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978-1-107-41899-8 - A Campaign Against Consumption: A Collection of Papers
Relating to Tuberculosis
Arthur Ransome
Excerpt
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SECTION I. GENERAL

(1) CONSUMPTION : ITS CAUSES, AND ITS PREVENTION

HEALTH LECTURES FOR THE PEOPLE, *published by J. Heywood,*
for the Manchester and Salford Sanitary Association (Series
1881-82)

It has been thought well by the Committee of the Sanitary Association of this city that the subjects of its Health Lectures this year shall have reference to certain preventable diseases, and to the modes in which they may be prevented. The subject that has been assigned to me is a sufficiently sad one, and by many persons Consumption would be regarded as an inevitable evil—certainly not as one that can be averted by sanitary reforms. If this had been so, I hardly think I should have ventured to speak about it in an after-dinner discourse; but I trust that I shall prove that it is a distinctly preventable disease, and be able to show you how to prevent it.

There is no need for me to give you a medical description of this fell disease. It is so common, that I will venture to say that there is scarcely one amongst my hearers who has not had some one near and dear to him, a relative or a friend, affected by it. Most of you, then, know something of it, from its first insidious onset to its final painful ending—the loss of strength, the short hacking cough, the want of breath, the wasting of the flesh, the deceitful lulls in the course of the complaint, then the fever, the sweating, the distressing paroxysms of coughing and spitting, and, finally, the last scene of all, in which the overburdened spirit lays aside its worn-out garment of flesh.

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We know, too, the sad fact that most of the victims of this malady are the choicest specimens of our race. They are all carried off in the prime of manhood and womanhood, for the most part between the ages of 15 and 45. They are usually the flowers of the flock—the most intelligent, the most comely, the best and the bravest are singled out from our midst, and are often doomed to death before they have accomplished the tithe of the great things of which their talents had given such promise. They are cut down at the threshold of their career.

There is little need, then, to apologise for bringing before you a subject of so much importance—one that touches us all so nearly, and one that concerns, not individuals only, but the whole of the nation that is so heavily burdened by this disease. We are concerned now rather with the prevention of all this catalogue of evils, and the best way to understand them will be to try to find out their causes, and then how to remove them.

The first cause that must be mentioned is the obvious one of inheritance.

Everyone knows that Consumption often runs in families. Some of you must have seen one member of a family after another struck down by this disease, and though this is sometimes capable of the explanation that the people all lived in the same locality, and in the same manner, yet there are many other instances of fathers and mothers being followed in this disease by sons and daughters, even though they have gone away from home and have altered entirely their mode of life. There are cases, too, in which the child is born with the disease already in its system. It is needless to say that here there can be no question of prevention, and if it were true that most cases of the disease are thus directly inherited, then, indeed, our task would be well-nigh a hopeless one, for very few families would then escape. Fortunately for our race, this is not so. It is an exceedingly rare event for a baby to be born with the seeds actually within its body.

What is meant by hereditary Consumption is very often nothing more than a weakness of constitution of such a nature that members of a consumptive family are more likely than others to take cold, and to get inflammation set up in their lungs, and then from these inflammations they make a very

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imperfect recovery—unhealthy inflammatory products are left in their systems, and then from these again true Consumption at last is developed.

Again, another way in which a consumptive tendency is inherited, is by means of an extreme sensitiveness to the peculiar poison, or the peculiar form of irritation, which provokes the disease, and this sensitiveness is often the greatest in the young. It is in this way that we can account for the fact of parents surviving their offspring. You may sometimes see the strange sight of a father and mother advanced in years, yet losing all their children one after another from Consumption. But you will generally find that when this is the case, the parents have come to their place of residence after their first youth, and that they had lived aforetime in some more healthy locality. They had got hardened, so to speak, before they came into the poison-laden atmosphere, and were able to resist its influence. The children, however, who came earlier in life within its grasp, were much less able to escape, and so they were carried off one by one.

You will easily see what a difference there is between the two latter forms of hereditary Consumption and the first. The two latter kinds are, in fact, not truly hereditary; the patients have only inherited certain weaknesses of constitution, that render them prone to contract the malady. The positive lighting up of the Consumption depends upon external circumstances; if these are not present, the disease will not become developed. Many of these circumstances are to a great extent, as we shall see presently, under our own control, and thus even hereditary Consumption is, to a certain extent, a preventable disease.

The point is of the more importance, because, whilst directly transmitted Consumption is very rare, the two latter kinds of transmitted delicacy are very common, and may be dealt with by tens of thousands.

There are many persons, moreover—more than 60 per cent. of the whole number—in whom we can trace no hereditary taint, and yet they die of Consumption. Here, at any rate, there is little reason to doubt that it has been engrafted from without, and we may fairly ask, in the next place, what are the circumstances that are able to produce the disease in these people, and

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that will light it up still more readily in those who are disposed by constitution to take it.

It is natural to ask whether its prevalence has anything to do with climate. The disease is so common in England, and so many people leave our shores in the hope of finding some relief from it, that foreigners not unfrequently call it “the English disease”—and truly, it is very plentiful in this country. You have only to glance at the Table¹ to see that, in 10 years, in Manchester and Salford alone, a small army of 12,000 persons died of Consumption, and double this number of diseases of the lungs—more than a third of all the deaths; and in the same period, in England and Wales, more than half a million die of Consumption. It kills twice as many as any other disease. It is common enough here then; but it is by no means exclusively an English possession. It is just as bad in other countries (see the following table).

Proportion of Deaths from Consumption to 1000 Deaths at

London	121	Rome	114
Paris	143	Milan	132
Brussels.....	163	Lisbon	115
Vienna.....	208	Athens.....	183
Berlin	109	New York.....	167
Stockholm	160	Rio de Janeiro	186
Christiania	172	Lima	171
St Petersburg	151		(Lombard.)

If you compare the proportion of deaths from Consumption with the total deaths at the chief capital cities of the world, you will see that we are no worse, but generally better than our neighbours in this respect. It is in truth, as Dr Lombard calls it, “a ubiquitous malady”; it goes almost everywhere that man does; and it is worst where human beings are most crowded together. It is as bad or worse in the South as in the North, and in the East as in the West. In Europe, the only places comparatively free from it, are the sparsely peopled localities of Iceland, the Faroe Islands, the Hebrides of Scotland, the Highlands of Switzerland, and the almost desert steppes of the Wandering

¹ See Health Lecture on “Foul Air and Lung Disease,” Heywood, Manchester and Salford Sanitary Association, 1878 (p. 63).

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Tartars, or Kirghis. In Asia, although Persia is exempt, it is common in India, and especially in Ceylon. In Pekin, it is the chief cause of mortality. In the United States of America, it is exceedingly prevalent, especially amongst women, and is increasing in frequency; and in South America, in Brazil and in Valparaiso, it is becoming every year more common. In many parts of the vast space of Africa, as in the pure dry air of the upper Nile, for instance, it is almost unknown; but it is beginning to be more common along the coast, as it is also in the towns of Australasia. In Algeria, it is remarked, and the remark is a very significant one, that the free Arabs escape the disease entirely; but of the captives, many die of Consumption. Assuredly, it has little or nothing to do with climate.

The same truth is shown by the returns of the deaths from Consumption in our army and navy, at the different stations to which they are sent. You all know the proud boast that the sun never sets upon the dominions of the Queen of England, and wherever these are to be found our soldiers and sailors have to go to look after and to protect them. Hence we get returns, and exceedingly reliable ones, of the amount of mortality, and of the diseases producing it, from all quarters of the globe. In the annexed table this mortality is given at several stations for several successive periods, and I think that you will be at once struck by the enormous death rates amongst the troops in the earlier period, and at every one of the stations.

Mortality per 1000 of Strength

	1830 to 1837	1837 to 1847	1863 to 1872	1874
Household Cavalry	14·5	11·1	9·17	8·79
Cavalry of Line	15·3	13·5		
Foot Guards	21·6	20·4		
Mediterranean Stations	21	16·4	11·2	7·27
Canada, etc.	23	17	9·49	6·0
Jamaica, etc.	91	59	17·05	16·9
Madras, India	52	—	24·22	14·22
Bengal, ,,	44			
Ceylon.....	49			
Rates of Mortality at the same ages prevailing in healthy country populations	7·7
In England and Wales	9·2
In Manchester	12·4

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In another diagram you have an opportunity of comparing this mortality with that of the ordinary civil population of this country at the same ages. You then see that the soldier died at three times the rate of the civilian.

Again, on another diagram you may behold a representation of what diseases it was that these soldiers principally died, and their proportion to the same diseases in the ordinary civil population. Both these diagrams refer, I am glad to say, to the earlier periods of the history of the army, and you may see what cruel work was wrought in its ranks by Consumption and by fevers of various kinds. Here, then, again there is ample proof that Consumption flourishes in all climates. But this table is valuable to us beyond its purpose of proving the innocence of climate as a factor in the production of Consumption. It is equally hard upon many of the other theories of its causation, and, I may remark incidentally, it shows that the causes are removable. It is an important witness on the subject of inheritance. Dr Welch, of Netley, in his prize essay on "Lung Disease Amongst Soldiers," tells us that, in the army, cases of Consumption are not usually of the hereditary form; and we can well understand that the doctors, who have to examine recruits before they are allowed to pass into the ranks, will take good care to accept those only who have a fairly clean bill of health. Out of 1000 men thus examined at one time, 405 were rejected, and the minimum girth of the chest was 33 inches, a standard that is much above the civil average. The requirements of height and of girth round the chest, and the doctor's examination, ensure that the men shall be picked men and in good health at the time of joining.

Other alleged causes of Consumption are equally excluded. Thus it has been said that want of good nourishing food is a cause. One of the latest writers on the subject¹ affirms that the consumptive constitution is essentially "due to insufficient nutrition, taking this word in its widest sense." And the same statement is made by many English writers; but you all know that the English soldier is always well fed, much better indeed than the artizan and agricultural labourer, with whom we have compared him, and who yet had three times the chance of life

¹ Dr Jaccoud, *Phthisie pulmonaire*, p. 7.

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that he had. The same thing is proved by other facts. Thus the ill-fed, ill-clothed fishermen of the Hebrides, exposed to all vicissitudes of weather, hardly ever contract the disease; but the inhabitants of the mainland, though of the same race, die at a high rate of Consumption; and yet these are much better fed, better clothed, and much better housed. We are told also by Professor Hind that Consumption is unknown amongst the natives of Labrador whilst they remain in their own country. Here they live a kind of wild life in tents made of spruce branches, imperfectly lined with skins, and more or less open on all sides to the air. They are exposed to famine and all kinds of hardship; but when they come down the great river St Lawrence to take part in the fisheries, they occupy well-built houses, and, being well paid, they live in comparative luxury, and then many of them, in the course of a year or two, become consumptive, and thus miserably perish. From these facts we also gather that it is not exposure to weather that will of itself produce the disease. Nearly all the soldiers who died at the heavy rates here shown lived in barracks, and were not on active service. Sailors, fishermen, sportsmen of all kinds, agricultural labourers, few of all these are the victims of Consumption. No, but their better protected neighbours in the towns are; and even their own wives and daughters, who are obliged to keep the house, die at twice or even three times the rate that they do themselves.

What, then, is the chief cause of all this frightful mortality and misery? What is there without which neither starvation, exposure, nor hard work will bring on Consumption? And, on the other hand, what is there that is common to sick and poor—that is to be found in all climates, in all collections of human beings, and that is absent only in the places where Consumption is not to be found—in two words, it is *foul air*. Think for a moment, and you will see that this is true. The Royal Commission, appointed after the Crimean War, to investigate the causes of the excessive mortality of soldiers—this body of wise and careful inquirers—came to the conclusion that the chief cause was the faulty construction of barracks, especially in regard to ventilation and to drainage. In England, the barracks were overcrowded and badly ventilated and badly drained, and wherever the troops

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were sent upon foreign service, there almost universally, except in India, where I may remark Consumption was least common, the same vicious mode of housing them was to be found. It is not surprising, then, that the Commission came to the conclusion that the heavy mortality, and especially the Consumption amongst soldiers, was due to the unhealthy barrack atmosphere. That they were correct is proved by the facts shown in the table, that sanitary reform in these respects at once altered the rate of mortality, and that, owing to the care which is now taken, it has become less than that of the ordinary working population of the country.

But there are several kinds of foul air, and there are also several kinds of Consumption. There is, moreover, some sort of relationship to be discovered between the two sets of events. It is notorious, for instance, that air filled with certain kinds of irritating dusts will provoke lung disease, ending, in many cases, in a form of Consumption. Thus the “dry grinders,” as they are called, of Sheffield, suffered severely in this way, and so did the grinders of glass and earthenware, and the button-makers of Birmingham, and it is now proved conclusively that their lung diseases were due to irritating dust, for since the introduction of fans, that blow the dust away from the men’s mouths, they have ceased to be so extensively punished by this complaint.

Even the catching of colds—the tendency to chronic bronchitis and asthma—maladies to which, as we have seen, people may have inherited a predisposition—even these have been shown to be due to a dusty, close, and foul atmosphere. But this brings us to another, and perhaps more important form of foul air, and to a form of Consumption that is still more common. By this kind of impurity, I mean the foulness that comes from the organic vapours that arise from the bodies of human beings. Our bodies are continually changing, from hour to hour, nay, from minute to minute. We take into them, in the course of a year, about a ton of food, and, in the course of the same time, the same amount of waste matter is got rid of. Now, a large part of this material is simply exhaled from our skins and from our lungs. It passes off in imperceptible flakes, or in the form of vapour. This it is that is the *chief* cause of Consumption. I do not say the only one

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(depressing conditions, want of exercise, stooping postures when at work, and other things have an influence), for that would be to overstate the case, but it is by far the most important and the most deadly. The proof of this statement, in order to be complete, would need to be established by a long string of evidence, such as I have no time now to detail to you, but it may be sufficient to say that it rests mainly upon the following facts :

1. Wherever people are collected together, the death rate from Consumption is in direct proportion to the degree of crowding together, and to the deficiency of ventilation. I will give only one instance of this, that was first remarked by Dr Guy—with reference to letter-press printers. He found that of 104 compositors who worked in rooms of less than 500 cubic feet for each person, 12·5 per cent. had had spitting of blood ; of 115 in rooms of from 500 to 600 cubic feet, 4·35 per cent. showed this sign of Consumption ; and in 100 who worked in rooms of more than 600 cubic feet capacity, less than 2 per cent. had spat blood. The direct relationship between crowding and Consumption is also well shown by the diagram on density of population and disease, from which you will see, at a glance, that Consumption increases as space diminishes.

2. In proportion as people are attracted to indoor occupations—and also in some degree in proportion to the solid impurities of the air—in such proportion do the various work-people die of Consumption.

3. The theory explains the greater mortality from Consumption of the females in agricultural districts.

4. Animals exposed to impure air, or kept in close confinement, such as cows and monkeys, die of Consumption, just as human beings do—and when the direct experiment has been made of forcing rabbits and dogs to inhale air, charged with filth of various kinds—especially the mucus from unhealthy lungs—they have at once become consumptive.

5. Lastly, in the light of these facts, we can readily explain the freedom from Consumption of the various places that I mentioned before. We saw that the Labrador fishermen lived in tents, with free access of air. The fishermen of the Hebrides live in huts, composed of stones loosely piled together, and the

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reek from the peat, with which the interior is always filled, also probably possesses some power of destroying other noxious organic matter. In Persia, for six months of the year, the inhabitants sleep almost in the open air; and in the cold season, in well ventilated houses. (*Lancereaux.*) In Switzerland, and in other high altitudes, the air for the most part is perfectly pure, and free from organic matter; but even here there is no absolute freedom from the disease, when the air is allowed to become impure from the breath of many persons. Dr Emil Muller shows that the rate of mortality from lung disease—even in Switzerland—depends upon occupation. Industrial *indoor* pursuits give a rate varying from 10·2 to 4·7 per cent., and of these, one of the highest (9·8) is recorded at places of from 3400 to 4400 feet of altitude. In mixed labour, in districts at 4400 to 5000 feet of height, the rate is as high as 7·7 per cent.

In cold climates again, as of Iceland, Lapland, and Canada, we may probably ascribe the absence of Consumption to the purifying influence of frost. There is little doubt that the vapour of the air is the chief carrier of the peculiar poison that causes Consumption—and when this is condensed by the frost, it carries down with it much of the organic matter, and thus takes it out of the air of the room. The outer air also is thus purified to a very considerable extent.

The worst localities for Consumption are warm, damp, low situations, with impervious clay soils, and these also badly drained; it will be readily seen that in those places there are no means of ridding the soil of animal impurities, and that the air over it is sure to be charged with moisture, and with vapours carrying with them the true seeds of Consumption.

There remains one other supposed cause of Consumption that I have not yet mentioned, and that is, fast living and intemperance. There is a popular impression abroad that this is a very common cause—but it has not yet been universally recognised amongst medical men. I am inclined to think myself that it is not a direct cause, but that it is a strong ally to other causes. It is certain that alcohol drinkers do suffer more from Consumption than total abstainers, in the proportion of six to four. Dr Dickinson, who made a special inquiry into the causes of the