Address.

THE ANNUAL DISCOURSE: THE PRESENT POSITION AND VALUE OF THE EXPLORATORY OR OPERATIVE DIAGNOSIS.

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MR. PRESIDENT AND FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY:

What advantage has exact knowledge over the best non-operative diagnosis? The chief advantage is that the patient receives every chance that the nature of his lesion permits.

Under what conditions should the exploratory laparotomy be encouraged? Under conditions of failure to deduce a positive diagnosis in a reasonable time limit.

What element in the pathology has the greatest importance in the decision for or against exploration? It is the prognosis. Hence the advisability of the exploratory laparotomy is largely a matter of prognosis, and consequently the study and the teaching of prognosis is the most important theme in practical medicine and surgery.

Going farther, what are the most important elements of prognosis? There are two: the first is the pathology of the disease; the second, the experience of the observer.

My remarks to-day are but an elaboration of these few themes, as full as my time permits. Experience during the most active and interesting period of the last quarter-century of wonderful progress makes each topic prolific in ideas which seem to me of pre-eminent importance, especially to the internist and to the surgeon.

Before touching upon the exploratory or operative diagnosis, let me say a few words upon diagnosis in general.

While my object in this address is to advocate, under proper restrictions, an impregnable demonstration of the truth, yet I am fully aware of the disadvantages of a rule of universal or general or prevailing exploration, if adopted by the physician and the surgeon — by the men who of all others should possess the highest skill in diagnosis. To assume that accurate diagnosis is impossible except through operative exposure of the disease, is to assume in our profession, both medical and surgical, a lack of perception, of deduction, of experience, and of common sense, which the facts do not warrant.

On the other hand, to assume that any human being possesses the power accurately to recognize that which can be recognized only by some miraculous power or instinct, is to assume the impossible. That an experienced observer may make an occasional guess that seems little less than instinctive, we all admit. In trying to repeat such a triumph, we know how often he signally fails.

We all have felt, a few times in our lives, the elation which the operative demonstration of our skill has proved, but the more extraordinary that success has been — the more unexpected and unfounded, unless upon instinct — the more have we known that accuracy has been but guesswork.

But in plain every-day cases we know well that we as a profession have acquired great skill in the recognition of conditions that twenty-five years ago would not have been recognized. A typical appendicitis, for example, a stricture of the intestine, an ovarian tumor with twisted pedicle, an extra-uterine pregnancy, a fibroid tumor of the uterus, an ovarian cyst — all these conditions are now recognized with an accuracy that approaches the certainty of a mathematical demonstration.

Even an acute pancreatitis with hemorrhage, or a pancreatic cyst; a gallstone impacted in the hepatic or common duct; a stone in the kidney or in the ureter, — even these, I say, usually permit a diagnosis so sure to be right that the surgeon feels, in the absence of contra-indications, fully justified in advising operation. In regions external and accessible he feels even more strongly than in the abdomen that his diagnosis is so accurate that he may base upon it operations of the greatest magnitude and importance. The breast, for example, the mouth and throat, the rectum and vagina — all present conditions accessible to sight and to touch, so that an exploration by which a growth, e. g., is exposed is unnecessary. But in these regions easily within reach of sight and touch, we know that errors in diagnosis are not only possible but frequent. So in the exploratory operations which expose abdominal tumors, we know only too well how often the surgeon is wrong — how the tumor of gastric ulcer is mistaken for cancer, the fibroid for cancer, the malignant stricture of the sigmoid for the chronic diverticulitis; and so on.

Now if it is so easy to mistake the disease when it is in our hands and fully exposed to view — whether in the breast, mouth, rectum, or vagina — and if after the most thorough exploration its nature is still uncertain, how futile it is to say that we can be absolutely sure that we are correctly interpreting histories, and the evidence of our senses in regions so deep as to be at times almost if not quite inaccessible.

Considerations like these bring us to the admission that, in spite of all knowledge dependent upon skill and upon experience, many a curable disease may be allowed to undermine health or destroy life itself, and that through an unjustifiable confidence in our skill in diagnosis and more especially in prognosis.

A familiar — far too familiar — example of the deadly results of over-confidence in a diagnosis of benign growths is seen in breast tumors. I have for many years taught the diagnosis of breast cancer, and have warned my students and readers against postponing operation, lest the disease prove malignant and get beyond operability. Has this emphasis availed me in always avoiding a stupendous and deplorable mistake myself? It has not. I have found in two or three young women tumors without the

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ordinary physical attributes of cancer; tumors which I either removed without taking also the whole breast, or which I left alone, but which soon showed signs of malignancy and were removed too late for permanent cure.

In tumors of the throat and tongue one can usually tell the probable nature of the growth. So it is in the uterus and the rectum. But the more experienced the observer the larger the number of cases in which he will recall a too late recognition of the real malignant nature of the disease.

In the diagnosis and prognosis of real perceptible lesions, the question of exploration will be an easy matter, for it will mean that one of two or more possibilities will be present — a question perhaps of cancer or ulcer of the stomach, of ovarian or fibroid tumor, of gallstones or duodenal ulcer, and the like. The really difficult case is the one in which the symptoms are wholly subjective, and in which there is not present a single physical sign. Even more difficult is the case in which the surgeon will not only find nothing that his art can relieve, but even a condition to which his exploration will add serious complications, as when he explores for appendicitis and finds typhoid fever, or worse, pneumonia; when he explores for an extra-uterine pregnancy and finds a normal one; when he explores for acute intestinal obstruction and finds nothing.

EXPERIENCE.

My work is so filled with the proofs of human fallibility that I do not have to go far back to find illustrations. I will take a case that I saw on the day before this was written. Since September, 1910, the patient, a young man, had been complaining of abdominal pain and loss of weight. He had been under the occasional observation of a skillful practitioner of medicine and surgery. He was always "taking physic and complaining of rising pains." One Tuesday his pain became paroxysmal and severe. In a day or two it was so distressing that an eminent medical opinion was sought. On Saturday exploration showed an intussusception, which was successfully operated upon. Three months later a tumor in the right abdomen suggested malignancy.

The history of the case during the winter, with the presence to-day of a large, irregular, hard tumor in the region of the ascending colon, without fever or leucocytosis, suggested intussusception as a result of a tumor of the intestine in the first instance, like two cases of intussusception that I had seen.

In this most recent case, whatever existed or whatever persists, there arises the question of diagnosis; for all winter the abdominal symptoms, the cause of which might have been easily and safely demonstrated, ended in a pathological and mechanical complication of the very first magnitude and operative danger. True, the lesion was most skillfully and successfully treated, as far as the emergency went; but there remains a condition inexplicable and sinister, which an early operation would have demonstrated and possibly obviated.

And what was the objection to exploration in this case? What is the objection to exploration in all cases like this? The answer is the same — the unjustified dread of a surgical operation, an operation chiefly dreaded because of previous failures under diagnosis made too late for possible success, so late indeed that the briefest and simplest exploration proved fatal.

Scattered through my private records of twenty-five years are disasters of all sorts in acute and chronic lesions. In all these occurrences, more or less distressing, the one prevailing cause lies in the loss of timely opportunity.

Now let us come forward and frankly admit the cause of surgical disaster. But first what do I mean by disaster? Death caused by operation and by nothing else; death following an operation which delay has made hazardous; death or disability caused by technical and avoidable errors, themselves the result of carelessness or of want of skill; death or disabilities incident to all operations *per se*, no matter how experienced and skillful the operator, and unavoidable through human fallibility or through the occasional and possible complications of disease; immediate failures owing to loss of timely opportunity, as in the postponement of operation in acute emergencies like appendicitis, perforated stomach, extra-uterine pregnancy, and tumors with twisted pedicle, infections of the mastoid, empyemata, knee-joint infections, and Cæsarean sections, pancreatic and gall-bladder infections, and the late results of gastric and duodenal ulcer, renal infections, even strangulated hernia or torsion of the testicle. But of all, by far the most frequent and inevitable are the recurrences of malignant disease made probable or unavoidable by non-recognition of the call for relief in early symptoms, and the resulting loss of timely opportunity.

Let us not forget that we are discussing the place of the exploratory diagnosis in medicine and surgery. I have mentioned briefly that the chief indication for exploration is the experience of the past twenty-five years, with its failure thus far to convince our profession that diagnosis has not been sufficiently accurate thus far to permit us to grasp the situation — to permit the early application of the surgical remedy which symptoms are calling for, but which they far too often are calling for in vain.

Let me admit right here — not only admit for surgery and medicine, but claim as their greatest and proudest accomplishment, the wonderful development of diagnosis through operative demonstration of cause and effect. What was difficult in 1886 — the diagnosis of appendicitis — is now almost child's play, even with its occasional mysterious and inexplicable manifestations. Extra-uterine pregnancy; tumors with twisted pedicles; hæmorrhagic pancreatitis; gallstones and gastric diseases; deeply seated tumors, even in the heart, so to speak, of the brain itself, — all these diagnoses are made with an accuracy that is marvelous.

And yet error in diagnosis, failure to recognize operative indications, make the adoption of opera-

tive demonstration, in my opinion, one of the most important questions of the present day.

Why is the exploratory diagnosis imperative, when I have just claimed for medicine this wonderful accuracy? It is imperative because the diagnoses, for accuracy, depend upon a development of the disease so marked that the characteristic symptoms are unmistakable — and, here is the real trouble, when unmistakable, they are often practically irremediable. Either some pathognomonic early symptom must be discovered or we must explore upon a suspicion which some common and early symptom creates.

Now what are the objections to exploration? They depend upon the locality to be explored. The chief area is the abdomen, and we know pretty well the dangers of simple exploratory laparotomy. They must, of course, be dissociated from the dangers of operation upon the pathological condition found. They are not great. Dr. Homans used to make it an essential part of his study of abdominal tumors to examine the patient under full anæsthesia. The experience of many years has shown to my satisfaction that the exploratory operation *per se* has dangers hardly greater than those of the ether examination. Considering the conditions sometimes found after bimanual examinations, I am not sure that an incision large enough for digital or manual examination, with careful and thorough manipulation, is not less dangerous than the forcible bimanual compression of the pelvic viscera, or the deep and forcible palpation, say, of the epigastrium or the flanks. After bimanual examinations I have sometimes found rupture of cysts, of abcesses, of the intestine, of veins, and even of arteries, for I always make a pelvic rectal or vaginal examination, or both, under full anæsthesia, before opening the abdomen, to discover contra-indications — if any exist — to operation.

The dangers are shown to be small when nothing is found — they are shown to be small by the hundreds of operations like that for chronic appendicitis, for simple ovarian tumor, for simple gallstones, and other uncomplicated operations even of considerable magnitude.

The chief objection, in fact, the only objection, to the exploratory diagnosis is its possible failure to show disease. But if the exploration fails to show disease, so much the better. In suspected cancer of the stomach, what greater boon can the patient hope for than the demonstration that the disease does not exist, and that there need be no fear either of the disease or of a serious operation? It is no small satisfaction to be able to say that the symptoms exciting fear of cancer need no treatment for cancer. The less there is found, the less the danger and the greater the rejoicing. The greater the justification, the greater our thankfulness that the exploration has been made, and that the patient has had the best chance.

In other parts of the body than the abdomen, the objection to exploratory operation may be great or trivial. In the brain or spinal cord my experience would be against the exploration without a positive if not an impregnable diagnosis, because of the unavoidable danger to precious and vulnerable tissues by the slightest manipulations. There is the same objection to explorations of the thoracic and cardiac areas. To be sure, we have vastly less experience in these regions. Moreover, diagnosis in the early stages of disease is much easier and more positive.

Finally, in the explorations of external pathology, beyond the demonstration of benignancy or malignancy, there is little need of exploration. If any rule as to neoplasms is to be laid down, it should be in favor of destructive rather than of exploratory surgery.

Some days ago I was consulted by a woman of sixty who for a long time had been suffering from increasing spasmodic pain in the stomach. Examination of the epigastrium showed that the stomach was in a state of spasm. I went over the case very carefully and advised operation in the near future. No tumor whatever could be felt. No positive diagnosis was made, excepting the diagnosis of something mechanical exciting acute and oft-repeated gastric spasms.

The case seemed to me one for exploration, whatever the diagnosis. The condition was clearly demanding relief. To spend time in studying the case would have been as lacking in common sense as it would have been in the case of a boy who had capsized and was drowning.

Two days ago I operated on this patient and found a very unusual lesion. I have had one such case in my life before. In that case an eminent pathologist failed to name the disease in twenty guesses. It was cancer of the jejunum.

How are we really influenced by our experiences toward conservatism or toward radicalism?

There have been in the past few months several cases in which our prognosis has been so faulty that under similar circumstances we feel greater uncertainty than we did before, and whatever we have done, whether of radicalism or of conservatism, we have regretted our decision.

And it is experiences like these that really make the man a radical or a conservative in surgery. Few men can go through two or three unfortunate experiences in surgery — some not even one — without a permanent bias. I have always thought that Dr. Homan's courage and persistence in ovariotomies, after the loss of his first four patients was what made him the great surgeon that he was. I admit myself the awful discouragement that follows a fatal operation in a new field; but I am not sure that in the end it is not better for the surgeon and for his patients if the first few cases are difficult rather than easy.

As most surgeons must have observed, there have been during the past two months many strange infections from a source perhaps not fully determined as yet. I have had a few of them, and have felt their great responsibility to the full. And yet the question presented to me was whether to operate or not; whether the patient's chances were not, on the whole, better under medical than under surgical treatment. Three

patients had abdominal symptoms. It was a question whether those symptoms were really caused by abdominal lesions or whether they were referred to the abdomen from elsewhere. In the first patient the symptoms progressed favorably for two days and then suddenly became fulminating. The father and mother of the patient declined operation, and the boy died. The effect of this experience upon me was most depressing. I thought that we had allowed the boy to slip through our fingers with a peritonitis clearly indicating operation if not begging, as it were, for relief. Then came the experiences of others in which operation accomplished nothing. Two patients were brought to my attention. In the case of one — a boy like the one just mentioned — abdominal symptoms were present, but in a form so mild that I could not advise operation, though I had resolved that, no matter how trivial the symptoms, I would surely explore the next case. The symptoms immediately subsided. A third patient had symptoms strongly suggestive of appendicitis. I operated immediately. The appendix looked normal enough, but according to Dr. Whitney it contained a small ulceration. There was free bloody fluid in the abdominal cavity. The temperature rose in twenty-four hours to 104°, where it stayed for forty-eight hours, and then gradually subsided.

In three other cases, similarly introduced by tonsillitis, I found serious complications: in one a gangrene of the whole lower extremity, in a second a phlegmon about the hip, in a third a subclavian phlegmon.

The phlegmon about the hip resulted in an extensive gangrene of the *fascia lata*, with infiltration of the surrounding muscles and muscular interspaces — a condition which required deep incisions. The patient to-day is in a desperate condition of streptococcal systemic infection, and the prognosis is grave.

We are now at the end of a quarter of a century — the first — in which modern surgery has made its great advance. I date my own active work in the abdomen from 1886, when I performed my first deliberate operation upon the stomach and upon the gall bladder at the Massachusetts General Hospital. Although there had been for ten years more or less abdominal surgery, that surgery, as compared with that of the present day, was very limited. Operations were confined largely to ovarian tumors, and Dr. Homans did most of the work. From the pelvis and the ovarian tumor the surgeon naturally went to other regions and to other diseases; and when Fitz described and named appendicitis, the surgeon, following and working with him, quickly learned to apply the benefit of mechanical treatment to all sorts of abdominal diseases.

Now that there really remains (so it seems) no other disease to conquer, no other abdominal area to explore, what is the lesson which we have failed to learn after so many centuries of professional work?

We have explored surgically every portion of the body. We can remove successfully — and to me it seems most wonderfully — the pituitary body, after a study of its physiology and symptomatology that permits a pretty sure diagnosis. We have seen, by thousands of explorations in various parts of the body, the connection between cause and effect, between disease and its manifestations, until diagnosis has become almost a science of mathematical demonstration. We have learned through experience to apply, with swift anatomical precision, the principle of asepsis so successfully that a simple exploratory demonstration of existing conditions, whether of health or of disease, is practically without mortality. If in explorations there is danger of death or disability or other disadvantage, we know the danger and can anticipate it, can estimate it as a part of the equation of error.

What is, then, the lesson that we have failed to learn after so many centuries of professional endeavor?

We have failed to learn the lesson of human fallibility, and to appreciate the necessity for absolute demonstration. In a word, we have failed to use intelligently the exploratory operation under conditions which experience ought to have told us were otherwise inexplicable and filled with possibilities of failure and of disaster.

Although personally, and for the benefit of the patient, I wish to convince the men of large experience and strong conservatism of the truth of my views, I am well aware that my proposition is one that, backed up by such men may, if followed universally by every operator, well qualified or not, work harm; yet I am speaking the truth, and if my views are followed by those unqualified to carry them into actual practice, so much the worse, not for the views, but for the laws which permit any one, whether qualified or not, to practice surgery. But that is another question. My object is to try to demonstrate the best course, assuming that those who will follow that course are well prepared to do so.

As far as possible I like to use arguments as near mathematical demonstration as possible. And it seems to me that, balancing in certain cases the advantages of the exploratory operation with its disadvantages, the operation may be proved with almost mathematical precision overwhelmingly superior.

Take one man's experience with breast tumors, as a familiar and easily demonstrated example. How does the harm of removing a breast tumor compare in, say, a hundred cases with the benefit? If I prove that the possible benefit to the patient is a hundred or but twofold, it seems to me that I have established the desirability of the exploratory operation.

I will first consider the reliability of diagnosis in breast tumors, when made by men of large experience. Judging by my own experience, which embraces more than 1,500 cases, a diagnosis of benignancy so positive that error is practically eliminated is impossible. I, for one, cannot make it, and I do not believe that any one else can. Certainly no man could satisfy me by his opinion, unaided by exploration, that it would be

safe to leave a breast tumor in a woman over thirty. And in the case of any one near and dear to me I should never permit such a tumor to be left.

Now for the validity of my argument I must claim for myself ordinary intelligence and skill in taking histories, in making examinations, and in drawing conclusions; and I think it is perfectly safe to say that I represent the average physician and surgeon. If I cannot make the diagnosis by means of this ordinary intelligence and skill, I must be guided by some method of procedure that will eliminate this possibility of error.

My audience must remember that while admitting the possibility of error in diagnosis and in technic, with resulting disaster, I do not admit any considerable ratio of error. Our results are superb as far as the nature of cancer permits. But there is a chance to better them, and that chance lies in *early diagnosis*. The earlier the breast tumor is recognized, and the more thorough the operation, the better the result. Even if, to bring about so desirable a thing, all breast tumors are explored, that exploration is practically without danger, *per se*, and has the advantage of certainty, which in benign cases banishes horrid fear — no mean accomplishment.

Now if I have established by the overwhelming arguments of experience the validity of my contention in breast tumors, how much more imperative is the exploration of cases in which the possible tumor is beyond the perception of the senses, as in most stomach, duodenal and gall bladder cases!

To illustrate the possibilities of surgery in diseases of the stomach essentially hopeless, suppose it were possible to attack cancer of the stomach surgically as early as I have demonstrated the disease in the course of hysterectomies, gall baldder, and other necessary operations, when there is but a wart at the pylorus, or a flattened thickening of the lesser curvature no larger than a ten-cent piece. Can any one doubt that resection of such an area would succeed immediately and permanently in curing a large number of patients who now have before them nothing but hopelessness and suffering? The present lamentable condition of gastric surgery is the result of our timidity in the use of the exploratory laparotomy. As common-sense men, what else can we do except to explore under suspicion, when we know that certainty of diagnosis in gastric cancer means a formidable and perhaps fatal operation, and, if the patient survives, an early recurrence? We *must* explore under the suspicion of epigastric disease if we do not under suspicion of disease in other organs. What we need in the diagnosis of surgical diseases of the soft parts is something as simple, effective, and safe as the x-ray in injuries and diseases of the bone, in calculi, and in foreign bodies. But that we cannot hope to have. Were it not for the greater dangers, the exploratory operation would give us a good substitute for gaining information. It would be even more reliable, and I am not sure that the fuller and more trustworthy information does not pay for the additional risk.

In a nutshell, my chief argument — that based upon experience — is that treatment based upon a diagnosis that must necessarily be fallible, instead of the right treatment, may be the wrong treatment instead of giving a hope, it may take away all hope. Diseases in all localities in the body may be subject to fallible conclusions and wrong treatment, or to no treatment whatever.

The chief question to be considered is that of end results — by what course of treatment are the end results, on the whole, the best? And by what course is the immediate danger the less, and the remote benefits the greater? Can there by any doubt what this answer will be?

I am aware of the inadvisability of encouraging the present tendency in all cases toward surgical treatment. But if surgical operations are performed that ought not to be performed there are still more that ought to be performed that are not performed.

The evidence of men of large experience, both medical and surgical, should be toward restraint, on the one hand, and encouragement on the other.

As affecting the question of exploratory diagnosis, the most important element is human fallibility. Human fallibility affects prognosis the more or the less as the methods of diagnosis approach mathematical accuracy, for we must admit, in surgical cases at least, that, given certain pathological facts, the prognosis is a matter of simple and impregnable deduction, almost as certain as is a process of subtraction or division in mathematics.

In diagnosis, as I have long ago remarked, the chief source of error lies in the demonstration of the facts. In illustrating this paper I mean to use chiefly the diseases of the epigastrium and right upper quadrant, for it is here that diagnosis is most difficult, and it is here where the most good can be accomplished by surgical methods of treatment.

Nothing is easier than to tell the outcome of treatment in this area, for if we know the diagnosis, we necessarily know the prognosis, whatever the treatment may be. And lest we lose the chance, great or small, of curing the disease, where cure is possible, we must establish beyond question the diagnosis, and that at a period when operation — if operation be possible — may be undertaken early.

On the one hand, great danger, and, with error, no possibility of relief; on the other hand, slight danger and great possibilities of relief.

The question that I am discussing has been the most important one throughout the years of my surgical experience. We must not be restrained too long by the conservatism of the past, or stimulated to excessive zeal by our hope for the future. The one thing that must be fairly and squarely and honestly met is human fallibility. Is or is not diagnosis a fallible human attainment, no matter how great the skill and the experience employed? Can there be the least doubt as to our answer? And in what class of cases is certainty of diagnosis the most essential? In the case of the disease that kills unless surgical remedy is applied

and applied early, can there be the least doubt about the correctness of the answer? In chronic cases in which time for study is abundant, what is the wise course to pursue for both physician and surgeon?

Is it not the thorough study of the patient, the use of all modern methods of investigation, the painstaking trial of medical treatment? Can there be any doubt about the wisdom of this conclusion; and, considering the possibilities of suspected disease, what more imperative action is there than that of an exploration that will solve every doubt and make clear the future course of treatment? Who can object to the positive demonstration of cancer or its absence, when suspected at a period early enough to permit operative cure? It seems to me that no reasonable man can object. And if he does object, upon what grounds? Is it the danger of the exploration? If nothing is found, there is practically no danger, as every surgeon's statistics show. True, explorations that reveal advanced and hopeless cancer have an excessive mortality; but we are talking of the early suspicion and the timely opportunity that certainty provides.

Again, how much in pain, suffering, and death does it cost to make by exploration a positive diagnosis?

My questions and answers are founded chiefly upon conditions assumed to exist in diagnoses of the epigastrium and right upper quadrant, where remediable conditions are common. But if these conditions are common, their operative curability increases inversely with their age: the earlier they are recognized and remedied, the less the danger and the better the prognosis; the later the recognition, the greater the danger and the worse the prognosis. Can any one dispute this statement of cancer of the stomach, of ulcer with mechanical destruction of function (stricture of pylorus), of gallstone disease, and of other rarer mechanical lesions?

Let me repeat my question in a little different form. Does the patient pay — is he asked to pay in pain, suffering, and danger, — any exorbitant price for information that will demonstrate fully and settle forever all doubts as to diagnosis and the proper course to follow? And, could so grave a question in any other profession or occupation be settled at so slight a cost, would there be a moment's hesitation?

The skill of the modern surgeon in these questions of life and death, happiness and sorrow, provides a solution that should be eagerly grasped — grasped with a heart full of gratitude and appreciation that such a blessing at so slight a cost is possible.

On the other hand, a weapon so prolific of good when rightly employed must be used with great intelligence and skill lest it do harm in careless hands. A weapon in the hands of those who know how to use it is safe; in the hands of those who do not know how to use it, may be dangerous. Let enthusiasm be tempered with doubt, and a full realization of what exploration means, and of the great skill and experience necessary to interpret what it reveals.

If we are to make any progress toward the cure of these diseases which, through the difficulties of early detection, are now well-nigh incurable, in what direction does that progress lie? Is there any remedy thus far found except the operative demonstration of the pathology long before the pathological process has invaded hopelessly anatomical areas essential to life?

I admit that I see at present no reasonable remedy — no remedy at all, in fact, — but the exploratory operation. But, going to the root of the matter, the real problem for us is to make the exploratory diagnosis unnecessary. One of the chief objects of professional endeavor should be the early diagnosis. But all that we at present can do is to establish "probable cause"— to bring forward an indictment, as it were, against the stomach, the gall bladder, the duodenum, or the pancreas, in which sufficient evidence is accumulated to show that there is justification for surgical action.

The community, the general practitioner, the internist, the surgeon must be alert to discover the first sign of organic disease. I strongly hope that through the multiplication of early demonstrations, especially in the course of operations commonly performed — such operations as those for uterine fibroid, ovarian tumor, gall-bladder lesions, appendicitis, — through such observations I strongly hope that we shall learn to detect and remedy these numerous mechanical conditions which at present are explored only to be abandoned as hopeless. But in our endeavor to strike straight and hard at the cause of inpending danger, we must expect for a long time to strike many ineffective blows, many blows wide of the mark.

Thus far, as surgery has progressed, we have approached a perfection of technic that permits extensive operative demonstration without danger, or with danger so slight that it is negligible. I see no way to get above the present level of diagnosis except, in the presence of a strong fear that some condition incompatible with health and life is attacking a vital organ, to explore and find out the truth as soon as that fear has become a strong suspicion.

Certainty is worth a little risk, especially when certainty means a possible demonstration of disease at a time when it is easily curable.

For these reasons I must admit my strong inclination, under the restrictions of common sense, to the operative demonstration and diagnosis of suspected surgical diseases.

I venture to propose the following conclusion:

Operative investigation of suspected disease remediable only by mechanical or surgical means, when used by those fitted to make it, deserves the indorsement of physicians as well as of surgeons. Before resorting to the exploratory operation, all reasonable means of diagnosis should be exhausted, except in cases of emergency from obscure causes in which the necessity for mechanical remedy is self-evident.

In tumors of uncertain nature, especially those associated with areas or organs subject to malignant disease, and especially at the cancer age,

exploratory demonstration of the tumor, and, if necessary and possible, microscopic determination of its nature, should, in the absence of contra-indications, be the rule.

In the multiplication of indications for mechanical and operative treatment, surgery has become a highly specialized art and broad science, for the practice of which special preparation is essential. For the practice of surgery, the study of the morbid anatomy of surgical diseases in the living as well as in the dead, and its relation of symptoms, especially those diseases producing mechanical symptoms, should be, with the study of normal anatomy, the surgeon's chief endeavor.

Finally, the exploratory diagnosis should be restricted in its application in those cases in which certainty of diagnosis is essential to relief, and in which, from lack of surgical remedy, error means disaster or death.

Original Articles.

A RETROSPECT. A FEW THOUGHTS AND SUGGESTIONS BASED UPON TWENTY-FIVE YEARS' EXPERIENCE WITH TUBERCULOSIS.*

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It was before this society that I first gave the results of a three years' experience with what was in 1894 still regarded as an experiment, when I published the results of treatment of pulmonary tuberculosis in a sanatorium situated near a large city, at a low altitude, not far from the sea, and in a climate considered, up to that time, most unsuitable to such a purpose.

The Sharon Sanatorium, at that time unique in these particulars, having before many years proved that it was no longer an experiment, is now entering the twentieth year of its existence. It is, therefore, with especial pleasure that I again address this society, from which I have always received inspiration and friendly encouragement in my work since its beginning.

The faces and forms of many of those whom I remember with gratitude and affection have gone. In their places are others to whom I turn with confidence, believing that the same spirit prevails now as in earlier times, when good fellowship and mutual helpfulness in our lifework were marked characteristics in our little society.

To-day I do not propose to give you statistical information of exact results obtained at the Sharon Sanatorium in all these years. I have already done that three times before you in the course of my work, and I hope in the future to again summarize not only the immediate results of treatment, but its effect as far as duration of life afterwards is concerned. This time I shall deal largely in generalities, the result of thoughts and impressions received during my medical experience, believing that the strength of conviction which comes from close observation is often greater than that derived from the study of statistical tables arranged to prove certain definite facts.

I shall, therefore, speak to you not only upon the treatment of tuberculosis in the sanatoria with which I have been connected, but upon the broader question of the disease as I have been brought in contact with it during the last quarter of a century.

To those of us who can look back upon twenty-five or more years of medical experience, nothing is more striking than the change in attitude towards the subject of tuberculosis. The discovery of the bacillus by Koch put upon a firm basis what had been merely conjecture on the part of some observers, viz., the infectious nature of the disease. Later developments, however, proved its curability in a large number of cases by methods before entirely unknown or only partially understood. I refer to the therapeutic use of the tuberculins and to the so-called hygienic treatment of tubercular disease.

All the factors have helped towards the hope and belief that sooner or later the disease which has decimated populations for hundreds of years can in the future be so far kept under control as to finally rob it of its terrors. To those of a younger generation of practitioners it may seem strange that we of an earlier era should feel any special encouragement in our outlook when consumption is still so rife in our midst. I can only "hark back" to my early years of practice and recall the desperate hopelessness in our minds as case after case of incipient disease would come before us, and the old routine treatment would be brought forward in the use of drugs *ad nauseum* or the threatened exile of the victim as the *sine qua non* of cure, such advice being accompanied in those times with a sickening sense of inadequacy in a great majority of cases. Now with every case of incipient disease comes, even in the face of frequent disappointment, a bright sense of hopefulness based upon the experience of many years.

In ever-increasing numbers rise before us the faces of those who in former years were stricken with disease but who now, strong and well, are living examples to enable us to give hope and courage to others similarly afflicted who come before us. I say this with conviction in the face of a spirit of pessimism with which I come in contact occasionally both in the profession and the laity, but happily less frequently now than formerly. Even now I find it in the profession most markedly among those who see possibly a large number of patients with far-advanced disease, some of whom may have been discharged previously from sanatoria with the disease at a standstill, only to break down again when ordinary and unhygienic methods of life are again resumed. Under such conditions a skeptical and even pessimistic attitude may be perhaps excused, although I believe it to be due to a one-sided view of the question by which one fails to weigh in

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