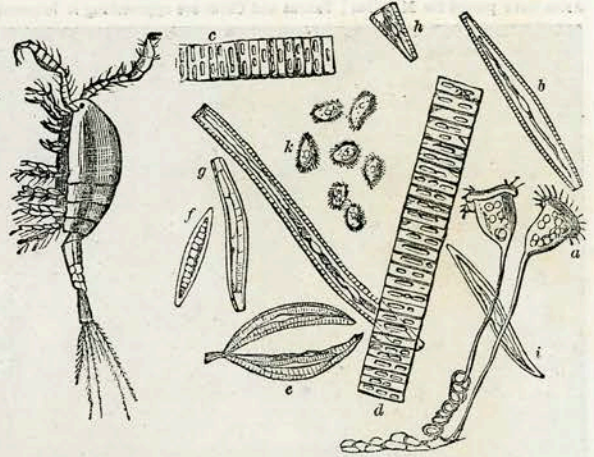
The officer of health, it will be seen, is expected to be familiar with various scientific instruments, as well as preventive and curative medicine, which naturally forms a branch of the extended medical education of the present day. We propose briefly to notice some of the instruments he will be called upon to make use of in carrying out the objects indicated above. Of these

THE MICROSCOPE

stands pre-eminent. As every medical man is known to be well versed in the use of this instrument, it will be unnecessary to do more than glance at some of its uses. In the examination of water supplied from time to time, to the poor especially, certain impurities are often found, prejudicial to health, as organic matters, minute animals, &c. As an example we may instance that given in the "General Report of the Poor-Law Commissioners on the Sanitary Condition of Great Britain." Mr. Blower, a surgeon of Bedford, states that typhus and ague, which had long infested the village of Wootton, had been almost entirely exterminated by digging a few wells and obtaining good water. Cholera has been repeatedly traced to the impurities of the London water; the same remark applies to the water supply of many other large towns. The prevention of epidemic, or communicable diseases, is a subject well deserving increased investigation. These diseases influence the life, the death, and the number of the human race more than all other causes. The learned physician, Dr. Latham, is of opinion that the downfall of the Roman Empire was due as much to several visitations of severe epidemics as to any other cause.

In the air both animal and vegetable matters are constantly floating about, and by the aid of the microscope it has been shown that, during an unhealthy period, certain of these matters are diffused in larger quantities. Professor Schonbein lately discovered a new gaseous substance in the air, which he named ozone; this, it is believed by some, will be found to exert an influence in some way, yet to be discovered, in arresting the progress of that fearful scourge cholera. Lessen the amount of atmospheric ozone, lower it below given limits, and increase the atmospheric temperature to the degree most congenial to organic decomposition, and the air will soon be charged with disease-

bearing putrid odours. It is in accordance with all that philosophy has been able to teach us in relation to the laws of epidemic and endemic maladies, that the presence of such gaseous odours of organic decomposition as are here assumed must be the fruitful source of disease; and it is not possible, after having studied the qualities of ozone, to refuse assent to the proposition that the existence of this agent in competent amount must be followed by the destruction of the pestiferous odours of organic decomposition.



ANIMALCULES, &c., IN WATER (Magnified 100 diameters).

- a. Vorticella.
- b, e, f, g, and h. Diatomace.
- c, d. Fragilaria pectinatis.
- k. Infusoria.
- l. Cyclops quadricornis.

In prosecuting an inquiry into the various adulterations and deteriorations of food, drugs, &c., the microscope is of paramount importance, not alone in pointing out the extent of the evil, but in showing the danger to health: for example, we now know that pork eaten in a diseased condition—"measly"—produces in the human body worms, or their cystic entozoa; and, although we may take much care to convert the pork into bacon or sausages, the eggs of these parasites are so difficult to destroy and so minute that they escape with life to produce a troublesome disease. The meal-mite, met with in damaged flour, is a frequent source of disease, and often of death, amongst the poor.

The following more or less injurious, deleterious, or poisonous substances have been detected in our food by Dr. Hassall and other trustworthy examiners. Thus, in—

Coffee.—Chicory, roasted corn and beans, carrots, acorns, &c., injurious indirectly, by depriving the consumer of so much coffee, with the valuable properties of which the substituted articles have nothing in common.

Cocoa.—Inferior starches, coarse sugar, and ferruginous earths, as Venetian red and ochre.

Cayenne Pepper and Curry Powder.—Red lead, vermilion, and Venetian red.

Coloured Confectionery.—Red lead, vermilion, gamboge, chrome yellow (or chromate of lead), Prussian blue, verditer (or carbonate of copper), emerald green (or arsenite of copper), the three Brunswick greens, various oxides of iron, white lead (or carbonate of lead).

Gin.—Cayenne, oil of vitriol. Pickles, Preserves, and Bottled Fruits and Vegetables.—Certain salts of copper, chiefly the acetate.

Potted Meats and Fish, Anchovies, and Sauces.—Iron earths, as Venetian red and bole Armenian.

Tea.—Indigo, Prussian blue, Chinese yellow, black lead, catechu, sulphate of iron, foreign leaves, sand, &c.

The above list includes not only many articles which are more or less injurious or deleterious, but likewise some of the deadliest and most virulent of known poisons, most of which, before the microscope was used as an instrument of research, had escaped detection. The value of the microscope in the hands of an active officer of health may be readily gathered from these few facts.\*

\* See Dr. Hassall's valuable book on the "Adulteration of Food" and J. Hogg on the "Microscope," published by Routledge and Co.