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ENVIRONMENT AND HEALTH

BY

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Environment and Health

DURING the past fifty years medicine has done infinitely more to constitute itself a science than in all the previous ages. This has been mainly due to the flood of light thrown upon the specific etiology of many diseases by the epoch-making discoveries of Pasteur, and the stimulus those discoveries have given to other workers. Previous to this almost nothing was known of the agencies concerned in the onset of any diseases, except those of purely mechanical origin. Of such widespread and prevalent disorders as the surgical infections, enteric fever, tuberculosis, diphtheria, syphilis, malarial fever, pneumonia, and many others, the causes were entirely unknown, the speculations and theories as to their origins were various—"Quot homines, tot sententiae"—and their treatment was entirely empirical. All disease was a mystery. A great deal of it is no longer a mystery. Approximately one-half of the diseases with which we are acquainted are now known to have their origin in infection by living organisms belonging either to the plant or to the animal kingdom, and the probability is that the list is not yet nearly exhausted. Besides this it has been computed that nearly half the deaths that occur annually are traceable to the same cause.

With the emergence of medicine from the mysterious, no less a revolution has occurred in the practitioner of medicine. While a good bedside manner is still a valuable asset and will so remain in so far as it connotes a sympathetic and human attitude towards the sick and suffering, and while from a business point of view a good shop front no doubt has its value, no longer are the doctor's brains assessed by the sheen of his tall hat or the length of his frock-coat. Like medicine, the doctor has become less mysterious, less aloof from and superior to his fellow men. Knowing more he has become less omniscient. Standing on surer ground he has become less pretentious. The medical priestcraft, reminiscent of a time when the medicine man was more priest than physician and more charlatan than either, has disappeared or is disappearing. This is all to the good, and tends to a more enlightened confidence between doctor and patient.

Again, so much relating to the discoveries and advances in medicine nowadays finds its way into the lay press that the general public has, apart from its technical aspects, a broad knowledge of the progress medicine is making, and is alive to its new developments. This is again to the good. A strong opposition is always an incentive to good government. The advent of a wide-awake and informed public tends to keep the profession up to the mark.

It adds nothing to the dignity, not to mention the security, of the doctor to be questioned by his patient on some new treatment or phase of a disease he has never heard of, but with which he finds his patient has more than a bowing acquaintance.

It was a natural sequence of the elucidation of the causative agent in many of the infectious diseases that scientific effort should be directed to two main objectives: first, to the discovery of means of producing an artificial immunity similar to the active natural immunity which it was a matter of common knowledge resulted after recovery from an attack of many of them; secondly, to producing immunity reactions which should have the effect of neutralizing the toxic products of the invading organisms during an attack. In both of these directions remarkable results have been achieved, both by what is known as vaccine prophylaxis and therapy, and antiserum prophylaxis and therapy.

The most completely successful example of *vaccine prophylaxis* is that of vaccination against smallpox, introduced by Jenner in 1798. This remarkable discovery was the result of shrewd observation and logical deduction. It was nevertheless empirical; the principle on which it rested was not understood until the work of Pasteur more than half a century later. In countries where vaccination is twice practised, small-pox has practically ceased to exist, and its sporadic outbreak from time to time is a warning to the public of neglect of the means to prevent it. In typhoid and paratyphoid fever, by measures along the same lines, immunity lasting for a period of one or two years can be secured, and has greatly reduced the incidence of these diseases both among civilians and soldiers.

Again, the mortality from rabies has been reduced from 16 per cent. to a fraction of 1 per cent., an active immunity being capable of being produced here after infection has already taken place, owing to the lengthy incubation period of the disease. *Vaccine therapy*—that is, the production of active immunity after attack by a known micro-organism—so ably advocated by our own countryman Sir Almroth Wright, has given very beneficial results in staphylococcus infections, skin affections, etc. Of *anti-serum prophylaxis* the best example is that obtained in tetanus. The mortality following Fourth of July injuries in America has ceased to exist owing to its use, and no less life-saving results were obtained by the same means in the great war. The most familiar and the most successful instance of *antiserum therapy* is that of diphtheria, which has reduced the mortality from 40 to 10 per cent., and, if used on the first day of the disease, to almost *nil*.

These are veritable triumphs of strictly scientific medicine. In other diseases more or less success has been achieved. But closer investigation has shown that there are many factors requiring elucidation which undoubtedly influence the result—such as choice of route, recognition of different types of the same disease, etc.—and it will certainly take many years of patient endeavour before the ultimate possible results in securing immunity are obtained. In many instances prophylaxis or cure has eluded us, and the

results have proved disappointing. The above may be termed the result of scientific effort, either preventive or curative, directed towards the individual.

There are other diseases, which have been attacked from a totally different angle—namely, by studying and combating conditions which favour the growth, dissemination, and virulence of the infecting organism, by so altering environment and increasing natural resistance, whatever that may precisely mean, that many diseases which have been very prevalent and very fatal in the past have almost or entirely ceased to exist, and are no longer of any account. Let me give you one or two very familiar examples.

Take typhus fever. During the last century it prevailed in all the large cities of Great Britain and the Continent. So late as 1875 in England and Wales there were 1,499 deaths from the disease. During recent years the name "typhus" has seldom appeared in the Registrar-General's returns. It is a disease essentially dependent on filth and overcrowding. Bad as these conditions are even now in our large industrial centres, the disappearance of this disease is evidence of an improvement as compared with half a century ago—an improvement in environment and an improvement in natural resistance, owing to better living conditions, sufficient to have caused its disappearance altogether. After the peace of 1815, following a long and exhausting war, when the economic position was somewhat similar to that existing at the present time, typhus fever and relapsing fever, which occurs under similar conditions to typhus, were rife in England and Ireland. No such catastrophe has accompanied the economic depression following the last great war.

Take, again, typhoid fever. It is a water-borne disease. Bad drainage and a contaminated water supply are the factors favouring its distribution. Its prevalence or the reverse in a community is the measure of their sanitary intelligence and enterprise. Filth, overcrowding and bad ventilation are factors conducing to its prevalence, by lowering natural resistance. The marked decline in typhoid fever is again the result of an improvement in environment. Typhoid fever has declined from 375 per million in 1870 to 25 per million at the present time. In Portsmouth typhoid fever, quite prevalent in the town when I came here thirty years ago, has almost ceased to exist.

These are examples of diseases which have disappeared, or are disappearing, owing to action following an intelligent study and comprehension of the conditions and environment favouring their distribution.

Now, "environment" is obviously a very wide term. It embraces living conditions generally. The amount and quality of food and water, the presence or absence of domestic hygiene, the supply or not of good drainage, the furnishing or not of healthy conditions in factory and workshop, the prevalence or not of smoke and fog, the provision or not of adequate open spaces, playgrounds, and recreation grounds, access or not to sound education—these and many others are all factors in environment. And it is satisfactory

to note that these matters are receiving from governments and local authorities some of the attention which all of them deserve. But I propose to-night to consider for a few moments the special environmental factors governing the slum areas of our great industrial centres—the lack of fresh air and sunlight, and the cramped and penalizing conditions to health, both moral and physical, owing to overcrowding; and to inquire what bearing these factors have upon four out of five of the most formidable endemic scourges which afflict all northern civilized peoples to-day.

The five scourges I allude to are Cancer, Tuberculosis, Rickets, Venereal Disease, and Alcoholism. Tuberculosis and rickets account for most of the cripples we see about us; cancer, tuberculosis, venereal disease, and alcoholism account for most of the deaths; venereal disease and alcoholism account for most of the misery and moral degradation of our race.

We may dismiss cancer at once from the count. The humiliating confession must be made that we know very little about it. That it has some relation to civilized environment seems evident from the fact that it is a comparatively rare disease among primitive races, and that it is certainly making rapid headway among all civilized peoples. But of the nature of the environment favouring its activities we are in complete ignorance. It is neither foul air nor fresh air, neither hardship nor indulgence, neither poverty nor riches. Cancer like death—

*“Aequo pulsat pede pauperum tabernas,
Regumque turres.”*

The only things we know about it which are worth knowing are its age incidence, its relation to chronic irritation, and the fact that it is in its beginnings a local disease, and that therefore it can be cured by early removal in those situations where removal is possible.

This is practically all we know about cancer. I wish to make only two comments. The first is that this knowledge is not enough. In an age which has yielded the secrets of so many diseases it is a point of honour with the medical profession not to rest content till this pressing problem has been solved. With the public it is not only an obligation but, from the point of view of their own interest and safety, a vital necessity to furnish the financial means of solution, and to see to it that research is not crippled or stunted by any niggardly parsimony.

The second comment I make is this: The most important fact we know about the disease is that in its beginnings it is local, and that its course is a centrifugal spread from its local point of origin. Is that knowledge anything like as productive as it might be? Undoubtedly it is not. Notwithstanding the fact that cancer has been cured over and over again by modern operation—a fact which in itself proves that it is curable—yet I believe patients come no earlier to the doctor with it than they did thirty years ago, though time is the very condition of the only cure we possess for it. Many medical men, and I confess I am one of them, are of opinion that there is considerable room for improvement in this direction.

Without resort to any sensationalism some obvious steps could be taken to spread the knowledge of a few very simple facts about cancer. This would give a by no means unwarranted ray of hope to the public and would enable some of the victims of this terrible disease to apply in time to have, at all events, a chance of cure or freedom from recurrence, whichever you like to call it. This by the way.

I pass on to the consideration of the other four scourges—tuberculosis, rickets, venereal disease, and alcoholism.

Tuberculosis first. We know the cause; it is the tubercle bacillus. We know also the prime and essential conditions of its cure; they are fresh air and sunlight. These are not only the essential conditions of its cure, but are almost the sole conditions. Those of you who are interested in the subject will have an opportunity of visiting the establishments at Alton and Hayling Island, under the able administration of Sir Henry Gauvain, where the cures are fresh air and sunlight. Dr. Rollier of Leysin read a most instructive paper at the Glasgow meeting last year, and quoted many instances of cures, and lasting cures, by these agencies in all regions of the body. It is foreign to my purpose to discuss to-night the method or supposed method of their action, or the method of their application. If, then, these agencies, fresh air and sunlight, are, as we know they are, so powerfully antagonistic to tuberculosis—whether by directly controlling the activities and virulence of the tubercle bacillus itself or by fortifying the natural resistance and so enabling the human organism to establish an immunity to it (it matters not, the result is the same)—are we not justified in the converse conclusion, that the breeding ground of this disease, the environment most encouraging to its activities, are the sunless, airless, overcrowded, and insanitary slum areas of our great cities, where houses are built forty or more to the acre, and stand back to back, and side to side, like any jig-saw puzzle, so that fresh air and sunlight, the proved destructive agents of the tubercle bacillus, can never enter? Is it a sound economic proposition to equip and maintain, at the cost of millions of the taxpayers' money, sanatoriums for the so-called cure of tuberculosis, while we guard intact the very preserves of this disease by the exclusion of fresh air and sunlight, which cost nothing, and maintain in our midst a soil which can breed more tuberculosis in a week than all our sanatoriums can cure in a year? Dr. Rollier says:

"Housing has played an immense part in the genesis of child and adult tuberculosis: the community bears the responsibility of the waste of human lives through insanitary houses."

The industrialization of Sweden since 1870 has been accompanied by a high adolescent mortality due to pulmonary tuberculosis. Sandberg, commenting on this, says:

"The cause of this difference between earlier and more recent times seems to be in the fact that formerly the adolescent boy and girl remained at home for a longer time—nowadays one goes more frequently and at an earlier age to the city or factory. The new conditions of existence bring, in many cases, increased dangers to health and life, dangers which, especially in the case of women, often lead to tuberculosis."

In 1885 the tuberculous gland cases admitted to the Alexandra Hospital for Sick Children, Brighton, constituted 6.5 per cent. of all admissions. In 1899 they were 3.5 per cent.—a reduction of nearly 50 per cent. Between 1885 and 1899 Brighton has swept away most of its insanitary areas. Numbers of similar instances could be quoted. It is no unwarrantable assumption that by permitting—and that is all we have to do—the sun and fresh air into our slum areas we should see a very marked general decline in the incidence of tuberculosis.

Consider next Rickets. Its etiology is unknown. There are two opposing theories as to its origin—the dietetic and the hygienic. There are those who positively assert that it is a deficiency disease; that it is due mainly to lack of fat-soluble A. There are others who as stoutly deny that diet has anything to do with it. We may leave the theorists to settle their differences and turn our attention to certain facts about it which have long been established, and certain other facts which have recently come to light. It never occurs among races living under natural conditions, and is especially prevalent among the poor in Europe and America living under so-called civilized industrial conditions—in other words, the thoroughly bad hygienic conditions of overcrowding and absence of fresh air and sunlight. Among the well-to-do it is practically unknown. In India, on the other hand, as recently shown by Hutchinson, it is a disease of the rich. It does not occur among the poor labouring class who live an open-air life, but is prevalent among the rich Mohammedans and Hindus, who are confined in airless and sunless rooms. Hutchinson discovered also this remarkable fact—that late rickets was restricted to females, who alone are confined, according to the purdah system of isolation as practised by the wealthy natives of India. Again, eminent observers in Glasgow, who have quite an exceptional acquaintance with rickets—it being, as you know, very prevalent in that city—have always associated the disease with overcrowding and lack of hygienic conditions and sunshine, which you also know are conspicuous features of that great hive of industry. According to Miss Fergusson, 50 per cent of the children in the poor quarters of Glasgow are rickety—a vastly smaller proportion in garden cities, such as Bournville. The prevalence of rickets, she says, is associated with close confinement in tenements. Most important of all, we have the recent experiments of the Lister Institute in Vienna. They prove conclusively that a deficient diet can only produce rickets in the absence of sunlight. If abundant sunlight be present a deficient diet is powerless to give rise to it. Lastly, we have the significant fact that the sun's rays without any other treatment whatever can cure it—an explanation of the oft-repeated dictum that anybody can cure rickets in the summer.

All this does not prove that the absence of fresh air and sunlight is the cause of rickets; but it does prove this—that in overcrowding, confinement, want of fresh air and sunlight, we have an environment conducive to the development of rickets, either by the supply

of conditions favourable to the activities of the virus, whether microbic or otherwise, or by lowering natural resistance to it. Conversely, that fresh air and sunlight and good hygienic conditions furnish an environment which is powerfully antagonistic to the disease; that they have either the power of damping down the activities of the virus, whatever it is, or that they can so alter the metabolism of the body as to provide an increased resistance and immunity to it. Whichever is the method, the result is the same. These facts appear to indicate clearly and unmistakably the way to the control of this crippling and dangerous disease. And, as Mellanby says, its eradication would do away with a great deal of the bone deformity, improve the physique, lower the infantile mortality, and, most important of all, improve the teeth of the people of this country beyond recognition.

Let me invite your attention in the next place to Venereal Diseases, which have figured so largely in the public eye during recent years, are discussed in every drawing-room, exhibited at every picture-house, and with regard to the most suitable methods of controlling which there are acute differences of opinion, both among medical men and the lay public. They are the diseases of immorality. The contributing environmental factor here is the indiscriminate admixture of the sexes of all ages, a necessity of their living conditions. It is not, of course, contended that by an improvement in housing immorality would be stamped out, but it is contended that the conditions of overcrowding, without regard to age or sex, which exist in our industrial centres make the practice of morality well-nigh impossible.

Let me put before you a few facts; they are taken from the report of Dr. Chalmers, the medical officer of health for Glasgow, for 1921. There is no intention to single out that city as a sink of iniquity, or an example of a condition of things peculiarly revolting to the conscience of civilized humanity, and I have very little doubt its case could be paralleled in our own borough of Portsmouth; but I have the facts for Glasgow, and I have not similar facts for Portsmouth. In Glasgow, out of a population exceeding a million, over 600,000 live in one-roomed or two-roomed tenements. Under the heading "Sex overcrowding in small houses," Dr. Chalmers gives the following appalling examples:

"In a one-roomed house a father of 52 occupied the same bed with a mentally defective daughter of 24, who had an illegitimate child of 10. In another, with space for five adults, a father and daughter shared the same bed. In another a mother shared the same bed with two sons of 19 and 20 years respectively. In two-roomed houses, in one instance, a son of 19 and a daughter of 21 occupied the same bed; and in another a son of 19 and a daughter of 25, who was pregnant."

However revolting these facts may be, it is right that the public should be made aware of them. This, then, being an example of the state of affairs in our industrial centres, it may be confidently stated that a great deal, at all events, of immorality and its consequences, venereal disease, is the direct result of environment—that the conditions existing make either the teaching or practice

of morality impossible, and furnish the breeding ground for venereal disease.

Have we not, it may be asked, missed one phase of the problem, and are we not somewhat out of touch with the situation, with our societies for the prevention of venereal disease and for combating venereal disease quarrelling amongst themselves as to the best means of meeting the evil, and local authorities and the lay public equally divided, when conditions such as I have depicted are rampant in our midst? It is this aspect of the problem—the immorality and its consequence, venereal disease, which are the direct result of overcrowding without regard to age or sex—which I wish to lay particular stress upon here.

Consider, lastly, the abuse of alcohol. There is no doubt that, without anything in the nature of prohibition in this country (and I believe it to be foreign to the instincts of our people to have their lives, what they may eat, and what they may drink, regulated by the policeman), there has taken place during the past fifty years a steady move in the direction of greater sobriety among all classes of the community. Among the upper and middle classes drunkenness was the fashion less than a century ago. It is now a disgrace. In the army, navy, and mercantile marine there was, fifty years ago, infinitely more drinking than there is to-day. In the streets of our towns the drunken man of any class is not nearly such a familiar sight as he was a generation ago. This must be attributed broadly to social evolution, to general civilizing influences—better education and the inculcation of greater self-respect, which such influences promote. There are, of course, many factors at work here; but in the forefront of civilizing influences is the improvement of the home. So long as the public-house is more comfortable and more attractive than a man's home, the former will claim his leisure hours. Give him a comfortable and respectable home, and the lure of the public-house will automatically diminish. In the debate on Lady Astor's bill, a few months ago, a good deal was said about the improvement of the public-house; but nobody suggested that, by devoting greater attention to the home, we might go a long way to improving the public-house out of existence altogether. Drunkenness stands in much the same relation to bad housing conditions as immorality and venereal disease, and, moreover, is admittedly a potent factor in the dissemination of the latter.

In the foregoing remarks I have endeavoured to emphasize the relation of the special environmental factors of the slum areas—lack of fresh air and sunlight, and overcrowding—to four out of five of the great endemic scourges afflicting the community at the present time. I have said nothing of their relation to epidemic diseases, though there is no doubt that some of the latter are powerfully influenced by the same factors. For instance, pneumococcus lung infection is certainly a disease mainly of cities and crowded places, the infection spreading from pre-existing cases or healthy carriers. Observations in South Africa showed that natives who had recently arrived at the mines and occupied crowded com-

pounds were most susceptible; and Gorgas, in a report upon pneumonia in the Rand mines, draws attention to the fact that there was the same high incidence among labourers in the Panama Canal zone, until they were removed from crowded compounds and encouraged to live in separate huts. The high mortality attending measles is probably attributable to similar conditions. Epidemic disease is, however, more elusive and less under control, and for that reason I have omitted it from argument.

If, then, I have submitted evidence that, by a determined attack upon our slum areas, there would be a reasonable expectation of making a beginning of the end of four out of five of our most formidable endemic diseases, the question is, Would it be worth while? Not as a sociological venture, or on humanitarian grounds, or as a moral obligation, on any of which there would be little difference of opinion; but "would it be worth while" as a business proposition? Because, however satisfying it may be to our consciences to prate of social and moral duties to our fellow men, when it comes to doing anything, and especially to spending taxpayers' and ratepayers' money, it is usually the business and economic aspect of any question which mostly counts. It is, therefore, from this point of view only that I approach it, and I omit all moral considerations. Besides, moral values cannot be assessed in pounds, shillings, and pence, though nobody would deny that they represent a very real asset.

In a paper read at the meeting in Glasgow last year, entitled "The economics of public health," Lieut.-Colonel Fremantle, consulting medical officer of health for the County of Herts, by a series of calculations, estimates the total direct material loss in England and Wales from sickness and disability at a minimum of £150,000,000 a year. From tubercle alone the estimated loss is £94,000,000 a year. In the United States of America, with a population three times as great as England and Wales, the estimated cost of sickness and death is £600,000,000 a year, of which at least one-third is considered preventable. Taking the cost to this country of sickness and disablement at £150,000,000 per annum, the country could spend without loss £50,000,000 annually, or, capitalized at 5 per cent., £1,000,000,000 on clearing the slum areas and securing better housing and living accommodation, provided that the cost of sickness and disablement were thereby reduced by one-third.

What actual sum would go to the credit side of the nation's health bill it is obviously impossible to determine. It would admittedly, therefore, be a speculation. But it would not be a bogus venture. An assured dividend of considerable amount is in sight. The improved physique of the nation; its better health; the diminution certainly, the extinction possibly, of such diseases as tuberculosis and rickets; the improved moral tone of the people, and the resultant diminution of venereal disease and its consequences; decrease in the consumption of alcohol with its disastrous effects on infantile and adult mortality, with the misery and moral degradation it brings to the home, with the loss of time, increase of industrial accidents and industrial inefficiency it entails—these and other

items are the prospective dividend. Whether it would or not strike £50,000,000 off the annual health bill is the speculation. In this connexion I would remind the overcautious and those averse to any kind of speculation or any degree of risk, that it is the speculators who have made this great empire—the men of courage and enterprise, men who have faced the uncertain and the unknown, and have not been afraid to take risks. And if we have not been afraid to speculate in adventure, in arms, in trade, and in business, why should we be afraid to speculate in health?

To face the risk would require a bold and imaginative statesmanship. It does not belong to the business outlook of the parish pump only prepared to estimate in pounds, shillings, and pence the return on the capital expenditure. It would almost certainly eventually result in a real economy to the State. What we are doing now is to provide the breeding ground for the mass production of disease with one hand, and with the other paying out millions of the taxpayers' and ratepayers' money to deal with the end-results of the very diseases we are fostering in our midst. It has been frequently said, the people make the slums. Such a pessimistic assumption would sound the death-knell of all progress. But it is nothing more than the comfortable argument of the man selfishly-indifferent to the obligations of citizenship and regardless of his duty to the body politic. It is flatly contradicted by the fact that through all the ages man, like every other living thing, has been the product, not the cause, of his environment. The slums make the people you find in them, and the only astonishing fact is that they can breed any other sort. It is a testimony to their physique and spirit and grit, no less than to the universal natural law of the survival of the fittest, that some of the inhabitants of the slums win through such an environment, and escape the moral and physical ruin which engulfs those of weaker fibre.

The industrial revolution which occurred in the last century accounted for the urbanization of our population, and the herding together of millions of workers in our industrial centres. This has been going on ever since. The early hour at which work commenced, the long working day, entire absence of rapid transport, or rather of any transport at all, necessitated their centralization in the heart of our great towns, where land has consequently become of greater value than health. These conditions are reversed to-day. Powerful centrifugal forces have come into play, and have come to stay. The working day as a rule begins later, the hours are shorter, the day for half the year is longer owing to the Daylight Saving Act, and the means of rapid transport are available, and are becoming increasingly available every year. It has become, therefore, practicable in many instances for the worker to live further from his work—in other words, to move from the centre towards the periphery of our large towns, where land is cheaper and where it becomes, therefore, a business proposition to build on town-planning lines, and avoid the past errors of herding human beings together like sheep in a pen or pigs in a sty.

In this connexion it would seem that the first and most essential requirement in future building is to reduce the density of the houses—in other words, the number to the acre; and it is disappointing, and in the opinion of many a grave defect in the Government's last Housing Bill, that no such restriction appears. In submitting town-planning schemes, however, local authorities have, under the Housing Acts. powers to regulate for this, and a memorandum from the Ministry of Health suggests twelve, ten, or eight houses to the gross acre as suitable density requirements according to the nature of the neighbourhood. If this in the opinion of the Ministry is the correct requirement for health, what are we to say about houses built forty or more to the acre? The only answer is that they should be swept away wholesale at the earliest possible opportunity.

The air space and sun space round the house is of infinitely more importance than the size of the house itself, or whether it contains a parlour or not. The cramped crofter's cottage does not produce rickets and tuberculosis, because his children live mostly in the sun and air round their dwelling; but children "cabin'd, cribb'd, confin'd" in the dark sunless and airless environment of our large towns are inviting both all the time. The most important educational requirement of domestic hygiene and its highest fulfilment is the open window, night and day, summer and winter. It is astonishing how quickly the human organism abjures the hothouse conditions of civilized living and adapts itself to its natural environment, fresh air. The tuberculous patient, after three months open-air treatment in a sanatorium, cannot endure the closed window in his own home. The tuberculous children at Leysin in Switzerland, and at Alton and Hayling Island in this country, live practically naked in the open air, and by that habit and that habit alone throw off a most formidable and deadly disease. Why, then, all the care of healthy children, with their active metabolism capable of adapting itself to almost any requirement, to wrap them up in the warmest of clothing, confine them in hot rooms with windows shut, keep every draught from their bodies, and submit them to general hothouse conditions suitable only to the old whose metabolism is barely sufficient to keep body and soul together, and whose clock has almost run down?

Modern civilisation is suffocating itself in the polluted atmosphere and darkness of our great industrial cities. The need of pure air and sunlight, of which there is plenty about, and to be had for nothing, was never so insistent as it is to-day. These great gifts of nature were plentifully supplied to primitive man, and were his only sure defence against disease. They are as bountifully given to civilised man, but he seems to have lost sight of their value, or to have deliberately turned his back on them, while he requires a whole volume for the mere nomenclature of his innumerable diseases.

Perhaps apology is needed for touching to-night on a problem which may be considered rather a sociological one than one of strictly scientific medicine. But apart from the fact that I believe a wide latitude is permitted in the Presidential Address to this Association, my choice of subject can, I think, be justified by both local

and general as well as scientific considerations. First of all, it does not seem to be an unfitting subject to bring to your notice in the town which bred Charles Dickens and Walter Besant, who devoted their unrivalled literary talents to depicting scenes and characters drawn from our slums, and such as our slums are only too familiar with. Secondly, although this borough has witnessed some of the most brilliant pageants and displays in the history of this country, and although you are sitting here in what we are proud to think is one of the finest town halls in the kingdom, yet there is an obverse to the shield, and round the corner we can introduce you to slums as pestilential and overcrowded as any to be found in the land. Further, although the environment of the wage-earning classes, in our industrial centres, and its effects may in part be a sociological question, I have endeavoured to show that it is inseparably linked up with, and *is* in fact the greatest of all our problems of preventive medicine, the most rational and the most scientific of all medicine. And if this is so, then it is up to the medical profession, both individually and through this great Association of medical men, to educate and lead public opinion in this matter, and to strengthen the hands of governments and local authorities, on whom will ultimately devolve the responsibility, no less than the odium, of providing the remedy. Concentration on the prevention of disease, on strengthening resistance to disease, by the improvement of environment, rather than on the search for cures or palliatives when the damage is already done; more attention to stimulating and fortifying the natural defensive mechanisms against disease, less to direct attack on disease itself; as Professor Wynne so ably put it last year, concentration on the environment rather than on the individual—this appears to me to be the most scientific, the most economical, and the most productive means of combating the worst of the evils from which the community suffers. If, in conclusion, I might sound a personal note, it is this—that as Chairman of the Health and Housing Committee of this great borough, by the goodwill of my colleagues on the Council, this is a conclusion forced upon me by no mere theoretical considerations, but by an every-day acquaintance with undeniable facts.

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