ium constitute the state's recompense for its expenditures and warrant the continuance of its efforts to relieve the burden of tuberculosis in this Commonwealth in spite of the fact, that cannot be denied, that the money, time and effort expended upon the "tramp," "malicious" and "incorrigible" types of patients, who obtain entrance to the sanatorium and pull down its standards, are absolutely wasted, which assuredly continue to hold true until some other provision is made for such types.

REMARKS ON THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

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DIAGNOSIS.

It was no less an authority than Sir William Osler who said that the family physician is a most important factor in the eradication of tuberculosis since he is the first to be consulted when illness arises.

This fact will stand extremely strong emphasis. In fact, is there a more important single principle in the entire tuberculosis situation today? In the future, compulsory examinations of a large part of the public may be adopted—examination of pupils, students, teachers, factory employees, club and lodge members, city, state and national employees—whereby the responsibility for recognition of this disease may be placed upon special agents chosen for this work, but until this or some other innovation is adopted, the indisputable fact remains that in this country the family physician, whether he wishes it or not, whether he realizes it or not, stands almost alone in the front rank, opposing the onslaught of this disease. Surely this is no light responsibility!

The profession in this State has improved in ability to diagnose early tuberculosis since the establishment of public sanatoria, albeit errors in diagnosis and delays in diagnosis are still rampant. Upward of four thousand (4000) persons die annually in this State of this disease and it is not proper to fail to realize that some of these deaths are due directly to the errors and delays in diagnosis.

The general practitioner is in an unenviable position—in fact he is, in my opinion, in an irrational position in that it is his expected task to watch over the populace that he shall detect this disease (and that always early), freeing humanity thereby of its most dread scourge.

but he must do this by means of the bare diagnostic powers acquired during a general medical education.

We will not deny that the profession has made great advances in scientific accuracy in many lines, nor that it has many glorious conquests to its credit, all within recent years, nor will we deny a great adaptability and tolerance to changing conditions, but we can not justly expect the general practitioner to acquire and display expert medical knowledge in all branches of his activities, nor can he be expected to display refined diagnostic skill in branches which were not appropriately taught him in his student days and in which, since graduation, he has not had the necessary opportunities to perfect himself.

It seems to me that those who have "berated the general practitioner in season and out of season for his dereliction" have been too optimistic about the ease of acquiring the necessary skill to detect early tuberculosis, forgetting that they themselves spent months, and more usually, years, in intimate contact with the disease before they unlearned the misconceptions they had previously acquired and before they considered themselves dependable to make an early diagnosis. Are we not, in short, straining for the impracticable and perhaps unattainable when we attempt to train the general practitioner, with his multiform duties, invariably to detect early tuberculosis?

I take it that it is hardly necessary to reiterate the profound advantages in material economy, and in human happiness, which result from early detection of this disease in comparison to detection in its later stages. I will merely state that seven times better results are obtained in incipient cases than in the far advanced cases, and four times better results are obtained in incipient cases than in the moderately advanced cases. It may be properly asked, "By what means, then, other than by the general practitioner, may the general detection of early tuberculosis be made?"

The reply is that no means yet employed can guarantee at once such general, invariable detection, but in some way specially trained physicians must come into intimate contact with the masses. As it is now in this country, examinations are made only with the voluntary consent of the examined and, in the case of the illiterate and uneducated classes, the cause of delays in diagnosis are largely due to this same illiteracy, lack of education and attendant poverty. By some method, then, it would seem necessary to make skilled routine examination compulsory among the illiterate and uneducated classes at least. This suggestion opens up a tremendous field for the operation of ingenuity, influence, and aggressive work on the part of the enlightened medical profession. Massachusetts, to hold its prestige, must hasten to take this advanced view.

Lastly, the general medical public must ac-
knowledge that modern tuberculosis has created a new order of things and that old principles are not comprehensive enough now.

The eradication of this social scourge must depend, as far as the profession is concerned, upon early detection at any cost, and then upon an insistent, aggressive mastery and thorough control of the patient, also at any cost, until he is wholly well or at least until perfectly trained as to his responsibilities and power of infecting others.

To carry out these requirements, the medical profession must possess courage, insight, industry, and at times, self-sacrifice.

Hazy doubts in diagnosis should be cleared away promptly by consultations, and if a complete control of the patient is not possible at home, he must be sent away where sufficient control can be had.

What are the causes of failure to detect tuberculosis?

They are the same cases that have existed from the outset, though it is undoubted that they are gradually diminishing. They still consist of:

1. Delays in making diagnosis, and
2. Errors in Diagnosis.

DELAYS IN DIAGNOSIS UNTIL THE DISEASE HAS PASSED BEYOND THE EARLY STAGES.

The delays arise most often, I believe, from inability to detect the slight changes from the normal in physical signs and symptoms, but they also arise from a failure to apply the findings to their logical place. It is a case of the absence of a clear, accurate mental picture of tuberculosis in its outset. To be able to detect early tuberculosis requires a talented use of the stethoscope, a keen ear, and a power to discriminate between the normal and a slight variation from the normal in many bodily functions.

It is difficult to make general interpretations on this subject, but it is justifiable to state that there still seems to be an adherence to the older traditions and teachings about "Consumption" that existed before sanatoria were established, and we continue to make our diagnoses on such clinical symptoms as correspond and co-exist in the types of tubercular lesions which we had pointed out to us in our student days. In those days tuberculosis was taught chiefly in the pathological and post-mortem departments. The clinical histories that corresponded with those cases so often mentioned high temperatures, emaciation, hectic flush, profuse expectoration, night sweats, and cavities that now our minds are too prone to cling to those symptoms as belonging to all cases of tuberculosis.

But such is radically erroneous. Our early favorable cases usually present not one of these symptoms. These symptoms arise usually as the lung begins to break down and are generally indications of a late stage or of an acute process.

Truly incipient cases have "slight infiltration limited to the apex of one or both lungs, or a small part of one lobe; slight or no constitutional symptoms (including particularly gastric or intestinal disturbance or rapid loss of weight), slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours; expectoration small in amount or absent; tubercle bacilli may be present or absent and there are no tuberculous complications."*

Another cause of delay in diagnosis is the tendency to lean upon the laboratory report, assuming that a positive sputum report is essential. Speaking at random, far less than one quarter of the cases admitted to sanatoria require a diagnostic sputum test, because the clinical history and physical signs are sufficient generally in the hands of an experienced tuberculositis practitioner to make the diagnosis.

It seems puerile at this date to reiterate that the patient's clothing should be removed to the waist during examination and that each spot should be ausculted after a forced cough followed by full inspiration and expiration.

Among the gross, more readily elicited diagnostic signs, occurring in many favorable cases but rarely in the really incipient, is a lack of expansion on the affected side. To elicit this, the patient should be exposed directly in front of a single source of bright light and asked to take a full breath while sitting or standing with hands in the lap and knees not crossed.

The excursion of the angle of the scapula and of the nipple on the affected side will be often appreciably diminished. This sign is not to be depended upon except to suggest or corroborate tuberculosis, and naturally is not as marked in early as in later stages.

Another comparatively easily elicited sign is an increase of intensity of the respiratory murmur over the affected area. A still more accurate gross sign is the more high pitched or intense whispered voice over the affected area.

The use of hypodermic tuberculin for diagnosis should not be undertaken by one who has not the ability to make a skilled physical examination.

ERRORS IN DIAGNOSIS.

The commonest errors of diagnosis are Bronchitis, Pleurisy, "Grippe," "Bleeding from the throat," and "Debility."* In regard to the first (perhaps the most common) I would advise one invariably to be skeptical of the diagnosis of a benign bronchitis, and more especially, to assume that unilateral "bronchitis" is tuberculosis. "Pleurisy" in most cases accompanies parenchymatous involvement or is an independent tuberculous process.

So-called "Grippe" frequently ushers in frank tuberculosis, and "bleeding from the throat" is so nearly invariably due to tuberculosis that the invariable first assumption should be tuberculous. It may appear as mere specks, as a diffused pinkish discoloration of a small mass of sputum,

* Pullman Classification adopted by the National Association for the Study and Prevention of Tuberculosis and by the American Sanatorium Association.
as a bright streak in the sputum, or as a chocolate colored or blackish, mottled mixture. These small blood spittings are often a most fortunate episode in the case as they are quite apt to disturb the patient sufficiently to rouse him to see a physician.

Some of the more rare symptoms of pulmonary tuberculosis are dyspnea, mental irritability, languor and weariness. Psychasthenia often develops as tuberculosis appears. I would urge a sharp lookout for this condition, more particularly in women, so that such treatment as may be instituted will be in harmony with this condition and so that the patient's comfort will be most fully protected. The psychasthenia may take the form of fears, apprehensions, depressions, or hallucinations, and in these cases isolation and bed treatment, individualization and an harmonious environment will be very valuable.

TREATMENT.

It may be well to take a general review of events as they have occurred in the tuberculosis field (chiefly in this state), calling attention to progress and failure so that we may the more wisely deal with the problems of the future.

In 1885, Dr. Edward L. Trudeau established the Adirondack Cottage Sanitarium, thereby introducing sanatorium treatment into this country. The modern kind of tuberculosis activities in this country may be said to have begun there and then. This noble man was a worthy sponsor of a great cause.

In establishing his institution in the mountains, he adopted the theory of the beneficial effects of altitude and of inland climate in the treatment.

In February, 1891, Dr. Vincent Y. Bowditch established a sanatorium in Sharon, Mass., at a general elevation of about 300 feet, and achieved remarkable success. Influenced chiefly by this success, the State of Massachusetts elected to try the experiment of treating favorable cases of tuberculosis under its own supervision. It chose a site at an elevation of about 1200 feet in Rutland and appointed Dr. Bowditch and others to its medical staff.

This State Sanatorium, doing pioneer work, achieved such success and popularity that a country-wide policy of establishing State Sanatoria soon followed.

But after a few years of effective operation, outside words of criticism and disappointment were heard. The criticism was aimed at the incompleteness of the benefit received, or, in other words, to the tendency to relapse which some patients showed after discharge from the sanatorium, and incidentally the climate and altitude and other things took their share of criticism. The criticism accumulated and finally assumed the proportion of definite counteracting and corrective propaganda.

Home treatment, even in crowded cities, in congested quarters was enthusiastically hailed.

Day camps were established in many large cities, regardless of altitude and climatic conditions. Tuberculosis classes were instituted in Boston and adopted in many large cities of other states. Tuberculosis dispensaries took on new expansions. Even the State Tuberculosis Commission, then reorganized, showed the existing discontent at sanatorium results as realized at Rutland by using considerable pressure to utilize the then-building three new State institutions for the reception and treatment of favorable cases on a par with Rutland, though these institutions had been located with slight regard to climatic advantages, but chiefly so that they might be near populous districts.

At about the same time, to one who had followed the trend of the annual meetings of the National Association for Study and Prevention of Tuberculosis from the outset, a lull of enthusiasm became apparent in its meetings.

All these conditions were tending to establish a real belief that sanatorium treatment was not as valuable as it had been claimed by the originators and that non-institutional treatment was as good, and that all climates and all kinds of climate were equally valuable in curing tuberculosis. This belief prevailed for several years. Since then, however, class treatment has been largely abandoned, day camps have fallen from grace somewhat and some, who had enthusiastically endorsed home treatment, have since become equally enthusiastic over the great curative power of the bracing, clear air of hills and mountains.

These facts are significant and can all be explained readily. The corrective propaganda were tried out and found less capable of producing results than sanatoria had been.

It is today to be noticed wherever experienced tuberculosis workers of all kinds gather (social workers, district nurses, dispensary physicians, city physicians, clinicians and sanatorium workers) that there is a prevailing general conviction that patients should first go to a sanatorium because of the better chance of cure there obtained and because of the more thorough health education there received. In other words, good sanatoria were never so popular as today. Stated in other terms, it is now recognized quite generally among tuberculosis workers, after impartial trial of various agencies, that sanatoria are fixtures as long as tuberculosis exists, and that in the great preponderating majority of cases, those patients are far more fortunate who can have the advantages, during a part of their treatment at least, of a good sanatorium. Before long the same conviction may be expected to take possession of the profession at large, and coincidently, I venture to say, will the tuberculosis death-rate show a more rapid decline.

It is not easy to explain convincingly the reasons why institutional treatment produces better results than home treatment, yet an analysis of the individuality of the disease will reveal some peculiarities which certainly would suggest the
probability that institutional treatment would be preferable.

1. For instance, the disease is subtle and insidious and is not accompanied with marked bodily distress. Hence the patient is apt to overlook a backsliding in his health until it has become marked and serious, but if he is in an institution he is under the frequent observation of nurses or physicians who are trained to detect slight variations of symptoms.

2. Regularity of routine seems to be a valuable element of treatment and it is quite apparent that a home can rarely be systematized to operate with the precision of an institution.

3. There is a large element of effort and task about the treatment when properly pursued. It is apparent that with the family at hand, the patient may be often excused from the effort when an institution would insist upon it.

4. At home the patient is bound to be brought in contact with petty cares and annoyances of which he would probably be ignorant if he were away.

5. The treatment is a tedious, long continued process, during which the fund of moral support, wise counsel and patience of a family may give out.

6. The treatment is progressive and requires frequent alterations of orders by the physician, but if at home the patient, when feeling well, is apt to consider a visit from the physician as an unnecessary expense.

7. Education about the disease by observation of other patients is to be had in an institution and not when taking treatment alone. These are some of the reasons of preference for sanatoria. In a small percentage of cases, temperamen is such that institutional treatment must not be thought of.

Sanatoria, then, stand as the chief means of treatment of the disease, and yet it is all too apparent that sanatoria can never eradicate the disease alone. All the combined methods of attack upon the disease, including better housing, cleaner cities, public parks, pure water supply, open air schools, out-door sleeping, shortened hours of labor, cleaner milk, hospitals for incurables, fumigation of apartments, prohibition of spitting, etc., etc., have made a strong impression, but apparently the greater part of the task still remains undone.

To return to the subject of the sanatorium patient, I would reiterate that the extent of control of his disease on his discharge (with consent) is limited to an arrest but not a cure. The sanatorium at best has subdued, but not eradicated his disease and has educated him into better methods of living, but the purely sanatorium duty stops there. What happens to him after discharge cannot rightly be the responsibility of the sanatorium.

In many cases the disease relapses after discharge. The after-care of the consumptive is the weakest point in our whole scheme today and little has been accomplished to improve this defect. Shall the patients who came from unsanitary homes and whose previous work is now unsuitable for them, be sent to work colonies, supported by the state, for physical training to fit them for the requirements of the general labor market and for manual training in more healthful occupations?

Until some comprehensive solution of the after-care problem is made, it is well to keep in mind that arrested and non-arrested cases are returning into our midst with need for wise medical counsel.

The treatment of a curable case of tuberculosis may be divided into two distinct stages:

In the first we must create and maintain such a form of living by the patient as will build up a controlling resistance to the tubercular toxine and establish a normal degree of nourishment, by means of such a readjustment of his habits and of the actions of the leading organs of his body as will maintain the toxine resistance and normal nourishment even under moderate activity. When this is accomplished the disease is arrested. In practice this will require an aggressive, alert, patient, optimistic resourceful, skilful action on the physician's part. This may well be called the sanatorium phase of the treatment and is well comprehended and indicated in the word "sanatorium," which comes from the verb "sanare," to heal.

The second stage of treatment is quite different. It is planned on the principle to hold ground already gained until cure is established or arrives. It is less aggressive than the first phase and is more accurately a problem of prophylaxis. Its chief aim is not to improve on what has already been accomplished in improved habits and bodily functions, but to prevent the reappearance and re-establishment of any form of bodily overtax.

The first stage will require of the physician ability to note and interpret the changing physical signs and symptoms, and a knowledge of the influence of rest and exercise upon the pathological process, a knowledge of foods and of the action of air upon the body.

The second stage will more particularly require a knowledge of the normal in housing, hours of work, sanitary conditions and food, and incidentally will reveal the fact that society, though partly responsible for the patient's illness, yet adheres to such prejudices against him that he faces severe restrictions and finds few avenues for the use of his talents.

The one who assists in this prophylaxis of tuberculosis must do his part then in social uplift work, but so intertwined is tuberculosis with all the great human problems, of the individual and of the community, that changes of great magnitude, entailing colossal outlay of money and effort, must doubtless be wrought before this scourge shall be cast off.
Consider alone the outlay necessary to bring housing conditions up to a healthful point in our cities. More than almost any other disease tuberculosis possesses social phases, and the physician who comes into even occasional contact with it may well pause to consider whether in his handling of a case the obligations to society are properly considered. We have the opportunities and abilities to see clearly the basic causes of this far-reaching scourge. Our position has enabled us to trace out the human faults and deficiencies that produce the thing. No other profession, no other group of people, knows so well when humanity begins, by its omissions and commissions, to endanger itself with this trouble. Ours being the first eyes to see the impending misfortune, so also is ours the duty to warn early against the dangers,—to counsel in private and public the truths we know, to teach, to preach, to educate,—to create, in short, public enlightenment.

Let the profession realize that the pioneer tuberculosis physicians have known well what they needed in state institutions to make success, but that they must wait for the consent of legislative bodies. Let us realize that slow progress can often be traced to bad politics and we will see clearly what the remedy is.

Help to disseminate the information that able physicians often shun public institutions because of the dangers and futile obstacles therein.

Able hospital superintendents deserve cooperation and support from the profession. The percentage of recoveries being dependent greatly upon a complete authority and control of patients, it follows that cooperation by the profession with the hospital staff will assist to increase recoveries by establishing confidence and cooperation between patients and staff. We should attempt to aid the staff to have untrammeled authority and power.

Let us have a policy in regard to our city and county tuberculosis hospitals. These are chiefly isolation places, and the management will require chiefly palliative measures until the end. But some curable cases may enter here, and for them an aggressive, particular routine must be instituted or they may fail to recover.

MORTALITY AFTER PROSTATECTOMY, BASED ON A STUDY OF 229 FATAL RESULTS.*

BY BENJAMIN TENNEY, M.D., BOSTON, AND HENRY M. CHASE, M.D., BOSTON.

The observations which this paper presents are obtained from the consideration of 106 fatal cases following prostatectomy contributed for our study by members of the American Urological Society, from other cases already in print and from a paper on Mortality after Prostatectomy published by us in 1906.

As many of the reports cover cases dying before our modern methods of investigation became common and others have been made up from incomplete records, the totals of the different observations vary. It may be regretted that this paper does not cover the percentage of recoveries as well. Possibly this may be taken up at another time, but this paper will be confined to a study of fatal cases and their relation to the conditions which existed before operation.

We have discarded the reports on cases operated under fifty years of age as likely to be complicated by acute infection of the urinary tract and by cancer. One hundred and sixty cases arranged by decades with the cause of death appear in Table I.

It appears that there were more deaths from uremia than from any other one cause. We have listed the deaths from sepsis next because some deaths assigned to this cause occurred so early as to suggest the influence of renal inadequacy in producing so early fatal results. Leuken goes even further and in a recent paper says: "Minute investigation of the conditions under which prostatic patients die compels us to attach more and more importance to renal insufficiency. Death from uremia fully explains the accidents currently ascribed to embolism or pulmonary complications which in reality only play a secondary part. It would seem that alongside and vastly more than the liver, lung and heart it is the kidneys which most frequently kill our patients after operation and which furnish the underlying cause of many of the pathological troubles in those who recover."

The next most frequent cause of death is hemorrhage and we have listed shock after this because the two are so often associated and because some patients who were said to have died of shock lived for twenty-four hours or more before the end came.

It is our opinion that a reduction in mortality from these two causes is possible and that a dis-