

BELFAST SOCIAL INQUIRY SOCIETY.

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ON THE CONNEXION  
OF  
ATMOSPHERIC IMPURITY  
WITH DISEASE.

A PAPER

*Read before the Statistical Section of the British Association,*

AT BELFAST, SEPTEMBER 7, 1852

BY HENRY M' CORMAC, M. D.

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*On the Connexion of Atmospheric Impurity with Disease.* By

Henry M'Cormac, M.D.

IN the observations I am about to make, the subject may be said to resolve itself into one of bodily health, or well-being, or the best means of avoiding those departures from integrity and soundness, which we term disease. On the part of all classes, high, low, rich, and poor, there is a great, though, of course, varying, departure from the conditions essential to the preservation of health. How many must there be who cannot lay claim to a sound mind in a sound body? The greater the perversion, the easier, also, is the gradation towards worse, yet, such is the precariousness of existence, that, owing to want of care and forethought, perchance hard necessity, individuals, naturally well endowed, too often suffer disease and death, sooner and more readily than persons of comparatively inferior stamina. There is not a point of physical education which, indeed, is not neglected. There is not an individual of whatever age, whatever sex, whatever station, that should not take a daily morning bath, more or less exercise the upper as well as the lower extremities, the lungs, also, in the open air, and day and night respire an atmosphere of irreproachable purity. That these conditions, severally so indispensable to the fundamental requirements of organic life, are not adequately fulfilled, I appeal to the ordinary experience of the least reflecting individual. I have gone, for example, into each of the apartments where the different Sections of this great beneficent Association are daily in the habit of meeting, and have found the atmosphere unfitted for healthy respiration, whether as regards assemblages like the present, or the ordinary requirements of Academic life. Who would believe that in a large, flourishing, intelligent town like Belfast, and in the very face of an approaching pestilence, a black, sewer-like stream, worse than the London Fleet, should be suffered to pollute the air with exhalations the most virulent and intolerable. My conclusions, indeed, are stringently and unconditionally urged, but, if so, they are the result of much experience, as well as of protracted, earnest inquiry.

I desire to present, in a brief perspicuous form, the result of my investigations as to the connexion of atmospheric impurities with disease. Strictly speaking, there is no natural impurity, except *malaria*, presumably the result of the decomposition of vegetable remains, aided by a certain amount of warmth and moisture. This it is which gives rise to the whole tribe of periodic disease, from the simple intermittent or ague of temperate climates, to the destructive remittents of the torrid zone. Of these last, yellow-fever is a striking form. The attempts made, in recent, as in former years, to ascribe it to infection, have, in my opinion, been unattended with the slightest success. Putting aside typhus-fever, with which we must take care not to confound it, yellow-fever is simply a set of symptoms induced by the respiration of air, rendered poisonous by the products of vegetable decay.

We know, indeed, nothing of the primary sources of small-pox, measles, scarlet-fever, plague, or cholera, but we do know that their severity is frightfully aggravated, and their frequency incalculably increased, by crowding, want of ventilation, insufficient cleanliness, in short, everything that renders air impure and stationary, a nursery for the leaven or ferment, which, being taken into the lungs, leavens the whole system and reproduces the complaint.

The number of instances in which typhus-fever ensues from casual causes, as cold, wettings, over-effort, rather than infection, is comparatively few. For practical purposes, indeed, it might almost be assumed that fever had no other source than infection. Nervous, relapsing, gastric, typhus, typhoid, continued, and essential fevers, so termed, are the same. There is not, in fact, the specificity about typhus which has been asserted. It is simply the result of dirt, crowding, and foul air. There is, however, the important distinction between this malady and the febrile exanthems, that no degree of crowding, although it may aggravate, gives rise to them, whereas the poisonous atmosphere, from human contamination, carried a certain length, is competent to produce fever at any time. If persons, not labouring under fever, by reason of the impurities emanating from their persons, be able so to poison the atmosphere as to entail fever in themselves or others, it follows yet more cogently, that persons who do labour under fever, shall thus reproduce the complaint. In point of fact, they do reproduce it, and thus it is, that fever comes to abound. When the air, however, is maintained perfectly pure, the fever-poison either is not created, or, if created, becomes so diluted, as to prove insufficient to the production of further mischief. If fever spread, then, it may be fairly taken for granted, that there has not been a sufficient observance of hygienic precautions. The air has not been renewed, sufficient

purity has not been observed! Such is the immensity of the mighty ocean of the atmosphere, that it suffices for the removal of every impurity, if we only resort to the wise yet simple precaution of instantly replacing the portion that we consume. To breathe a polluted atmosphere, when we have it so completely at our disposal to avail ourselves of that which is unpolluted, is a monstrous error. It is as if one who might have fair water from the spring, were to consume soil and impurity instead.

The epidemics of the middle ages, like the febrile and cholera epidemics of recent times, yield, I conceive, forcible evidence as to the truth of these averments. The people in those days, as much too often in these, lived with little regard to the exigencies of their position. There was no adequate provision for personal or household cleanliness—none for the introduction of pure air into the dwellings. It is not, perhaps, too much to assert, that these epidemics are but another name for a foul, unrenewed atmosphere.

The production of typhus from the effluvia of human beings, plunged in dirt and misery, will not, indeed, ensue, unless those effluvia be concentrated to the requisite degree of virulence. Still these effluvia, coupled with aerial impurities generally, are not the less productive of other maladies or diseased conditions, directly or indirectly calculated to shorten life. And first and foremost of these diseased conditions, are what are called phthisis and scrofula. Phthisis, or consumption, is merely tuberculous deposit, with conditionally-accruing inflammation internally, while scrofula is tuberculous deposit, with the like inflammation externally. As tuberculous deposits are most frequent in the lungs, it is to these, that the term consumption, is commonly applied. In other respects, the bowels, brain, the bones, and joints, in short, the frame at large, are all liable to tuberculous disease.

Dyspepsia, or indigestion, is so very frequently the attendant of tuberculous degeneration, as by many inquirers to have been looked upon as its necessary precursor. Confinement, a deteriorated atmosphere, want of sufficient bodily effort, and, more especially, the absence of full and free respiration in the open air, together with the consequent impairment of appetite and digestion, are quite enough, however, to account for the concomitance of tubercle and dyspepsia, without referring one to the other in the order of cause and effect.

The habitual respiration of foul, unrenewed air, I look upon as the only real source of tubercle, including under this designation both phthisis and scrofula. Unless foul air be respired, there can be no consumption, no scrofula. If an individual live constantly, day and night, in the open air, or in air of equal purity with that subsisting in the exterior atmosphere, he cannot incur consumption! There are no consumptive Gyp-

sies or Bedouins, so long at least as they preserve their aboriginal out-of-door usages, or are not subjected to confinement or ill-treatment. Consumption from the respiration of mineral dusts, besides its exceptional character, is comparatively rare, and even here, an atmosphere otherwise deteriorated, is among the destructive agents actively at work. As for hereditary consumption, making due allowance for the few individuals born tuberculous, and for the greater proneness, under like circumstances, of those sprung from diseased progenitors, to disease, there is no such malady.

In-door pursuits are very much more frequently attended by consumption, than out-door ones. And were it not for the atmosphere of the pestiferous bed-room, crowded with occupants, and destitute of every provision for the healthy renewal of air, those of the working-classes who follow out-door occupations, would escape very much better than they do. It may readily be imagined, then, that when in-door pursuits are coupled with foul air in sleeping-rooms, the results must be doubly disastrous. In fact, they are so.

Short of atmospheric purity, consumption is not less frequent in warm climates, than in cold. Intercurrent pneumonia and pleuritis will be less frequent, not so plithisis. Those warm climates in which consumption is really less frequent than in cold, derive the comparative immunity simply from the people being forced by the great heats to live more in an unpoluted atmosphere. If the inhabitants of Great Britain and Ireland would but consent, day and night, to live in a pure untainted atmosphere, it would put a total close to the ravages of consumption. It is not sending people to warm climates that averts, or cures consumption. It is sending them to pure air, in so far as they are so sent, that does so, and this only. To confine consumptive persons in close, heated apartments, is but to hasten the ravages of their disease. On the contrary, they should live as much as possible in the open air. Let us keep the consumptive in pure, fresh air, and we shall at once realise a Pau, a Nice, a Madeira, better than any Pau, or Nice, or Madeira, without fresh air. And better still, let us live in a pure, unadulterated atmosphere, or in air equally pure as the open, unadulterated atmosphere, and we shall have no consumption whatever! It is quite illusory to think of curing the consumptive by means of food, or even medicine, without the amplest access to the free, fresh air. An ounce of oxygen is worth tons of fish-oil or iodine, or any amount of wire air-sieves for mouth or nostril, without oxygen!

The dirt and sordes amid which the poor so habitually live, bespeak sufficient condemnation. The senses take alarm, and sympathy and horror are in unison with our best judg-

ments. These monitors, however, are at fault in the dwellings of the rich. There, perfumes regale the nostrils, rich hangings solace the eye. Nevertheless, it is undoubted, that atmospheric impurity in the dwellings of the rich, however it may fail to obtrude itself on the senses, is only inferior in virulence and destructiveness, to what it proves in the dwellings of the poor. That it is so, let the dreary catalogue of persons of all classes, yearly swept away in these islands by consumption, declare ! The remedy for this defective state of things, is the improved condition of our domestic atmosphere. In a treatise, styled *Moral-Sanatory Economy*, I have pointed out various means of securing this important consummation. I would here, however, signalise an error of some importance—namely, that ventilation does *not* signify mere draughts. People hate draughts, and justly. There should be ventilation, but, as regards cold-air ventilation, and warm-air ventilation alike, there should be no appreciable, certainly no appreciably injurious or disagreeable, draughts. It is one of the very great advantages of French casements, that they open completely, at pleasure, so as to yield a perfect mass of fresh air, irrespective of draughts. They permit windows also to be cleaned from the inside without risk, and, at the same time, insure copious and most desirable supplies of light. It would be very easy, however, to make our common casements, which now only open one-half, open completely, and draw down as well. In other respects, coupled with perfect purity of the domestic atmosphere, there should be warm fires, warm clothing, and the amplest supplies, during the cold season, of masses of air heated to a moderate temperature.

Next to the importance of pure air within the house; comes that of pure air without. An improved agriculture amends climate. Drainage should be good, while all impurities should be removed on the instant. Day and daily, indeed, the process of lustration should go on, if we would get rid of foul air and the evils which follow in its train. It would be worthy the intelligence of the age, if means and measures could be devised for removing, day by day, all those impurities whose presence so impairs the healthy sustentation of animal life. A recent writer, among other strange paradoxes, hints that it is not desirable that people should become too healthy, lest, forsooth, they should cumber the earth ! Fewer births, however, it is now known, ensue in healthy, as contrasted with unhealthy, communities. It would, in truth, be an insult to common sense, to suppose that a healthy, intelligent community, even within moderate limits, should not be preferable to one swarming with numbers, disease, and only vying in barbarism and wretchedness !

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, SECTION I.

JAMES HEYWOOD, Esq., M.P., F.R.S., IN THE CHAIR.

BELFAST, 7th September 1852.

It was moved by PROFESSOR HANCOCK, seconded by Mr. RICKMAN, and resolved—

“That the Statistical Section of the British Association recommend the publication of Dr. Malcolm’s and Dr. M’Cormac’s valuable papers read this day; that a Subscription be entered into amongst the Members to aid in the expense of publication; and that the Council of the Belfast Social Inquiry Society be requested to take charge of the publication of these papers.”

In pursuance of the above resolution, a subscription was commenced by JAMES HEYWOOD, Esq., in which a number of Members of the Association and inhabitants of the town joined.