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THE BORDERLAND OF MEDICINE AND SURGERY*

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IN selecting a subject of interest to physicians as well as to surgeons, to specialists as well as to general practitioners, none seemed more suitable than that of the relations between the different bodies of clinical workers. In dealing with this subject we have to consider the borderland which separates the fields of medicine, surgery, and the specialties. My address, therefore, concerns chiefly those whose work is practical rather than theoretical, at the bedside rather than in the laboratory. Not that I would leave out of consideration the laboratory, for there better than anywhere else can be tested the results of clinical work; but what I have to say deals chiefly with the selection of methods of treatment in groups of diseases; with the results of these different methods; and with such deductions as I have been able to draw from many years' experience, at the bedside and in the operating-room.

The progress of medicine and surgery since I entered the Harvard Medical School has been, of course, prodigious. I have been permitted to see for myself that wonderful advance of medicine and surgery which has made our profession brilliant

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among human occupations. I have seen with my own eyes what the late Henry I. Bowditch used to say he wished he might live to see with his: the marvellous strides which were made in the last part of the nineteenth century in the fight against disease. The field of medicine has been freely invaded by surgery, until it has seemed that perhaps nothing would be left for medicine. The line of attack has advanced and retreated, retreated and advanced, but the ground gained by surgery has always been greater than that lost, until the borderline between medicine and surgery has been carried far into what was once the domain of medicine.

It is well for us at times to pause and consider, not only the things that we have accomplished, but the things that we have failed in; to take account of stock and to open a fresh ledger; to balance old accounts and to start new ones; to claim as surgeons the achievements of surgery, but to admit as candid and fair-minded men our failures and disappointments, and, in thus admitting our failures, to strive with our medical confrères to indicate the lines along which progress is to be made.

Our duty to our students and to our readers is to present an impartial account of our work, and particularly of our failures, lest they find, when they first encounter the responsibilities of practice results very different from what they have been led to expect. We must teach young men exactly what difficulties they themselves will meet with, lest, in seeing failures where they were led to look for successes, in meeting disaster where they anticipated victory, they become unduly discouraged.

In ourselves as teachers we must remember, on the other hand, that failures are more depressing than successes and more lasting in the memory. We must, therefore, strive lest we become too pessimistic as our experience increases. Indeed, if we should go on living and practising indefinitely, I sometimes think that by the time we were as old as Methuselah, we should, under the accumulated disasters of centuries of experience, come to a standstill, and be afraid to undertake even the simplest case.

But if we cannot transmit to others our experience in full, so that they can take up the burden just as we leave it and with the ripe experience of our years, we can endeavor to transmit at least those principles which our experience has established. Then, with such precepts and warnings as we may be able to impress

upon them, young men—eager, enthusiastic, and hopeful—will be all the better able to learn in the dear school of their own experience.

I am led, therefore, on every favorable occasion to speak on subjects of clinical interest, and to reflect in my addresses the style of teaching which I believe to be of value in the shaping of the student's views of his profession. Our object is, first, to make faithful, truthful, sound, and skilful healers of the sick.

Dr. Oliver Wendell Holmes, in his delightful essay on "Scholastic and Bedside Teaching," gives expression to eternal truths in medical education. They guided instruction at Harvard in 1865. They still guide it in 1909. "The most essential part of a student's instruction," he said, "is obtained, as I believe, not in the lecture-room, but at the bedside." ("Scholastic and Bedside Teaching.")

"I am in little danger of understating anatomy and physiology, but as each of these branches splits up into specialties any one of which may take up a scientific lifetime, I would have them taught with a certain judgment and reserve, so that they shall not crowd the more immediately practical branches." . . . "The bedside is always the true centre of medical teaching."

. . . "We are continually appealing to special facts" (of experience). "We are willing to give Liebig's artificial milk when we cannot do better, but we watch the child anxiously whose wet-nurse is a chemist's pipkin. A pair of substantial mammary glands has the advantage over the two hemispheres of the most learned professor's brain, in the art of compounding a nutritious fluid for infants." . . . "The humble beginner who is alarmed at the vast fields of knowledge opened to him may be encouraged by the assurance that with a very slender provision of science in distinction from practical skill, he may be a useful and acceptable member of the profession to which the health of the community is entrusted."

On November 6, 1861, Oliver Wendell Holmes delivered an introductory lecture to the incoming class at the Harvard Medical School on "Border Lines in Medical Sciences." "Science," he said, "is the topography of ignorance. From a few elevated points we triangulate vast spaces, inclosing infinite unknown details." . . . "The best part of our knowledge is that which teaches us where knowledge leaves off and ignorance begins."

From this point of view Dr. Holmes considered the border line of progress between the known and the unknown. Dr. Fitz a few years ago delivered an admirable address on the "Border Line Between Medicine and Surgery" considered from the point of view of the historian and physician. In this address he considered not so much the interval separating truth from ignorance as the border line case between the surgeon and the physician.

My effort is a consideration of the patient as viewed by the surgeon rather than by the physician; a consideration of the patient for his own best interests from the standpoint of proved truth as admitted by the physician from his side of the border-line and by the surgeon from his. Our greatest endeavor should be to approach the borderline between ignorance and knowledge with a full realization of the limitations of our knowledge. In the past, surely, the borderline between medicine and surgery has been that between demonstrated truth and demonstrated ignorance; and the best part of our knowledge has been that which, as Holmes says, has taught us "where knowledge ends and where ignorance begins." We consider the patient's best interests in the light of established facts, and are, therefore, at the borderline of progress, restrained by our ignorance of what exists beyond that line. And is it not true that the borderline between medicine and surgery is the borderline of ignorance? I do not mean the ignorance of medicine or the ignorance of surgery as to what in the borderline pertains to each, but rather the ignorance of those vast fields which lie beyond the possibility even of an imagination. In those fields we must necessarily explore with extreme care, making sure of one step before taking another, and, with each advance, considering the difficulties and dangers of the next.

My teaching at the bedside has been, the past few years, a delightful experience, in that I have been able to hold, with Fitz, what are called borderland clinics—he presenting the medical side and I the surgical. With the retirement of Fitz last year, Richard Cabot and I have taken up the fight which has been interesting and inspiring to the students and to ourselves. Moreover, it has been of incalculable value to the patient. These clinics have been largely made up of abdominal cases, because the abdomen is the region wherein lies chiefly the borderland. Any inaccessible region, however, is a borderland one

because it is the inaccessibility of the disease that makes diagnosis difficult, and when diagnosis is difficult or impossible the necessity for operation is masked in the uncertainties of recognition.

There would be no borderland case, I am convinced, were the exact condition as demonstrable at the bedside as it is in the autopsy room. From this point of view there is no borderline case. Each lesion would be clearly mechanical, relievable or not. But, if mechanically relievable, there might well be a difference of opinion between surgeons and physicians as to the matter of surgical treatment.

From another point of view there is a distinct difference of opinion as to the comparative benefits of medicine and surgery. The stomach provides a borderland, and gastric ulcer a borderline in this class of cases.

A third point of view is that from which is considered the treatment, by palliative operations, of such diseases as cancer of the oesophagus, intestine, rectum, brain, and spinal cord.

And there is still a fourth point of view, that of certain diseases in which environment and hygiene play an important part. Such, for example, are tuberculosis of the kidney, of the peritoneum, and the like, in which operations present grave immediate risks, with at best somewhat doubtful prognosis, whereas medicine is safe though not radical.

With increasing experience I have realized more and more the importance of prognosis. Prognosis in most human occupations is the vitally important element guiding action. Upon prognosis depends decision. When prognosis is sure, decision is sure; when prognosis is uncertain, decision is uncertain. Hence in the majority of cases prognosis means decision.

But in the borderland case prognosis does not always mean decision, even if the prognosis is sure, for even when we know the outcome of disease, the best treatment, whether medical or surgical, palliative or radical, is debatable. This is one of the important considerations under my title.

For example, take cancer of the rectum or of the sigmoid flexure, in which the prognosis is even the most favorable cases is bad—the question of relieving obstruction by an artificial anus, or not, is debatable. Some patients would prefer to die at once rather than endure for a few months a living death; others would cling to every hour of life, no matter how agonizing.

Some physicians look upon the attempted prolongation of life under such conditions as unwise; others regard life as so precious as to justify prolongation of its spark to the last second.

In a wise decision of such a question, it seems to me that there is much to be said on both sides, but the most telling evidence comes from the patient. The question may, however, be decided by the physician or the surgeon. The chief element of decision is the prognosis.

To illustrate my meaning of the value of prognosis, take this specific case—cancer of the sigmoid flexure or rectum, with intestinal obstruction. Experience and knowledge make prediction reliable. In a very small percentage of cases, radical cure is shown by knowledge to be possible. Actual experience in radical operations upon these cases has shown the surgeon the hopes and limitations of his proposed operation. He can make by his examination under anaesthesia a pretty sure prediction of the outcome of a radical operation. He can do this often even without an anaesthetic. He can say, for example, "A radical operation in this case is of no real use"; or he may say, "There is a good chance of radical and permanent cure—one chance in ten, for instance." Unfortunately, in a deplorable percentage of cases, he must say, "There is no chance of permanent cure; the only possible relief is by an artificial anus. The dangers in this palliative operation are not great. You can learn to take such care of the anus that it will not trouble you excessively, nor will it be very offensive. You will have two or three years—perhaps more—of tolerable life, and then there will be very little pain or other suffering."

Such a prognosis the surgeon, relying on experience, will be able to give. Furthermore, he will be able to say, with truth, that death from chronic intestinal obstruction is one of the most dreadful forms of death: the pain is excessive and alone demands relief; faecal vomiting is far beyond any other form of human agony. Of the advisability of the artificial anus, which relieves pain, prevents faecal vomiting, prolongs life, and permits productive work, there would seem to be no question, and, between the wisdom of surgical and of palliative treatment, no possible doubt.

But there is doubt and difference of opinion. I have heard commended strongly the wisdom of that patient who, under the

horrors of rectal cancer, submits to the deadening influence of narcotics until death comes to his relief. This seems to me indeed a living death.

The point of view of the patient varies, I think, with his intelligence. Occupation, environment, riches are of importance, we should say, as making life endurable, not to say enjoyable, for we can hardly imagine a life worth living, to a refined patient, with a neglected and filthy abdominal anus, offensive to himself and to everybody else, and preventing employment and social intercourse. But the restored capacity for productive work gives, through intelligence, evidence strongly favoring the palliative operation.

I do not refer to inoffensive palliative measures so much as to the offensive—to gastrostomies for stricture of the oesophagus so much as to enterostomies for stricture of the intestine. The former, if troublesome, are not foul-smelling and offensive.

The late Prof. ———, of Amherst College, shortly before his death, told me, after two years of an artificial anus, that these two years had been filled with enjoyable life; that he had been able to do good work; and that he had been a comfort to his family.

Another instructive example was that of Mr. ———, who kept a market in Providence. This patient was able for several years to attend personally to his business; and, it will be remarked that in a market, of all places, the artificial anus is the most undesirable thing possible.

My friend ——— for several years has spent most of his time at the ——— Club. No one ever knew, or knows, that he is carrying the burden of a colostomy.

Evidence has been brought by those who oppose these operations prolonging life at the expense of cleanliness and perhaps of comfort, that they are not worth while, and that the patient had better be left to die; that euthanasia under morphia is the physician's duty. Many chapters could be written under this theme. That hopeless disease is, from its hopelessness, medical and not surgical, I will not admit; but that it is best treated now by palliation and now by operation, there is in my mind no doubt. I would have said that there was no doubt in any mind, from the facts of experience; but I have found at many consultations physicians who advise against prolonging life, with an artificial

anus in rectal cancer, or with a gastrostomy in oesophageal cancer.

The scope of my essay does not include an exhaustive consideration of this theme, but its practical importance is great.

Prognosis depends upon many things. It rests upon a broader foundation than diagnosis, in that it includes diagnosis. The diagnosis is based upon many things, but it does not include many other things which affect prognosis.

Nor is prognosis the only element of decision for or against certain kinds of treatment, medical or surgical. Prognosis is affected by environment, for example, though diagnosis is not. Treatment is affected by diagnosis and prognosis, and certain attributes of the patient, friends, family; its effect upon the community, upon other patients, upon the art of surgery.

There are many cases which come up to illustrate my meaning. Cancer of the rectum, for instance, so extensive as to preclude an attempt at radical cure, does not justify prolongation of life at the expense of an artificial anus in a crowded tenement among the poor, when it might among the well-to-do. Such a view as that just expressed is, however, far from defensible. Why is it assumed that life to a poor man in a crowded tenement is not as sweet as to the rich man in his palace?

Attempted extirpation of extensive disease of the stomach, with a grave prognosis, in which there are but few chances of immediate recovery and still less of permanent recovery, hurts surgery in the community: it has an evil effect upon other patients and it hurts the art of surgery. Under such circumstances it is necessary for us to protect from procedures so unreasonable as these, the patient, the friends, the community, and the art of surgery, even if the patient himself is clamoring for operation, because he does not know as well as we do what, on the whole, is best for him. He does not realize that his last state will be vastly worse than his first.

But it is hard for a hopeful and enthusiastic surgeon, especially in the beginning of his career, tamely to yield to an aggressive foe; we cannot learn always by the experience of others, and it is a pity that we cannot. Franklin says, "Experience keeps a dear school, but fools can learn in no other, and scarcely in that." Yet it is just that experience and hope which makes most for progress. Had I in my younger days heeded the warnings of

R. M. Hodges, I should have given up all hope in operating for cancer, for he had himself been led to the gloomiest prognostications.

The line of demarcation in 1875 between medicine, surgery, and the specialties was very sharply defined; between medicine and surgery it was especially clear. At that time surgery included the modern specialties of orthopedics, gynecology, and genito-urinary diseases. Orthopedics meant club-foot chiefly; gynecology, ruptured perineum; and genito-urinary diseases meant clap, syphilis, stricture, and stone in the bladder.

Bigelow did all these things, more or less, as well as operations on the eye. His chief pleasure was in genito-urinary surgery, and his influence first stimulated in Boston our best specialists in genito-urinary diseases. We had no idea what G. U. would mean, or what gynecology would claim. We little thought that the time would come when kidneys would be extirpated, or extra-uterine pregnancy diagnosed and remedied. What the surgeons of that time would have said of the specialty of gynecology, we cannot even guess. Indeed, at the present time it would be hard to say, when we are called, as I have been, by a gynecologist, to help decide between a paratyphoid fever and an appendicitis in a male!

In 1875, however, the visiting surgeons at the Massachusetts General Hospital had to do everything. The operation for club foot was a common one. To this day, gynecology is done by the staff, medical and surgical.

In many ways this simplicity of assignment of everything to the physician, to the surgeon, or to the then established specialties of eye, ear, throat, skin, and nervous diseases was commendable. I am not so sure that we should commend even now the splitting up of general surgery into specialties that are not practised by specialists—into highly specialized groupings presided over by general surgeons.

Bigelow was a surgeon with a predilection for genito-urinary work; Cabot, a general surgeon who enjoyed the gynecology of that day. Porter was more at home in hare-lip, cleft palate, and in fine plastic workmanship.

To-day this arrangement of cases which demand special skill is admirable, provided that in a hospital staff certain unusual diseases are all referred to one or two men who take special in-

terest in them. But it is to my mind a question whether a great specialty can be best practised by one who does not devote his whole time to it.

The genito-urinary specialty includes diseases of the kidney, like stone and neoplasms, just as gynecology takes in the diseases of the female pelvis. But no surgeon is fitted to open the abdomen unless he knows the surgery of the kidney and of the pelvis, as well as of every other possible abdominal lesion. Furthermore, a specialist is not a specialist if he is also a general man, whether in medicine or surgery.

The borderland in 1875 was, broadly speaking, the human anatomy separating the accessible from the inaccessible anatomical regions. Surgical diagnosis was, therefore, the recognition of external pathology—of diseases and conditions that could be tested by the senses.

The great advance in surgery which safety of operation has made rapid, is not due altogether to safety either. It has been partly the result of improved diagnosis, so that the surgeon could foresee what problem was before him.

The real reason why abdominal surgery was so slow in starting was the danger of it. Those of us who think that modern surgery is really modern must remember that "There is no new thing under the sun" (Ecc. 1:9). Had it been possible safely to perform even what are now regarded as the simplest abdominal operations, there was not wanting the skill to perform them. Indeed, I do not believe that we see to-day the skill, rapidity and anatomical knowledge which made the brilliant operators of pre-anaesthetic days. I have read the details as to operations of that time, told by Warren in 1828 in the *Boston Medical and Surgical Journal*, and I do not believe that the leisurely methods of to-day, under anaesthesia, can possibly educate the modern surgeon to such a high degree of swiftness and skill. Surgeons of that day, however, did perform some of the difficult operations of to-day. In 1828-30, in the *Boston Medical and Surgical Journal*, were published descriptions of vaginal hysterectomy by a method which I fondly thought original with myself. But, after all, it was the dreadful mortality of those early operations which kept back the borderline skirmishers for so many years. Not that external surgery was so very safe, when it was thought that inflammation was essential to repair. I well remember the explana-

tion of my chief that the lipomata always suppurated, though the operation was usually very speedy. This suppuration, he said, was due to the loose connective tissue capsule of the lipoma.

I am often asked by young men whether I advise them to take a medical or a surgical service in a hospital—by young men who are in doubt whether they will undertake medicine, surgery, or general practice. I dare say that many physicians are asked the same question. My reply is that, on the whole, a man will get a broader training in a surgical service than he will in a medical one, because he will get surgery—itself now a very broad field—and he will get a certain amount of medicine also, especially cases of pneumonia and other post-operative complications. Moreover, he will see in the surgical wards patients with many diseases essentially medical, especially abdominal. He will get also a surgical training in abdominal diagnosis, which I think is more effective than the medical training in diagnosis, because he will see in the operative cases at least the connection between cause and effect and the demonstration of the mechanical causes of symptoms. He will have the inestimable advantage of control over his diagnosis.

At a recent borderland clinic, between Richard Cabot and myself, there were brought from the medical wards six cases of supposed tubercular peritonitis. The diagnosis was disputed by the surgeon in three. All were operated upon, and three only were tuberculosis—the honors were even. But the good to the patient, to the assistants, and to the chiefs, was great, because each patient had the benefit of a wide experience, both medical and surgical; each assistant saw the reasons for or against the symptoms put to the final test, and saw, therefore, most vividly the error or the truth; and, finally, the chiefs beheld, in unquestionable demonstration, the accuracy or falsity of their observations, the reliability of their conclusions, and the real value of their experience.

Now the assistants, both medical and surgical, see such demonstration in a combined clinic, but they do not, as a rule, see transferred cases. Medical men make their diagnosis, and that is the end of it. To be sure, surgeons, in transferring their patients to the medical side, lose track of them, and they never know the facts unless the patient dies.

A knowledge of surgery can be gained only in a hospital: a

working knowledge of medicine can be picked up in practice. Furthermore, a surgical service gives a man, it seems to me, a better preparation for general practice, because it is so filled with sudden and unexpected emergencies that the student learns quickly self-possession and self-reliance. Not that there are lacking abundant opportunities for the medical interne to learn surgery, but the young men are so overwhelmed with their own work that they have little time to follow the work of their colleagues. I have often thought that the best service is the all-round service in a small hospital, where one sees medicine, surgery, obstetrics, and the specialties. The objection to this is, of course, that in none can he get highly specialized teaching.

One of the great satisfactions of my professional work has been the realization that I have lived through these wonderful advancements that our profession has made since I was a student. Thirty years ago there was no borderland between medicine and surgery; or, if there was, it was almost too narrow to be recognizable. The least invasion of medicine was enough at times to raise a storm of protest. Henry I. Bowditch met with tremendous opposition in first performing thoracentesis for pleurisy. To be sure, this procedure, though seemingly a very simple operation, had, and has to this day, dangers of the gravest sort, when performed by one ignorant of the far-reaching effect of emptying, under atmospheric pressure, a rigid cavity, the viscera of which have been violently displaced by one-sided pleural effusions. But apparently the operation was of the simplest sort. It was not a violent overstepping of the borderline, like McDowell's ovariectomy; but it was nevertheless a surgical operation encroaching upon the domain of medicine. And yet I do not believe that the opposition to the aspirating needle was jealousy. It was that conservatism which is characteristic of our profession, and which is one of our best attributes when not carried to bigotry and intolerance. Even to-day we meet just such opposition in the invasion of new fields, and to justify such invasion we must show to our opponents that progress is real and justified by its benefits to the patient. It is the expression of a determined minority—the crystallization of opposition which, when overcome by the truth, makes that truth conspicuous and beneficial:

In 1875, the borderland was, as I say, a clearly defined one,

from the nature of external pathology. Its extension to where it is to-day became a problem of safety. Safety in the first expansion was owing entirely to Lister; safety to-day is owing to technical skill and to a knowledge of pathology. Progress at first was owing to anesthesia; later, to asepsis through bacteriology; to-day further expansion goes hand in hand with physiology. An intimate knowledge of anatomy, with mechanical skill, was, up to 1846, the surgeon's great reliance. To-day, through good asepsis, even the most bungling operations are usually successful; and a bungler, that in the old days would not have been tolerated a moment, now invades with confidence the most forbidding areas. Moreover, while he is doing it, he is watched by the physician with a complacency which is—to those who know skill from the want of it—extraordinary.

Fortunately, as I say, a familiarity with bacteriology makes possible, through asepsis and the *vis medicatrix naturae*, the healing of almost any wound. And the difference in results between the good and the bad operator, in the average case, is not very great. And yet I suppose that in such an operation as that for chronic appendicitis there is a difference of from three to five per cent. in mortality, or from no mortality to five per cent.

In operations of great magnitude and difficult dissections in dangerous anatomical surroundings—like the removal of the uterus from between the bladder, rectum, and ureters, or the common duct stone from between the portal vein and the inferior cava, the duodenum, and the pancreas—swiftness and precision in dissecting make all the difference in the world.

For some reason, and probably a sound one, though I am unable to see it, an intimate knowledge of anatomy is not now regarded as essential for the surgeon. We have indeed drifted far from the old days, when the student had on the tongue's end and in his mind's eye, the great and important facts of surgical anatomy.

It seems to me that the anatomy of the neck is simplicity itself, compared with that of the parts about the Foramen of Winslow or the uterine cervix, and that familiarity with the ureters is vastly more important than familiarity with the recurrent laryngeal nerve. And yet the man who does not hesitate to remove a uterus will shrink from a thyroidectomy, a

deep dissection of the subclavian triangle, or an excision of the sternum and first rib.

If it has been a great satisfaction to me to live through the wonderful progress of medicine, it has been a chagrin to see the gradual disappearance of the skilled anatomist and the brilliant dissector. But I have little doubt that the pendulum will again swing toward the old ideas, abandoning some at least of the new, and to the advantage, I am sure, of surgery as a technical art.

There is one theme upon which the surgeon is continually harping, and upon which I now must say a word of warning. And I say it, not in the aggressive, know-it-all way, without giving the other man the credit either of wisdom or experience, but with the full consciousness of my own imperfections in diagnosis and in prognosis. This theme is the *importance of early and precise prognosis*. I am not unaware, of course, that prognosis is always difficult. What saith the preacher? "A wise man's heart discerneth both time and judgment. Because to every purpose there is time and judgment, therefore the misery of man is great upon him. For he knoweth not that which shall be: for who can tell him when it shall be." (Ecc. viii., 5-7.)

The suffering of patients is great upon them unless time and judgment (diagnosis and prognosis) are wisely discerned.

What I have seen in the development of abdominal, and, for that matter, cerebral surgery, has been the opposition, first, of the majority and then of the minority to early surgery in the borderland case. And I have been myself one of the hesitating majority. I well remember the rules which I laid down, definitely and forcibly, and based upon a small experience, as to the selection of cases in appendicitis—this one for operation; that one for palliation. And have I learned wisdom as to time and judgment? A little, I hope, but not all there is to learn. As I write these words, I fear evil tidings from a patient with acute appendicitis, in whose case operation was delayed by the physician from Friday to Monday night, and by myself over Monday night to Tuesday noon. To be sure, the patient had had many attacks from which she had recovered. None as severe as this, however. She was 58 years of age, and stout—a bad subject for operation, as well as a bad one for the disease unoperated

upon. And I hoped for the opportunity to remove the appendix in a period of quiescence. It was the same old story—trivial constitutional disturbance, low white count (11,000), but marked local tenderness with distention. The operation showed an inflamed and thickened appendix, with odorless pus. I dare say that this patient will do well, and that the delay of a night in so mild a case has made no difference. Nevertheless, prognosis was at fault.*

Now, in this very recent case, an accurate *prognosis* was the one indispensable deduction to be desired. The physician's diagnosis was accurate; but his favorable prognosis was a matter rather of hope than of expectation. The wish was father to the thought, as indeed was my own in waiting over night. The *real* reason for delay lies in the hope that things are not so bad as they seem.

The same natural hope is seen to-day in the objections which many have to the removal of gallstones that are but slightly offending. The chief support of these objections lies in the reports of the autopsy-table, where have been found so many gallstones which have never given a sign. But the surgeon is impressed by the evils of gallstones in advanced cases, and the higher mortality in such cases is owing to delay. I am impressed, besides, in family histories, by the frequency of deaths from gallstones, when I enquire specifically for the cause of death in each member of the immediate family.

As a matter of fact, we know the prognosis of every pathological lesion, and we know it well enough to say what the chances are. We know that it is either certain or uncertain. The prognosis of cancer of the stomach is certainly bad; that of gallstones certainly doubtful. Prognosis is good, bad, or doubtful, according to many and varied circumstances, as we all know. Do we know diagnosis well enough? Are the uncertainties of diagnosis and those of prognosis enough for a wise decision as to "time and judgment"? Is not this a topic that it is well to dilate upon in connection with the disease claimed as theirs by both physician and surgeon?

We pay little attention to prognosis, and yet prognosis is what decides everything, even the assignment of the case; for prognosis means, does it not, the course a disease will follow

*This patient made a good recovery

under medical, under surgical, and under no treatment. The prognosis of pneumonia, for example, depends upon its own attributes, influenced a little by medical attention and a good deal by the patient's powers of resistance, and none at all, conceivably, by mechanical (surgical) treatment.

Peritonitis—always till recently purely medical—got, through its own lethal tendencies, the most evil of prognoses, influenced but little if at all by medicine. As soon as its mechanical nature began to be recognized, and as soon as the effect of mechanical treatment upon these causes was apparent, it became clear that prognosis was directly dependent upon “time and judgment”; upon diagnosis and immediate intervention. The prognosis of peritonitis in the perforation of gastric ulcer under medical treatment, was as bad as it could be; under late surgery, it was bad; under early, good; under the earliest possible, brilliant. Hence prognosis has given to surgery the emergencies of gastric ulcer. So it is in appendicitis, extra-uterine pregnancy, tumor torsions, and many other emergencies.

In some, on the other hand, prognosis, as determined by experience, has not so definitely placed the borderline between medicine and surgery. Take the acute conditions of the pancreas described by Fitz (Acute Pancreatitis: *Boston Medical and Surgical Journal*, Vol. CXX., No. 8). I have never seen a recovery after operation for acute hemorrhagic pancreatitis, and I am inclined to think that few surgeons have. I have seen what I regarded as the scars of healed fat necrosis, scattered throughout the peritoneum, and I once opened with success an abscess which possibly was caused by an acute pancreatic infection.

Prognosis in this very serious condition leads me to hesitate before operating, in the hope, though not perhaps the conviction as yet, that if there is any chance, it comes through the powers of Nature, aided by the physician's art. But unfortunately for accuracy of assignment, the emergencies of surgery are so varied within the abdomen that he is a skilful diagnostician who can say that *this* is pancreatitis, *that* appendicitis; *this* gastric perforation, and *that* an internal strangulation. Hence accurate diagnosis promotes accurate prognosis; and, in the mere recognition of an emergency of some kind, the hopeless prognosis of acute pancreatitis is buried up by the hopeful one of acute emergencies in general. The surgeon is unwilling, upon so difficult

a deduction as acute pancreatitis, to run the risk of withholding the aid which all confusing diagnoses so urgently demand, and, in all of which prognosis under surgical art, promptly applied, is so favorable.

But most diagnoses are sufficiently accurate, we should say, to enable us to decide what is medical and what is surgical. And yet are they?

An illustrative case at once suggests itself—a case in which my diagnosis was *acute haemorrhagic pancreatitis*, and Fitz's *acute intestinal obstruction*. I operated upon the patient (Vol. LXVII., p. 161), a man of fifty-six, with little hope, and that little based upon the possibility—nay, probability—of my being wrong. Fitz was very positive of his diagnosis, and I could not shake it in the least. I cut down upon a peritoneal cavity that was full of blood, and hastened to congratulate myself on the accuracy of my deduction, forgetful of that pride “which goeth before destruction.” The blood came from passive congestion of six feet of small intestine, strangulated in a hole in the omentum. Fitz's diagnosis was as brilliant a piece of deductive reasoning as I ever saw.

The real borderland case is not, however, so much the one in which the operation is hopeless as the one in which surgery offers no better chance than medicine—if, indeed, it offers as good.

The one great example of this kind of a case is the neurasthenic with questionable lesion, especially of the uterus, ovary, appendix, or kidney. I should place the patient with a movable kidney in the category of the borderland. And yet, from another point of view, the movable kidney is a mechanical defect relievable only by mechanical art. The borderline here is in the case itself. Some movable kidneys are distinctly surgical, and even if the patient is a neurasthenic, that neurasthenia is one of the results of the imperfection. The same thing may be said of the chronic appendicitis, the painful ovary, and the misplaced uterus. And it takes a very little experience in surgery, medicine, and neurology to tell the case which demands surgery or medicine or neurological treatment.

I am convinced that by far too many neurasthenics are operated upon, for a recovery under surgery is the exception rather

than the rule. Indeed, the patients are more often made worse than better.

The evil effects of surgery on the nervous and imaginative patient, whether neurasthenic or not, are so frequently seen that every surgeon knows the importance of a careful selection in such cases. There is a difference between an apprehensive imagination and neurasthenia. A man may be apprehensive of disease—most people are—he may be imaginative even, but no person with a normal nervous system is a neurasthenic. Surgery, by removing the cause of fear, or even of imaginary or trivial discomfort, often returns in relief and comforts a hundredfold the risks and discomforts of operation. Operation upon the neurasthenic returns nothing to the patient. Her last state is worse than her first, and is often pitiable. And the worst of it is that surgery and the surgeon are blamed when a really good effort has been made. I see many patients, especially women, who are nervous wrecks, and who, with their friends, attribute all the ills to the surgeon, who has perhaps removed the ovaries or an appendix. This is a burden which neither the surgeon nor surgery should bear.

The neurasthenic, nevertheless, occasionally has acquired her neurasthenia by reason of some surgical lesion, the removal of which will in time permit a perfect recovery. I have seen not a few such cases. The deduction from these observations is that extreme care must be taken in the assignment of the cases, this one to the surgeon and that to the physician. The best rule is to forbid surgery until every medical and palliative measure has proved useless.

In the suspected disease of the imaginative and apprehensive, especial care is essential lest some really grave lesion be overlooked.

I do not think, however, that the surgeon or the physician is likely to err in careless diagnosis, for these are just the cases hardest to treat—those in which the most careful histories and the most painstaking examinations fail to find any physical explanation for symptoms. Operation becomes then, as it should, a last resort rather than a first, and its failure is not censurable; nor is it censured, I think, when undertaken in this the proper spirit.

There is a class of diseases which deserves special considera-

tion under my theme: cancer on the borderline of the inoperable.

Whether the disease is medical or surgical, operable or inoperable, from the point of view of the patient, it is one of hope or of despair, of comfort or of discomfort, of prolongation of days, even if these days are, like those beyond three-score and ten, made up of strength, labor and sorrow.

This is a subject pregnant with the teaching of experience. From the point of view of the patient come the most important and effective considerations, and the surgeon must be guided in the assignment of the case somewhat by the patient's own wishes. The patient may wish to take desperate chances, or she may not. What is our duty in the matter? For example, what shall we say in helping her to decide whether to submit to an hysterectomy or not, when there is cancer of the cervix of questionable extent? Is there any variability in the line between the operative and the palliative treatment of cancer, or is it a hard and fast line, never to be overstepped? In the solution of this question, momentous in itself, many things come up to help or to embarrass us. The first is the personal equation of the operator, the second is his experience upon which, however, his personal equation somewhat depends.

When my friend of the conservative tendency denies to the sufferer from cancer of the rectum all operative measures designed for radical cure, and deliberately restricts the patient from the beginning to palliation, I cannot but recall the patients with rectal cancer, few though they may be, who have survived now these many years. When I see the frequency of recurrence after radical removal of cancer of the tongue, I fell almost convinced that in that disease there is no use in surgical art. I forget the patients, also few in number it is true, who have had many years of enjoyable existence.

My own personal equation in cancer of the rectum and of the tongue—my personal feeling—is that I would myself not submit to operation; and yet reason and experience tell me that by means of surgery present sufferings are diminished, and with a fighting chance of permanent cure; that in palliation present suffering is not diminished, whereas future suffering is increased; that, on the whole, even with the danger or rather the blessed chance of immediate operative euthanasia, radical operation is best, and with a definite chance of permanent cure.

This, I believe, is the real reason why we feel as we do toward the surgical treatment of cancer—we do not see the cases until too late. I believe that cancer, recognized as early as we recognize it on the lip, where it is so conspicuous that it cannot be overlooked, will, in all parts of the body, yield permanently to wide excision; but if it is left until its presence in inaccessible regions can be detected by the touch, or in accessible ones until it interferes with function, or causes excessive pain, I am convinced that its cure, by any method, is the exception.

Hence the depressing effect of large experience upon the surgeon's hopefulness, when he cannot but be impressed by the inadequacy of his operation and the certainty of recurrence.

Prognosis is here again the thing that guides, and unfortunately it is determined far too often by the prevalence of the advanced and hopeless cases.

The borderline between medicine and surgery in the cases in question would be far advanced into the territory of medicine were it not for the delay in diagnosis and the corresponding gravity of prognosis.

I dislike to say it, but it must be said and repeated until deaf ears listen: The hopelessness of cancer comes largely from errors in recognition on the part of the physician. I write these words filled with a just indignation because a young woman has been "treated locally" for a year, while cancer of the cervix uteri has been going from operability to inoperability. The hopelessness of cancer comes largely, also, from faith in any remedies except wide-margin excision—from faith in X-ray treatment, in toxins, in trypsin and amylopsin, and in a host of remedies which, for one reason or another, have had their occasional apparent cures. What said Dr. Holmes? "What is the meaning of these perpetual changes and conflicts of medical opinion and practice, from an early antiquity to our own time? Simply this—all methods of treatment end in disappointment of those extravagant expectations which men are wont to entertain of medical art." One single case of proved breast cancer, or uterine cancer, cured by any treatment other than broad and deep excision is to me beyond belief. I feel justified in the strength of this statement in a list of recorded cases since 1890, of which the breast tumors alone make 1300. The cure of deep-seated cancer by any method except excision is, I repeat, beyond credibility.

There is, in alleged cures, always a possibility of error. There is no borderland between medicine and surgery in cancer, except in the case for any reason inoperable.

What greater tragedy can we find than that of a woman who has consulted me since the above words were written. And how can any man view with an untroubled conscience such a result of palliative treatment?

A woman of forty-five, a dressmaker, supporting herself and others, but now unable to work, was put under X-ray treatment for tumor of the breast some three years ago (Vol. 82, p. 161). There had been no cancer in the family. Three and a half years ago the patient noticed a small lump in the right breast, after having been struck in that breast by a woman's elbow. Her physician advised her to go to an eminent specialist in X-ray treatment of cancer. This physician discovered a similar tumor in the left breast. The tumors were treated three times a week for one year; then twice a week, and then once. In the meantime the right breast got "twisted in and drawn down to one side and very painful." At the end of the third year, the patient says, the physician congratulated her upon being so well, and told her that she was a very fortunate woman. She was still told to come once a week. Five weeks ago she was advised by him to have an operation and then more X-ray treatment.

There is now an infiltrating tumor of the right breast, which I think has involved the *pectoralis major* muscle and the thoracic wall. The nipple is drawn in and to the lower internal quadrant, where there is a deep sulcus. The axilla has a chain of glands enlarged to the size of an egg, and extending to, and I think above, the first rib. The patient is somewhat cachectic.

The left breast has a small, movable benign tumor without involvement of the axilla. The case is practically inoperable, but it is one in which an attempt should be made. I class this case among those in which the disease is almost sure to recur. I have several times removed the bulk of such tumors for X-ray treatment, but I have never seen a cure. The diagnosis here is scirrhus cancer, of which there is not the slightest doubt. In the beginning, the case must have been, by operation, highly favorable for permanent cure. There is now practically no chance. The patient is nervous and frightened.

Is there in the minds of those who apply new methods of treatment an inability to see and realize facts?

The deadly course of this tumor must have been easily perceptible from the beginning. So many times I have seen patients dying by inches under all sorts of diseases and all sorts of treatment, and yet being told—they and their friends—that they were “improving,” that reports of favorable progress in hitherto incurable diseases, under new methods of treatment, excite almost derision; the word *improving* in cancer treated by X-ray, toxins, ferments, extracts, has to me a most sinister significance.

And I would not relegate all these cases to the surgical side of the borderline either; there are plenty of cases of cancer so situated that excision is impracticable, and yet cases so limited that these methods have less extensive disease to combat than in operable and defined tumors, as of the breast. A constricting nodule in the œsophagus, an infiltrating cancer of the cervix uteri, the pylorus, the orbit, or the base of the tongue—all such cases of inoperability may well be selected for the trial of the so-called “improved” methods of treatment. Similarly, superficial epitheliomata which cannot be removed without great deformity of the face or destruction of an eye, may well be subjected to the destructiveness of the X-ray.

But there are regions in which malignant disease is, from its situation and environment, inoperable. The surgeon’s art can only palliate. This line separates medicine and surgery, as regards radical operation, but not as regards palliation.

Take cancer of the œsophagus, with starvation; cancer of the intestine, with complete obstruction; what does the patient’s good indicate in such hopeless conditions? Shall we relegate all such to the physician, that he by his art may diminish suffering and allow a peaceful ending? Shall we deprive the patient of two or three years of comparatively comfortable existence in order that he may pass, with dulled brain into oblivion?

In matters of this kind it seems to me there should be no dispute. It is our duty to prolong existence in every way we can, even if that existence is painful. The real decision rests with the patient. We may advise him to submit to operation or not, explaining truthfully the issue. He is himself, with the aid of his family and friends, to decide. Finally, from the patient’s

point of view, there is always the possibility of error. In my observation, cases of erroneous diagnosis multiply, and therefore cases of erroneous prognosis—cases in which failure to operate means death from a perfectly remediable cause, such, for example, as foreign body diagnosticated as cancer, actinomycosis, tuberculosis, inflammation, and many other conditions.

Hence the necessity of always taking into account the factor of error, before we abandon to hopeless palliation an operable case.

From the point of view of the physician and surgeon, the inoperable case must be considered chiefly in its ethical aspects. It is fair, too, to consider the effect upon the physician and the surgeon in our manner of dealing with the inoperable.

The illustrative cases which come to my mind most vividly are those of recent observation. I sometimes think that the time to write one's views upon any particular theme is when that theme is fresh in one's mind. If, as Thoreau says, the forcible writer is the one who has been there in person, the vivid writer should be the one who writes under the inspiration of the present. The horrors of the Commune, for example, are most vividly portrayed when the writer is under their immediate impression—more forcibly, too, and, best of all, more truthfully. I have read a vivid account of the siege of Vicksburg, written by a refined, intelligent woman, who had the misfortune there to suffer the privations of the prolonged siege. He who can write forcibly upon experiences of which he has read, can write much more forcibly upon those he has had. And he who describes vividly the feelings of the past can describe much more vividly those of the present. And even the torpid writer must wake up in depicting the things of present interest. Thoreau's own delightful journal was written notebook in hand, as he contemplated nature.

In using the following cases to illustrate my views, I write while deeply under their depressing influence. And yet that surely is not so fair a conception as the one which is based upon a general review of the whole subject, considered from the standpoint, as it were, of the historian; for a calm and judicial verdict cannot be rendered under the excitements, prejudices and passions of the moment. Be that as it may, the accidental presence, at my office hour, of two patients upon whom I had operated for

cancer of the tongue gives a vividness to my impressions of the surgical treatment of this disease; and my tendency is perhaps to express myself too forcibly upon this part of my subject. But it gives me a chance to take account of stock, as it were, of two cases on the borderland of the inoperable.

The first I operated upon for cancer (Vol. 39, p. 132) of the tongue seven years ago. After the first operation the patient was well for several years. He passed the absurd three-year limit in perfect health. A local recurrence appearing two years ago required an operation which took in part of the tonsil and soft palate. Since then there has been no local recurrence, but a recurrence in the neck, which was thoroughly dissected in the beginning. The third operation was very extensive. It was performed in November, 1908. There is now an involvement of the parotid, and, in my judgment, the case is inoperable.

When this patient first came to me the disease was not extensive; the case was a very favorable one, and I treated it by an extensive dissection, as all malignant disease should in the very beginning be treated.

The second patient (Vol. 81, p. 87) had been treated for gumma, like so many cases of cancer of the tongue, until the case was, at my first examination, apparently inoperable. The man was young, vigorous, and determined to take the last and smallest chance. I removed the whole tongue through the neck, and made an extensive dissection in the neck itself. The operation was performed on January 5th, 1909, and there is already a hopeless recurrence.

A third patient, an old man, operated upon within three months, died a week or two after extirpation of the whole tongue.

Here, then, are three recent experiences with a most sinister lesion. In all the cases the most radical operations were performed. The question is whether there is a borderline between operation and palliation, across which the surgeon is inclined to trespass to the injury of the patient, his art, and his own reputation.

Are the teachings of pathology, of surgery in general, and of one's own experience in particular, inadequate to protect the patient from useless mutilation, the art of surgery from predictable failure, and the surgeon's own reputation from meddling interference with hopelessness.

In the answer to this question,—and my answer applies to cancer in other places, particularly where wide-margin dissections are impossible,—one cannot but be influenced by his personal equation, and especially by his natural hopefulness and his ability to forget painful experiences.

And here let me digress a moment, led by the association of ideas to consider the value of experience and President Eliot's recent utterance at St. Paul upon the subject. But the great Designer showed, in the sequence of intellectual inheritances, the wonderful wisdom of creation, for who could doubt what would be the effect upon the progress of medicine and surgery if our successors could begin their work influenced exactly as we are by our own experience, where we lay that work down? *Experientia omnia docet*; it teaches the individual up to a certain point, and it makes him, to a greater or less degree, wise; but it makes him timid, cautious, and disinclined to disobey the traditions of the past. The beginner who has to learn in the dear school of experience strikes out for himself. He discards the warnings of his elders; he does harm in grasping for good in so doing, but he seeks and secures good that is new: he leaves beaten paths and makes new ones. Hit or miss, he brings to bear the originality that is in him, untrammelled by the teachings of a passing generation, with an aggressiveness that overthrows all traditions, musty and valuable as they may be. I have followed in imagination the course of the physician through coming ages, could he retain his bodily and mental vigor, and live to be as old as Methuselah, and I am always brought to the conception of a powerful intellect brought to a standstill by the accumulated experience of centuries; to a body which, as it were, has ceased to move in any new direction, retarded and silenced by its own ideas and environment; not unlike the moon, which, through the friction of its ancient tides, has ceased to rotate on its axis faster than it revolves about the earth, which itself will, for similar reasons, losing a second each hundred years, one day rotate upon its axis but once a year!

And therefore in tracing the borderline between the operable and the inoperable, I am guided by my own observations; but these observations do not prevent; they rather help; they are intended to help younger men in blazing a new trail, a fresher

and more reliable and more productive area of professional attack.

It is beyond the scope of my paper to consider in detail all the cases in which the surgeons have overstepped their line, and the physicians theirs; but in gastric diseases, it seems to me, the wise example of the leaders in surgery has been outstripped by far too many of their followers. I have often thought when some new procedure has been introduced—and I recall the ephemeral existence of many—that its worst enemies have been its friends, as in the treatment of prostatitis by castration or vasectomy, or the treatment of all female pelvic ills by oophorectomy. After many years, the true value of new methods, whether medical or surgical, becomes evident, after a full and patient presentation of the evidence before a jury made up of the whole profession. It seems but natural that enthusiasts should go to extremes, and perhaps it is as well that extreme views as to indications for operation and as to methods of operation should prevail, for it is only after a wide diversity of opinions and experience that a safe *mean* is deduced from unsafe *extremes*.

In gastric surgery, I am convinced, there lies a wonderful amount of good, but, through ill-considered indications in special cases, a vast amount of harm. The trouble is in the field of gastric surgery, as well as in other fields, that what is good for one disease is useless for another. The line is overstepped wantonly and unjustifiably, and failure cannot but result. I am seeing every day the evil results of operations based upon faulty indications—the failure of surgical methods of treatment when medical were fully competent, and were by no means exhausted. We surgeons must remember, when we are inclined to hasten into the field of stomach diseases, how really infrequent, as Richard Cabot has recently shown, are real organic lesions, as compared with functional ones. When positively indicated by organic changes, I know of no more brilliant surgery than that upon the stomach, led by the Mayos, Moynihan and others.

The borderland of medicine and surgery has been explored so many times that little is to be learned of it; but we must not forget that serious and remediable organic disease may exist without our being sure enough of the diagnosis to run the risk

of losing precious time. This uncertainty of diagnosis, with the great safety of surgical technique, indeed does seem to justify in cases of doubt an exploration of the borderland.

But the tendency has been, I think, to multiply explorations beyond all reason; first, because they are so safe; and secondly, because diagnoses are always uncertain. I have nothing to say against explorations in any cases that belong to debatable groups, provided the prognosis of the suspected and thoroughly-studied lesion is grave under delay. When the patient by delay must lose her main or only chance, if the suspected disease is really present, it takes a greater responsibility than we should be called upon to bear to refuse an exploration. But the indications for exploration—safe though exploration may be—demand the most painstaking effort at diagnosis; and it seems to me that the tendency has been toward inadequate and loose methods of diagnosis, and the resulting exploration, rather than toward careful and precise methods, with a resulting positiveness that makes exploration unnecessary.

In debatable cases I admit that failure to convince myself that a disease remediable by surgery is not present should lead to operation; but I do not admit that diagnosis is so impossible of cultivation and so radically inaccurate that we cannot in the vast majority of cases save our patients from unnecessary operation.

Take many cases of cancer of the liver, of the stomach, of the abdominal viscera generally—explorations in most cases are absolutely unnecessary, unjustified even by human fallibility. The trouble is that, with the possibility of demonstration, we do not take all the pains that we might.

The exploratory operation is for cases in which error is quite possible, and the disease, without surgery, hopeless, but with surgery, hopeful.

In giving an impartial verdict on the results of treatment, we must never forget the influence of *bias*. In medicine we can learn much from the processes of law, which, however complicated, were originally designed for the detection and demonstration of the truth, the whole truth, and nothing but the truth. The original design has been bettered by long years of practical experience. Evidence upon which truth is based is carefully

guarded lest error creep in. All parties to a cause are selected for impartiality. Bias, partisanship, advocacy are confined to the attorneys. What can we do in a cause like that of the X-ray treatment of cancer, or any radically new treatment of well-known diseases? The physician or surgeon states his case, presents his evidence, makes his argument. At the same time he is judge and jury. Many and many a case—in fact, most cases—are presented to our profession without a single effort at control. The poor reader takes the *ex parte* evidence as truth and finds so quickly and universally that he himself cannot get such results that he is only too inclined to throw out all statistics. In this he goes, of course, too far the other way.

There is, in too many instances, a tendency to see results of treatment that do not in reality exist, as in the case of the poor woman with cancer of the breast, which has been sprouting under the X-ray. In the time when testicles were being excised for enlarged prostate, I saw two castrations, in both of which the patients, immediately upon severance of the spermatic cords, emptied their bladders most vigorously all over the surgeon and the operating-table. Wonderful effect of castration upon prostatic retention!

It is not always practicable, but it is extremely desirable, that there be an impartial and accurate control over the results of medical and surgical treatment.

The borderline between medicine and surgery will never remain a fixed one; nor will that line of invasion held by the skirmishers of aggressive surgery always be advancing into the territory of medicine. I am fully persuaded, for example, that the surgery of malignant disease will become in the near future a thing of the past. A single case of undoubted sarcoma, cured beyond question by Coley with his toxins, demonstrated to me the possibility of non-operative cure, and his subsequent successes have engendered a strong hope.

Though I have not seen as yet a single real cure of real cancer (beyond that of the X-ray in superficial epitheliomata—itsself a destruction and therefore a surgical process—I believe that the time is not far distant when we shall see real downright deeply-seated cancer cured by some non-operative method; and when I see one single success of this kind, I shall be as fully convinced

of ultimate success as I was of the eventual success of aviation when I read of the first flight of an aeroplane. But the first element in estimating progress is, as I say, a fair and accurate control. We have had too many claims of success, which time has shown to be unfounded.

In the treatment of cancer the borderland fight is hottest. The battle is between friendly and generous foes. Indeed those of us who are carrying the fight against cancer into the heart of the enemy's defences are only too eager to lose the victory; and we long with a great longing for the time, soon to come, when in the fight against malignant disease we may turn our swords into plowshares and our spears into pruning-hooks—our scalpels into hypodermic syringes and our scissors into medicine-droppers!

RADIUM THERAPY*

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Being interested in the question of the value of Radium in the treatment of malignant diseases, I spent some time this summer seeing the work at the Radium Institute in Paris, under the direction of Dr. Louis Wickham. This Institute was established by Armet de Lisle, who is, I think, the sole manufacturer of radium in France. He stands the entire expense of the Institute, and poor patients are treated there, as well as those able to pay a fee. He has supplied the Institute with about \$150,000 worth of radium, and in return for this, by arrangement with Dr. Wickham, he receives part of the fees paid for treatment.

They have a very large clinic, which Dr. Wickham found he could not handle alone, and was obliged to take in Dr. Dominic as his assistant. It is quite clear that a very keen interest is being taken in the possibilities of radium as a cure for malignant disease, by the public generally, as well as the profession.

I found Dr. Wickham most kind and courteous, and anxious to let one see the method of application and the results obtained. He is very careful and conscientious in his work, not overly enthusiastic, but disposed to be fair in his estimate of the value of radium as a therapeutic agent. He told me that he did not feel at all confident as to its curative action in carcinomata, but so far as his experience went, he found it to be of the greatest value in angiomata.

It might be well, first of all, to give you a short account of some of the properties of radium. Monsieur Pierre Curie and Mme. Curie share the honor of having discovered radium in 1898. P. Curie experimented on himself, and concluded that radium would prove of use for medical applications, and he gave a tube of radium to M. C. Danlos, physician to the Hos-

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pital of Saint Louis. This was really the starting point of a new branch of physio-therapy.

In 1901, Becquerel put a tube containing pure radium in his waistcoat pocket, when his assistant, M. Matout, remarked on the imprudence of this act; but Becquerel paid no attention. He carried the tube in his pocket for a number of hours, and fifteen days later the skin underneath the pocket containing the radium was found to be in a sufficiently inflamed condition to cause M. Beonier to attribute the inflammation to the action of the radium. This was the famous "burn of Becquerel," the remembrance of which is still clear in the memory of many doctors, who considered the action of radium to be of the nature of a burn.

At the beginning of the year 1905 radium was supplied Dr. Wickham to study its action in certain diseases.

The Curies obtained the radium from pitchblende. A few tenths of a gm. only of radium chloride can be extracted from a ton of pitchblende. Just here it is interesting to note that pitchblende has been found near Ottawa at a village by the name of Ville Neuve. It is also thought that it can be obtained along the north shore of Lake Superior. Pure radium has a radio-activity of 2,000,000. There are three kinds of rays emitted from radium—(a) the alpha rays, (b) the beta rays, (c) the gamma rays.

The work of differentiating these rays was done by Rutherford, who showed that they have different qualities. The most important quality, as far as we are concerned is their penetrating power. The alpha rays have the least power of penetration, being stopped and absorbed by the first layer of tissue; the beta rays penetrate further, and the gamma rays the farthest. The beta rays are divided into soft, medium and hard rays.

It is possible to filter the rays by placing different screens between the radium and the skin. By interposing metallic screens of various thicknesses and densities a smaller or greater number of rays may be cut off, and thus we can regulate accurately the dose. By the use of lead one can cut out all the alpha rays and the soft beta rays and only allow the hard beta and gamma rays to pass through.

APPARATUS USED.

The first apparatus used consisted of a glass tube containing radium, the grains of which lay loosely like corn in a sack. This simple apparatus is of great service, though its application is limited. It can be introduced into a fistula, and into natural or artificial orifices. In the treatment of cancer of the rectum or prostate the radium tube can be put into a catheter and then carried to the desired point.

In March, 1905, Wickham introduced what he calls his varnish apparatus. Radium is incorporated in varnish, which can be spread on two kinds of material, either a rigid form on a metallic base, or a flexible form on a linen base; the latter he calls "Appareil toile" or "Toiles radiferes." These rigid and flexible apparatuses can be applied to any region. They can be made round, square, cylindrical, etc. The radium salt is melted in a liquid varnish at a very high temperature, and in the process of cooling it becomes very hard and solid, like enamel; while hot this varnish can be applied to the metal or the linen base and the apparatus thus obtained be employed naked, but it is best for hygienic reasons to protect it with a cover of India rubber. Any kind of screen may be used with this kind of apparatus, and it should be made as follows: The apparatus is first covered with rubber tissue to protect it from contact with the hard screen; the screen is surrounded with 10 or 20 sheets of paper, and outside this a piece of India rubber. This paper covering is very important because when the rays cross the metallic screen new rays are formed, so called secondary rays described by Sagnac. These rays have a very weak power of penetration and might irritate slightly the surface, and it is necessary to stop them. and the sheets of paper will accomplish this.

The specific action of weak penetrating rays is exercised specially on the surface and the specific action of "rayonnements surpenetrants" is exercised not only on the surface tissue, but also in the deeper tissues. One obtains the specific action and not the destructive action by modification of the dose, *i.e.*, the duration of the applications.

Wickham says that eczema can be treated on a baby with the most powerful apparatus, and with its full strength, providing the duration be not longer than one or two minutes, and

can be repeated in from three to four days. Then, it is clear that a selective action can be exercised on lesions of a different nature. Wickham says that radium has such an action, and this action can be utilized in the deeper tissues without injury to the surface of the skin. The rays which he calls "rayonnements surpenetrants" consist of a very small number of rays which act after being applied for a long time, *i.e.*, they are weak but very penetrating and if left in contact for a short time they have no effect, but after many hours sufficient energy has been accumulated to give a result.

To put it in another way, we take an apparatus of primarily great power; he interposes between this and the skin a filter which only allows a small number of rays of high penetrating power to pass; this apparatus is left in position for five or six nights, and in this way a sufficient dose accumulates to modify the growth at a distance, and is applicable to deep-seated cancers. He says that he has sometimes seen better results when the applications of radium were made every second night instead of every night.

He modifies the quantity by interposing different densities and thicknesses of screens, so that first the alpha and soft beta rays will be cut off and absorbed, then the medium beta, then the hard beta; thus in each case the number of rays having the power to filter through the screens is in a decreasing quantity. Secondly, as screen after screen of increasing density and thickness is interposed the rays, in proportion to their number, will have greater and greater powers of penetration; thus the quality of radiation is changed, because the average of its penetrative power is increased. So that as the rays diminish in number the duration of the application must be increased, and, therefore, he gives the following rules of treatment:

1. Apparatus applied naked. Rays numerous; special action on the surface; duration of application short.
2. Apparatus with interposition of medium filter. Rays less numerous; action on greater thickness of tissue; duration of application longer.
3. Apparatus with interposition of thick filter. Rays very few. Action on very great depth of tissue; duration of application very long.

In measuring the strength of radium it was customary to say

that a tube which contained 5 mg. of salts of bromide of radium would have an activity of 500,000. Wickham says that this is not the proper way to speak of it, but one should be able to measure the rays given off externally which can be used: for example, he says with the above quantity of radium there would be of alpha rays 10%, of beta 85%, of gamma 5%. He destroyed an epithelioma after thirteen applications within 22 days, each application being one hour in duration, giving off rays with an activity of 50,000, with alpha rays 0%, beta rays 85 to 90%, and gamma rays 10 to 15%. Another case of ulcerating epithelioma of the nose was cured by using the same strength of radio-activity, by eight applications, one hour each, every third day. Two cheloids entirely disappeared on three applications of 30 minutes every four days, with an apparatus of 48,000 radio-activity, made up of 0% alpha rays, 89% beta rays, 11% gamma rays.

He first used for a screen pressed absorbent cotton of about the thickness of 1cm., surrounded by gold beaters' skin, and then pieces of aluminum to reduce the power of the activity of the rays. Many substances will do as screens, *e.g.*, silver, copper, lead, aluminum—the last two being the best.

Radium furnishes in addition to its rays a gas, called "emanation," which Wickham has utilized. Substances can be rendered rich in "emanation" by being brought into contact with "emanation" itself or by incorporating the substances with soluble or insoluble salts of radium.

M. Jaboin, chemist at the French Institute of Radium, has succeeded in rendering a whole series of substances radiferous, in the desired proportions, and according to prescribed dosages. These include radiferous quinine at a degree of half a microgram, that is to say, half a thousandth of a milligram of the pure radium for 0.20 of quinine. There is also some radiferous mercury, and some other substances. The quantity of radium is, of course, very small; but, at any rate, it is greater than in the radio-active natural waters.

All these substances have been used for some time, and are perfectly well supported by the organism. M. Jaboin, in his work at the Hospital St. Lazare, has made a certain number of injections of radio-active grey oil and iodide of mercury, and the urine after each injection showed radio-activity.

Water has been made radio-active.

Wickham has a hard vaseline made radiferous; this he has tried under new growths, applying radium on the external surface at the same time, and thus getting a double action or what he calls cross-fire.

Injections d'eau radifere et radio-actives.

Radio-active water and radium water have been used. The former is made radio-active by emanations or being exposed to the rays. The latter contains a small quantity of broxide of radium. These have not been used to any extent, and it cannot be said if they will be found to be of any use.

Bactericidal Radium Rays.

Radium rays have not been shown to have any bactericidal action, although in certain cases its use has been followed by the arrest of suppurations due to staphylococci and gonococci. Their laboratory researches have shown that it did not affect the culture of these organisms in a reasonable time; but radium water with an activity of 1/1,000,000 seemed to act on the culture.

Cancers were the objects of Dr. Wickham's first researches.

Wickham says that from a therapeutic standpoint radium has a much greater sphere of usefulness than that due to its destructive effects. Its value consists rather in its specific action in regard to special diseases—that is to say, its elective action—the radiations having a special action on some diseased cells, which is different from its action on normal cells. The radiations are able to cure some diseased tissues without either irritating or inflaming them if the doses are rightly administered. This selective action is not exercised upon every kind of diseased tissue; amongst those which are influenced by it he recognizes four principal morbid groups. They are: First, eczema; secondly, angiomas; thirdly, keloids; fourthly, cancers.

So far Wickham has obtained the best results in the treatment of angiomas. He has also obtained striking results in rodent ulcers and superficial cancers, such as epitheliomas. He thinks with this selective action of radium he will be able to affect in a curative way deep-seated cancer without the radium injuring or irritating the skin. With this idea in view a number of experiments were tried as to the effect of radium upon malignant disease of the breast; radium was only used on those cases which were too advanced for surgical intervention. He sum-

marizes his results after trying this treatment in a number of cases of carcinomata of the breast as follows:

(1) Radium can cause a carcinoma of the breast to retrogress so as to give, in a certain way, the appearance of a cure.

(2) Radium can sometimes render operable a cancer primarily inoperable.

(3) Radium has acted favorably on some relapses occurring after operation.

(4) It has acted also on some surrounding infected glands.

(5) In desperate cases it has sometimes relieved pains and diminished, for some time, the hemorrhage and the secretion coming out of the ulceration, and so has prolonged life.

(6) Radium can be utilized after the operation as a preventive means against return.

He says that these different services rendered by radium are not absolute; they are limited to cases not very extensive, and sufficiently localized.

A large quantity of radium is needed for each treatment, which is a serious drawback to its use.

Wickham told me that he would not think of using radium in an operable case of cancer of the breast. He did not think that it should be allowed to take the place of the knife except in inoperable cases or after operation when he thought the use of radium advisable.

The method of so-called cross-fire is as follows: An apparatus is placed on one side of the tumor and another exactly opposite to it; at each application these apparatuses must be left in place a sufficient time just to escape causing an inflammation of the surface, during which time the superpenetrative rays cross each other and augment the intensity of their action in the deeper tissues. It reduces the length of application, consequently the length of treatment.

The result of the treatment of carcinomata of the mucous membranes is not so favorable as those superficial cases affecting the skin.

I saw several patients whose photographs showed that they had had large vascular tumors, and in whom the tumor had entirely disappeared; also cases in which keloids had been similarly removed, and some cases of rodent ulcers and superficial epitheliomata, which had been successfully removed by radium.

The most striking results obtained by radium were in those cases of large angiomas in children. I saw one case of a very large angioma affecting the scalp and forehead cured by radium with scarcely a perceptible mark to show where it had been, and also a case of port-wine stain affecting the half of the face, the ear and the side of the neck, in which the color had been completely restored to nearly all, in fact as much as had been submitted to radium treatment.

That in radium we have a substance of wonderful therapeutic value there can be no doubt. Just how valuable it may prove to be in deep-seated cancers cannot at the moment be foreseen, but if it is only capable of retarding the growth and thus prolonging life it will serve a useful purpose.

The great cost of radium will necessarily limit its use. It would be a great thing for Canada and the Province of Ontario in particular if some wealthy, public-spirited citizen would come forward and establish a radium institute in our midst. Such an institute is being established in London owing to the interest and energy of His Majesty King Edward, and with the help of Sir Frederick Treves, Sir Malcolm Morris and others. Another institute is being established in New York and it is to be hoped that we will not long be behind in Canada.

I cannot close this brief account of radium without paying tribute to Dr. Louis Wickham, whose great work has placed the use of radium on a scientific basis, and who will, I am sure, within the next few years add still more to our knowledge of this new and valuable therapeutic agent.

64 Bloor Street East.

	<h2>School Hygiene</h2>	
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PUBLIC HEALTH IN THE WEST

Public Health makes progress in the West. In Saskatchewan, they have already a Minister of Public Health, and in British Columbia, the Hon. Dr. Young, Minister of Education, has just brought in a bill for the medical inspection of schools. The four members of the Opposition of course opposed, and brought on all the time-honored arguments on the occasion of the debate, on February 5th. When the bill was in the committee stage. Mr. Hawthornthwaite moved in amendment to strike out the words leaving to the Provincial Board of Health the discretion to provide other than a medical man for school inspection. He said that it would leave a loophole for the Board to employ some raw medical student to practise by examining the children for their physical defects.

Mr. Jardine asked whether these yearly examinations provided for in the bill were sufficient. Should any difficulty arise in the meantime, should not the school trustees have the right to call for a doctor?

Hon. Dr. Young said the bill provided for that. The annual medical examination was not to deal with acute but chronic disabilities. A doctor could be called in any time for acute cases.

Mr. Hawthornthwaite asked why it was necessary to examine a whole class because one or two children were backward. Why not confine the examination to them? Otherwise, it would benefit the medical men by placing hundreds of children otherwise healthy under the doctor's care. Before the bill was rushed through the House, they should have further time to consider its clauses.

Hon. Mr. McBride said the member for Nanaimo was very inconsistent. When the bill was introduced, he was loud in its praises, but now he claimed that it left the door open for the examination of children by sanitary inspectors, horse doctors or other incompetent persons. The very reverse was the case, but they did wish to provide that, in remote districts, where a doctor

could not be obtained, the Board of Health might employ a trained nurse or sanitary inspector for the performance of their respective duties. If they had confidence in the Board of Health, they might feel sure its powers would not be ill-used.

Mr. Williams said the bill was one of the best in principle the Government had ever brought down. His only fear was that in the rural districts they would get the small end of it. For that reason he would support the amendment of the member for Nanaimo. He would like to see the bill held over for a little while, that he might consult with his constituents.

Hon. Dr. Young denied that the bill would be any hardship in rural schools. Where this plan had been in operation the expense had never been more than 15 cents for each pupil. The charges would be a matter of arrangement between the Provincial Board of Health and the doctor employed.

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Editorials

THE EXPENSES OF THE FACULTY OF MEDICINE OF THE UNIVERSITY OF TORONTO

THE Report of the University of Toronto for the year ending 30th June, 1909, shows that the salaries paid to professors, associate professors, demonstrators, assistants, associates, and also for general services in the Faculty of Medicine amounted to \$54,552.16; in the Department of Anatomy, anatomical material cost \$1,793.90; chemical materials, for preservation, etc., \$450.84; incidental expenses, \$651.00; in the Department of Pathology and Bacteriology, chemical supplies, apparatus, microscopes, and incidentals cost \$940.89; in Pharmacy and Pharmacology maintenance, fittings, merchandise account, cost \$1,206.00; in departments other than the above, the expenses were \$360.85; the maintenance of the Medical building cost \$6,994.91; the general expenses of the Faculty of Medicine, \$1,735.18; Hospital Laboratory at St. Michael's Hospital, \$549.71; total, \$69,235.44.

This total, as given in the Report, does not include the full expenditure incurred in teaching Medicine at the University of Toronto, and, in order to get a clear insight into the subject, we have been obliged to make some calculations of our own. It is stated in the Report that the Biological Building and Department for Maintenance of Building, fuel, light, water, repairs, etc., with maintenance of the department,

specimens, supplies, fittings, microscopes, service, etc., cost \$8,110.71; the Department of Physiology and Biochemistry cost \$2,593.23; the Chemical Building and Department cost \$9,764.46; the Department of Physics cost \$13,470.56.

Now, the Faculty of Medicine could not give the full training called for in the curriculum to undergraduates, without the co-operation of these departments. In the Department of Biology, there were altogether 666 undergraduates in attendance, 288 of whom (43.24 per cent.) were undergraduates in Medicine. In the Department of Physiology and Biochemistry, there were altogether 467 undergraduates in attendance (including veterinary students), and 175 (37.47 per cent.) were undergraduates in Medicine.

In the Department of Chemistry, there were altogether 628 undergraduates, 289 of whom (46.02 per cent.) were undergraduates in Medicine. In the Department of Physics, there were altogether 550 undergraduates in attendance, 114 of whom (20.07 per cent.) were in the Faculty of Medicine. Basing the calculations on the percentages of undergraduates in Medicine in attendance, the share of the Faculty of Medicine in the expenses of the Department of Biology would be \$3,507.07; the share of the Faculty of Medicine in the expenses of the Department of Physiology and Biochemistry would be \$971.68; the share of the Faculty of Medicine in the expenses of the Department of Chemistry would be \$4,493.60; the share of the Faculty of Medicine in the expenses of

the Department of Physics would be \$2,703.54; total, \$11,675.89.

The salaries in the Department of Biology amounted to \$15,535.00. Applying the same rule of percentages, the Faculty of Medicine were chargeable with \$6,717.33. The salaries in the Department of Physiology and Biochemistry were \$10,525.00. The Faculty of Medicine were chargeable with \$3,943.72. The salaries in the Department of Chemistry were \$16,968.50. The Faculty of Medicine were chargeable with \$7,808.90. The salaries in the Department of Physics were \$15,143.00, and the Faculty of Medicine were chargeable with \$3,039.20. Adding together these percentages of salaries chargeable to the Faculty of Medicine in the Departments of Biology, Physiology, Chemistry, and Physics, we have a total of \$21,509.15. Adding together the ordinary expenses of the Faculty of Medicine, \$69,235.44; the percentages due by the Faculty of Medicine for the maintenance of Biology, Physiology, Chemistry, and Physics, \$11,675.89, and the percentages of salaries chargeable to the Faculty of Medicine in these four departments, \$21,509.15, the total expenditure made on behalf of the Faculty of Medicine is \$102,420.48.

Deducting from the aggregate expenditure, credited directly or indirectly to the Faculty of Medicine, the amount paid to the University of Toronto in annual fees by undergraduates in Medicine, viz., \$82,121.50, we find that there is a balance of \$20,298.98 to the debit of the Faculty of Medicine for the academic year 1908-9.

A recapitulation of the total fees, collected in all the Departments of the University from undergraduates of all departments, shows they amounted to \$226,094.50, of which the fees paid in the Faculty of Medicine, viz., \$82,121.50, would be 36.32 per cent. The debit of the Faculty of Medicine is easily met out of the Legislative grant (University Act, 1906), which was \$422,232.43.

The undergraduates in Medicine pay their way handsomely. No allusion is made here to the cost of administration of the University, or the interest on capital invested in buildings and equipment.

J. J. C.

FORCED FEEDING IN TUBERCULOSIS

As the ability of a consumptive patient to gain in weight is looked on as desirable, forced feeding has been freely tried in the treatment of tuberculosis, and on the bill of fare flesh meat holds the first place. It is quite easy, however, to do harm by forced feeding. If the stomach and intestines of the patient function well, if the kidneys are not diseased, a liberal flesh meat diet will increase weight, without injury. However, the very opposite of such physiologic conditions is apparent in a good many cases of tuberculosis, for the common sequels of forced feeding are: dyspepsia, gastro-enteritis and high fever. The dyspepsia may be characterized by acidity, arising from over-stimulation of the gastric glands, or there

may be atony of the stomach, with dilatation, accompanied with fermentation of food. Moreover, gastro-intestinal fermentation, with the production and absorption of toxins, does more harm to the patient than forced feeding can do good, thereby causing the abandonment of this treatment. This latter eventuality becomes all the more necessary, because the employment of chemical antiseptics, which check peptic digestion, is useless and may prove injurious. A tubercular patient, whose digestion is labored and accompanied with oppression at the stomach, and somnolence, whose urine contains an excess of indican, is probably eating more meat than he can assimilate.

There ought to be a rule for the regulation of the meat allowance given to tubercular patients. Laufer, who has carried out a series of observations on this subject, contends that the amount of albumen ingested should be between 10 and 20 grains for each pound of body weight. Not more than 10 *ozs. of meat a day* should be allowed, because, if this amount is exceeded, the assimilative organs rebel and auto-intoxication ensues. Fat, in small quantities, he shows, exerts a useful controlling influence in respect of the metabolism of albumen,—taken in excess it passes away in the stools. Thus, the ingestion of 3½ *ozs.* of butter was followed by a fecal loss of 10.6 per cent., whereas the ingestion of 6½ *ozs.* gave 25.8 per cent. waste.

Farinaceous articles of food and sugar are usually absorbed with advantage by tuberculous patients,

especially if taken in moderation. In all cases, the quantity of food taken should be adjusted to the assimilative capacity of the patient, and this can be done by regularly taking his weight. If his weight is normal, he should eat enough food to keep up his weight,—if his weight is in excess, the quantity of food taken should be reduced. If he is losing weight, and is emaciated, the cause should be ascertained. If due to loss of appetite, an effort should be made to improve it, so that he may be able to take a liberal, but not an excessive, quantity of food.

Should the patient continue to lose flesh, in spite of a liberal diet, he should take a supplementary supply of nitrogenous food, and a richer diet than that required by healthy people. In doing so, he runs the risk of auto-intoxication, as the result of gastrointestinal fermentation or of blockage of the kidneys, irritated by the passage of alimentary toxins. The use of buttermilk, which introduces a number of lactic bacilli into the intestines, tends to inhibit the growth of pathogenic bacilli in the bowels of the patient and checks intestinal fermentation.

J. J. C.

THE SLAUGHTER OF THE INNOCENTS

In 1907, the total births in Toronto, legitimate and illegitimate, were 6,900; the number of deaths of children under one year was 1,313, a loss of about 19 per cent. That this loss of infant life in Toronto would have been less, if all the dead infants had been

dowered with healthy, wealthy and wise mothers, goes without saying; that most of these infants would have perished, even if their mothers had every desirable mental and moral quality, and a fine social position, to boot, is true also. The statistics of the Registrar-General for 1907 show that, of the 1,313 deaths, some of the causes of death were: Premature births, 90; congenital debility, 198; congenital malformation, 18; ill-defined diseases, 82; other ill-defined causes, 75; pneumonia, 42; bronchopneumonia, 40; acute bronchitis, 29; meningitis, 39; apoplexy, 8; convulsions, 53; measles, 11; whooping cough, 18; tuberculosis of lungs, 2; tubercular meningitis, 5; general tuberculosis, 6. Total, 706.

Thus, more than half of the infant mortality under one year, in Toronto, for 1907, was due to causes alien to the quality of the milk ingested by the dead infants, and the claim made by a Toronto newspaper, that the mortality was a dreadful example of the use of poor or uncertified milk, is untenable.

That there were deaths among Toronto infants, in 1907, which were traceable, partly at least, to poor milk, is true enough, for the statistics of the Registrar-General show that, of the 1,313 deaths of infants referred to, 56 were caused by gastritis and 192 by diarrhea and enteritis, diseases in which, warm weather, childhood, improper food, and bad hygienic surroundings are general predisposing factors.

If women cannot, or will not, wet nurse their own infants, certified cow's milk is the next best step; but

that statement must not be accepted as an unqualified endorsement of certified milk as the most important means of reducing the mortality of infants under one year of age.

J. J. C.

THE NEW TORONTO GENERAL HOSPITAL

INDUSTRY is the price of success. As we look over the plans of the new Toronto General Hospital, and think of the time, thought, work and worry they represent, we feel lost in admiration for those who constitute The Board of Management, and realize that the architects believe fully in Edison's trite definition of genius. When he was asked, "Don't you believe genius is inspiration?" he replied, "No, genius is perspiration." So, observing, thinking and sketching have now taken the concrete form of "plans" for a complete, handsome and seemingly adaptable Hospital, and in the early spring ground will be broken and a building be begun that will be a credit, not only to its management, but a great benefit to the sick and the poor of our city. May we add a prophecy that perchance in this schoolroom some young Pisani of the scalpel may give to Surgery its Masterpiece and to Canada a more brilliant name than

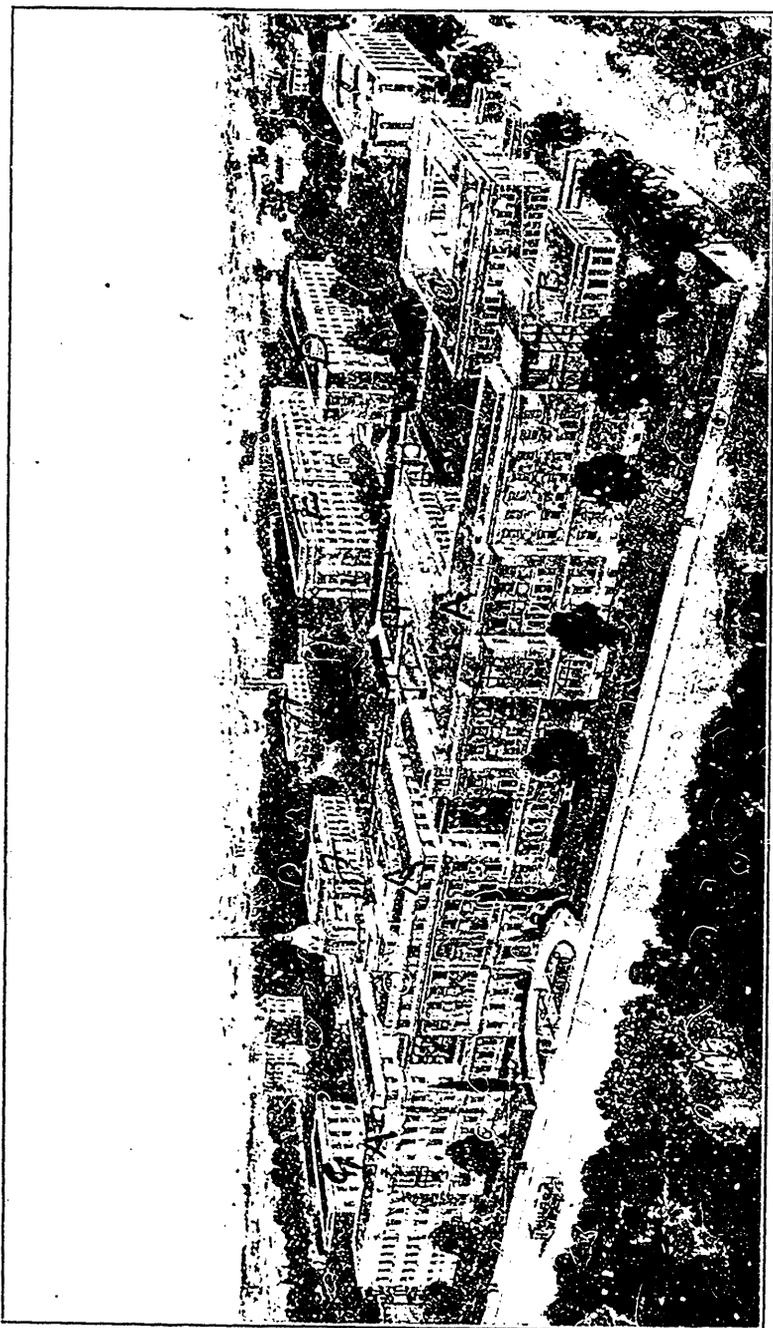
" Daughter of Men and Markets, bearing
within her hold,
Appraised at highest value, cargoes
of Grain and Gold."

We have great pleasure in giving our readers a half-tone illustration of the Buildings and data, supplied

by the kindness of Mr. Flavelle, President of the Hospital Board. Though ever the busiest of men, he can always find time to be courteous.

As it will be noticed from the illustration, the Hospital buildings present a most imposing appearance, occupying the entire frontage on College Street from Elizabeth Street to University Avenue. The Westerly wings, towards University Avenue and South into the grounds, will be occupied by Medical and the corresponding wings on the East by Surgical cases. In these wings there will be 153 Surgical and 150 Medical beds. The wards will be large, open on both sides, and exceedingly well lighted. The centre building on College Street has accommodation for Administration, and in the two wings running Southerly from the centre are 36 beds for Eye and Ear cases, 39 beds for Gynecological cases, and upon one floor 34 beds for Semi-Public patients. a provision arising out of the original City grant to the Trust. On the top floor there will be 22 rooms for the House Doctors.

The Emergency Department (B) will be built and be completely equipped and supplied with an Ambulance and an endowment to maintain the Ambulance by two ladies, whose names cannot as yet be announced, but who turned in their benefaction to the Hospital at the instance of Dr. N. A. Powell, of this City. The Emergency Department will contain 9 beds. It is intended to send out a Doctor and Nurse with the Ambulance when accident calls come in, giving "first aid" at the scene of the accident.



THE NEW TORONTO GENERAL HOSPITAL

- (a) Administration Building
- (b) Emergency Department
- (c) Out Patient Department
- (d) Private Patients Building
- (e) Nurses' Home
- (f) Obstetrical Building
- (g) Servants' Building
- (h) Power House
- (i) Pathological Laboratory

The Out-Patient Department (C) will be capable of accommodating from 300 to 350 patients daily. This building is the gift of Mr. Cawthra Mulock, and will represent in its construction and equipment all that experience up till the present directs should be supplied.

The Private Patients' Building (D), in which will be only Private and Semi-Private patients, will contain 100 beds. A completely equipped Diet Kitchen will be attached to these wards and will be under the care and direction of a trained expert, who will give a course of instruction to all of the Nurses, who in turn will be required to take the course as part of their regular Hospital training.

Nurses' Home (E) will have accommodation for 174 women. Classrooms will be in the building, as well as an Infirmary and other accommodation for the Nurses, mostly in single bedrooms. Attached to the Nurses' Home will be recreation grounds solely for the use of Nurses.

The Obstetrical Building (F) will contain 40 beds and all necessary equipment for this Department.

The Servants' Building (G) will be fully equipped and comfortable in every respect for the accommodation of the servants employed in the Hospital.

The Power House (H) and Heating Station for all the buildings, including Laundry, will be in every respect modern and up-to-date.

The Pathological Laboratories (I) are to be built and maintained by the University of Toronto. The

full Pathological Department of the University will be accommodated in this building.

A few figures showing the enormous cost of the new Hospital will, doubtless, be interesting to our readers. Towards the estimated expenditure of \$2,500,000, the University has contributed \$600,000 and the City \$200,000. The Board of Trustees have secured the permission of the Council to submit a By-Law to the Ratepayers, asking them to contribute a further sum of \$200,000. If this is secured, the Trustees will have to obtain from private benefactors \$1,500,000, and towards which they have now subscriptions in hand amounting to \$950,000. It will be realized that the effort yet to be made to secure a further sum of \$550,000 is one which will tax the utmost resources of the Board, and that they will have to depend chiefly upon large subscribers for this sum.

Many of our wealthy citizens have contributed largely to the Hospital Fund, and now Mr. J. C. Eaton has honored the memory of his father, Mr. Timothy Eaton, by the generosity of his great gift of the Surgical Wing, at a total cost of \$250,000.

The proposed expenditure for land and buildings at the time that the original \$200,000 was voted by the City Council was \$1,250,000. The Trustees have certainly showed the best of judgment in acquiring the whole of the block of land rather than the half, as originally proposed. In doing this, they have also undoubtedly earned the sympathy of all public-spirited citizens, who are acquainted with the require-

ments for Hospital accommodation in the City, in adding 150 beds in the Public wards to those originally proposed. It will, therefore, be seen that the added size of the Hospital block, the added accommodation in the Hospital, and the increased expenditure for buildings over and above the earlier estimate, which is almost always inseparable from large proposals, have been the occasion for the increase in the proposed total expenditure.

The Trustees some little time ago laid before the Governors of The University of Toronto the enlarged character of the expenditure, and the added accommodation to be provided, and promptly secured their support, and the Government's concurrence in adding to their original subscription of \$300,000 a further sum for a similar amount, making their subscription in all the magnificent sum of \$600,000.

As this Hospital is to do a great work, in this City gradually growing to great proportions, it seems needless to appeal to all voters to support the By-Law soon to be "put" to the people. The extra grant from the City is wanted; it will be used wisely. A few remarks have been made recently by physicians and others as to the comparatively small accommodation afforded to "free" or City patients, as reported in the daily papers in answer to a question asked by Alderman Heyd. The number of free beds was estimated about 413. By carefully studying the plans, it will be observed that sufficient land will be left that, when necessary, the wards may be enlarged.

When one comes to learn, year in and year out, of

the class of patients who crowd these Public wards, not many, in proportion, are Canadians. Let us pray for more stringent immigration laws. Somehow the English immigrant, twelve months in this country, out of work and the father of eleven "imported" children, always finds his way, without the aid of a street directory, to the 'ospital. There he is a sick burden on the city. Pity the Hospital and all other sanely managed corporations intended to be of real service to "all the people."

"The organized Charity scrimped and iced"
"In the name of a cautious, statistical Christ,"

is often the very worst enemy of the larger charity which opens its doors and says, "The world is my parish." This great Institution commands our respect, demands our aid and compels our admiration; but may we all be spared from ever having to enjoy its hospitality.

W. A. Y.



Editorial Notes



Psychiatric Clinics

In an address delivered before the Hamilton Medical Society, April 14, 1909, Dr. C. K. Clarke, Dean of the Medical Faculty of the University of Toronto, made a plea for improved methods of dealing with acute cases of insanity. He contended that the asylum system of Ontario had not proved adequate for such a work, and that it could not be made adequate. The principal reasons for this incurable inadequacy, in his opinion, are the association of acute with chronic cases in the asylums, and the neglect of research methods by the medical staffs. To overcome these evils, he recommends the establishment of psychiatric clinics, in which accurate diagnosis will be made, and suitable treatment provided for the earliest stages of mental disease, and moreover, where students and physicians would have opportunities to acquire some knowledge of psychiatry. Dr. Clarke regrets the absence of such institutions in Ontario, for, owing to frequent consultations with physicians in cases of mental disease, and the knowledge thus acquired, he is in a position to see the necessity of a change in present day methods, with the establishment of better facilities for the treatment of cases of acute insanity.

Taking the record of a year's admissions, viz., two hundred and sixty cases, of whom seventy-odd (27 per cent.) proved curable, Dr. Clarke maintained that many more would have been cured had the conditions of treatment been ideal, rather than "the best we can obtain under the circumstances." He also thought that many insane patients, who are admitted in a hopeless condition of chronic insanity, might have been cured had they been taken in hand early in the day.

Dr. Clarke's plea is certainly a very enticing one, and, coming as it does from a high authority on psychiatry, merits the sup-

port and adoption of the legislative and governing authorities, who can embody its teachings in law and put them to the test. Promising as it looks, it has to be measured by the standard of results. We hope that the results will prove to be a triumphant vindication of Dr. Clarke's opinions respecting the curability of acute insanity. There are asylums enough in Ontario to hold the chronic insane till death releases them. Besides, a little training in clinical psychiatry might be a useful discipline to the medical student.

The Making of Constitution

In an article entitled "The Making of Constitution," which appears in the January number of *The Pacific Medical Journal*, Dr. T. B. Keyes, of Chicago, advocates subcutaneous injections of oil to overcome sickness, thinness and anemia. He contends that perfect nutrition and perfect combusive powers may be obtained if oil is injected, subcutaneously, in properly graduated doses. This applies not only to thin persons, but to those whose flesh is flabby and to those who are fleshy, but without sufficient oxidation powers to convert their fat into energy. He says, "The subcutaneous injection of oil stimulates the combusive powers and increases cell activity. The increased cell activity and combusive powers produced by oil injection give appetite. This peculiar condition of supplying both nutrition and appetite cannot be produced or brought about in any other way.

Applications of this treatment vary according to the nature of the case. A flabby, fat person, pale and sallow, with a poorly-nourished liver, or with Bright's disease; a thin, nervous person; a person with chronic inflammation of the lungs, or a cachexia from chronic disease or syphilis, should gain in weight and blood, and should therefore receive larger doses of oil than a fairly healthy individual who simply wishes to increase his cell activity and his powers of combustion and energy. There seems to be both truth and poetry in Dr. Keyes' treatment—truth, by con-

verting the thin and the delicate into the robust and healthy; poetry, by substituting beauty and artistic excellence for thinness, anemia and flabbiness. In cases of anemia, thinness and weakness noticeable after acute infections, excellent results are produced by daily massage with olive oil.

Outbreaks of Rabies in Ontario

During the past and present year, outbreaks of rabies in dogs have been noted over a rather extensive area of Western Ontario. Human beings, as well as cattle and horses, have been bitten by rabid dogs. Feb. 2, 1910, replying to Major Currie, Hon. Sydney Fisher, Minister of Agriculture, stated in the House of Commons, Ottawa, that 157 cases of rabies had been reported to his department during 1909 and 1910. The existence of rabies had been demonstrated in thirteen cases. No arrangement had been made to compensate the owners of the animals destroyed. This latter statement applies to the owners of cattle and horses, which, having been bitten by rabid dogs, contracted hydrophobia and had to be destroyed. Several persons who had been bitten by rabid dogs have been sent, at the expense of the municipality, or have gone of their own accord, to the Pasteur Institute, New York, for treatment. So far the development of rabies in any of these persons has not been noticed. At Galt, Berlin, and other towns in Western Ontario, by-laws providing for the muzzling of all dogs allowed to go abroad are enforced. Similar by-laws should be enforced throughout Ontario. It would be the cheapest and most humane method of stamping out rabies.

Analysis of Proprietary Medicines

The following extract from the 1908 Laboratory Report of Professor Amyot, of the Provincial Board of Health of Ontario, shows that thirty-five proprietary medicines were examined during the year for the alcoholic content, active constituents and diastase:

PROPRIETARY MEDICINES		
Name of Preparation.	Alcohol by vol.	Constituents Detected.
Dr. Fowler's conc. extract Wild Strawberry	12.50	Peppermint, Tannin and Gallic Acid.
Campbell's Quinine Wine	14.95	Quinine.
Armbrust's Cocoa Wine	13.65	Cocaine.
Factor's Mandrake Bitters		Vegetable Bitters
Belloc's Compound Syrup of Hypophosphites	9.87	Quinine, Hypophosphites, Iron, Glycerine, Strychnine.
Whetzel's Sesame Phosphates	.69	Quinine, Iron, Phosphates.
Churchill's Syrup of Hypophosphites	45.55	Hypophosphites, Vanilla, Sugar.
St. Y. Deat's Pain Killer	13.30	Camphor, Capsicum.
St. Y. Deat's Wine	59.52	Alcohol, Quinine, Aromatic.
Edo's Quinine		Alcoo, S. phosphate of Iron.
Millie's Rheumatic Pills		Turpentine and a Red Oil.
Stear's Rheumatic Cure		Iodides Acetates, Carbonates.
Woodridge's Gout and Rheumatic Tincture		Morphine.
Geoffroy's Cordial	15.76	Glycerine.
South American Kidney Cure	15.96	Iodides, free I2S, Aromatics and Glycerine.
Gelpura	present!	Bromides, Valerian.
Kather Koenig's Nerve Tonic	0.27	Iodines, Sarcaparilla.
Bristol's Sarsaparilla	12.75	Iodides, Salicylates, Bitter.
Warner's Safe Nerving	8.61	Iodides.
Dr. Hall's Rheumatic Cure	10.51	Saffron and Aconite, Camphor.
Redway's Sarsaparilla Resolvent	68.80	Iodides, Peppermint.
Dr. Kennedy's Rheumatic and Neuralgic Resolvent	6.80	Vegetables.
Warner's Safe Rheumatic Cure	17.30	Sage and Herbs
Dr. Clark's Kola Compound	4.33	Carbonates, Herbs.
Kilmor's Swamp Root	2.32	Carbonates, Bitter.
Kikapeo Indian Sugar	7.92	Turpentine, Wintergreen, Sugar, Iodides, Aconite.
Dr. Wilson's Herbine Bitters	2.55	Acetanellid
Wright's Rheumatic Cure	2.55	Acetanellid
McCollum's Rheumatic Copellian	24.50	Acetanellid, Sod. Carbonate.
White's Curative Syrup	5.17	
Loewe's Headache Powders		
Stear's Headache Cure		
Miller's Headache and Grip Powders		
Hoffman's Harmless Headache Powders		

Food Preservatives and the Benzoate Question

In the December, 1909, number of *The Quarterly Bulletin* of the Northwestern University Medical School, Chicago, Professor J. H. Long writes an entertaining article on Food Preservatives and the Benzoate Question. This question is of special interest to us in Canada at the present time, when arrangements are being made in the Canadian Parliament to introduce standards of food, under the Adulteration of Food Act. Benzoate of Sodium is one of the "chemicals" introduced by manufacturers in the preparation of catsups, etc. As the result of objections to its use in foods, experiments were made on a poison squad by the United States Bureau of Chemistry of the Department of Agriculture. The conclusion was reached and published in a bulletin, that the benzoate of sodium is a dangerous substance, capable of producing a long train of ills in those who use it with foods. Protests having been made to the conclusions expressed in this bulletin, the Referee Board of Consulting Scientific Experts at President Roosevelt's request, was appointed by Secretary Wilson to study certain phases of this question, and, in particular, to determine whether or not benzoate of sodium and certain other "chemicals" are in reality injurious to health in the manner in which they are employed in the preparation of foods. The Referee Board, of which President Remsen of Johns Hopkins University is chairman, carried out lengthy experiments on the benzoate question, and, in Report 88 of the United States Department of Agriculture, published conclusions differing decidedly from those advanced by the Bureau of Chemistry. It is contended, in Report 88, that benzoate of sodium is a comparatively mild substance which, when used in the relatively small quantities called for in catsups and several condimental foods, must be harmless. It is also stated that its ultimate behavior and fate is not unlike that of the aromatic principles of cloves and cinnamon, which were formerly used as preservatives of perishable foods, such as apple butter, etc.

Professor Long contends that the use of harmless food preservatives by manufacturers should not be interfered with, as "except for the rich, factory-made foods will become the rule, and progress there, as well as elsewhere, must be admitted and encouraged." This is a reasonable view, and one which will doubtless have weight with the Laboratory of the Inland Revenue at Ottawa.

J. J. C.

State Registration of Nurses

Now that Dominion Registration for the medical profession is coming nearer, and the sanguine expect it any day, it is a good time to think of the advantages which would accrue to the public, the nurses, and the physicians by means of a reasonable and practicable system of Dominion Registration for nurses. There are few Canadian physicians who have ever had cause to complain of our Canadian nurses. There are none better in the world, and not many as good. Difficulties there are in the way of State Registration, of course, as of every other thing; but these can be overcome, and the benefits will more than compensate for any trouble in securing the needed legislation. Now is the time to prepare the way for future action, so that legislation may be well considered and successful.

The Academy of Medicine Doing Good Work

It is quite evident that the Academy of Medicine, through its different officers, is fully alive to the questions of most interest to the profession. About two weeks ago, quite a representative deputation waited upon the Ontario Government, urging the Cabinet to establish a Pasteur Institute in Toronto, arguing that the rapidly increasing number of cases of rabies in this Province demands action along this line. The deputation was promised the usual consideration. The Academy is also watching carefully the proposed bill to incorporate the Osteopaths, something that should be "fought to a finish."

W. A. Y.



The Physician's Library



Physical Examination of Surgical Cases. By E. STANLEY RYERSON, M.D., C.M., Demonstrator in Surgery, University of Toronto; Junior Surgeon, Toronto General Hospital and Hospital for Sick Children, Toronto. Toronto: The University Press. 1910.

Dr. Ryerson presents to the profession a most useful little manual, one that will be found particularly handy to hospital house surgeons. There is no doubt that there is frequently too great a lack of system among physicians, and this volume will be of material assistance in this direction, helping its readers to systematize their work in physical examination and cultivate certain methods which must of necessity lead to better results through more correct diagnoses.

W. A. Y.

The Treatment of Diseases in Children. By G. A. SUTHERLAND, M.D., F.R.C.P.; Physician to Paddington Green Children's Hospital, etc., etc. Published by Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, London, E.C.

The second impression of this little work has been made imperative by the rapid sale of the first. It is a good little work, not claiming to be a full discursive system, but simply a book on treatment, with the necessary amount of pathology, etiology, diagnosis, etc., touched upon, to make clear the author's reasons for such treatment. It is dogmatic. We like dogmatic treatment when given by a past master of great experience, and certainly Sutherland is that. He is an omnivorous reader, and has any amount of clinical work to treat daily. Out of such experience he writes. We can heartily recommend this work to young practitioners and those needing a short resumé on any ordinary disease of infancy and childhood. The chapter on feeding of infants and children is excellent. The book is very reasonable, and if purchased from the Canada Law Book Company, 32 Toronto Street, may be obtained at a discount of 40 per cent.

A. B.

Pulmonary Tuberculosis and Sanatorium Treatment. A record of ten years' observation and work in open-air sanatoria. By C. MURPHY, M.D., M.R.C.S., L.R.C.P. Demy 8vo, pp. xii 201, with 6 illustrations, 10 plates. Price, 3s. 6d. net. London: Bailliere, Tindall & Cox. 1910.

The preface and title tell us that this is intended to record the writer's observations and impressions from ten years' experience in sanatorium work. As such it may be accepted, but it can scarcely be looked upon as a serious contribution which will add to our knowledge, or one which may be accepted as a guide. The author dwells at length upon the importance of the physician in his relation to the patient, and of the value in treatment of hope and cheer, and this is good.

The preface says: "The first part of this book attempts to deal with the scientific aspect" of pulmonary tuberculosis. Your reviewer has no hesitation in saying this is one of the weakest attempts he has ever seen—a crude mixture of metaphor and pathology. Two illustrations should suffice (p. 125): "Cases like the above open up doubts as to whether tuberculosis is primary or secondary to pneumonia, or whether the germs of tubercle bacilli have been developed from pneumococci, which are often present in the tuberculous sputum."

The Physician's Pocket Account Book. By J. J. TAYLOR, M.D. Bound in full leather; 24 pages of practical instructions for physicians; 216 pages of accounts. Price \$1 per copy. Published by the Medical Council, 4105 Walnut Street, Philadelphia, Pa.

This book is without a doubt the most complete, and at the same time simple and thoroughly efficient account book that has ever been devised. Furthermore, it is absolutely legal, and can be presented in any court of justice. It does not make use of any hieroglyphics, but everything is entered in plain language, and any judge can understand it.

The book contains 24 pages of business instructions for physicians, which have been found very useful and correct in a long and varied practice, under the headings of "Importance of a due bill," "Fees," "Billing and collecting," "Cautions," "Statute of limitations," "Form for wills," "Dying declara-

tions," "Saving and investing," "Instant treatment of poisoning," etc. It also contains an average fee bill, which has been found to work out correctly in practice.

The book contains 216 pages for accounts, of which, eight pages are devoted to alphabetic index, 146 pages are devoted to regular accounts, 32 pages to short accounts, 24 pages to cash accounts, and eight pages to birth, death and vaccination records.

A Text-Book of Obstetrics. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopædic and the Philadelphia Hospitals, etc. Sixth edition, revised and enlarged, with 847 illustrations, 43 of them in colors. Philadelphia and London: W. B. Saunders Company. 1909.

The present is the sixth edition of Dr. B. C. Hirst's text-book on obstetrics, and is a monument to his ability and his vast experience during the past twelve years of this, his special work. The illustrations are extremely good, the gynecological operations required as the results of labor cases are lucidly described and portrayed. In fact, the entire field of obstetrics, including the new-born infant, its care and its diseases, is so carefully and minutely lectured upon and fully covered that it stamps the author a master of the subject. As a reference for the general practitioner and a text-book for students it is difficult to conceive of a work more reliable.

C. F. M.

Principles of Hygiene. For Students, Physicians and Health Officers. The New (3rd) Edition. By D. H. BERGEY, M.D., Assistant Professor of Bacteriology, University of Pennsylvania. Octavo of 555 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1909. Cloth, \$3.00 net. Canadian Agents, The J. F. Hartz Co., Ltd., Toronto.

In looking through this volume one notes the usual subjects dealt with in such a work, but dwells with especial interest on what the author writes in respect to the newer ideas on sewage purification, the diseases produced by vitiated air, and the removal of dust therefrom. The subject of immunity and the use of vaccines will also attract the reader, the chap' r on Immunity having been completely rewritten. "The Mental Atti-

tude," in the chapter on Personal Hygiene, is apropos in these days of psychotherapy; "The Influence of the Working Day on the Health of the Laborer" shows the trend of the times sociologically. The important subject of disinfection is fully dealt with. We are pleased to notice that the author has given stress to the milk question.

The book is well illustrated, the typography is excellent, and the style lucid. We commend it. J. N. E. B.

A Manual of Midwifery. For Students and Practitioners. By HENRY JELLETT, B.A., M.D. (Dub. Univ.), F.R.C.P.I., L.M.; King's Professor of Midwifery in the School of Physic, Trinity College, Dublin; Gynecologist to Sir Patrick Dun's Hospital; President of Obstetrical Section of the Royal Academy of Medicine in Ireland; Late Gynecologist and Obstetric Physician to Dr. Stevens' Hospital, Dublin; ex-Assistant Master Rotunda Hospital; Late Extern. Examiner in Midwifery, Royal University of Ireland; Late Censor and Examiner in Midwifery, Royal College of Physicians, Ireland; Late University Examiner in Midwifery and Gynecology, Dublin University; Late Vice-President of the British Gynecological Society. With the assistance in special subjects of: W. R. DAWSON, M.D., F.R.C.P.I., Medical Superintendent, Farnham House, Dublin; University Examiner in Forensic Medicine, Dublin University. H. C. DRURY, M.D., F.R.C.P.I., Physician to Sir Patrick Dun's Hospital, and formerly Physician to Cork Street Fever Hospital, Dublin. T. G. MOOREHEAD, M.D., F.R.C.P.I., Physician to the Royal City of Dublin Hospital; Late Chief Demonstrator in Anatomy, School of Physic, Trinity College, Dublin. R. G. POWLETTE, M.D., Pathologist to the Rotunda Hospital and to Dr. Stevens' Hospital, Dublin; Lecturer on Pathology, Queen's College, Galway. Second Edition. With 17 plates and 557 illustrations in the text. London: Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Garden. 1910. Size Demy 8vo. Number of pages xiv.+1210. Illustrations 557. 17 plates. Price 2ls. net.

This work is divided into ten chief parts: Obstetrical Anatomy—Maternal and Ovarian; Obstetrical Asepsis and Anti-

sepsis; the Obstetrical Armamentarium, Obstetrical Diagnosis; the Physiology of Pregnancy; the Physiology of Labor; the Physiology of the Puerperium; the Pathology of Pregnancy; the Pathology of Labor; the Pathology of the Puerperium; Obstetrical Operations; the Infant.

The author favors the use of boiled rubber gloves by obstetricians, instead of trusting to the use of antiseptic applications to the hands. As lubricants, he recommends soap, corrosive vaseline, or a 1 per cent. solution of lysol. In making the diagnosis of pregnancy, and while assisting at labor, he advises obstetricians to depend on abdominal palpation in place of vaginal examinations.

The last chapter, "The Infant," is a fitting ending to a very well-planned, admirably written work on obstetrics. The book, which is well printed, is convenient in size. The 17 plates and 557 illustrations add distinctly to its value. J. J. C.

Attention is called to the announcement of the Canada Law Book Company, of this city, appearing on page xlvi. of this issue. This firm are offering a number of the latest books from the Oxford Press, at a most attractive discount, their reason for so doing being that they are giving up their medical book department. It would seem to be the chance of a lifetime. The books include: "Diseases of the Larynx," by Harold Barwell, M.B. (Lond.). F.R.C.S. (Eng.). "Treatment of Diseases in Children," by G. A. Sutherland, M.D., F.R.C.P. "Surgical Emergencies," by Percy Sargent, M.B. (Cantab.), F.R.C.S. (Eng.). "Skin Affections in Childhood," by H. G. Adamson, M.D., M.R.C.P. "Heart Disease, including Thoracic Aneurism," by F. J. Poynton, M.D., F.R.C.P. "Practical Anesthetics," by H. Edmund G. Boyle, M.R.C.S. "Diseases of the Male Generative Organs," by Edred M. Corner, M.C. (Cantab.), F.R.C.S. "Diseases of the Ear," by Hunter Tod, M.B., F.R.C.S. "Diseases of the Nose and Throat," by E. B. Waggett, M.B. (Cambridge). "Auscultation and Percussion, with the other methods of Physical Examination of the Chest," by Samuel Jones Gee, M.D., F.R.C.P. "Medical Lectures and Clinical Aphorisms," by Samuel Gee, M.D., F.R.C.P. "Clinical Lectures and Addresses on Surgery," by C. B. Lockwood. "A Manual of Venereal Disease," by Officers of the Royal

Army Medical Corps. "Functional Nervous Disorders in Childhood," by Leonard Guthrie, M.D., F.R.C.P. "Operations of General Practice," by Edred M. Corner, M.C. (Cantab.), F.R.C.S. "Enlargement of the Prostate," by Cuthbert Wallace, M.S., F.R.C.S. "Cancer of the Womb: its Symptoms, Diagnosis, Prognosis, and Treatment," by Frederic J. McCann, M.D. (Edin.). As these books are bound to go quickly, our readers had better phone Main 346, in order to secure what they need.

The Skin Affections of Childhood. With special reference to those of more common occurrence, and their diagnosis and treatment. By H. G. ADAMSON, M.D., Lond., M.R.C.P. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E.C.

This book fills a recognized want, for there is no doubt that the skin diseases of childhood have been sadly neglected, except in the large books of references.

The system adopted is clear and readily grasped, so that diseases which were formerly obscure are made much more readily understood.

The formulæ given at the end of the book are most valuable. Evidently the author has admitted purposely many that are of uncertain value, so that the ones mentioned are all the more valuable.

This book can be procured from The Canada Law Book Company, Toronto, at a discount of 40%.
D. V. S.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume III., the Eye, Ear, Nose and Throat. Edited by CASEY A. WOOD, C.M., M.D., D.C.L.; ALBERT H. ANDREWS, M.D.; GUSTAVUS P. HEAD, M.D. Series 1909. Chicago: The Year Book Publishers, 40 Dearborn St.

It has been a pleasure to read this work, which one now comes to look forward to each year as embodying all the good things that have been introduced during the preceding year. An im-

mense amount of material has been gone over, and we congratulate the authors on selecting such a practical amount of interesting and valuable reading matter. On looking over it, one would be surprised to see the number of details that he has missed, even though he has tried to keep up his reading.

F. G. G.

We have at hand a copy of Dr. J. J. Taylor's *Physician's Pocket Account Book and Practical Advice for Professional Success*, published by the Medical Council, 4105 Walnut St., Philadelphia, Pa.

This pocket book contains a simple, yet nicely arranged, account system for physicians, also some suggestions on the collection of accounts. Valuable information in condensed form is also given on the Form of Wills, Dying Declarations, Treatment of Poisoning, Infectious Diseases, Weights and Measures, and an outline of the average fee charged in medical, surgical and obstetrical practice.

N. K. W.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fourth Edition; thoroughly revised. Octavo of 1,099 pages, with 1,058 original line drawings. Philadelphia and London: W. B. Saunders Company. 1909. Cloth, \$6.50 net; half-morocco, \$8.00 net. Canadian Agents, The J. F. Hartz Co., Ltd., Toronto.

Ashton's Text-Book on the Practice of Gynecology now appears in its fourth edition, and covers about eleven hundred pages in all. The book is divided into forty-five chapters, devoted to Gynecology in its different aspects. Dr. Ashton states in his preface that a work on this subject should aim at taking nothing for granted in describing gynecologic diseases. He believes in not only stating what should be done in every case, but in this work gives directions and illustrations sufficiently explicit that any reader can follow. There is no doubt that the author is correct in his statement along this line, and that if a volume on any subject is to be acceptable to the profession it ought to be as original as possible, there being too great a tendency on the part of writers to rehash what others have already stated.

Dr. Ashton in this book presents to his readers both the medical and surgical aspects of his subject, and it can be safely said that the result is eminently satisfactory. He has given to the medical profession a book that can for many years to come be considered to occupy the foreground in gynecologic science.

Practical Anesthetics. By H. EDMUND G. BOYLE, M.R.C.S., and L.R.C.P.; Assistant Anesthetist to St. Bartholomew's Hospital; Demonstrator of Anesthetics to the Medical School of St. Bartholomew's Hospital; Late Senior Honorary Anesthetist to the Paddington Green Children's Hospital; Senior and Junior Resident Administrator of Anesthetics at St. Bartholomew's Hospital.

The title of this book is well borne out by its contents. It is eminently practical. It contains 169 pages of reading matter, all of which are full of valuable suggestions, not only to the student, but to the general practitioner. Few books express as clearly and concisely as this one the exact conditions an experienced anesthetist meets in his daily work.

The illustrations of different positions of patients in various operations are exceedingly valuable. This book can be obtained from The Canada Law Book Company, 32-34 Toronto Street, Toronto, at 40% discount. S. J.

A Manual of Normal Histology and Organography. By CHARLES HILL, Ph.D., M.D. Published by W. B. Saunders Company, Philadelphia and London.

As the author states in the preface, this book is essentially for elementary students. It covers the whole subject of human histology in an interesting, readable manner, well suited to the requirements of students who do not need great detail. The text is accompanied by good illustrations, mostly from well-known authors, in which the descriptive matter is printed directly on the plate, allowing of much more rapid association of the illustration with the text. The chapter on the teeth is very full, and shows clearly the practical application of the study of histology to operative dentistry. The book will probably be extensively used by medical and dental students. G. S.