do not need special characterization. The special purpose of each is indicated by its name. The special mode of conducting each for accomplishing its purpose will depend upon many details beyond the scope of this discussion.

HEALTH MATTERS.

Distribution of Consumption in New Hampshire.

THE extent and distribution of consumption in New Hampshire are admirably set forth in a paper by Dr. Irving A. Watson, the secretary of the board of health of that State. The prevalence and fatality of this disease are illustrated by a number of diagrams. From the figures quoted by the author of the paper, it appears that during the three years 1885–87 there were in the State 2,432 deaths from consumption. It is interesting to compare with this the deaths from other forms of disease. From heart-disease there were 1,536 deaths; pneumonia, 1,526; apoplexy and paralysis, 1,421; old age, 1,347; cholera infantum, 918; cancer, 637; typhoid-fever, 464; diphtheria, 411.

From a careful study of consumption in New Hampshire for the past six years, but more especially from the registration returns of the years 1885, 1886, and 1887, the following conclusions are arrived at: —

1. The disease prevails in all parts of the State, but is apparently influenced by topographical conditions, being greater at a low elevation with a maximum soil-moisture, than in the higher elevations with a less moist soil. The prevalence of other diseases also affects the death-rate from consumption.

2. That the season has only a small influence upon the mortality from this disease. The popular idea that the fatality is greatest in the winter is shown to be erroneous, the greatest number of deaths occurring in May.

3. That the mortality is considerably greater in the female sex.

4. That no age is exempt from this disease, but that the least liability of its development exists between the ages of two and fifteen, and the greatest between twenty and thirty. Advanced age does not assure any immunity from the disease, as is generally supposed, but the smaller number of decedents is due to the fewer living persons of that advanced period of life.

5. The death-rate from pulmonary consumption is relatively much the larger among the foreign-born.

6. The average death-rate from consumption for the years 1885, 1886, and 1887, is 12.86 per cent of the total mortality of the State. In Massachusetts, for the ten years ending 1886, deaths from consumption averaged 16.10 per cent of the total mortality; and in Rhode Island, for a period of twenty-five years, ending 1884, 16.30 per cent. This shows a greater freedom from the disease in New Hampshire than in the two States mentioned.

ALCOHOLISM. — Dr. Lewis D. Mason discusses, in the *Quarterly Journal of Inebriety*, the etiology of dipsomania and heredity of alcoholic inebriety. He has collated a large amount of testimony bearing on this subject; and from this, and from his own experience, which has been very large, he draws the following conclusions: first, alcoholism in parents produces a degenerate nervous system in their children, and subjects them to all forms of neuroses, — epilepsy, chorea, paralysis, mental degeneracy, from slight enfeeblement to complete idiocy and insanity; second, alcoholism in parents produces a form of inebriety in their children known as dipsomania, which in the large majority of cases is inherited in the same manner that other diseases are inherited, and we can with propriety and correctness use the term 'alcoholic or inebriate diathesis' in the same sense that we use the term 'tubercular diathesis,' or other terms indicating special tendencies to other inheritable diseases.

TOBACCO-SMOKE AS A DISINFECTANT. — It has long been a cherished theory, at least of smokers, that the fumes of tobacco were to a certain degree disinfecting in their action. To put this theory to a test, Dr. Vincenzo Tessarini, of the University of Pisa, has recently conducted an investigation into the action of tobacco-smoke upon micro-organisms. He devised an apparatus consisting of two funnels placed with their mouths opposed, and sealed with paraffine. To each small end of the funnels tubes were attached, suitably arranged so that a cigar could be placed in one end, while the bacteriological smoker inspired at the other. The smoke was thus drawn into the large space made by the funnels, in which was a plate with various cultures of micro-organisms; control cultures were also used. The microbes were subjected to the smoke for from thirty to thirty-five minutes, during which time from 3½ to 4½ grams of tobacco were used. The micro-organisms tested were the *spirillum choleræ Asiaticæ*, *spirillum* Finkler and Prior, *bacillus anthracis*, *bacillus typhi abdominalis*, *bacillus pneumoniæ*, *staphylococcus pyogeneus aureus*, and *bacillus prodigiosus*. The kinds of tobacco used were the large Virginia cigars, the large Cavour cigars, the small Cavour cigars, the best cigarette tobacco. The results show that tobacco-smoke has the effect of preventing the development of some micro-organisms entirely, and of retarding that of others. The Virginia cigars seemed to have the most powerful effect, while cigarette-smoke had only a retarding influence, and did not entirely check the growth of any form. By first drawing the tobacco-smoke through water, it was found to have lost its germicidal properties.

FATIGUE FROM USE OF THE TELEPHONE. — At the meeting of the American Otological Society in Washington, Dr. Clarence J. Blake of Boston read a paper on the influence of the use of the telephone on hearing-power. He thinks that this influence must be injurious, because the extremely low intensity, as demonstrated by experiment, of the sounds to be caught from the telephone, compelled a strain of the ear which soon fatigued it, and made it especially liable to injury by the accidental sounds of comparatively high intensity, which were constantly liable to be heard. Dr. C. H. Burnett said he had seen several patients who believed that the continued use of the telephone had impaired their hearing. Dr. O. D. Pomeroy gave the case of a patient who said the use of the telephone fatigued her very much, and she thought had made her decidedly worse.

DISINFECTING LETTERS. — The *American Analyst* describes as follows the method adopted by the United States Government for the disinfection of letters coming from districts in which yellow-fever prevails. Letters from the stricken section are fumigated in a novel way, so that there is little or no chance for the disease being brought northward. The letters are all stopped when they reach the quarantine lines. Each letter is put under a machine with a long arm attached, and this is provided with little teeth punctured at the ends. A powder that is used for fumigating purposes is forced through the arm and down through the teeth. The arm comes down on each letter, and, while the little teeth are perforating the letter, the powder is blown in between the sheets, disinfecting the letter thoroughly. We had understood that after the perforations were made the letters were exposed to the fumes of burning sulphur. If the *Analyst* is correct in its statement, it would be a satisfaction to know what the powder is which thus disinfects the letters so thoroughly. So far as we know, there is no powder which has this power when employed in the manner described, and, until we receive further information, we shall look upon the whole process with distrust.

CIGARETTE-SMOKING. — The poisonous effects of cigarette-smoking have been experimentally determined by William L. Dudley, M.D., professor of chemistry in the Vanderbilt University at Nashville. He describes his methods in the *Medical News* of Sept. 15, 1888. The fact that cigarette-smoking produces physiological effects differing to some extent from those of the cigar led him to make his experiments. The frequently ascribed causes of the difference — that of the adulteration of cigarette tobacco with opium and other drugs, and also the presence of arsenic in the paper — are for many reasons unsatisfactory and insufficient. It is true, no doubt, that the tobacco in many of the less expensive brands is adulterated with cheap drugs and artificial flavors, and that in the more expensive grades opium may be used; but it is equally true that many cigarettes are made of tobacco which is free from sophistication. The presence of arsenic in the paper is entirely out of the question. There is a difference in the methods of

smoking a cigarette and a cigar or pipe. In the two last mentioned the smoke is simply drawn into the mouth and expelled directly therefrom or through the nose, while the experienced cigarette-smoker will inhale the smoke; that is, draw it to a greater or less extent into the air-passages, and in some cases to the greatest depth of the lungs, and thus the absorption of the carbonic oxide and other gases will take place very rapidly, causing more or less deoxidation of the blood, and thereby impairing its power to build up the wasting tissues of the body. Acting upon this theory, Dr. Dudley proceeded to experiment on animals, and obtained for the purpose some mice. The animal to be experimented with was placed in a glass bell-jar, into which the smoke of a cigarette mixed with air could be drawn as rapidly as desired by means of a laboratory aspirator. In the first experiment the smoke was purified as much as possible; and the atmosphere breathed by the animal was practically oxygen, nitrogen, and carbonic oxide. The cigarette was loosely inserted in the end of a tube having two bulbs. These bulbs contained a solution of potassium hydrate to absorb the carbon dioxide and any acids or condensable bodies. A tube was provided containing solid potassium hydrate broken into small lumps, which retained any carbon dioxide that may have escaped the bulbs. The animal was placed in the bell-jar and the apparatus connected together. An aspirator was turned on so as to draw a slow current of air through the apparatus. The cigarette was then lighted, and in twenty-two minutes the animal was dead. On examination of the blood of the animal by the spectroscope, it was found that all of the oxyhæmoglobin had been converted into carbonic-oxide-hæmoglobin, which showed that carbonic oxide was the cause of the death. This experiment was repeated, and the result was the same: the animal died in twenty-five minutes, and the spectroscope revealed the same condition of the blood. A third experiment was made without the bulbs. The tube carrying the cigarette was connected directly. In this case the animal died in six minutes, and the examination again showed that the carbonic oxide was the immediate cause of death, proving that it was the most noxious constituent of the tobacco-smoke. The time required to produce death in the last experiment was about one-fourth that required in the first and second. This was probably due to the fact that in the latter the smoking was done more rapidly than in the preceding, owing to the lessened resistance in the apparatus, and the difficulty encountered in reducing the force of the aspirator. In each case, however, the amount smoked up to the time of death was about the same, — one and one-fourth cigarettes. From these experiments the following conclusions are drawn: 1. That carbonic oxide is the most poisonous constituent of tobacco-smoke; 2. That more injury results from cigarette than cigar or pipe smoking, because, as a rule, the smoke of the former is inhaled; 3. That cigarette-smoking without inhaling is no more injurious than pipe or cigar smoking; 4. That the smoke of a cigar or pipe, if inhaled, is as injurious as cigarette-smoke inhaled; 5. That the smoke from a Turkish pipe, if inhaled, is as injurious as that of a cigarette inhaled.

The Sightseer's Headache. — Of the lighter penalties which pleasure entails, none probably is more widely known and felt, or more persistently endured, than the sightseer's headache. It is nature's tax levied on the comfort of that great body of busy idlers to which we all at some time or other belong. In reference to this, the *New York Medical Record* states that it is endemic among the frequenters of museums, picture-galleries, and exhibitions, varying somewhat perhaps in different cases in its precise causation, but associated always in a manner significant of its origin with the habits of the observant loiterer. The circumstances in which it arises afford the most reliable clew to its true character. Among these, temperature, atmosphere, and strain both of body and mind, though commonly combined, play their several parts in varying degrees of activity. The influence of a warm and close atmosphere as a cause of headache is too well known to require more than a passing notice. The torpid congestion of tissue which it tends to induce, and from which the brain is not exempted, is familiar to most of us as a morbid process too often illustrated in our painful experience. It contributes its proportion, doubtless, toward that total of *malaise* which affects the visitor to a crowded picture-gallery or assembly-room, and culminates in the localized ache which renders the slightest mental effort a weariness. The very general prevalence of this variety of headache, however, and its independence in many instances of any vitiation of atmosphere, teach us to look for its explanation in other causes. The effort of mind implied in long-continued observation, even though this does not involve the strain of study, has probably an appreciable though a secondary influence. Fatigue certainly has an important share in its production; but it is with most persons rather fatigue of muscle than of brain. The maintenance of the upright posture during several hours of languid locomotion, the varied and frequent movements of the head commonly in an upward direction, and the similar and equal restlessness of eyes whose focus of vision shifts at every turn as a new object presents itself, form a combined series of forces more powerful in this respect than the sunlight and frequent changes of mental interest and attention by which they are accompanied. The muscular strain implied in these movements is necessarily very considerable. It affects more or less every member of the body; but the distant localization of the resulting ache has probably much to do with the unusual activity of the cervical extensor and rotator muscles, and of the muscles which move the eyeball. Whatever the minor influences at work, therefore, there can be little doubt that mere fatigue is primarily accountable for this most general form of headache, and that rest and nourishment are most reliable antidotes. The utility of stimulants for this purpose is necessarily temporary and deceptive. One improvement on existing arrangements ought to be of real assistance to the suffering sightseer if more generally introduced by responsible authorities. The comparative scarcity of seats in many places of amusement has often been noticed. It would be much to the public advantage if this want were supplied. For the attendants at exhibition-stalls a chair for occasional use is an absolute necessity.

Diphtheria spread by Cats. — Domestic animals have often not only been suspected but found guilty of spreading infection. In his report on the recent sustained prevalence of diphtheria in Enfield, England, Dr. Bruce Low of the medical department of the local government board incidentally states that during the continuance of the epidemic cats were observed to suffer in considerable numbers from illness; and in December, 1887, and in January, 1888, there was a large mortality among those animals, — so much so, that the attention of the dust-contractor was directed to it. He stated that never in his previous experience had he seen so many dead cats in the dust-heaps. Some households, seeing their cats ill, destroyed them. Though there were no known cases of diphtheria occurring in the practice of the veterinary surgeons at Enfield, yet they saw many cases of 'influenza' at this time among animals. The following is an illustration of the possible connection between diphtheria in children and in cats: A little boy was taken ill with what turned out ultimately to be fatal diphtheria. On the first day of his illness, the cat, which was in the room at the time, licked the vomit on the floor. In a few days (the child meanwhile having died) the animal was noticed to be ill, and, her sufferings being so severe, and so similar to those of the dead boy, the owner destroyed her. During the early part of its illness, this cat had been let out nights in the back yard, as usual. A few days later the cat of a neighbor, who lived a few doors farther off, was noticed to be ill. It had also been out in the back yards at night. The second animal, which, however, recovered, was the pet and playfellow of four little girls, who, grieved at the illness of their favorite, nursed it with great care. All four girls developed diphtheria, the mother being convinced that they got it from the cat; and, indeed, no other known source of contact with infection could be discovered. It is easy to imagine cats catching infectious diseases like diphtheria, when we remember how often milk and other unused food from the sick-room is given to the cat, or by some people thrown out in the back yard for the benefit of their neighbors' cats if they have none of their own. It is a frequent occurrence to see children carrying cats in their arms, and even kissing them. It is obvious, that, if the cats were ill with diphtheria, the children, under such circumstances, would almost inevitably contract the disease.