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Is Consumption a Preventable Disease.

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Public hygiene has, in the last twenty years, made great strides, and is now engaging the attention of thoughtful men of all countries. The people are becoming aware that communities can be saved from the scourge of epidemics, only by well-organized sanitary bodies. It is a stain on our civilization that no more has been done to arrest the progress of social misery and disease by preventive measures.

But the science which seeks rather to prevent than to cure disease, is comparatively of recent origin. The men who have contributed most to its advancement are still living. Says Dr. Bowditch,* "We stand now at the very dawn of the greatest epoch yet seen in the progress of medicine. While, philosophically, accurately, and with the most minute skill, studying by means of physiology, pathological anatomy, chemistry, the microscope, and, above all, by careful clinical observation, the natural history of disease, and the effects of remedies, our art at the present day looks still higher—viz., to the *prevention* as well as *to the cure* of disease." Dr. Graily Hewitt said recently that the medicine of the future is *preventive medicine.*

With the improvements in sanitary science, and the encouragements to sanitary study, furnished by such bodies as the American Public Health Association, and the various State Boards of Health, it is to be hoped that the time is not

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far distant when we can not only prevent the increase, but to diminish, if we may not eradicate, disease.

Sanitary science comes in constant contact with personal convenience, avarice, mistaken economy, and long-established customs and habits, and until the people are educated up to the point of recognizing the value of sanitary science, and the knowledge that it is not alone from his own good health that the individual derives benefit, but that the well being of his neighbors as associates, likewise, is the source of many, and oftentimes for the greater, advantage to himself, it is necessary that there should be a general supervision of competent authorities invested with proper powers. Under improved sanitary conditions and surroundings, the plagues and pestilences which once swept the earth have mostly ceased to exist, and statistics of longevity establish the fact that the average duration of man's life has been materially lengthened.

As one person out of every six dies of consumption, every man, woman and child is, more or less, directly interested in everything having a practical bearing in reference to a malady which has already carried millions to the grave, and is destined to destroy millions more. The deaths from consumption to 100,000 deaths from all causes in the whole United States were, in 1850, 10,376; in 1860, 12,453; in 1870, 14,199. Consumption gives evidence of existence in three-fourteenths of those who die from other causes. These figures indicate that consumption, in proportion to other causes of death, has increased in the United States during the twenty years from 1850 to 1870, while the general death-rate of the country from all causes has been diminishing. In New England, it seems equally distributed, and the disease decreases from North to South in the United States. At present, it is the cause of nearly one-fourth of the deaths occurring every year in Massachusetts, and one-sixteenth of those in Louisiana.

If a person is suffering from the preliminary signs of this disease, it does not follow that he must die from it; on the contrary, he may hope to successfully combat it, and ultimately come off conqueror. Statistics show that consump-

tion is a disease of civilization, and, therefore, it is the duty of the State to procure its destruction. That it may require several generations to be eradicated, is highly probable; but now that we understand the nature of the disease better than our fathers did, it is our duty to do what we can to prevent its further progress. We know that consumption is often developed from an acute or chronic pneumonia, a bronchial hæmorrhage, and from a neglected or latent catarrh, and is not entirely a constitutional disease, or hereditary disease.

Strictly speaking, the hereditary nature of tuberculosis has not been proven, although an hereditary tendency to the disease often arises from weakness of the constitution, either directly inherited from the parents, or developed later through illness. Dr. E. Darwin Hudson, Jr.,* in an elaborate monograph on consumption, states that "Dr. Cotton analyzed 1,000 cases at the Brompton Hospital, and could prove hereditary taint in about three hundred and sixty-seven. Scott Allison's observations at the same institution, out of 603 cases, he had seen the influence manifested in nineteen cases." Walsh, by careful inquiry among consumptives, concludes that not over twenty-six per cent. have had parents affected with consumption. M. Pidoux says, not over twenty-five per cent. of those born of consumptive parents, themselves become so. The remaining seventy or seventy-five per cent. must be due to other causes than inheritance. Guizot, in four hundred *post-mortem* examinations of the bodies of new-born infants, failed to find a single deposit of tubercle. It is well known that the inflammatory processes have a decided tendency to recovery; and under suitable treatment, persons with extensive solidification and large vomicæ in the lungs, may often be kept for a long period in an endurable condition, or even in relative good health. As Niemeyer says, "The greatest danger by most consumptives is that they may become tuberculous;" as he holds that tubercle, in most cases, is unmistakably a late development, and complicates consumption in an advanced stage.

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* *Transactions of the N. Y. Academy of Medicine*, 1876, p. 149.

Most of the evils that we deplore in our town population, the disease and feebleness from which they suffer, are the direct outcome of the unhealthy circumstances in which they live. A depraved constitution may be transmitted to children, but it does not follow that the disease must descend to and destroy the offspring, although whatever has a tendency to produce permanent or long-continued debility, will generate, in many persons, a consumptive diathesis. Men and women who leave ill-ventilated bed-rooms in the morning to enter worse ventilated workshops, spending two-thirds or three-fourths of their time in a vitiated atmosphere, are not expected to live out the full expectancy of life. Our school-rooms are so poorly ventilated, that if a child spends eight hours in bed, and three hours (daily average for the year) spent in school, it will be seen that the child passes at least eleven hours per day in an impure atmosphere. Unsanitary conditions are apt to progress to a great extent without being suspected, and what to-day may be passively considered innocent, may be demonstrated to be producing deadly results to-morrow.

Malarial diseases, by impairing the general health, favor the development of consumption, and much increase its mortality. This poison, especially when acting with a medium intensity, producing intermittent and remittent fevers, which do not rapidly destroy life, but which gradually undermine the constitution, often lays the foundation of consumption.

Although consumption is found in all climates, and among all people, it is not equally destructive everywhere. It is rare in the polar regions, and prevails more especially in temperate climates; while in the tropics its course is very rapid. Cold has no influence on the genesis of the disease; the inhabitants of elevated regions, 800 to 1,000 yards above the level of the sea, are as exempt as those living in polar latitudes. On the contrary, those inhabiting low, damp and warm districts are very subject to consumption. It is an incontrovertible fact that atmospheric influences have a most decided effect upon tuberculous deposits in the lungs, either in accelerating their ravages, or in controlling their progress, or even in their eradication.

Laennec states that one of the most certain developing

causes of consumption is dampness of soil; and he mentions a locality having such a soil, in which the dampness was so constant and of such a character, that more than two-thirds of the resident population died of the disease. Dwellings otherwise excellent are often erected in apparent utter thoughtlessness of the character of the soil on which they are built, or its capacity for drainage, where this should have been a primary consideration. No town can afford to have house after house built with no provision for keeping the ground beneath dry, and so far maintaining the health and producing-power of its inhabitants. If we had enlightened local boards of health, ordinances would soon become common which would require that every new dwelling should be examined and approved by a health official, as to its requirement of drainage, before it could be inhabited. The soil should be porous and sandy, a loam soil of sufficient porosity to permit the rapid filtering of water from the surface, so that after a heavy rainfall the surface would soon become dry. All clay soil drains slowly and imperfectly, and the peculiar dampness rises which acts so unfavorably on phthisical invalids.

Fourteen years ago, Dr. Henry I. Bowditch demonstrated, before the Massachusetts State Medical Society, that certain conditions of the soil slew annually, in Massachusetts, a thousand of her citizens by consumption alone. The medical opinion in Massachusetts, as deduced from the written statements of resident physicans in one hundred and eighty-three towns, tends strongly to prove the existence of a law in the development of consumption, which law has for its central idea that dampness of soil, in any township or locality, is intimately connected, and probably a cause and effect, with the prevalence of consumption in that township or locality, and even some houses may become the foci of consumption, when others, but slightly removed from them, but on dryer soil, almost wholly escape. In the town of Greenland, N. H., there are three distinct divisions of soil. First, A higher and dryer sandy plain. Second, A medium, fertile, rather moist portion. Third, Extensive low marshes. Seven hundred and fifteen residents are about equally divided be-

tween the three districts. During ten years three people died of consumption on the sandy plain, five on the medium, and ten in the wet regions. Here, out of the same number of people, three times as many died in the lowland as on the higher ground.

In the town of Saccarapa, Me., where the hills are of a clayey loam, and the valleys gravelly, thirty-one per centum of the deaths on the hills were from consumption, and only sixteen per centum in the plain district. Dr. Elliott* alludes to the observations of the Registrar General, of the decrease of cases of consumption in districts that had been recently drained.

Dr. W. H. Carfield, Professor of Hygiene and Public Health, University College, London, claims that the drying of the subsoil by deep-drain sewers has had the effect to diminish consumption, to a remarkable extent, in nearly all of the twenty-five towns in which great sanitary improvements have recently been made. Baldwin Latham, in his work upon Sanitary Engineering, gives the following table, which illustrates the benefits which followed the introduction of efficient works for sewerage :

Name of Place.	Population in 1861.	Average mortality per 1,000 before construction of works.	Average mortality per 1,000 since construction of works.	Saving of life per cent	Reduction of typhoid fever per cent.	Reduct'n of consumption per cent.
Banbury	10,238	23.4	20.5	12½	48	41
Cardiff	32,954	33.2	22.6	32	40	17
Croyden	30,229	23.7	18.6	22	63	17
Dover	23,108	22.6	20.9	7	36	20
Ely	7,847	23.9	20.5	14	56	47
Leicester	68,056	26.4	25.2	4½	48	32
Macclesfield	27,475	29.8	23.7	20	48	31
Meethys	52,778	33.2	26.2	18	60	11
Newport	24,756	31.8	21.6	32	36	32
Rugby	7.818	19.1	18.6	2½	10	43
Salisbury	9,030	27.5	21.9	20	75	49
Warwick	10,570	22.7	21.0	7½	52	19

Such tables show conclusively that the sickness and death-

* *Medical Times and Gazette*, December 26, 1863.

rates are higher than they ought to be, with our present knowledge of the origin of diseases, and the means at our command for their prevention; and it should be clearly understood by every intelligent householder, that the typography and geology of his immediate neighborhood are exercising a controlling influence on the condition of his family, promoting either health or happiness, or sapping the lives of those he loves.