An Address ON TUBERCULIZATION AND DETUBERCULIZATION.

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BY

R. W. PHILIP, M.D., F.R.C.P.,

PHYSICIAN TO THE ROYAL INFIRMARY, EDINBURGH.

THE tuberculization of the race is a grim chapter in human history. The universal distribution of tuberculosis throughout the civilized world is a fact of immense significance. Tuberculosis has accompanied civilization. Tuberculosis is not essential to civilization. Mankind is responsible for tuberculosis. It is a vicious by-product of an incomplete and ill-informed civilization.

If the baneful outcome of misguided civilization has been tuberculization, the rôle of an enlightened civilization must be detuberculization. What an ignorant civilization has introduced an educated civilization can remove.

Detuberculization implies an intelligent and comprehensive movement of mankind towards the eradication of tuberculosis, as the cause, not only of immediate disease and death, but also of a vast amount of devitalization. It is an expression of the far-reaching claim that health and vitality are the inherited right of the human species, and that the entrance of tuberculosis implies unnecessary interference with that right.

The demand for detuberculization is not bounded by the limitations of medical science and practice. It is the voice of a mighty purpose conceived by mankind, to be carried out by mankind, in the interest of mankind. It signifies a conscious effort of the race to rehabilitate itself—to remove the disharmonies and disabilities which tuberculosis entails. It is a *renaissance*.

The events which culminate in tuberculization are of deep human interest. Go back in the history of the race and the individual, and a point is reached where tuberculosis as a morbid factor disappears. Savage man hardly knows it. Like cattle living and breeding in the open, he was free of it. The aboriginal races developed tuberculosis only when, retiring from an absolutely free life in contact with Nature, they began to clothe themselves with the raiment and impedimenta of civilization. The Red Indian, in the State reservations on the American Continent, is to-day pining with tuberculous infection, fostered by the very conditions which were created for his protection.

And so of the individual. All evidence tends to show that the child is not born with tuberculosis, or, at least, that this happens but rarely. The offspring of tuberculous parents are commonly healthy at birth—sometimes unusually fine products. One of the more valuable contributions which recent methods of diagnosis have yielded is the fact of the relative infrequency of tuberculization during the first six months of life. Thereafter the curve of incidence of tuberculosis rises steadily.

We owe to the genius of him, whose presence at our world Council we miss to-day, and to whom be the honour—we owe to him the revelation of the essential cause—the *causa causans*—of this widespread infection. The discovery of the tubercle bacillus illuminated the all-prevailing darkness. So great, indeed, has been the brightness of illumination that other issues seem almost to have been obscured. There is just a danger lest attention be concentrated too much on the tubercle bacillus, and that thereby sight be lost of that other factor in tuberculization which is of little less account—namely, environment—using the term in the widest sense.

The facts of natural and experimental tuberculization illustrate the point in striking manner. While essential to its production, the presence of the tubercle bacillus is not the *sure* antecedent of successful inoculation. The process of inoculation is slow and uncertain. The bacillus is a parasitic form of feeble growth. It demands specially favourable conditions. These conditions must be maintained more or less uniform, especially at the start.

Growth is readily obstructed. The rabbit inoculated with tuberculosis, and thereafter allowed to return to relative freedom of life and movement in the air, has a different prospect in respect of tuberculization from a rabbit similarly inoculated and afterwards confined to its hutch.

In like manner in the human subject, it is impossible to doubt that in countless instances and on frequent occasions tubercle bacilli, in sufficient dose and with sufficient vitality, are introduced, and yet nothing follows because of the absence of favouring environment. Even after successful inoculation, while the feeble parasitic life is struggling to assert itself on the more or less resistant soil, the conditions of environment remain the determinant influence. With sufficient modification of this, there may be added to the equivocal resistance of the body that indefinable something which renders resistance effective. Such modification of environment, in the large sense, is possible from day to day during the prolonged period of incubation—when from the clinical standpoint nothing is evident and tuberculization may not be suspected.

Still later, when there can be no longer doubt as to successful inoculation—when disease has shown its presence by unmistakable symptoms and signs—how frequent is the occurrence of complete arrest of the parasitic invasion! What is the *motif* of so-called sanatorium treatment but alteration of environment and return to the physiological? After its successful adoption, there may remain nothing but faint traces—often determinable only on minute search—of the skirning of the defeated force, and the protective arrangements created by the body in response to the attack.

There exists a grave misconception as to the amount of tuberculosis in every civilized centre. It entails corresponding misunderstanding of the needs and methods of detuberculization. It is the outcome of direction of observation too much towards what may be described as the finished product—namely, on the one hand, the advanced case of tuberculosis, and, on the other, the mortality table. The conception covered by the term “phthisis,” which unhappily dominates the nosological field, has obscured the larger view and been a stumbling-block to progress. It is time that as physicians and sociologists we recognize the underlying fallacy.

The classic description of phthisis, which continues in medical literature, requires revision. Students of disease must be taught that the enigma of the centuries is now solved by anticipation, and that phthisis—rightly described as the opprobrium of medicine—need no longer exist. The mediaeval portraiture of phthisis must be replaced by scientific delineation of the earliest manifestations of tuberculization, realizable through experimental or clinical study.

The artificial distinction between so-called medical and surgical tuberculosis has been the source of much confusion and error. What we want to keep in view is the fact of tuberculous inoculation. The point of entrance matters less. The natural history of the disease reveals a sluggish spread from point to point, until, if invasion be unchecked, point after point is yielded and the whole system is undermined.

Who would think of limiting the clinical picture of syphilis to that of the grosser visceral lesions? There are numerous points of analogy between the spread of the tubercle bacillus and the *Spirochæta pallida* throughout the body. The time will come when the physician will regard what now, for the most part, passes current as the diagnosis of tuberculosis in much the same light as the belated news of the foot messenger contrasts with that of the telegraphic wire or Marconi receiver.

The sociologist can no longer content himself with the facts of registered mortality. Each death reminds him of the long procession of months and years during which tuberculization was in progress—a process which, so far as the individual was concerned, might have been checked, had the etiological conception and the antagonistic ideal been practically understood, and a process which, *pari passu* with its advance in the given individual, implied potential tuberculization for many more.

We must look tuberculosis straight in the face. As physicians and sociologists we must realize the unity of tuberculosis in its ever-varying manifestations, and recognize that potentially the seedling of tuberculosis is no less

significant than the full-grown tree. We find solace in the reflection that the conditions for reproduction and development demanded by the tubercle bacillus are essentially conditions which are inimical to human life, and that the conditions desirable, if human vitality is to be more than mere existence, are precisely those which are inimical to the life of the bacillus.

With the facts as they are the duty seems plain—to decline to sanction an existence synonymous with devitalization and lowered natural resistance, which is the likely precursor of successful tuberculization.

Let me give one or two illustrations.

Take, for example, the question of age incidence in tuberculosis. The common view—embodying a tradition which, dies hardly—is that tuberculosis is especially a disease of adolescence and early manhood. The conception is traceable to the fact that about that age tuberculosis often reveals itself through unmistakable appearances, and thereafter runs a downward course. The phenomena of disease are now so striking that the attention of the man in the street is arrested.

Non frondi verdi, ma di color fosco;
Non rami schietti, ma nodosi e involti;
Non pomi v'eran, ma stecchi con toscio.

Yet, after all, these distressing features are mere incidents in the natural history of tuberculosis. In the majority of instances the tuberculous infection, of which the immediately grave activity is the efflorescence, has existed for a long time within the system of the infected person.

Pathological and clinical facts have steadily accumulated which show that, for the most part, the tuberculosis of adolescent and adult life is but the harvest of seed sown years ago. The more carefully pathological examination has been carried out in children dying from all kinds of disease, the more we are forced to believe that the advent of tuberculosis in childhood is most frequent. Statistics of numerous pathological observers tend towards the common conclusion that by the time the fifteenth year is reached 75 per cent. of children have been tuberculized.

From the clinical side no less striking facts have emerged as methods of examination have been refined. In an address before the last Congress at Washington I stated that personal observations in relation to school children at Edinburgh had led me to conclude that at least 30 per cent. of such children presented evidence of tuberculosis determinable by ordinary clinical tests. Subsequent observations have convinced me that the estimate is within the truth. It is strikingly corroborated when, in addition to the determination of physical signs, recourse is had to one or other adaptation of the tuberculin test. The collective evidence from different countries goes to show clearly that it is possible to recognize clinically the existence of tuberculosis in the majority of school children.

If this be admitted, the question arises, To what extent has the tuberculous seedling been directly considered and handled with a view to prevent its passage onwards to the full-grown tree?

From the point of view of detuberculization every tuberculous seedling is of equal significance. It is impossible in advance to say which seedling will abort and which will pass on to larger fruition. Manifestly, if tuberculous seedlings exist to the amount indicated, our standpoint requires to be shifted. The seedlings must be watched and treated with the most careful precision of which scientific medicine is capable. The process of tuberculization must be antagonized at the outset by the methods of detuberculization.

The fact that such a large percentage of the young of the human species become infected by tuberculosis raises in cogent fashion the question of the dependence of tuberculosis on conditions which ought not to be tolerated. Granted that the infant is not born tuberculous and that tuberculization is a gradual process, it must be possible, by intelligent and patient application of the larger preventive measures, to prevent fructification of the seed whose harvest is so doleful.

Take another illustration. Recall the classic description of phthisis—the delicate pink and white colouring, quickly changing, the hectic flush, the cough, the hasty, shallow respiration, the rapid pulse, the pyrexia, the night

sweats, the feeble, worn frame, the wasted muscles, the prostration:

Defessa jacebant
Corpora; mussabat tacito Medicina timore.

Looking at this picture of unutterable devastation, recall the fact that it is all referable to the successful entrance of a few tubercle bacilli commonly years before. Recall the natural obstacles to successful invasion, the countless barriers, the defensive army of phagocytes. Alongside the tragic and pathetic vision of vanishing life and a disintegrating frame, recall the extraordinary metamorphosis that is effected, even in cases of advanced disease, when poisonous and stifling environment is amended by what we are wont to term "sanatorium" measures—measures which, after all, are essentially physiological.

The aspect of the patient becomes altered as by the magician's hand. The delicate, transparent colour becomes transmuted into the ruddiness of health. Pyrexia melts away. The pulse slows and blood pressure rises. Night sweating and cough disappear. Every function participates in the recovery. The patient's working capacity is gradually restored. He is recreated.

In watching this marvellous metamorphosis from tuberculization to detuberculization—even when the latter falls short of completeness—is it possible to avoid the conclusion that the continuance of tuberculosis is dependent on the will of man? He permitted its entrance and he is responsible for the maintenance of conditions without which the tubercle bacillus is almost powerless. It is high time that he use his right of veto.

Successful use of this power means an intelligent grasp of the principles and methods of detuberculization. These principles are simple and broad. Their application, although of greater complexity, is not beyond the wit of man.

Were it possible to begin afresh the scheme of civilized life, were it possible to undertake anew the creation of cities and the homes of our people, were it possible to place within the recreated dwellings an understanding race, possessed of determination to exclude tuberculosis, detuberculization might be quickly attained. What a magnificent opportunity for the builders of new cities, the moulders of fresh civilization, with the grand purpose of "No tuberculosis"! The architect, the sanitarian, and the citizen would agree in insisting that physiological laws should be paramount, that there should be effective obedience to the larger demands of hygiene in the home, the school, the workshop, the meeting-place, and the cowshed.

Mankind was born into air and sunlight. These are his natural heritage. They are more—they are the irreducible conditions of his life. Other of his needs may be reduced without penalty. In proportion as these primary conditions are reduced, a penalty is exacted in the sense of disturbed function, diminished vitality, disease and death.

Parsimony in light and air—supplies of which may be had for the taking—is a physiological blunder fraught with grave consequences. Imperfect oxygenation means imperfect metabolism. There is no end to the possible disturbance of function. With disturbance of function comes lowered resistance of tissues and the preparation of the soil for successful invasion. All the while the condition of airlessness and sunlessness affords direct advantage to the tubercle bacillus.

How little is the inwardness of the simple truth realized! Mankind, purblind, stumbles about the planet with its marvellous potential of perfect vitality. By reason of his atrophied senses he fails to accept practically the dependence of health on two or three elemental principles, and allows himself to be cajoled into giving up his birthright by meretricious promises of protection and comfort. With astounding folly, he starves at a banquet of the gods.

The civilizations of the world are languishing because men and women prefer an atmosphere of their own creation to that by which they live and move and have their being. Through dread of something they have misunderstood, misrepresented and mislabelled they continue to expel the all-pervading, life-giving essence by which every physiological activity is accelerated. They poison themselves, their children, and their dependants, with the inevitable result in devitalization and disease. If the

picture seem overdrawn I ask you to contrast the atmosphere with which Nature thought fit to surround the race and the miserably mean, half-used and tainted supplies to which it has been reduced through ignorant parsimony.

In the circumstances tuberculization is a strictly natural result—no less natural than detuberculization when the conditions are reversed.

What is true of man is no less true of cattle. The overcrowded, airless, foul and infected byre repeats for the calf the gruesome stages of tuberculization. The first step towards a wholesome milk supply is the recreation of the environment of the cow.

The facts of comparative pathology support the view. A pretty illustration may be had from the experience of zoological gardens, where an extraordinary improvement in health has occurred when animals from warm countries, for whom specially heated houses were formerly thought necessary, have been boldly placed in the open air. The tendency for the caged monkey to become tuberculous is overcome when open-air measures are pursued. Japanese apes brought to London, instead of being placed in super-heated apartments, have been kept outside, with the result that, for the first time on record, they have bred under captive conditions, and the offspring have proved strong and vigorous. Similarly, a fine mandril, which had lived in France in a small cage heated with a stove, was transferred in London to the open air, with rapid improvement in health and the development of a magnificent coat. If only man would read Nature's lesson and understand that it is we who "arm the fates to bruise or caress us"!

The highest expression of detuberculization is immunity. The consummation is not unthinkable. It is not impracticable. It is realizable by the framers of new cities in new countries in proportion as physiology inspires the plans and governs the administration.

Then, the living place, private and public, would conform to physiological law. The ideal of the citizen would be light and air. Every apartment would have the maximum supply. Windows would be framed so as readily to admit both. From infancy the citizen would be trained to regard the dual function of the window as vital to life and health, day and night. The nursery and the schoolroom would be redolent of air and sunlight. Every school would be an open-air school. Much of the work would be done outside. Throughout the town open spaces would abound, wide streets would be the rule. Crowding in dwellings, offices, workrooms, factories, meeting places, would constitute a crime. The housing of cattle would be similarly regulated. In such a city tubercle need never appear.

Notwithstanding the faults of environment which have marred the march of civilization, the human race has attained some degree of immunity. Taken as a whole, the race has resisted tuberculosis well. Had it been otherwise the civilized peoples of the world would long ago have been wiped out by the infection.

This natural resistance explains in part the slow and uncertain footing which the tubercle bacillus gains in the human subject. Whether the resistance be the outcome of prolonged exposure of the race to tuberculosis, generation after generation, is a moot point. Attractive as the conception is, its validity is not beyond dispute. Were immunity attainable thus, there should be now a more uniform mortality from tuberculosis among the older civilizations than is the case.

Whether we are to interpret the occurrence of slight tuberculous affections—for example, of glands, or other limited involvement—as contributing, when recovery is established, to immunization is not quite certain. The facts might bear the construction. Yet, having regard to the naturally slow development of the bacillus, it is not surprising that in frequent instances the infection should be arrested at one or other of the successive barriers to which reference has been made.

There can be no doubt as to the increased resistance which the human body offers to the tubercle bacillus under satisfactory conditions of environment. It is more difficult to be positive as to the effect of an arrested local infection in relation to subsequent immunity. Cases of tuberculosis at all stages, which seem to have been arrested, frequently present themselves later with recrudescence of disease. Indeed, the alternation of such

remissions and exacerbations is a characteristic of tuberculosis. Such incidents constitute difficulties when we try to formulate conclusions regarding the modus of natural immunization.

What are we to say of artificial immunization? The prospect of vaccine-therapy seems bright with hope. Continuous and watchful use of tuberculin since its introduction in 1890, in relation to very many and varied manifestations of tuberculosis, has convinced me that, when commenced early enough and controlled by accurate clinical observation, tuberculin is capable of hastening the arrest of the spreading infection. The limitations to its use, which exist both on the physiological and anatomical side, are chiefly due to delay in adopting the procedure. If this be set on one side, the view is justified that tuberculin yields results in the direction of detuberculization of the individual which are not certainly attainable by other procedure.

The pressing, practical problem before the world is how to hasten the detuberculization of existing populations in the older civilizations. Faced with the fact that hundreds of thousands die every year of tuberculosis, and still greater numbers are poisoned and crippled by the infection, what are the lines on which to proceed towards detuberculization of the vast crowd?

While each country must be left to work out the scheme of detuberculization on lines suited to the character and traditions and customs of its people, certain general principles are common to every effective scheme. To these broader aspects of detuberculization I would devote the brief time which remains.

Assuming that it is the intention of a community or a nation to detuberculize itself, the first requisite is a clear conception of the issues. The larger facts of tuberculosis must be grasped. There must be a dropping of mere sentimentality regarding particular cases. An effective opposition must be offered to an infective, endemic disease which involves a people, and is dependent on conditions which they themselves have created.

Individuals and communities must be shown that the disease is maintained through ignorance and folly, and that its removal lies completely in their hands. Explicitly and without panic, the people must be taught from day to day that tuberculosis comes of their disregard of physiological law for themselves and for their cattle. Thereby a higher standard of national and personal cleanliness will be evolved, in presence of which the tubercle bacillus will be gradually discounted.

The education will not be mere theory. City improvements will mean the wiping out of the bacillus's breeding grounds. Each new street, each new building, will be an object lesson. The parable of the zoological garden will be transferred to the household. The airless, over-heated, and often polluted cage sometimes called nursery, sometimes school, sometimes hospital, in which the child is allowed to pine will be superseded. The general adoption of *al fresco* nurseries and *al fresco* schools will effect more in a generation than all the hospitals of the world have done throughout the centuries. Make it an offence to rear young life apart from the vitalizing atmosphere, and the detuberculization of a people is inaugurated.

What applies to the environment of the child applies no less forcibly to that of adult life, in the home, the workshop, and the meeting place. The circumstances of the child call for especial consideration because of the accumulating evidence as to the date of primary infection and because the child's environment is not of his choosing or making. It is the compulsory environment of childhood—for the most part vicious—which affords the usual entrance for the tubercle bacillus. The interest of the race demands that this shall be corrected. For if the child be trained from the first in the way he should go, when he is old he will not depart from it. The practical difficulty is not with the child, but with his guardian and teacher, *quem illuminet Apollo!*

If the large issues involved in detuberculization have been truly apprehended, there should be little difficulty in pressing for an effective solution of the problem—how to deal with the vast and varied amount of tuberculosis which already exists in the community and which is reinforced from day to day.

First and foremost, tuberculosis must be sought for. It is not enough to wait until the patient comes to consult.

It is not enough to care for the tuberculous patient when he presents himself. There must be a systematic search. The breeding grounds of tuberculosis must be raided. The tubercle bacillus must be hunted down. The protean character of its manifestations must be kept well in view.

Each manifestation requires its appropriate measure. There is no common measure for all. The individual factors in a scheme of prevention and treatment, while finely adapted to the several issues, must be correlated with care and linked together so as to form an intelligent and concerted whole.

The fault of most antituberculosis effort has been the absence of such adjustment and co-ordination. Attention has been directed unduly to one issue. Sometimes the sanatorium has loomed too much in the minds of those who have handled the problem. Sometimes two factors—alike essential to the process of detuberculization—have been pitted against each other as if they were opposing competitors. Thus the tuberculosis dispensary and the sanatorium have been championed each to the exclusion of the other by zealous advocates, impelled severally by favourable experience of one or other, forgetful that each has its sphere in the larger circle of antituberculosis activity, which, to be effective, must include both and much more besides.

The hope for the solution of the tuberculosis problem—bristling as it does with difficulties of many sorts—lies in the application of an organized plan sufficiently wide to cover all the ground.

On an occasion like the present it would be out of place to enter on details of a comprehensive antituberculosis scheme. Yet the moment is opportune for the delineation of the leading features of a system which, answering the larger needs of the tuberculosis problem, might be applicable to all countries.

In the foreground it appears clear that for every considerable community there must exist a centre, which shall concern itself in the widest possible way with the facts of tuberculosis as it exists in the area. Here every aspect of tubercularization will be dealt with, and every line of detubercularization will be conceived and realized.

Towards the centre inquiries from all sides regarding tuberculosis should be directed. To the centre patients in all stages of tuberculosis should be invited, and likewise persons who may be anxious lest they be tuberculous.

This great collecting centre constitutes the seat of diagnosis and classification of the varying types of disease. The collecting centre comes in turn to be a "clearing house." Each case will receive appropriate guidance and direction, whether at the centre itself, or at one of several residential institutions with which it should stand in organic relationship.

For example, patients for whom there still remains hope of recovery will be passed to the sanatorium with its great possibilities of treatment and education.

Another group, in whom tuberculosis has already played havoc, so that hope of recovery has disappeared, will be transferred to the hospital for advanced cases.

Others, who may have already been treated successfully in a hospital or sanatorium and to whom return to ordinary work might mean physical relapse and corresponding economic waste, will be drafted to the farm colony for prolonged supervision under favourable conditions and simultaneous education on lines of therapeutic and economic value.

The tuberculous school child will be transferred to a special tuberculosis school in close relationship with the centre itself or with the sanatorium or farm colony, so that during the process of recovery from tuberculosis mental development may not be unnecessarily interrupted.

When the time comes for patients to be discharged from these several institutions they should be referred once more to the centre for such medical superintendence and after-care as will ensure that the recovery, in whole or in part, which has been achieved shall be maintained.

Beyond the patients who are thus drafted from the centre to one or other institutions for residential treatment there will remain a great majority of tuberculous persons for whom satisfactory guidance and treatment will be afforded through the centre itself.

By systematized operations through the agency of doctors and nurses it will come to pass that not a single

case of tuberculosis need remain without observation and treatment, and that not one home into which tuberculosis has entered will be unconsidered.

This implies on the part of doctors and nurses a clearness of purpose and accuracy of method which can only be achieved by careful training.

The nurse must be taught to observe and report, and, in co-operation with the doctor, amend all faulty conditions of environment.

The doctor will not only have regard to conditions of environment, but, with keen medical eye, will hold a detailed and thorough review of all the other members of the household—what I have termed the "march-past" of the contacts—with a view to discover other cases of tuberculosis, and more especially the tuberculous seedlings, whose detection means almost certainly detubercularization of the individual and contributes correspondingly to the detubercularization of the community.

Such is broadly my conception of the aims and methods of the tuberculosis dispensary as the centre or base of antituberculosis activity for each community, and the nodus of the several elements which are essential to a complete scheme.

It goes without saying that the several elements which form the connected whole should be made as perfect for their purpose as it is possible to conceive. Too great care cannot be exercised regarding the precise adaptation of each element for its special purpose. Each must have its own purpose. Each must be a perfect machine. There must be no cross-purposes.

Perfection in the individual unit is insufficient unless the several units be correlated with care. As isolated elements they lack much of the strength and value of which they are possible in combination. What is required is the close linking up and interaction of the several units into a combined and co-ordinated scheme, which will take in hand, in understanding and thorough fashion, the varying needs of the tubercularized population in order to effect detubercularization.

This was the *motif* and continues the basis of what is now generally known as the Edinburgh Co-ordinated Anti-tuberculosis Scheme, which commenced with the foundation in 1887 of the tuberculosis dispensary, and has been gradually evolved so as to include the various elements found to be requisite. These comprise compulsory notification, the tuberculosis dispensary, the sanatorium for early cases, the hospital for advanced cases, the tuberculosis school, and the farm colony. The scheme has, in the course of evolution, linked itself with the other authorities and agencies concerned in any way with the treatment and prevention of tuberculosis. This is essential. All influences which make for detubercularization must be brought within a common circle.

If I have allowed myself to project before this great assembly an illustration from a city in one particular country, it is from no local or limited consideration. It is because there has come evidence from many countries that the general plan and evolution of this scheme have proved serviceable as a model in the elaboration elsewhere both of the individual elements in the scheme and of the scheme as a whole.

While details in the actual working of the several elements will necessarily vary according to the views of those who have to organize and administer, prolonged study of the many-sided aspects of this great problem has convinced me that, in proportion as the modes and extent of tubercularization are rightly apprehended, some such comprehensive plan must be undertaken by every nation with a view to detubercularization.

In Great Britain the question seems rapidly ripening towards solution on these lines. For the first time in her history, the treatment and prevention of tuberculosis have been formally dealt with by Act of Parliament. The clauses of the recently passed National Insurance Act relative to so-called sanatorium benefit, which concern primarily persons insured under the Act, numbering about 14,000,000, and which may be extended to their dependants, have been generously interpreted by the Chancellor of the Exchequer as covering in very wide fashion the provision of machinery not only for the treatment, but also for the control and eradication of tuberculosis. Amidst divergence of opinion regarding some parts of the Act, there has been on all hands, both in Parliament

and outside, a remarkable unanimity in accepting the Chancellor's view.

Throughout months of unusual disquiet in the political and social sphere, there has been a fine response to this call for national activity against tuberculosis. A million and a half sterling have been specially voted for the establishment throughout the kingdom of such institutions as may be considered advisable for the whole population. Under the Insurance Act about one million sterling will be available annually for their maintenance, and means are foreshadowed whereby further funds will be forthcoming.

Not content with finding the money, the Chancellor of the Exchequer has proceeded to the practical determination of the form which antituberculosis measures shall take by the appointment of a Departmental Committee. The deliberations of the Committee are in progress, and a report may be expected at an early date upon the considerations of general policy in respect of the problem of tuberculosis, in its preventive, curative, and other aspects, which should guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis.

The movement against tuberculosis has been baptized a crusade. Is the name quite descriptive of the need and purpose? Is it not rather a great reformation—the determined, peaceful emancipation of mankind from misconceptions and prejudices which civilization has entailed, and of which tubercularization for the most part is the result?

Each nation has its part to play in the revolution against a régime which means death and disability on so appalling a scale for its citizens. Each nation must be guided by its own traditions and methods. But the leading principle is the same for all—namely, the restitution of certain rights to the people by the removal of noxious and devitalizing influences. Our common purpose is the detubercularization of the individual and the community, with a view to the ultimate detubercularization of the nation and the world.

In "meditating this deep disease of life, what its far source and whence its remedy," we are faced continually by evidence that tubercularization is less the effect of the malign influence of a hidden foe than the outcome of blindness and unwisdom on our own part. The detubercularization of the world will be synchronous with the dawn of "that great to-morrow when mankind shall mend."

That is the renaissance towards which, to-day, Rome points the world. *Tempus est ut praetermittantur simulacra nostra. Incipienda est vita nova!*

THE END RESULTS OF OPERATION FOR CANCER OF THE TONGUE.

BY

A. RENDLE SHORT, M.D., B.S., B.Sc.LOND.,
F.R.C.S.ENG.,

HONORARY SURGICAL REGISTRAR, BRISTOL ROYAL INFIRMARY; SENIOR
DEMONSTRATOR OF PHYSIOLOGY, UNIVERSITY OF BRISTOL.

THE material for this study is based upon the case histories of 38 patients operated on for cancer of the tongue at the Bristol Royal Infirmary during the years from 1902 to June, 1911. It has been possible to obtain subsequent information in 29 cases.

Of the 29 followed through, the nature of the operation performed and the result obtained may be seen in the following table:

	Cases.	Died of Operation.	Died of Weakness or Re- currence.	Re- curred.	Apparently Cured.
Partial removal of tongue	10	1	6	2	1
Total removal of tongue	2	0	2	0	0
Partial removal of tongue followed by removal of glands	17	1	5	5	6(?)
	29	2	13	7	7(?)

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The glands were removed two or three weeks after the excision of the growth in the tongue.

In 5 cases it was necessary to divide the jaw. Four of these recurred, three of them locally; another patient died soon after the operation.

The site of recurrence is known in 14 instances:

Recurrence in the mouth	...	...	3 cases
Recurrence in glands	...	...	7 "
Recurrence in mouth and glands	...	...	3 "
Recurrence in spine	...	...	1 case

There is a further case, presently to be mentioned, in which the patient died of cancer of the oesophagus two and a half years later; it is uncertain whether this is to be regarded as a recurrence or not.

In several cases the patient was apparently cured for some considerable time, and then the disease recurred, in one instance in the neck, in another in the mouth. These two men were free for nearly three years after the original operation.

Two patients died of the operation, one of septic absorption and the other of gangrene of both lungs following on a profuse secondary haemorrhage due to the foul state of the mouth.

The figures bring out the superiority of the operation where glands are removed as compared with the older procedure of leaving them if they were not noticeably enlarged. Thus, only 1 patient was cured out of 12 where the glands were left, but perhaps as many as 6 out of 17 where the glands were excised. Moreover, even of the remaining 11 cases in this group there is evidence that the patient was given more chance of relief. Two of them were well and free from recurrence for nearly three years, and another died of cancer of the spine ten months later. In several instances careful sectioning of the glands excised showed no cancer cells. In 2 such cases the growth nevertheless recurred in the neck (in the submental region and behind the sterno-mastoid respectively).

The cancerous growth was preceded in 3 cases by a dental ulcer. In one of these the ulcer was excised and reported by a pathologist to be innocent, but a malignant gland appeared eighteen months later, and the patient died. In another case a papilloma had been removed two years before. One man had extensive leukoplakia and syphilitic fissures, which he used to rub with silver nitrate. Many of the patients had leukoplakia.

A few remarks may be made concerning the patients who might possibly be claimed as cures.

1. Glands Not Removed.

E. G., a woman, operated on in 1904 and again for a small local recurrence a few months later, remained free until her death in 1911, which was in no way connected with the cancer.

2. Glands Removed.

A. R. has been well now for eight years.

E. T. has been well for five and a half years. There is a tiny nodule in the neck which may possibly prove to be a recurrence. It is being watched.

R. H. has been well for five and a half years.

W. R. is a doubtful case, inasmuch as after two and a half years he was readmitted with epithelioma of the oesophagus 3 inches above the cardia, and died after gastrectomy. At the autopsy there was no other sign of recurrence—if this is to be called a recurrence. (The writer recollects finding an epithelioma of the oesophagus in a man who died after operation for an epithelioma of the lip.)

W. H. has been free from recurrence for two and a half years. He is a schoolmaster, and talks quite plainly.

G. W. has been free from recurrence for nearly two years.

In all the above cases the diagnosis was confirmed by microscopical examination, with the exception of R. H., in which the growth was regarded as so typical that it was not necessary to cut sections. In E. T. the pathologist's opinion was only formed after examining many specimens.

With reference to the size of the growth, in G. W. it was as large as a florin; in the other cases it was not more than $\frac{1}{2}$ inch across. In 2 of these 7 cases there was a gland enlarged in the neck, but it proved to be free from cancer cells.

SUMMARY.

1. The immediate mortality in 38 operations was 5.3 per cent.

2. Of 29 cases 7 were apparently cured (well after two years); this gives a percentage of 24.1