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THE SCIENTIFIC SPIRIT IN MEDICINE.

BY
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In accepting the invitation which you have extended to me to deliver the inaugural address I have been influenced by three considerations.

First of all, the compliment which such an invitation implies calls for the courtesy of acceptance. When one institution representing dignity and tradition of the best kind asks a member of another to occupy the rostrum for the inaugural occasion it is but fitting that he invited should respond in the spirit of the invitation.

Then there is the special nature of the occasion. Between all universities there should be a comity, a fellowship whose amenities should help to lighten the toil and weariness of the intellectual highroad. Between Toronto and McGill there has not been hitherto that freemasonry of spirit that I should like to see prevail. There has been aloofness where there should be comradeship. This does not mean that they should not be rivals. In all things of the mind there ought to be a noble rivalry, a struggle of emulation to excel, that no comradeship ought ever to extinguish or even make appear unnatural. A competition that aims at intellectual excellence should always exist between the two universities and it would be a sorry day for the higher life in this young nation if either went on its way careless of the ideals and intellectual ambitions of the other. The comradeship should make also for generous appraisement of each other's efforts. There may, perhaps, be grounds for criticism of each other's achievements and methods, but there is at the same time no greater influence for making that criticism effective than a generous appreciation of the good things each has done. To this end the representative men from the two universities should mingle freely with one another.

Address delivered at the opening of the 76th Session of the Medical Faculty of McGill University.

In the third place, there is the desire to express how deeply the members of the University of Toronto felt for the University of McGill in her misfortunes of April last. We have been afflicted enough in this way in the past to appreciate what such losses mean. To have the results of the labours of two generations destroyed in the few hours of a night is a trial for even the most stoic fortitude, and you had without measure the sympathy of my colleagues at Toronto. This is as it should be, for, as between man and man, so between the two universities in their trials:

> There are two things that stand like stone:
> Kindness in another's trouble, Courage in one's own.

To not a few for a time the double disaster brought anxiety. If it had seriously affected the position of McGill the result would have been felt in Toronto, not for this year only, but for generations. No university lives to itself alone, and if it is worthy of the name it ought to be a stimulus to every other. How difficult it is to effect progress of the most enlightened kind when one has only to consider one's own colleagues, and their reluctance to advance is only too patent to those who know the internal history of every university. The forces that make for things as they are would be invincible were it not that the call from within to march forward is reinforced by the challenge from without. In this way the progressive section in one university aids the progressive section in another, but the result is fully felt only if misfortune has not checked the course of either.

Happily, the disaster which has befallen McGill, though of a magnitude sufficient to discourage profoundly, has not daunted her or her Medical Faculty. In this you find an illustration of the old saying, that it is not buildings that constitute a university, but men. The Medical Faculty of McGill University is the eldest institution teaching medicine in this country, and because of its history of unselfish endeavour and sacrifice it has developed a spirit of tradition and association that will impel its members of to-day to hand down to their successors of the next generation the institution not only unimpaired, but also with its traditions enriched and with ideals that will stimulate the noblest endeavours. The outlook, therefore, for McGill is one in which the trials of the present are to be merely incidents, not dire strokes of Fate. I entertain the most earnest wishes for the prosperity of McGill, but a prosperity in which the most progressive ideas will be most potent factors. For ideas are to march in Canada in the next twenty years, and even to-day McGill and Toronto cannot afford to

stand still, since standing still involves a helpless and hopeless fall in the rear. In words similar to those of the Red Queen to Alice: "In this country you have to run as fast as you can in order to remain where you are."

It is in accord with progress that this university should determine to exact henceforth five years in the course of study leading to the degree in medicine, and I congratulate the Medical Faculty on the step taken. That four years are not sufficient to permit the student to meet all the demands of a modern curriculum is the conclusion of those who have given careful attention to the matter. A quarter of a century ago four years were considered to suffice amply for this purpose, but since then the medical sciences have made extraordinary advances into hitherto unexplored fields and, in consequence, the amount of knowledge which the student is expected to have when he graduates is far in excess of what was required of the student of twenty years ago. To lengthen the period of study to five years was, in my opinion, a wise act, and I believe that, though the Medical Faculty of McGill University may be called upon to make considerable sacrifices because of this change, it will bring not a loss, but a great gain in the end.

The result will, from the outset, be to the advantage of the student. The exaction of five years in medical study will enable him to acquire a fuller, ampler knowledge not only of medicine and surgery but as well of the sciences on which they are founded, and he will thus be better fitted to cope with the problems he will meet in his professional career than a training of four years only would enable him to do.

There is, however, one qualification which no length of training merely as such will give him, and he can only attain it by deliberately setting himself to acquire it. He may become an encyclopædia of medical and surgical lore, and he may be successful as things go in the exercise of his calling without that qualification, but if he is to achieve the highest success of which he is capable that qualification is absolutely indispensable to him. That qualification is the Scientific Spirit.

Because of its importance and because also its value to the student in training is not sufficiently understood, I have chosen that qualification as the central topic of my address to you to-day.

There are few things in which there is such a tendency to be inaccurate as in the use of words. The term Science is one of those loosely or wrongly employed. *Scientia,* the Latin word from which it originates, means knowledge in the ordinary and simple sense. To-day, in popular language, science is an oracular personality. Science tells us this, Science has done that, we hear again and again. This is all quite

wrong, for it tends to make a cult of a word and the word itself then becomes a fetish. Science is simply organized knowledge, nothing more or less, knowledge not of isolated facts, but of facts put into such relation to one another that all of them and the phenomena involved are explained. In order to relate the facts in a particular subject it is necessary to discover some principle which will run through all of them and unite them. The fall of an apple from the tree, the movement of a pendulum, the shooting meteor, the tides of the ocean, the course of the earth round the sun, the swing of the sun around some gigantic, far-distant mass, are isolated facts which may at once be related on the application of the principle of gravitation, which is, according to Helmholtz, the greatest logical advancement of the human mind. Here we have the organized knowledge of gravitation and we see how important a part the principle plays in organizing or relating the knowledge. Similarly, on other subjects we find the facts put into relation to one another by one or more guiding principles ascertained through the use of the reasoning powers of the mind. Consequently, the principles, or generalizations, which enable us to organize knowledge, are all important in Science. The facts must be certain, but without the principles that relate them they are facts simply and a knowledge of them does not constitute Science. Science then is the knowledge of facts organized through the application of principles or generalizations that relate them all.

You will recognize that when we use Science in this sense it has lost for some the power to bemuse, to enchant, to hypnotize, but this is not a disadvantage, for the more sharply do we define our ideas and our conceptions the more serviceable to us do they become.

Having now crystallized what we mean by Science, we may next discuss what is comprehended by the term Scientific Spirit. The man on the street would, perhaps, at once think that it is the mental make-up that concerns itself with matters, or facts, some of which may eventually be of practical application but ordinarily are of no interest to the average individual. In other words, it is a peculiar type of mind that is suposed to be involved. That it is not only the man of the street who thus regards the Scientific Spirit may be made quite evident when one examines the point of view of the lawyer, the clergyman, the merchant, the manufacturer, the man of leisure, and, astounding to note, the majority of the medical profession. To them all, the Scientific Spirit is a thing apart.

Now, it may be admitted that there are apparently many facts in our organized body of knowledge called Science which cannot be utilized

in industry or commerce, and mankind could get along without knowing or concerning itself with them. Take a case in illustration and one that thrusts itself on the attention of man month after month, and year after year, from birth to death. The seasons answer this point, for, while they mean so much in the joy of life and the appreciation of this beautiful world, they occur with an almost monotonous regularity. Their phenomena, further, are everywhere manifest, and one would think it difficult or impossible for any individual capable of reasoning to escape the desire to know how they are caused, yet it is doubtful if more than one out of every ten of those who are supposed to be educated can adequately explain their causation, and it is doubtful if more than one out of every hundred average individuals comprehend how they occur. Some of those who are questioned on the subject may, probably, answer that in winter the sun goes south and in summer returns north, and that explanation contents them; while others not only cannot explain, but even manifest no concern at their inability to do so, and have no desire to know. They have passed through childhood, youth and adolescence to full maturity, yet they have never found it was from the practical point of view of value to know, and they have never felt the inward impulse to know. The causation of the seasons to such is a scientific fact alone, and as it is of no direct service to them or to commerce or industry so far as they are aware, they are indifferent regarding it.

Quite in contrast with this apathy or indifference is the attitude of the individual endowed with the Scientific Spirit. He has within him the compelling desire to know the causes of things, a desire that is not one whit satisfied with a half explanation or one that superficially appears correct. To this end facts are necessary, but the desire to collect facts, simply in itself alone, is no evidence of the presence of the Scientific Spirit, any more than is the desire to collect postage stamps, curios, and beetles, or to make a record of four hundred appendicectomies or ovariotomies. With the Scientific Spirit causation is everything and facts are of importance only when they help to ascertain causation.

The scientific mind wants to know why and how things happen, the average mind does not, except when there is a pecuniary, industrial or commercial advantage involved in knowing. Convince the average man that there is a material advantage to be gained from knowing the how and why of some phenomenon and he will be eager to obtain all possible information about it. If, for example, it could be shown that sun spots dominated the American wheat crop, every speculator in wheat would have his telescope and bit of smoked glass and he might be so

keenly interested that he would eventually know more about the solar atmosphere than about the air he breathes. But even when he is stimulated to know by the hope of some practical advantage to be gained, he is not content to proceed as the man endowed with the Scientific Spirit does, but takes short cuts to conclusions and he too often satisfies himself with snap judgments.

We see then that it is the attitude of mind that constitutes the Scientific Spirit, an attitude of mind that desires not only information, but definite and accurate information. The Scientific Spirit approaches every problem in the questioning mood and, unless where human happiness or suffering is involved, is not greatly concerned as to whether the solution is or is not of practical utility. When it has marshalled the facts of a question it may propose an explanation as a theory which will comprehend the why and how of them all, and which will serve until more facts are obtained, and then if the theory does not stand the test of a rigorous examination it will be discarded for another that will.

To that extent the Scientific Spirit is of the theorist order. To a certain type of mind, a type all too common, it is a stigma to be labelled theorist. Theory to such is something to be shunned and, being practical, is the summum of wisdom. There is no doubt that to indulge in speculations and accept explanations that have no regard for ascertained facts, or that are based on no facts at all, is an offence to reason and every effort should be directed to putting a curb on a loose imagination. The extravagant theorist, however, at once declares himself when he divulges his views and so he provides for his own effacement. The practical man, on the other hand, is quite as much an obstacle to real progress as is the extravagant theorist, for he accepts, consciously or unconsciously, the popular explanations or theories, and these are in the majority of cases either inadequate or absolutely wrong. I recall in this connexion several cases in which physicians and surgeons of the self-styled practical order were required to account to the relatives of patients for unfortunate results that occurred under their care, and the explanations given were astonishingly crude. What physician, "practical" or otherwise, can escape the necessity of giving day after day explanations, largely of the nature of theory, to his patients? If he were to refuse, or to say that he does not know, he would soon lose their confidence and, consequently, if he is not in the position to give a rational explanation he is forced to accept the popular one or to formulate one of his own *ad hoc*, and both may be equally superficial and crude. All this justifies the remark which the eminent chemist, Professor Ostwald, once made to me: "The practical man is the worst of all theorists, for he has a bad theory."

The fact that theory is so much in disrepute is in part the result from the past, when facts were fewer and knowledge scantier than now, and, in consequence, the inquiring mind, rather than accept negation or be indifferent, had to resort to explanations, some of them fantastic elaborations, others shrewd guesses, of the phenomena within its ken. That these were intended only as makeshifts was only to have been expected and it is but natural that many of them should now be discarded. Those who are critics of the scientific method point exultingly to the list of these exploded theories and they are sometimes quite vociferous in denouncing what they are pleased to call Pseudo-Science. I recall with amusement once hearing a celebrated teacher of Greek dwell lovingly on the myths of Plato and immediately thereafter vigorously condemn the foolish theories of the men of science.

What the world would have been to-day without those theories one can but dimly fancy, but possibly we would still be in the Dark Ages. In reality, every theory that aroused opposition or dissent was a factor in stimulating mankind to think, and to think as clearly as it was at the time capable of doing. It has often happened that the individual with a passion to theorize has broken a popular idol and the intellectual life of mankind has gained thereby. Galileo theorized and the belief that the earth is the centre of the universe is extinct. Galvani, Volta and Faraday advanced their theories, and, as a result, we have the sciences of electricity and magnetism, through the aid of which we may some day arrive at a determination of the ultimate constitution of matter. Darwin's views as to the origin of species are not now accepted in toto by biologists, but is his fundamental position challeged to-day even by the man of the street? Can it be questioned that Darwin's theory, although rejected in part, has altered the intellectual outlook of mankind?

On the other hand, we have always with us the individual who is ever ready to extol men of science when they discover something that may be utilized by the inventor, the manufacturer or the engineer but who gives no heed to the long and often painful processes by which the result has been reached. Indeed, the result is too often thought due to a happy stroke of luck. It is this absence of correct information and clear conception as to what Science is, and how it is established, that is responsible in very large part for the loose thought and gullibility that are so prevalent. What to the public as a whole constitute the marvellous results of Science makes a large number of people ready to believe anything fantastical or extraordinary, and, in consequence, there is abroad a superstition of an exceedingly difficult character to

combat. I am not referring to such crude matters as spiritualism, astrology, palmistry and clairvoyance, but to the cult of mysticism, that modern hotbed of superstition, and to the obsession that leads many to revel in nebulous conceptions, or to intoxicate themselves with the maunderings and moonings of Christian Science, theosophy and occultism and all the semi-paranoiac creeds that are ever having each its hour.

It is not only the average individual that is affected in this way, but also some of those who consider themselves educated and enlightened. To me it is a matter of wonder why the number of those who are so affected is not greater. Clear-cut ideas and the ability to think clearly are not general characteristics even amongst the educated, and that is why education as a qualification in the exercise of the franchise has not proved successful as a corrective of the evils of democracy. The want of clear-cut ideas and the inability to think clearly would, perhaps, not matter so much if intellectual honesty were general, but even that is very largely wanting. Mr. Morley, the present Secretary of State for India, declared three years ago at a gathering of convocation of the University of Toronto, that, "he in all his life had been acquainted with only four men of whom he could say that their love of truth was unassailable and impregnable."

The great majority of mankind, even of its civilized portion, will always accept what is easy to believe, or what are the current views, not whatever is exact or true. The very aim of the Scientific Spirit serves to isolate it from the opinion and sympathy of the day. Any movement that will apparently result in unsettling the general convictions and beliefs of mankind on that account is sure to rouse hostility. When the Royal Society was founded nearly two and a half centuries ago to investigate experimentally natural phenomena, it was regarded by some as an institution designed to wreck the Christian Faith. It was considered to be a sin to investigate Nature. She was supposed to be a personality which was not to be profaned by inquiry. If the curious and inquisitive mind wished to know about her they could go to Aristotle or Galen, who were supposed to impart all about her that ought to be known. Authority was paramount and man ought to be content with its judgments. Even tradition was regarded as sacred, and, to-day, with a large portion of civilized mankind, it counts for more than established facts and carefully tested deductions.

The Scientific Spirit, therefore, cannot have that place and influence in moulding opinion that belongs to it. In some American universities, for example, the manifestation of such a desire counts against any one

who aspires to teach in certain secular departments. He is not regarded as safe, and he is accordingly ostracized. When we consider the difficulties that the course of truth encounters one is reminded of an incident related by St. Augustine. On one occasion when his teacher was explaining the course of Creation and how the Almighty had in six days created the heavens and the earth, one student asked if the Almighty had taken just six days to do all this, what was He doing before He created the Universe. He received the crushing reply: "Alta Gehennas scrutantibus parabat." "He was employed in preparing hell fires for those of an inquiring turn of mind."

Science then is merely the body of organized knowledge concerning the world about us and within, the Scientific Spirit is that attitude of mind which will not content itself with tradition, with authority, and which, further, will not refrain from employing the only method which will bring certainty to knowledge, the method which involves observation, test, trial and experiment. The Scientific Spirit does not confine itself to finding out facts for these themselves may be intellectually valueless, but it strives to bring them all into some relation with each other and all into proper places under that order. Science then is not facts, but the organization of our knowledge of them.

Having now made clear what is understood by the Scientific Spirit I shall next discuss its relation to medicine.

There is probably no line of human development in which the Scientific Spirit is to play in the near future a greater part than in medicine. As to the past all the advances in medicine have had their origin in that intellectual influence.

Medicine began nearly three thousand years ago as a series of observations on disease. It is the current idea that Hippocrates, who lived in the fifth century B.C., laid the foundation of rational medicine by studying the votive tablets and offerings dedicated to Asclepios in gratitude for the cures which he, as a god, effected in the sick who visited and worshipped in his temples. This is a wholly erroneous idea, as even a superficial study of the Coan Prenotions shows. These are a series of aphorisms attributed to Hippocrates, but undoubtedly of a much earlier origin, and probably represent the results of the observations of several generations of rational physicians in the island of Cos. These Coan Prenotions further show that in that remote time the types of disease were carefully studied and the facts collected and related. It was these facts which formed the basis of the physical diagnosis in which Hippocrates and his Coan predecessors were so adept. Hippocrates, indeed, extended and amplified the concepts which were thus

handed down to him, but his great service to medicine consisted in impressing on his generation the necessity for accurate observation above all things. He did not reject theory, for he was the originator of the doctrine of Humoral Pathology, but he attached great importance to the phenomena of disease, apparently recognizing that facts must be accumulated before generalizations could be formed. Unfortunately, his precepts on this point were largely ignored by his successors, for they spun theories when they should have observed and recorded.

It is, however, probable that had they fully exploited the methods which he taught the result in the end would have been the same. The absence of definite knowledge regarding the functions of the various organs of the body would have ultimately made the mass of observations sterile of result. The sciences of chemistry and biology had to wait two thousand years for their modest beginnings, and there could be no considerable advance until the microscope was invented, and so long as oxygen and its properties were unknown.

In those twenty centuries the Scientific Spirit was almost extinct in medicine, and authority and tradition reigned supreme. It was not that the love of learning was less than it is now, for, although the population of the non-Russian portion of Europe at the close of the Middle Ages did not exceed fifty millions there were more students in its universities than there are in those of Germany of to-day. The University of Vienna alone had at the end of the fifteenth century about 7,000 students hailing from every part of Christendom. But it was only tradition that was taught and authority and dogma were unlimited in their tyranny over the human intellect. A revolt now and then occurring was suppressed. How little place there was for the Scientific Spirit, even as late as the sixteenth century, may be gathered from Luther's remark that, "reason is the chief mistress of the devil."

This obscurantism began to give way in medicine, and in the seventeenth century Galen was rejected everywhere for Hippocrates. But it meant for the intellect in medicine the exchange of one servitude for another, for, although the great teacher of Cos may inspire those who read his works in the right spirit, the vast majority of those who resorted to him sought to find in him merely an authority in all things medical. And an authority he became, for edition after edition of his writings issued from the press and those of his Aphorisms alone numbered over 350.

But in that same century the light began to come from another source. It was the century of the foundation of the Royal Society. It was the century also of Harvey, Malphighi, Borelli, Grew, Glisson,

Willis, Vieussens, Wharton, Sylvius, de Graaf, Swammerdam, Leeuwenhoek, Bartholinus, Mayow, Redi, Boyle, Galileo and Newton, in whom the Scientific Spirit flourished as it never did before. These natural philosophers, as they were called, isolated and scattered over Europe, were not stimulated by the hope of fame or the reward of place to study nature, they were all driven by that internal force, intellectual curiosity, the Scientific Spirit, to seek to know and, considering the difficulties they had to meet, difficulties which came on the one hand from the fact that they were breaking absolutely new paths into the unknown, and on the other, from the hostility of their environment, one is led to regard their attitude of mind and their unwearied search for truth as never to be excelled. It was they who laid the foundations of astronomy, chemistry, physics, biology, anatomy, physiology and pathology.

It is a remarkable fact that in the next century there followed a halt after so brilliant a beginning, and though some progress in all these sciences was made, substantial advances began only about the middle of the nineteenth century. Then the Scientific Spirit developed as it did in the sixteenth century, and we are now at its flood tide which will never again ebb. In the last half century the development of the sciences, chemistry, biology, physiology and pathology was an extraordinary stimulus to the development of medicine. If we strike out of the record of the last two hundred years all the additions to medicine and surgery due to the development of the sciences named, comparatively little of value would remain.

In consequence of all this development of the sciences, physical diagnosis became more exact, the phenomena of disease were more accurately determined and clear ideas were attained as to the processes involved in disease. Because of all the aid furnished by the sciences it is possible for the practitioner of medicine of to-day to deal with disease in a way that no physician either in the days of Hippocrates or of a century ago could have imagined possible. It is, indeed, doubtful if even the most far-seeing physician of 1870 could have forecast the development which has taken place in the last thirty years.

All this progress has depended on the simple methods which the average physician with a moderate amount of laboratory training has been able to follow and even employ. The results of these methods he can understand and thus he is in a position to keep step with advancing knowledge. These simple methods are still serviceable in clearing up dark points, as witness the discovery by Schaudinn of the Spirochæta of syphilis, and the identification of Trypanosoma as the

cause of sleeping sickness. Here are two great achievements of the last five years which are of vast importance, not only to medicine, but also to humanity, for in the one case we may now be in a position to control a scourge that has afflicted the human race since the close of the Palæolithic Period, and in the other we are at the beginning of a struggle, defeat in which may render the Tropics uninhabitable to man, white, black or yellow.

These simple methods will always be used in the practice of medicine, but so far as extending the bounds of knowledge is concerned they have already been exploited for nearly all they are capable of yielding, and now is beginning the period of diminishing returns. Progress of a substantial kind will have to depend on the discovery of new methods, on the exploitation of other lines of work, as well as on the breaking of hitherto unprojected paths into the unknown.

What are those lines, in what direction does their trend appear to be now?

This is a question which I think is of transcendant importance to those interested in medical education, and it behoves us who are concerned to scan closely the distant prospect and take the bearings of our course.

It is almost trite to say that there has been in the last twenty years an extraordinary expansion in the sciences ancillary to medicine, but it is difficult to realize adequately how extensive that widening of knowledge has been and we can only approximate it by the adventitious aid of figures. In the last three years the number of original papers published in pathology, hygiene, physiology, pharmacology and bio-chemistry was about 17,000. In 1904-5-6 the number of bio-chemistry alone was over 9,000,—in 1906 it was nearly 4,000. The numbers of bio-chemical papers published in the eighties were only a few hundred annually. One gathers from this what energy is now being expended in the investigation of the chemistry of living matter, not alone of the normal, but of the pathological as well. The number of the papers published is an indication of the army of workers that is engaged. If we credit every worker with two publications annually we would infer that in bio-chemistry alone there must be approximately 2,000 researchers. Twenty-five years ago the number of investigators in all the departments of Science did not exceed three thousand.

In pathology the output has also been enormous, and especially on its chemical side. Formerly pathology concerned itself chiefly with the morphological side of disease. Now there lies before it all the chemical problems which are of a far weightier interest in that they concern the ultimate causation of disease.

The advance in bacteriology in the last few years has been more and more developed along the chemical side, for the aim of research in this department has been to determine the nature of bacterial products and how they are disposed of in the animal cell. Considering the number of species of pathogenic bacteria and the polyphasic activity of living matter, it is not unreasonable to assume that the chemistry of microorganisms causing disease will enlist the enthusiasm of armies of researchers.

All this shows that the development of the next two or three decades is to be along chemical lines, with methods transcending those now in use and with a basis of knowledge that is to be broader, deeper and surer than we now possess.

The reason for the coming advance is that which has promoted the development of the last ten years. It is clearly recognized by those who concern themselves with such problems that the essential phenomena of disease are fundamentally the result of chemical interaction, that when an organ or a tissue becomes affected with disease the processes involved are all chemical or physico-chemical. In the case of diabetes mellitus, for example, the complicated chemical processes that are involved in the utilization of the sugar of the body are altered or do not occur, and, in consequence, nutrition is disorganized. In inflammation, in pneumonia, in typhoid fever, and tuberculosis the processes, although due to microorganisms, are themselves fundamentally chemical just as much as those in gout, rheumatism and rickets. In fact, there is no abnormal condition of the body or of any of its organs, not excluding even the malignant growths, that is not fundamentally of chemical causation.

I desire to emphasize the chemical causation of disease because, in the first place, although it is in many quarters tacitly or openly accepted, it is not allowed in reality its right place in any survey of disease, and, in the second place, because this is the line along which medicine is yet to win its great triumphs. It is the recognition of the overwhelming importance of physiological and pathological chemistry to the science of disease that has caused the extraordinary increase in the army of workers in this field.

The activity of these researchers will inevitably result in solving many of the problems which now appear so difficult and obscure. It will involve also such an addition to knowledge in this department that the whole subject will be revolutionized. Every advance in the science of disease means a limitation of the present crude treatment of disease, a growing disuse of the drugs and chemicals to which the physician of to-day resorts, and it will render possible more and more either the

preparation and employment of the very compounds that the living cells of the body produce for their own defence against disease, or when the nutrition alone is disorganized, as in the case of pancreatic diabetes, the replacement of those processes which the normal cells undergo. In other words medicine will become less empiric and more rational the more we know of the chemical changes that occur in the normal as well as in the diseased cell.

The physician of twenty years from now, if he wishes to profit from all these advances and to keep step with progress, must have an amount of knowledge of physiological and pathological chemistry far in excess of what he is ordinarily required to have to-day. If he does not have that knowledge he is not merely behind his time, he is intellectually marooned.

We are now at the stage of transition between the old and new phases of medicine. From now on, while the old methods which have been of service will be retained, new ones of an intricate order will be employed and a deeper, more accurate knowledge of the functions and processes of living matter will be the result.

Such a development is only in accord with our age and with the development in the other sciences. The alchemist had his furnaces, his crucibles, his retorts, his simple salts and reagents. With these he established the beginnings of chemistry, but it was only when the balance was introduced that exactness began to play its part. To-day the old methods are still used in certain simple chemical operations, but the vast body of organized knowledge called chemistry is the result of the employment of methods which were not even dreamt of by the chemists of the eighteenth century, not to speak of the alchemists.

The same may be said of physics and electricity. When Helmholtz visited Faraday in his laboratory in 1853 he found that the latter's apparatus consisted of a few wires and some bits of old wood and iron. What a far cry from such an equipment, with its simple methods, to the outfit of an electrical laboratory, such as you have to-day in your university grounds, with its problems, the solutions of which are or may be as important fundamentally as any result that Faraday obtained!

What is the warrant for this prediction of progress in medicine? It is the Scientific Spirit which alone has promoted all the advances medicine has made in the past. It is not material that only a few are possessed of that Scientific Spirit, for only an infinitesimal portion of mankind has ever manifested it, and nevertheless all progress is due to it. The number of researchers in these lines, as has already been pointed out, is greater than it has ever been before, and to those of

to-day will succeed to-morrow a still greater number. Then there is the nature of one of the problems involved. Life as manifested in the single animal or vegetable cell is an inscrutable mystery, or it appears so to be, but the human mind will never recognize any obstacle to its progress, and as the problem is of transcendent interest it will ever attempt the solution of the secret. Medicine, therefore, will inevitably gain enormously, for every fact won regarding the constitution of living matter and the solution of the secret is a contribution to rational medicine.

The bearing of all this on the courses of medical training designed to fit the student for the practice of medicine during the two coming generations is obvious. The student who thinks that the practice of medicine in the future will not be much different from what it is now will certainly be disillusioned. He should recognize that a change is coming and that he must do his best to orient himself with regard to it. Of course, this change will not take place all at once, but it will be accomplished in the next twenty-five years, and it will be a much more profound one than any which has yet taken place in the history of medicine.

One of the defects of every medical curriculum of to-day is that it is constructed with the idea of turning out the student at the end of four or five years of study as a finished product in all departments. I hold that to be a profound mistake. That result is unattainable even with the exceptionally able student. As the practice of medicine was thirty years ago it was possible to equip a student of fairly average ability with a large amount of the knowledge he needed afterwards in the exercise of his calling. I do not say that he was so equipped in every instance, for the instruction at the bedside was not nearly as efficient as it is now. To-day there is more earnestness in those who instruct and the teaching is vastly better than it has even been, but in proportion to what he is subsequently supposed to know the student acquires less in the four or five years of his course than the student of thirty years ago was compelled to know. He knows much more of the sciences, his proficiency in clinical medicine and surgery is much greater, and yet, though he may be a credit to the institution which gives him his training he is not the peer of his type of thirty years ago.

Now this is not the fault of one teacher or group of teachers. The clinical teacher is apt to think that he has not enough of time, that the sciences are crowding too much on the attention of the student and leave him little opportunity for training in the professional subjects. The clinical teacher everywhere is prone to assume that the student

should, after two or three years, show as much insight in regard to the practical side of medicine as he, the teacher, has, who has been training himself for ten, twenty or thirty years. The student would be a genius, nay, an astounding marvel, if he could measure up to that standard.

Even if five years were devoted to the clinical side the student would still not be a finished product. As it is, he is supposed to acquire a good knowledge of the sciences and at the same time the knowledge and experience in clinical medicine and surgery that those who are much senior to him did not have when they graduated. Take a concrete illustration. Thirty years ago the physiology of the nervous system was an unknown, or almost unknown department, and, of course, clinical neurology was chaos itself. To-day much still remains to be ascertained, but what has been explored and determined is such that to know it well requires years of attention. Is it possible to train a student in five years in clinical medicine generally so that he will readily diagnose a case of disseminated sclerosis, of disease of the cerebellum, of syringomyelia or of anterior poliomyelitis?

The fact is that while the clinical teacher is doing right in training as he does, the motive and expectation prompting it all is wrong. No institution with teachers and staff, all of the genius order, would justify that expectation. It is not possible to turn out a thoroughly scientific physician after five years of training, and it is as impossible to equip thoroughly a student with the clinical lore and experience so as to enable him to deal intelligently with all the cases that he meets in the first few years of his practice. Further, as the years pass, the discrepancy between the aim and the achievement of the teacher in this respect must grow greater and greater.

The question which may now be asked is what ought to be the aim? I hold that the first requisite in the attainment of the student is not quantity but quality. To know a great many things in medicine is of no value if there is not therewith the ability to apply the knowledge in concrete cases. The quality demanded involves a special training, a training that should develop precision of thought, the rigidly logical power of the mind and the capacity to recognize whether the facts ascertained in a particular case are adequate to afford the basis for either a generalization or a diagnosis. To attain that result is to develop the Scientific Spirit.

That Spirit is to be developed in the student of medicine by a rigid training in all those subjects which permit exactness, in the sciences, for instance. The sciences serve a double purpose in medical education. A knowledge of them is the basis of the art and practice of

medicine. I have already pointed out that it was the development of physiology, pathology and bacteriology that brought about the great advances of the last thirty years. What medicine and surgery would now be had they not progressed is not difficult to imagine. Without a knowledge of them no physician can attain the first rank or be even mediocre in the pursuit of his calling. The sciences are then absolutely indispensable in medicine as enabling the student to understand the fundamental phenomena of disease. They are of inestimable value from another point of view. As they are the subjects in which exactness is possible they can be made to serve to bring out all the powers of the student in regard to precision of thought and observation and a right training in them ought to endow the student of medicine with a dexterity that he can get in no other way.

The training in the sciences of the medical course then must serve to develop the Scientific Spirit. If a student does not, when he is being so trained, attain that clearness of mind, that capacity to relate facts to one another and to apply them in concrete cases he has failed in the absolutely essential thing in medicine. Lacking this power and precision he will not acquire it in any training at the bedside. On the other hand, if he is properly trained in the laboratory he readily acquires and applies the methods of clinical medicine and surgery.

The sciences then should be carefully cultivated by the student in the undergraduate course, not to the exclusion of the other subjects which are known as professional, but as necessary to the latter and in order that the Scientific Spirit may be developed.

The great difficulty in this matter that is soon to confront us is how to adjust the courses to each other so that there will result the greatest advantage to the student. If bio-chemistry is to play the part I have predicted for it, it will mean a serious addition to the curriculum already heavily loaded, and, of course, there must be a curtailment of time given either to the other sciences or to the professional subjects in order to allow room for it. I have no doubt that a certain amount of readjustment is necessary in the sciences, but the introduction of the new subject should not be made wholly at their expense, for some of the time necessary should be provided for in the increased time demanded of the student.

Of course a proposition like this will at once be objected to by the clinical teacher and, perhaps, also by the student. The latter may ask where he is going to get the clinical experience which he requires in the practice of medicine. The answer to this is, that all the remainder of his life is to be a training in clinical medicine and surgery. If

then, at graduation, his knowledge of these subjects is not as ample as he would wish it to be, he can and will remedy the deficiency. If, on the other hand, he has not had at graduation a good training in the sciences grouped under medicine, in ninety-nine cases out of every hundred he never will. Once graduated from the medical school he will not feel any desire to go back to laboratories for an adequate knowledge of the sciences, and if he does return, he will not have the patience which will carry him through the necessary routine and drudgery to that end. I would not say that such a student would be a failure in his profession. If, however, he devotes himself to medicine he may not in the future be more than a superior to the nurse of his patient. If he specializes in surgery, he may, perhaps, be what is called a brilliant operator, and may be able to show neat joints, clever anastomoses, good amputation stumps and other prized results. The plumber also can make neat joints and clever connexions in drainage pipes, and, like the surgeon, thereby save life and make for its comfort and security. What student, however, amongst my hearers to-day aims only at being merely a superior nurse or a surgeon of the plumber type?

It is a recognized maxim that if you wish to develop a violinist you must catch him early, and the earlier the better. It is a fixed law of our mental life that there is a special time for everything. My own observations on the careers of students conducted during the last twenty-five years leads me to believe that this is particularly true also in science. If the student wishes to develop the scientific mind in the highest degree he should begin not as early as he who wishes to become proficient with the violin, but certainly before the twenty-fifth year of age. After thirty the habits of the mind tend to become fixed and there is little margin for the free movement that a full scientific training of the mind requires. The mind of the individual is in respect of scientific discipline at its maximum of plasticity and receptivity between the age of eighteen and that of thirty, and that period of life should, in the student of medicine be given over largely to the acquisition of a knowledge of the sciences and to the development of the scientific mind.

But I think some one will say to himself that the speaker has in his mind only the preparations of recruits for the research laboratories. Not at all. What I have said hitherto bears only on the training of those who are going to practice the profession of medicine. Not only the call of humanity, but also the interest of the future physician demand the precision and the clear-cut ideas that come from an adequate training in the sciences. Why should the laboratory be supposed to monopolize the Scientific Spirit, the desire and the efforts to know

accurately why and how? Is it not a serious reflection on the medical profession to maintain that there is and ought to be a great gulf fixed between the laboratory worker and the skilled physician?

I am not beset with anxiety for the army of laboratory workers, for I am certain that if the vast majority of the students are scientifically trained for professional practice the laboratory will take care of itself. It will always have recruits, and in the future more than now. Nor would I have you think that the laboratory is the only place where scientific work may be done. In the wide field of medicine there is an unlimited opportunity for the exercise of scientific precision. That this is so may be taken on the word of no less than Dr. James Mackenzie, of Burnley, England, whose article on this subject in the July issue of the *Western Canada Medical Journal* will amply repay perusal. In 1881, at the International Medical Congress, Dr. John S. Billings pointed out that the vast majority of the 20,000 papers and publications on medicine issued from the press in 1879 were worthless simply because of the lack of accuracy in the observations. Does the vast mass of literature on medicine now annually issued show any improvement in this respect? To judge from Dr. Mackenzie's observations it does not, for he claims that the exponents of medical science ignore the necessity for making accurate observations, and goes on to say: "Although they talk of their careful methods of observation, a critical study of medical writings will reveal the fact that they bristle with evidences of inaccurate observations. What they call observations are but a mixture of imperfect observations and unwarranted assertion. While they imagine that they are stating a fact they are actually at the same time recording an opinion."

If Dr. Mackenzie is right, and I believe he is, there is very great need for improvement. When medical literature teems with mistakes in observation and errors in diagnosis, what should be expected in those who do not record their observations? Is there any excuse for the mistakes that are sometimes made, except that those who make them are not trained as they should be?

It is evident that what is wanted is accuracy, and accuracy all the time. Clinical experience is of absolutely little value if it is not accompanied by the desire and will to be thorough and precise.

The habit of being thorough and precise can only be formed in the undergraduate course and under the direction and watchful control of the various teachers. That habit is every whit as valuable as, if not more so than, the most systematized information which he can acquire in his medical course. When that habit is firmly established in the

student it is a permanent guarantee that he is in possession of the Scientific Spirit, the Spirit that does not care for shams and make-believes, or anything but the truth. With that habit, and actuated by that Spirit, he can conduct research in his ordinary medical practice that may be as valuable as any output of the laboratory. Dr. Mackenzie points out that there is still an immense field in practical medicine outside of hospitals and laboratories which only awaits researchers of the proper kind. That work is of no value unless it is properly done, and those who do it will be rewarded as fully as they would be if they devoted their lives to the most fruitful research in a laboratory.

To the student then I would say: Prepare for the future by training yourself in being exact and in getting exact ideas. Take stock of the fact that the development of medicine is to be along the lines of biochemistry, normal and pathological. Acquire a knowledge of this science and of physiology and pathology, for it will be of immense service to you in after years in enabling you to keep in touch with the advances on the scientific side of medicine. Appreciate and carefully undergo the training that the laboratories can give you, and at the bedside be content with nothing but facts and rigidly examined deductions therefrom. Never follow a method in diagnosis or in your observations if you can avail yourself of even a slightly better one. Early train yourself to be adept in the use of all the instruments that aid in precision, the microscope, the thermometer, hæmocytometer, the hæmoglobinometer, the stethoscope, the hæmometer, the ophthalmoscope and the laryngoscope. It may be that the locality where you will pursue your professional career will be far from any centre where specialists are to be consulted and you must do your utmost for the poor in your constituency. If you are incompetent the rich may escape the consequences, but the poor cannot.

You have, above all, one duty to yourself, and that is to cultivate to the utmost the powers of mind which you possess, and do not think that done when you graduate. Continue the training until you are passed the meridian at least. The average individual takes short views, forecasting not more than two or three years ahead. The medical student should look twenty and even thirty years ahead. One of the former teachers in this Faculty is credited with saying that a man's best work is done at forty. What, however, is that best work? Is it some great achievement in statesmanship, commerce, or industry, some great executive or professional performance, or some great discovery in science? Not at all. These are in themselves more or less accidents, and the opportunity to do them may not occur in the lifetime

of the many. The greatest achievement of which the individual is capable is the training of his intellectual powers to the utmost in all his years up to the fortieth. That is his best work, and if it is not done before his fortieth year, the end of the plastic period of his life, it is not done and cannot be done afterwards. Having done that best work, the output of the rest of his life is the result and the measure of the extent of that best work. The individual who trains himself to the utmost till he is forty may feel tranquil that he will not fail of his reward. Even in the training itself there is the reward, and in later years of life there is no satisfaction so deep as that which comes from the conviction that you have done the utmost of which your mental life is capable.

And I would advise you further to conserve to the utmost your physical powers. I think that our modern systems of education are on the whole not sufficiently insistent in this respect. A well balanced physical development should accompany the mental, not only to aid the latter but also to aid in moral culture. I believe that the daily expenditure of physical energy, whether it be in toil or in athletics, exercises a very powerful moral influence in the formation of character. When one hears toil called a curse, one loses patience for if it is not unmitigated and excessive, toil is not a curse but a blessing to man. Those who toil with their hands are amongst the most moral portion of mankind, and this was recognized by one of the oldest Greek writers, Hesiod, for, as he put it: "In the path of noble manhood the Gods have placed sweat."

Further, remember that your life is all before you. It has been said that there is no more severe critic than the young man, and that there is none more unjust. If your mental make-up is worth anything at all your opinions and your standards of things will inevitably alter with the years. It is, therefore, the part of wisdom to be as little dogmatic as possible. Honour your teachers and love and be thoroughly loyal to your university, for only in that spirit may you share in the best that she imparts. Once more, and finally, cultivate your mental powers to the utmost and therewith the Scientific Spirit. Follow all your life, wherever it may lead, "the high, white Star of Truth." As the years go by there are many interests lost, often with the result that life becomes dull and commonplace, and the individual a spent force. If, however, intellectual curiosity, the Scientific Spirit, is cultivated it increases in strength with the years and departs only with life. And it brings at least one reward. The ancient Peripatetic Philosophers truly held that, while there are many things that contribute to a happy life, mental excellence is the best of all.

OBSTETRIC NURSING.

BY

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In talking to you this evening on the subject of Obstetric Nursing I shall endeavour to confine myself strictly to the practical side of the question, and will deal with the subject of the obstetric nurse and her relationship to the patient and to the physician, sketching more or less in detail an outline of her duties and responsibilities from the beginning to the end of her engagement with an individual case.

Commonly, in this city obstetric patients engage their nurses without reference to the physician, and there are in this city two classes of obstetrical nurses, first, those who confine themselves absolutely to obstetric nursing; and those who have received a general training in some large hospital and who occasionally take an obstetrical case, particularly if it is complicated. The relationship of these two classes to obstetric work is absolutely different. The first class are usually subject to engagements months ahead, and have an opportunity to pay a preliminary visit to their patient and to make all preparations for the expected confinement. While the second class are not usually called until the patient is in labour, and thus these nurses have to take things as they find them.

Those who make engagements ahead, I would advise to try and make a hard and fast arrangement with the patient as to engagement from a certain date, to a certain date, and to have a distinct understanding as to the date on which pay begins, as some women are very unbusiness-like and seem to expect that a nurse should wait for days or even longer without receiving pay. When a nurse is under engagement but is not actually staying with her patient, she should consider that her time belongs to her patient and should never be out of reach day or night, so that she can be called any moment.

When making an engagement to attend a patient the nurse should note the general condition of her patient, and, if possible, should be shown the room that will be used as a labour room. She should note the general cleanliness of this room, its ventilation and what means may be available for regulation of temperature, in winter or in summer. For instance, in winter a warm room, large, well lighted and well ventilated, and of a southern aspect should be chosen. In summer the room should be chosen with special reference to its coolness. The room should be in a quiet part of the house, not, for instance, at the head of the stairs, where all the business of the house will reach the patient's ears. It should be, if possible, convenient to the bath room.

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The bed, preferably a single bed, should be so placed that the direct light from the window should not fall on the patient's eyes, and in summer so that the draft from the open window shall not blow directly across it. The condition of the mattress should be observed, it should be firm without being too hard, and should not be sufficiently soft to form a trough when the patient is lying on it, and, above all, it should be clean. If the bed is low, blocks should be prepared so that it may be raised to a convenient height. This precaution will do a great deal towards saving wear and tear of the physician and nurse. If the general cleanliness of the room is open to suspicion the patient should be advised to have it thoroughly house cleaned a week or ten days before the expected date of confinement.

At this time the nurse, if the physician has not already done so, should give the patient a list of the articles that she will have to provide for herself and the child. In making out this list a nurse should distinguish between those things which are essential and those things which are more or less luxurious, and should seek to adapt the outfit to the purse of her patient as far as possible. Some patients complain of the elaborate nature of the outfit requested by the nurse, therefore, try to arrange your list of articles to suit the varying purses of your patients.

The following constitutes a very useful outfit:—

Six abdominal binders, 1¼ yards long by 1½ yards wide, which should be washed and ironed so as to make them soft and comfortable. They may be made either of plain cotton, unbleached, or of thin Canton flannel. Personally, I have for some time given up the use of these binders, employing an ordinary "T" bandage in place of it, as I find the binders have a certain unfavourable influence in causing displacement of the uterus.

Three obstetrical pads, 1 yard square, made of cheap, unbleached cotton, and padded with cotton batting until about three inches thick. These pads are placed under the patient during labour or after, to catch the discharges.

2½ doz. vulva pads, made of absorbent cotton, 10 by 3 inches, and 2 inches thick, covered with cheese cloth or absorbent gauze. These should be done up in packages of six and sterilized.

One-half doz. old towels, freshly laundered, should be laid away with the other things and should be sterilized if possible, though this is not indispensable.

Two papers of large size safety pins, and 1 paper of small size; 2 new nail brushes, one for the physician and one for the the nurse,

which should be wrapped in cotton and boiled; ½ lb. absorbent cotton; 4 ozs. lysol; 4 ozs. green soap, or one bottle of synol; 6 ozs. alcohol, to be used for rubbing the patient; 2 pieces of rubber sheeting, each two yards square. Instead of rubber sheeting, enamel cloth may be used for this purpose, as it cheaper; 2 enamelware wash basins; 1 bed pan; 1 douche bag, 2 quart size; 1 clean slop jar or pail for soiled dressings, with cover if possible; 1 doz. clean towels, besides those above mentioned should be available, and a good supply of sheets, pillow cases, and night gowns should be at hand for the patient's use.

For the infant one requires:—

Eight ozs. olive oil; 1 tube white vaseline; 1 cake Castile soap; 6 flannel binders, 6 inches by ½ yard long; 1 soft flannel blanket one yard square, to wrap the infant in immediately after birth; 4 doz. diapers at least should be provided; 1 infant's bath tub; 1 bath thermometer; 1 box talcum powder; 1 powder box and puff; 1 infant's hair brush; 2 sponges, one for the body and one for the face.

The following clothing should be provided as a minimum supply:—

Four undershirts of knitted wool; 4 flannel petticoats; 4 flannel night gowns; 10 slips, as simply made as possible. These should be made to open at the back.

A supply of old linen is useful for swabs, and may be provided. These various articles should be laid away in a cupboard or bureau drawer, all ready for use beforehand, so as to avoid confusion and delay after the labour is under way.

In addition to these articles there should be provided a small package of tape or stout linen to serve as ligatures for the umbilical cord.

Nurses should avoid giving medical advice to their patient outside of the question of clothing during pregnancy, the condition of the bowels and the care of the nipples.

A few remarks at this point on the hygiene of pregnancy may not be out of place. The pregnant woman should be careful to avoid over fatigue, though plenty of exercise in the open air should be indulged in. A warm bath, of temperature 105°, should be taken at night, at least twice a week. If the woman is in the habit of taking a cold bath every morning, there is no reason why she should interrupt this habit during pregnancy, provided reaction is prompt. Movements of the bowels should be obtained regularly, and the patient should be warned against constipation.

The diet should consist chiefly of fruits and vegetables, and meat should be somewhat limited. Plenty of water should be drunk between meals. The condition of the mouth and teeth should receive attention,

as during pregnancy the secretions, which are normally alkaline, tend to become acid and facilitate carious processes. Alkaline mouth washes should be used after each meal and before retiring, and it is not a bad plan for pregnant women to drink a large tumbler full of cold water containing one-half teaspoonful of cream tartar dissolved in it just before going to bed. The nipples should, during the last six weeks of pregnancy, be washed with Castile soap and hot water, and friction applied to them by means of a piece of flannel. They should then be bathed in a solution of equal parts of alcohol and witch Hazel. They should be rubbed two or three times a week between the fingers, and drawn out, at the same time being well covered with white vaseline. The patient should be instructed never to touch her nipples with unclean hands.

Prompt attention should be paid to an obstetric call and the patient should be reached as soon as possible. Usually, in the wealthier class of patients the nurse is called before the physician, who generally leaves instructions to that effect, and the calling of the physician is thus frequently the responsibility of the nurse, so that the obstetric nurse should be familiar with the signs and symptoms attending the various stages of labour.

The nurse should first, even before changing into her uniform, see her patient and find out from her when the pains began, and should note their frequency and character. She should then plan her proceedure according to the time she judges at her disposal before critical stage of labour will be reached. This varies, of course, according to the circumstances. The nurse on seeing her patient for the first time in labour should note her general condition, and, if time permits, should record the pulse, temperature and respiration. She should also note carefully the patient's statements as to when the pains began, their site and frequency. A careful enquiry should be made as to vaginal discharges, and their character should be examined.

One of the most essential things in the preparation of the patient is the clearing out of the rectum by means of enema. This should be done if at all possible. In the ordinary routine of preparation of the patient it may be given immediately before or after the bath, and, if the first stage of labour lasts over eight hours the enema should be repeated.

One often hears the statement that the bowels have moved repeatedly during the few hours before the onset of labour, and, therefore, the enema was not thought necessary. It is just in these cases that the enema should be given, as the bowels are usually overloaded with retained

fæces when such a history is obtained. Therefore, I again repeat the most essential things in the preparation of the patient are the clearing out of the bowels, and the thorough cleansing of the vulva and thighs.

If the patient has not had a hot bath within twenty-four hours, and time now permits of it, she should be advised to take one at once. As a rule, it is better for the patient not to sit down in the bath, but to kneel therein, and to pour the water over herself, as in multiparæ especially, the water may enter the vagina and carry infection. Special attention should be given to the cleansing of the abdomen, vulva and thighs, and these parts of the body should be bathed after the bath in a 1-2000 solution of bichloride of mercury.

From this time the use of the toilet must be forbidden and the patient should wear an antiseptic pad, which should be changed from time to time as may be necessary until the latter part of the second stage. Each time this pad is changed the parts should be bathed with antiseptic solution.

While the patient is giving herself the bath the nurse may be preparing the labour room. Unnecessary furniture and toilet articles, etc., should be removed, though it is unnecessary to make the room into an ordinary operating room. The really necessary articles of furniture are, the bed, a low table, two ordinary chairs, a slop jar or pail, and an old rug or some protective paper to keep the carpet from being soiled.

The labour bed should be made as follows:—To the right side of a double bed and about its middle should be placed one of the rubber sheets provided for this purpose. This is covered by a clean white sheet, and both are pinned to the mattress so as to maintain them in place. Over these is placed the draw sheet, which should lie midway between the head and foot of the bed, so that the patient's buttocks will rest in the middle of it. These must be pinned securely at the corners in order to prevent slipping. Over this should be placed a second rubber sheet over which a second draw sheet should be placed, and both securely pinned. Over this draw sheet is placed one of the prepared obstetric pads, also securely pinned.

This obstetric pad may be changed when the final preparations for delivery are being made, should it become soiled in the meanwhile. To cover the patient, a fresh, clean sheet should be used and a light blanket or other necessary covering.

The patient should be clothed in a clean nightgown, over which she may wear a suitable wrapper while moving about, and clean stockings and slippers. In cool weather she may wear besides this a silk or thin wool undervest. Her hair should be carefully combed, brushed and braided.

The nurse should see that a plentiful supply of the hot sterile water is obtainable, and should fill a carefully cleansed bedroom jug with boiled water, placing it where it will cool as rapidly as possible, and covering it with a clean towel, so that a supply of cold, sterile water may be available. All water used for solutions should be boiled, and never under any circumstances, should water freshly drawn from the tap be used for this purpose.

A pair of scissors, three or four ligatures for tying the cord, one-half dozen gauze swabs, about two inches square; a glass, and a rubber catheter, and possibly one or two pair of artery forceps, should be dry sterilized, or placed in a 2 per cent. solution of lysol until needed. One cup full of warm boracic acid solution should also be prepared, and a bundle of absorbent cotton swabs, each swab being about the size of an ordinary hen's egg. These should be placed on the small table set aside for the physician's use.

A basin to catch the after-birth, or other dish suitable for this purpose, should also be at hand. A soft piece of linen and a piece of old blanketing or flannel should be placed at hand for the reception of the baby.

The nurse should make all her preparations quietly and without undue fuss or disturbance. She should avoid, if possible, all hurry and confusion. Her manner should be calm and collected, she ought to move about her work as if it was a matter of every day routine, her object being to inspire her patient with confidence, and to support her moral strength throughout what is at the very best a trying experience.

In the early stages of labour it is unnecessary for the patient to remain in bed if she cares to move about, in any case, she may sit up in an easy chair, and if the pains are not occurring with too great frequency, she should be provided with some simple occupation, such as attending to her hair, manicuring her nails, or some little duty that may be of help to the nurse.

The whole atmosphere of the labour room should be one of calm, quiet, self-control, and, if possible, all nervous or excited relatives should be kept out. The proper management of the patient and her relatives during this trying time calls for the greatest tact and discretion on the part of the obstetrical nurse. The patient should be encouraged to talk of light, unconsequential things, and the nurse should avoid relating her experiences of other cases, and should keep the conversation away from the subject of obstetrics as much as possible.

When to call the physician is sometimes a matter of no little difficulty in deciding. I think that, as a general rule, the physician should

be notified as soon as the labour pains begin that his patient is in labour, and the nurse should endeavour to obtain direct orders as to when the physician desires to be summoned to the case. Personally, I may say that it is my custom to request the nurses to notify me of the onset of labour, except between the hours of midnight and 7 a.m. During the night I ask them only to call me if they really feel that my services are required. Thus, by being notified of day cases the physician can arrange his work so as to permit him a maximum of liberty in order to devote himself to his obstetric duties.

All obstetric nurses should be familiar with the clinical phenomena of labour. I will discuss briefly a few of the more common phenomena so as to call to your recollection the main facts, with which you are familiar. False pains may be distinguished from true pains by the fact that they occur irregularly, and are chiefly located in the front of the body. True pains may begin in the front of the body, but they soon extend to the back, and they occur with increasing regularity at intervals of fifteen to twenty minutes. The escape of a thick, bloody mucus, known as the "shew," attends the onset of true labour in many cases. When the membranes rupture early, or when the water escapes before the pains have begun, the labour pains are usually more frequent and more severe than when such is not the case. It is in these latter cases that the nurse often thinks delivery impending, long before the mouth of the womb has dilated.

When the first stage of labour has concluded, the os is completely dilated and the membranes usually rupture, permitting the escape of the waters. In multiparæ the physician should always be summoned when the waters have escaped, especially if the pains recur at intervals of from three to five minutes.

The second or expulsive stage of labour is characterized by the occurrence of straining or bearing down pains. The patient should not be encouraged to bear down in the first stage of labour, as such efforts are perfectly useless and tire her out. On the other hand, in the second stage the patient should be encouraged to bear down as much as possible during the pains, as by this means she can hasten delivery in a large proportion of cases.

In the first stage of labour the discharge from the vagina consists of blood stained water, in the second stage of labour the discharge becomes mucoid in character, so that during the second stage the nurse should be on the watch for the escape of thick, clear mucus from the vagina, as an indication of the rapid advance of the presenting part. The advance of the presenting part may be recognized by the pressure of the

advancing fœtal part upon the anus and perineum causing a certain amount of bulging outwards. A common sign of descent of the presenting part, is the impulse of the patient to have a movement of the bowels; thus, in a patient known to be in the second stage when this desire is expressed the nurse should make sure that there is no evidence of bulging during a pain, before allowing the patient to get up for this purpose. The advance of the presenting part may sometimes be felt by making pressure upwards from below with the finger-tips placed half way between the anus and the tuberosity of the ischium, just alongside of the vulva. Pressure in this direction will encounter distinct resistance if the fœtal parts are just about to come on the pelvic floor.

Thus, the nurse should summon the physician in the case of primiparæ, as soon as there is any evidence of bulging of the perineum, especially when this is accompanied with the escape of a thick, clear mucus from the vagina, and frequent pains of a bearing down character. In multiparæ the occurrence of bearing down pains and the escape of the waters indicate that the physician should be summoned at once.

Should the labour advance rapidly and delivery threaten to take place before the physician arrives, the patient should be kept in the left lateral position in bed, and urged to pant, or cry out, with the recurrence of each pain, while the nurse should endeavour to hold the presenting part back, should the perineum bulge. This pressure of the nurse on the perineum should be made only during the acme of pain, and the nurse's hand should be wrapped in a sterile towel. Pressure on the perineum, if kept up constantly, tends to act as a stimulus to uterine contraction, thus this pressure should be avoided except when necessary to hold back the advancing fœtal parts.

The nurse should have ready all the things required for the physician to wash and sterilize his hands, and should now make final preparations for the actual delivery. She should have in the labour room all water and other material that she is likely to require throughout the further course of the labour. While waiting for the physician the nurse should avoid leaving the room or leaving the patient alone, especially if the pains are markedly severe.

During delivery the nurse is usually called upon to administer the anæsthetic under the direction of the physician. A few drops of chloroform on the mask with the onset of each pain is usually sufficient to produce obstetric anæsthesia. Care should be taken not to allow any drops to fall on the skin, or into the eyes of the patient. To prevent

burning of the skin by chloroform the patient's face should be lightly smeared with vaseline.

In this country the patient is usually delivered in the left lateral position, and the nurse stands on the left side of the bed. She should endeavour to keep the patient's legs flexed and the thighs well separated. Usually a folded pillow is placed between the knees for this purpose. Some physicians employ a Kelly pad during delivery, and this covered by a sterile towel is slipped under the thighs of the patient at this time. The further duties of the nurse now depend entirely upon her instructions from the physician in charge of the case. Usually she is called on to take charge of the fundus of the uterus while the child's body is being delivered, and she should keep up this pressure until such time as the physician is at liberty to replace her, which is usually just after the cord has been tied and cut. She then receives the infant in the coverings she has prepared for this purpose, and, having wrapped it up warmly, she places it in a convenient place where it will be out of reach of harm and will not be in the way. The infant should be placed on its right side so as to favour the closure of the foramen ovale, and because the liver is on this side and is one of the heaviest organs in the child's body. She should see that the child is so placed, that its nose and mouth are free from pressure in order that the child's respirations may not be interfered with. Twice I have had the unfortunate experience of handing a living child to a nurse to be placed in its cradle, and when I have gone to see it twenty minutes later I have found it smothered to death through having been placed face downwards on a soft feather pillow.

During the interval, while waiting for the delivery of the after-birth, the nurse should replenish the basin containing the antiseptic solution in which the physician bathes his hands. During the delivery of the placenta the basin in which the after-birth is to be caught should be held close to the vulva by the nurse. As soon as the after-birth has been delivered, this basin should be covered with a clean towel and placed away until the physician is at liberty to examine its contents. If there are no stitches to be put in place, the patient is now cleaned up and all soiled linen removed. She should be washed as quickly as possible with a warm antiseptic solution and dried.

The upper obstetric pad, draw sheets and upper sheet should be now removed, a fresh obstetric pad placed beneath the buttocks, and a large vulva pad applied which may be held in place by means of a "T" bandage.

As a rule the physician keeps his hand on the fundus for at least one-half hour after the delivery of the placenta, and in cases where a

broad binder is used, it is frequently not put in place until after the child has been washed. In doing up a patient after delivery, the nurse, if left alone with the case, should from time to time make a little gentle friction upon the fundus, to be sure that the uterus remains well contracted. The patient should not be turned on her side during this washing up process unless the nurse keeps one hand upon the fundus, as this position favours relaxation of the uterus and permits the entrance of air within the vulva.

After doing up the patient, and before proceeding to clean up the room or bathe the baby, if this has not already been done, the patient's pulse should be taken and recorded, and the condition of the fundus of the uterus noted. If the pulse rate is at or near 100 per minute, and the fundus is high and soft, hæmorrhage is to be feared, and a close watch for this accident should be maintained. If all is well, the nurse should now clean up the room, removing all soiled linen, etc., and leave the patient in a quiet, darkened room to rest. While cleaning up it is well for the nurse to return from time to time to her patient, until she is satisfied that there is no further danger. After severe or operative labours it is well to have some reliable relative or friend to sit with the patient while the nurse is busy attending to the various duties which devolve upon her at this time.

The Infant.

In giving the baby its first bath certain details are of importance. It should be given in a warm room, in winter, by the warm coils or in front of a fire. In summer, care should be taken that the spot selected is not in a draft.

The bathing should be conducted as rapidly as possible. As a rule, I think, nurses are not careful enough in washing the baby's face and head; the child should be held so that water cannot run into the eyes. The face and head should then be dried with a soft cloth before the body is washed.

At the first bath the baby should be examined from head to foot for injuries or deformities, and, if any are found, the physician's attention should be called to them.

The cord should be bathed in alcohol and then dusted with some drying powder, such as starch five parts, salicylic acid one part, and a small gauze dressing applied so as to completely envelop it. This dressing should be changed as infrequently as possible, but each morning when the child is sponged, it should be carefully examined. If in good condition, fresh powder should be applied under the dressing. If soiled,

the gauze should be removed, the cord bathed in alcohol, and fresh powder and gauze applied.

The napkins should be pinned as loosely as possible, and should be changed whenever soiled.

The mouth should be gently swabbed with swabs moistened in boracic solution before nursing.

The infant should be applied to the breast every six hours till lactation is established, and then every two hours from 7 a.m. to 9 p.m., and at 1 and 5 a.m.

Nothing else should be given a new born child without the physician's order.

The baby when fed should be placed in its basket or cot and lightly covered. It should be protected from bright lights and from loud or sudden noise. It is undesirable that the new arrival should be the subject of the admiring attentions of its parents, relatives or friends, and the nurse should exert her tact to the utmost in order to prevent its constant disturbance.

Artificial foods, gripe waters, and the ever ubiquitous "Comfort" are interdicted, and should never be used without the physician's knowledge.

The Puerperal Period.

The vulva pads should be changed every four hours during the first six days, and more frequently if necessary. On each occasion the nurse's hands should be scrubbed with a nail brush and plenty of hot water and soap. They should then be held in a two per cent. lysol solution, or a 1-2000 bichloride of mercury solution for at least one minute.

The vulva should be swabbed with absorbent cotton dipped in either of the above solutions, from above downwards, care being taken to swab all the folds. It is undesirable to pour or douche solutions over the vulva, as there is danger of washing infected material into the vagina.

The vulva should then be swabbed dry and dusted with boracic acid or other dusting powder and a fresh pad applied. A pad once displaced should be removed, and a fresh pad applied.

The position of the fundus, character of lochia, and condition of the breasts and nipples, should be recorded on the chart twice daily. A record of the urinary and fœcal discharge should be kept, and the temperature and pulse charted every four hours for the first four days, and then twice daily till the patient is out of bed. A rise of temperature to over 100° at any time should be immediately reported to the physician.

The nipples should be bathed in boracic acid solution before, and immediately after, nursing. After nursing, if the nipples are tender, they may be bathed with a solution of equal parts of alcohol and Witch Hazel, in addition to the boracic acid, then dried carefully and dusted with Bismuth subnitrate.

If the breasts become engorged and tender they may be supported by means of a carefully fitted "R" binder or an ordinary "Murphy" binder, care being taken to bring them well toward the middle line of the body before pinning the binder.

The patient should be sponged from head to foot daily with hot water and soap, and should receive an alcohol rub afterwards.

Fresh bed linen should be used every second day during the first week at least.

The patient should not be permitted to assist to any great degree in the performance of her toilet during the first week, but may gradually resume this duty during the second week of her lying-in.

A dose of castor oil should be given on the third day and the physician's attention called to any irregularity in the action of the bowels after that time.

The diet should be very restricted during the first two days. Nothing but liquids, and toast or stale bread being permitted. On the third and fourth days half diet may be given, and after this the patient is placed on full diet.

The patient should be settled for the night as soon as possible after the 9 p.m. nursing.

The morning and evening toilets should be performed as expeditionsly as possible. The nurse should see that she has everything at hand before starting, so that she will not have to leave her patient in the course of it, to look for something she has misplaced or forgotten.

The nurse should provide herself with a tray to hold her dishes, swabs, pads, etc., for the vulva dressing, which she can prepare and bring into the room with her all ready. She then prepares her patient, removing soiled linen pads, etc., covering her with a sheet. Having sterilized her hands, she then performs the toilet of the vulva, arranges her patient and removes her tray, soiled linen, etc., at once.

The nurse should give considerable thought to the development of system in her work so that she may perform her professional duties with as little disturbance of the patient as possible.

Both in the morning and afternoon of each day the patient should be encouraged to rest, and sleep, if possible, and for this purpose the

room should be darkened and the house kept as quiet as possible during these hours.

The temperature of the lying-in room should be between 65° and 68° F., and care should be taken to secure good ventilation. It is a good plan to cover the patient up warmly, and open the windows wide for a short time at least once a day, the patient being kept covered until the temperature of the room rises again to 65° F.

Visitors who tire the patient should be excluded altogether, this can easily be managed by reporting to the physician in charge of the case who will then give definite orders in regard to admission of visitors.

Every nurse should be able to get two hours off duty each day, except perhaps, during the first three days after delivery, when she ought to be able to manage at least one hour, for a walk in the fresh air. The nurse should definitely state to her patient before leaving the house, when she expects to return, and should endeavour to return exactly at the time stated. This habit will avoid considerable friction and difficulty.

When the physician calls to see his patient, the nurse should present him with her record of the case and report to him verbally anything special to which she wishes to call his attention. Having answered all questions and received her directions, she should then withdraw from the room, remaining within call, and should accompany the physician to the front door, unless he relieves her from this duty. This enables the physician to give his final directions, and permits her to report anything she does not wish the patient to know about.

If any stitches have been inserted they will be removed on the eighth or tenth day. For this purpose the nurse should have prepared a pair of dressing forceps, a pair of scissors, a supply of sterilized swabs, and a basin of lysol solution, and should see that a nail brush, soap and clean towels for the physician's hands, are ready. If the light in the room is not good, the nurse should see that a candle or lamp is provided, in case a good light may be necessary. Before preparing the patient for this little operation, the nurse should inquire as to whether she is to be placed in the dorsal or lateral position.

About the end of the second week the nurse should get the physician to carefully examine the child throughout, and should draw his attention particularly to the condition of the navel.

When the case is to be terminated by operative procedure the instruments required should be wrapped in a towel, and, being completely submerged in water, should be boiled for ten minutes. They should then, still wrapped in the towel, be laid on a large dinner platter, or

other suitable dish, which has been prepared for the purpose, and the whole carried to the labour room and laid on the physician's table. An extra supply of swabs should be at hand, and the nurse should see that a good artificial light is obtainable. During the operation the nurse's duties depend entirely on the instructions of the physician.

The obstetric nurse fills a very trying position, and to be successful in this department of nursing a woman requires special qualities of endurance, tact and good nature, as she has in her care two patients both night and day. On the other hand, as a rule, the relationship between patient and nurse in an obstetrical case is peculiarly intimate, and the successful obstetric nurse makes many warm friends and holds an unique place in the family life.

In the home life, the obstetric nurse should endeavour to adapt herself as far as possible to the surroundings, and to the habits of the people with whom she is temporarily living.

If anything is not satisfactory to her, if she is not getting sufficient rest, or if there is anything else that is undesirable, she should report it to the physician and not to the patient, as it is the physician's duty to try to adjust matters and place them on a satisfactory basis.

The relationship between physician and nurse should be cordial, and their mutual support loyal and unquestioned. The nurse is the physician's representative and should remember that on him all the responsibility rests, and she should endeavour to keep him thoroughly posted as to the condition and surroundings of his patient.

NARROWING OF THE UTERUS SUCCESSFULLY TREATED BY OPERATION.

BY

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The patient, Mrs. G., aged 45, was seen with Dr. R. R. Parry on 16th July, 1907.

During the last two or three years the lady had suffered from a feeling of discomfort in her right side, which was more marked after exertion. The pain was of a dull, aching character, and was referred to the right upper quadrant of the abdomen, extending at times across to the left above the navel and behind beneath the right scapula. There seemed to be a fullness here at times. Occasionally there were pains of a crampy character. She had occasional attacks of indigestion. At no time did the pain extend down the groin line into the bladder, nor were there any attacks of frequent micturition

Family History.—Father died at 66 of cancer. Mother died when 48 of heart failure. Two brothers and one sister alive and healthy, two brothers died in infancy; one sister died of brain fever, and one sister had a floating kidney removed.

Personal History.—She was born in Canada, and in her previous life had never been very strong, was always compelled to be careful of her diet and health. When eighteen years old had "neuralgia of the stomach," which persisted more or less for a year. She married, and when carrying her first child had several mild attacks of pain in the abdomen. The confinement was uneventful. Eight years ago, when pregnant the second time, she fell, striking her right side on a board and fractured two ribs. This confined her to her bed for nearly four months.

Since this fall she has never been well. During the last two years she noticed a lump in the right side below the ribs, which was more marked at some times than at others. On pressing this lump she had a dull, sickening pain in the stomach. For the past two months she has not been well, but was not confined to her bed till the 15th of July. She noticed the tumour very prominent and painful. The pains radiated to the back beneath the right scapula. She had sickness of the stomach, but did not vomit. The pain was quite severe at times, but fever was not present. On the 16th July, there being no improvement, Dr. Parry kindly asked me to see her.

The patient was a small, slight woman. On examining the abdomen a lump was observed on the right side just below the ribs and beneath the outer half of the rectus muscle. On deep inspiration the tumour was observed to move downwards. It was just beneath the edge of the liver. The right rectus was somewhat rigid, and it was impossible to palpate it without causing pain. The right kidney was displaced downwards and the tumour lay to the inner side of it. On attempting to replace the kidney some pain was felt. The pain did not extend down into the bladder, and no distress in the bladder was felt during any manipulation. When the patient took a deep inspiration the liver and tumour were depressed, but, owing to the pain and muscular rigidity, an attempt to hold it down during expiration caused pain, and hence was not persisted in. The temperature was not raised, although the pulse was faster than normal. The heart and lungs were normal. A diagnosis of gall stones was made, in the absence of urinary symptoms.

She was removed to the City Hospital, and on the following day an operation was performed. The abdomen was opened through the right rectus muscle. The tumour was found behind the peritoneum, and the

gall bladder and stomach were found to be in a normal condition. The appendix was also normal. The peritoneum covering the tumour was divided and the tumour found to be a dilated pelvis of the kidney. The other kidney was then palpated and found to be of normal size and apparently in a normal state. The right ureter was then palpated, in order to ascertain if the hydronephrosis were due to an impacted stone, but there appeared to be nothing of the kind present. The posterior parietal peritoneum was then closed and also the abdominal wound. The patient was then removed to a darkened room and a cystoscope examination made. Urine was seen to come from the left uretral opening, but none from the right uretral meatus. A large sized uretral catheter was then passed up the right ureter, but no urine escaped. This catheter was left in the ureter and the cystoscope removed.

The patient was then returned to the operating room, placed on her left side, with a medium sized sand bag under the loin. The right kidney was then exposed and dislocated out of the wound. One or two large veins were found crossing the dilated pelvis. These were clamped, divided and ligated. The pelvis was then exposed and found that the ureter entered the pelvis about three-fourths of an inch above its lowest point. The ureter was very much narrower where it entered the pelvis as the tip of the catheter was felt in the ureter, but it could not pass through the stricture. The dilated pelvis was more or less pyriform in shape, with the smaller end downwards. It was impossible to determine this before the abdomen was opened. On elevating the lower nipple-like process of the pelvis an incision was made into it one-half inch from the point of entrance of the ureter. After the urine escaped and the pelvis had collapsed, the incision was carried down through the stricture into the healthy ureter, where it came in contact with the catheter. Sutures of No. 0 chromic catgut were then placed through all of the coats of the pelvis and ureter. The sutures were so placed as to approximate the two ends of the incision and also the corresponding sides. The stricture was then treated in a manner similar to that which Finney does in his gastro-duodenestomy. A large opening was then obtained. Care was taken to approximate the edges carefully. The kidney was then allowed to drop back into its place and anchored. The muscles were brought together with double strands of No. 0 chromic gut, and a small gauze wick placed in the lower angle of the wound. Care was taken that the wick did not come in contact with the ureteropelvic sutures. The patient was then placed in bed. She stood the operation well.

On the second day the dressing was changed. During the first few days following the operation the patient passed only a small quantity

of urine, ranging from 15 to 20 ozs., and it contained some blood. The gauze wick was removed on the third day and there was a small quantity of urine escaped. This diminished from day to day, and disappeared after the first week. The urine became clear and more abundant, being 40 ozs. on the fifth day, and 75 on the seventh day.

The wounds were entirely healed at the end of two weeks. She got up on the 21st day, and shortly afterwards returned to her home. Before she left the hospital a cystoscope examination was made and urine was seen to come freely from both ureteral openings. At the present time she is feeling better than she has done for some years. In this operation I was most ably assisted by Dr. R. Y. Parry and John Parry.

CASE OF CUTANEOUS HORN.

BY

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A healthy, well-developed female child was noticed at birth to have springing from the buttock a cutaneous tail, very much resembling the tail of a pig, and curled up upon itself. It was attached slightly to the left of the anus and somewhat posteriorly and would, therefore, be a little to the left of the tip of the coccyx. In the skin over the gluteus muscle in that region there was a diffuse superficial nævus—wine mark—and the tip of this tail-like process was also somewhat nævoid. There was evidently muscular tissue in this tail because upon straightening it out it would curl up upon itself, just as a pig's tail would. In appearance, it was not unlike in size, shape and length, that of a large vermiform appendix. It was apparently composed entirely of skin and subcutaneous muscular tissue, but had no connexion with the coccyx or spinal canal in any way. A rectal examination with the finger showed that it evidently had no connexion either with the anus or any remnants of the post-anal duct.

When the infant was three weeks old and thriving well, the tail being kept wrapped up in cotton wool and preserved from infection as far as possible, it was thought best to excise it. An elliptical incision was made at the base and the growth removed entire; the resulting wound was closed by two or three sutures and covered with collodion to prevent contamination from the anal orifice. There was very little bleeding and no difficulty whatever in doing the operation. The wound healed very kindly, and at present a white linear scar is the only trace left of the child's "caudal appendage." The nævoid condition of the skin on the buttock has steadily improved since the operation, and has now

(three months afterwards) almost completely disappeared, and the baby is a picture of perfect health in every way. No other congenital anomaly could be discovered in the child.

As the excellent article in the *Annals of Surgery* for June, 1906, on this subject had not then been published,* the unusual condition here present puzzled me very much; and upon mentioning it to my friend and *confrère*, Dr. Shepherd, he said I would likely find some reference to the condition in "Anomalies and Curiosities in Medicine" by Gould and Pyle. An Examination of the book proved him to be quite right, and on pp. 222 *et seq.*, I found similar conditions described, and I had no doubt that this was one of those conditions known as "human horns," "which," say the authors, "are anomalous outgrowths from the skin, and are far more frequent than ordinarily supposed." Nearly all the older writers cite examples. It appears that they may occur on any part of the body, although more common upon the head and lower extremities than upon the trunk. Wilson collected reports of 90 cases, 44 females and 39 males; the sex not being mentioned in the remainder. All authors are agreed that these horns are more often found in the female. Of the 90 cases mentioned, 48 were on the head, 4 on the face, 4 on the nose, 11 on the thigh, 3 on the leg and foot, 9 on the trunk and the rest distributed over other parts of the body. Old age is given as a predisposing cause, although there are many congenital cases upon record.

The same authors state that, "instances of cutaneous horns, when seen and reported by the laity, give rise to most amusing exaggerations and descriptions." For example, this description, taken from the lay press in New South Wales: "A child, five weeks old, was born with hair two inches long all over the body, his features were fiendish and his eyes shone like beads beneath his shaggy brows; he had a tail 18 inches long, horns from the skull, a full set of teeth and claw-like hands. He snapped like a dog and crawled on all fours, and refused the natural sustenance of the normal child. The mother almost became an imbecile after the birth of the monster. Country people about Bomballa considered the devil child a punishment for a rebuff which the mother gave to a Jewish pedlar for selling pictures of the crucifixtion. Vexed by his persistence, she said, 'she would sooner have a devil in the house than his pictures.'"

* In the *Annals of Surgery* for November, 1907, appears a report of three cases of Cutaneous Horns by Dr. Roys, of Weihsein, China; all were adult males, natives of China, and none appeared to have the characteristics of the case reported above. Two of these appeared upon the head, and one (multiple) upon the glans penis.

In ancient times horns were symbolic of wisdom and power. Thus Michael Angelo in his famous statue of Moses gives him a pair of horns. These horns are generally solitary, but many cases of multiple formation are known. Stevens mentions a dermal horn on the buttocks as the site of a carcinomatous cicatrix. Cruvielhier saw a Mexican Indian who had a horn four inches long and eight inches round, growing from the left lumbar region. It had been sawed off twice by the patient's son, and was finally extirpated by Faget.

The above reference gives a fair idea of the literature on this subject; and I think the case is one of sufficient interest and rarity to make it well worth reporting.

THE EFFECT OF ANÆSTHESIA ON THE OPSONIC INDEX.

BY

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This investigation was undertaken to determine whether the administration of ether as an anæsthetic lowered the resistance of the body to bacterial invasion.

The fact that in certain cases the giving of an anæsthetic is followed by an attack of pneumonia, and the common observation that the pneumococcus does not attack an individual unless his resistance has been lowered in some way, leads one to think that possibly such diminished resistance in the case of pneumonia might be due to a lowering of the opsonic index or resisting power of the blood.

Whatever the organism may be, for all cases of post-anæsthetic pneumonia are not due to the pneumococcus, or whatever may be the predisposing cause of anæsthetic pneumonia, it seemed of interest to measure the opsonic power to the pneumococcus of those patients to whom anæsthetics were given. It is still an open question what factors in the process of immunity come into play in ordinary pneumococcal infections, and it seemed quite probable that the opsonins played a prominent rôle therein.

To determine the resistance of the body, both before and after anæsthesia, the opsonic index against various organisms was worked out. The organisms used were: (1) Attenuated culture of pneumococcus, (2) staphylococcus pyogenes aureus, (3) coli communior.

The question of phagocytosis of the pneumococcus is not simple. Rosenow has shown that a virulent culture of the pneumococcus is not phagocyted by the white blood cells when treated with the serum of the

blood of a normal individual, nor are they phagocyted when the serum is taken from a patient just past the crisis of pneumonia. An attenuated culture of the pneumococcus, however, is well phagocyted under these conditions. This then goes to prove that the opsonins, or other bodies in the sera are not able to act upon an organism in a state of virulence. I have been able to show that the sera of a patient convalescent from pneumonia was able to sensitize, or, in other words, prepare for phagocytosis, pneumococci which were cultivated from the patient himself. It seems, therefore, that the pneumococcus after the crisis is so altered that it readily becomes phagocyted by the patient's and normal blood. In other words, the pneumococcus had taken on the character of an attenuated culture. This would only go to show that at, and after, the crisis a change not only occurs in the patient's serum, but, also, in the nature of the organism. During this investigation the power of the blood was estimated twice before the anæsthetic was given. If these two corresponded, as they did in every case, we were certain of the normal power of the patient's blood. The blood was again examined just as the patient was recovering from the effects of the anæsthetic, and again the next day, and, as in no case was there a drop in the index, it was not deemed necessary to take further observations.

Twenty-two cases in all were examined; seven to B. coli communior, seven to staphylococcus pyogenes aureus, and eight to the pneumococcus.

In working with the pneumococcus, I found it quite difficult to get a satisfactory emulsion. It required great patience to break up the clumps which, however, was accomplished by the usual method. Incubation for fifteen months is sufficient and phagocytosis is good, but somewhat irregular. The number of organisms in one hundred polymorphonuclear leucocytes was counted in each case, and frequently several slides were examined so that chance of error would be less. With the other organisms used there was no difficulty.

The cases which were examined were of various kinds. The ages varied from nine to sixty-two years, and various conditions of life were represented. The length of time of the anæsthesia in each case varied from half an hour to two hours. It can, therefore, be taken that the cases examined were fairly representative of the usual cases in which anæsthesia is administered. Although the opsonic index of the various patients varied amongst each other, it was found that in every case the opsonic index of the individual patient gave no variation against either the pneumococcus, b. coli communior, or staphylococcus pyogenes aureus. After the anæsthetic, even in those cases in which the anæsthetic was poorly borne and which showed considerable ether intoxication for some

time following, no alteration in the phagocytic power of blood was present.

In this series of twenty-two cases, therefore, the anæsthesia had no effect, as far as the opsonins are concerned, upon the resisting power of the patient to the organisms investigated.

It seems, therefore, that we must attribute the infections, particularly pneumonia, following anæsthesia, to some other cause. These results do not exclude the possibility of a lowered bacterial resistance on the part of the serum. Such a resistance is, of course, not determined by the opsonic index. Or it may be, too, that the mechanical theory of congestion of the lungs plays a considerable part in the post operative pneumonias (excluding aspiration pneumonias). The fact that there was no loss in the resistance of the serum to b. coli is of interest, too, in abdominal surgery. My thanks are due to Dr. Oskar Klotz for assistance and suggestions given during the work.

FIVE YEARS' COURSE.

The five years' course in the study of medicine promises to become general in Canada. It became operative at McGill at the beginning of the present session. Toronto is formally committed to the extension this year, and Laval has the matter under advisement.

When this wise measure was adopted by the two larger institutions fears were expressed lest the smaller colleges would receive an undue number of students. In such an event the general average of professional efficiency throughout the country would be brought to the standard of those colleges.

Happily these fears have proved groundless. It is announced that, after September, 1908, a five years' course will be required at Queen's Medical College with three options for the fifth year. It is also announced from Kingston that a post-graduate course is arranged in public health and sanitary science, and the degree of D.Sc., will be available for medicinal graduates for original research work. With the three largest universities in Canada acting in unison upon this important question it would seem probable that other colleges must adopt a five years' course or remain content with a marked inferiority.

THE

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PSYCHIATRIC HOSPITALS FOR ONTARIO.

Insanity is a disease which invades all classes, and from which no one, be he rich or poor, high or low, can claim exemption. It is a disease that involves to the patient himself, his family, and the community at large a wider range of interests than any other known disorder. Under these circumstances, it is a matter of congratulation that the Province of Ontario has undertaken a reform in the treatment of the insane, the benefit of which, there can be no doubt, will far more than offset the expense entailed in carrying it out. The reform referred to is the establishment of a psychiatric clinic in conjunction with the new general hospital at Toronto.

Though new to America, in Europe such institutions have passed the experimental stage. The hospitals in Berlin and Munich have proved beyond doubt the wisdom of a policy of scientific research work in connection with the treatment of mental diseases. Cognizant of this, the Ontario Government appointed a commission, consisting of the Hon. Dr. Willoughby, Dr. Charles K. Clarke, of Toronto Asylum, and Dr. Edward Ryan, of Rockwood Hospital, Kingston, to study the treatment of the insane abroad. During their tour the commissioners visited the chief centres of population in the various continental countries, and made a thorough study of the methods in vogue in the psychiatric hospitals at Berlin, Tubingen, Giessen, and Munich, the last made famous through

the work of Kræpelin. They also inspected the hospital at Zurich, the Salpetriere at Paris, noted for its early triumphs in psychiatry, Claybury Asylum, where the pathological labors of Dr. Mott and his associates are conducted, and Morningside Asylum, Edinburgh, in connection with which are the laboratories of Dr. Ford Robertson. The report of the commission, with the findings based thereon, has just been made public, and is well worthy of a studious perusal, not only by those directly concerned in the care of the insane, but by the medical profession at large.

Briefly stated, the recommendations contained in the report, which is an elaborate and exhaustive one, are as follows:—

1st. With regard to the chronic insane.

That there should be fewer institutions for this class, and no extension of what is known as the "cottage system." Instead, some of the existing asylums should be enlarged, as necessity arises, by the addition of buildings having a capacity of one hundred and fifty to two hundred beds.

The enlargement of the present staff of physicians, who should be possessed of special knowledge acquired by training in psychiatric hospitals, and an increase in the nursing staff.

The isolation of tuberculous patients.

The proper care and treatment of insane criminals, who should be separately housed in a building specially designed for their custody. In Germany, this plan, it is stated, has been attended with great success. At Munich, criminals, whose sanity is questioned, are detained under observation in the psychiatric hospital, often for weeks, until their true mental status is definitely determined. This mode of procedure has in many instances saved the great cost of lengthy trials, and done much to put a stop to unseemly law-court battles arising from the discreditable and often illegitimate use of the "insanity plea" as a barrier to the punishment of crime.

2nd. In regard to the acute insane.

The establishment, at university centres and in connexion with general hospitals, of psychiatric hospitals, which are the ideal institution for the treatment of all acute forms of insanity.

It is to the last mentioned division of their study that the commissioners, rightly, devote the major portion of their report. The function of such hospitals is two-fold; they are first, for the treatment of disease, and second, for the discovery of means of prevention or relief of disease. The latter may be designated as scientific research. The prevention of insanity, the discovery of the pathological bases of mental disorders, and the cure of what at present are regarded as incurable forms of brain

disease are questions of the gravest moment to the future well-being of mankind, and only in properly equipped psychiatric hospitals, with specially trained staffs and large laboratories, is such research work possible. Take for example the investigations now being made, both in Great Britain and Germany, with regard to general paresis. As stated by the commission, it is not going too far to say that as a result of such scientific study the day will come when "this dread and now incurable disease" will be just as amenable to treatment as is diphtheria.

Up to the present time Canada, though well abreast with the world as regards the custodial care and the ordinary treatment of her insane, has contributed little of a scientific character to the study of insanity. Let us hope with the advance contemplated by Ontario she may be roused from her lethargy, and that the example thus set may be speedily followed by this and the sister provinces. Is it too much to hope, also, that, with the dawn of the new area, the Ontario Government will take yet another step in advance and emancipate itself from the fetters of political thraldom by the establishment of a system of promotion, to the highest positions, among the deserving juniors now in the asylum service? We trust not, because only so can there be looked for the sustained exertion in research work, which is an imperative necessity for the successful solution of the many yet unsolved problems connected with a disease the most dreaded of all human afflictions.

TORONTO GENERAL HOSPITAL RECONSTRUCTION.

What system of formation of clinics shall be followed in the new Toronto General Hospital? Shall there be one head in each department with all the rest subordinate, or shall there be two or three or more parallel services in each of the large departments of medicine and surgery? The former is the commonly found continental method, and the latter is the usual organisation in British hospitals.

This problem is the most serious one at present exciting the interest of the Faculty at Toronto, and at a recent largely-attended meeting, it was fully discussed. The following paragraphs from *The Canadian Practitioner and Review* indicate the ground taken.

"Nearly all the speakers approved of the so-called British methods. An important feature of these methods which they approved of was the system of multiple or parallel services in medicine and surgery. They insisted that these services should be separate, distinct and independent, and the different services should work side by side. It appeared during the discussion that some supposed that the Toronto General Hospital

in the past had been conducted according to quasi-British methods. It was pointed out, however, very distinctly that the past and present conditions in the Toronto General Hospital were not in any sense to be compared with the conditions which existed in Scotland or in England. According to the plan carried out in Edinburgh each surgeon has charge of thirty or forty beds in one or two wards, and controls all those beds, having his own nurses and house surgeons. This was very different from a ward of twenty-five beds in the Toronto General Hospital, where you would find as many as six or eight surgeons attending the patients, with probably as many house surgeons, all of whom gave more or less instruction to the nurses connected with the ward.

"A compromise in the better sense of the term between the two systems was suggested. If there were three services in surgery, the heads of which were doing similar work, one might be called the senior, and also consult with the board about the department of surgery when required."

This conclusion is probably wise, because the British system is the most suited to local conditions: the continental system is probably essentially the better, but is quite inapplicable here. The main factor in the continental system is discipline, and the good results depend not only upon the fact that the head of the department is, in the majority of cases, the most experienced man in it, but also upon the fact that his subordinates know and admit this. He has never done any other thing, and has, all his life, worked with a view to attaining a fixed place in the pedagogy of medicine; all his juniors in the same hospital or clinic, have entered it after him, and have been accustomed at all times to look upon him as their undoubted senior. If he come from a clinic in another city, he assumes at once the place in the new clinic corresponding to the one he left. In Canada things are different: pedagogy in medicine is but an incident, and where, here and there, a man has given much thought and attention to teaching and clinical organisation, his fellow man who has been as many years in practice refuses to accord him the superiority he deserves, and our discipline does not demand obedience of the second to the first.

Neither system is perfect: the continental probably has the fewer faults. But essential to it are two things which are hard to find—the overwhelming superiority of the senior, and the unquestioning obedience of the juniors. With a large faculty already in existence, it is not possible to make one appointment in each department, which will be unquestioned; an appointment which is dissented from, cannot have the cordial support of the disappointed ones, and therefore had better not be made.

Anyone who is conversant with the continental system knows that it is much less perfect than it looks: they, also, have their little bickerings and even their abuses, where the power vested in one man, who is human, may be wrongly exerted to the exclusion or detriment of worthy subordinates. On the other hand, with the British system one may see such inequality in the work done by two parallel services, that one is instinctively moved to wish that the poorer might be put under the supervision of the head of the better one, and the quality of the work in the department thereby at once raised. With so many arguments for and against, a theoretical decision is difficult: therefore the Faculty at Toronto probably do well to adjust their decision to the existing circumstances rather than to hand out a judgment on theoretical grounds.

THE INCREASE OF MEDICAL FEES.

Last month we alluded to the movement undertaken at London, Ontario, for the increase of medical fees: since that time, Ottawa, Cobourg, and Lunenburg-Queen's medical societies have taken the matter up and indicated their intention of adhering to a scale of raised fees. The lodge insurance examination, and examinations for sick-benefits societies have come in for their share of attention, and it seems to be universally thought that it is not humanly possible for a physician to do good work for a society at half-a-dollar per examination; and that the very cheap orders are very apt to get very cheap work in return for very cheap rates. We notice, in this regard, that the official organ of the Ancient Order of Foresters takes sensible grounds on this subject, aiming at the raising of the scale of examination for fratenal orders in general, and at accomplishing this by raising the scale of pay if that be judged to be the correct way to do it.

It seems to be pretty widely impressed upon the profession that if the fees are raised it will not be premature; for years we have seen certain skilled laborers earning more than many physicians who work harder: and this is not right. With the increased cost of medical education, the result is that before very long even country practice will react to this.

A career of great promise has been cut short by the untimely death of Dr. A. Mactier Pirrie. The son of the late Mr. Alexander Pirrie, C.E., he was born on October 2nd, 1882. He obtained his B.Sc. with honours in anthropology at Edinburgh University in 1904, and qualified as M.B., Ch.B., in 1904. He obtained the Carnegie Research Fellowship

in anthropology and was appointed anthropologist to the Welcome Research Laboratories at the Gordon Memorial College, Khartoum. He went out to the Sudan in the autumn of 1906. Under the direction of Dr. Andrew Balfour, the Director of the Laboratories, Dr. Pirrie made his first expedition up the Nile to the Southern limits of the Sudan and penetrated to remote parts of the Bahr-el-Chazal. His second expedition took him to the borders of Abyssinia. On both occasions he passed through some of the most pestilential regions of Africa in connection with certain anthropological and physiological researches, appertaining to tropical diseases, upon which the Laboratories are engaged. Unfortunately he contracted tropical fever (kala-azar) and was so prostrated as to be compelled to return to England, leaving Khartoum on June 17th last. He rallied from the effects of the fever from time to time, but was compelled to enter Chalmers' Hospital, Edinburgh, in October. His death took place on November 12th.

MONTREAL MATERNITY HOSPITAL.

The following is an abstract of the sixty-third annual report of the Montreal Maternity for the year ending September 30th, 1907.

The work of the Maternity during the past year has shown an increase of, roughly, 50 per cent. over the previous year, and the results have been satisfactory, although the maternal death rate (1½ per cent.) has been comparatively high. Eight of the nine deaths occurred in patients sent in consultation; as autopsy was permitted in all cases, the responsibility for the death could be placed where it really belonged.

The fœtal mortality has been high, but not unusually so. Here too, with a few exceptions, autopsies have shed much light on the true causes of the fatal issue, and Dr. Klotz, of the Royal Victoria Hospital, has prepared post-mortem records in each instance. While the number of infants born at term that have died in the hospital has not been large, there is no doubt even better results could have been obtained had more space been available for the accommodation of infants.

The number of admissions has been as follows:—Remaining over in the hospital, October 1st, 1906, 30. Admitted during the year, 570. Total, 600. This includes 26 patients remaining in the hospital October 1st, 1907.

The total number of hospital days has been for adults, 12,368; for infants, 7,240, and the average number of patients per day,—adults, 34; infants, 20. The average stay of each patient in hospital was 20.9 days. Of the patients in the hospital before confinement the average stay was 12.9 days, while after confinement it was 15.6 days.

Of the 574 completed cases there were, primiparæ, 299 and multiparæ, 275. Their status was, single, 134; married, 436; widowed, 4; There were Protestants, 340; Catholics, 172, and Hebrews, 62.

The private patients numbered 128, the public 446, the number of private patients being double that of last year. Attention is specially directed to the fact that the increase has been chiefly in the Protestant and Hebrew patients, the number of Catholics remaining very much as it was last year.

The birth places of the 574 patients were as follows:—Canada, 259; England, 137; Russia, 48; United States of America, 43; Ireland, 29; Scotland, 28; Austria, 11, and others in smaller numbers.

The general results were as follows:—Maternal:—Discharged in good condition, 560, transferred to other hospitals, 5; remaining in hospital, October 1st, 26; died (see under "Maternal Deaths"), 9.

Infantile:—Total adult admissions, 600; twin pregnancies, 6; admitted post-partum, discharged ante-partum, etc., 69. In hospital October 1st, 26.

Of 600 patients, 69 were admitted after or before confinement, but there were 511 births, from 600 patients entered. Of these, there were dead born, 30, still born, 8; died in hospital, 34, a total of 72, while those discharged in good condition numbered 439.

Of the 34 that died in the hospital 17 were premature infants of poor vitality. The other deaths in the hospital were from the following causes:—Hæmophilia, 2; broncho-pneumonia, 2; congenital malformation, 2; syphilis, 2; abdominal hæmorrhage, 2; septic arthritis, 1; tuberculosis, 1; gastro-enteritis, 1; umbilical infection, 1; unknown, 3.

Those classed as still births, (form alive but impossible to resuscitate) were as follows:—Under 7½ months, 4; tight coil of cord, 1; monstrosity, 1; forceps injury, 1; unknown, 1.

Of those born dead, the following conditions were shown:—Prolapsed cord, 5; syphilis, 2; maternal nephritis, 5; maternal toxæmia, 2; maternal cardiac disease, 2; maternal eclampsia, 3; maternal typhoid, 1; anencephalus, 2; hydrocephalus, 1; placenta prævia, 1; internal hæmorrhage, 1; breech extraction, 1; forceps injury, 1; unknown, 3.

Classification of pelves:—Normal, 382; contracted, 65; generally contracted, 36; generally contracted rachitic, 5; flat and rachitic, 5; simple flat, 10; contracted outlet, 9; unmeasured pelves, private patients, etc., 127. Total, 574.

Special attention has been paid to the careful measuring of the pelves of all public patients and many interesting observations have been made and recorded. The number of pelves classed as contracted, according to

the usually accepted standard has not been so large, but the number contracted at the outlet has been unusually so and while but nine have shown this contraction in a marked degree, a very large number have possessed this deformity in a sufficient degree to seriously affect the course of labor. Another observation of interest has been that the course of labor in two patients with the same pelvic contraction may vary widely, as in the one instance where a child of 14 gave birth to an infant spontaneously, while in a woman of 28, Cæsarean section was necessary to obtain a living child. In both of these the pelvis was flat, with a diagonal conjugate of 10.2 cm.

Complications of Pregnancy, etc.—The number of abortions (25) shows a marked increase over last year. This is probably due to the fact, that we are now able to admit these cases, whereas in the old Maternity they could not be admitted on account of lack of room. In cases of threatened abortion marked success has been obtained by keeping the patient at rest and administering sedatives. In two cases of habitual abortion one was carried to term by the administration of large quantities of potassium iodide.

2. Cardiac complications have been interesting and instructive; when seen in time there was no difficulty in carrying the patient successfully through pregnancy and labor. Heart stimulants have been given, often in large quantities, without any apparent effect upon the pregnancy, and in a number of cases the patients were confined by operative procedures without the use of a general anæsthesia. In such cases hypodermics of morphia were usually given and the patients showed no ill effect from the operation.

3. A most unusual and interesting case of cardiac embolism occurring on the tenth day after accouchement forcé for placenta prævia lateralis, has already been reported before the Montreal Medical Society.

4. There has been a number of pregnancies after abdominal operations, the most interesting being two after nephrectomy. In neither of these cases was there evidence of renal insufficiency.

5. The treatment of eclampsia has been more active than heretofore, and, particularly where the child was viable attempts were made to empty the uterus as soon as compatible with the safety of the mother. Unfortunately a number of cases were sent in from outside with the child already dead in utero. In addition to the emptying of the uterus great stress has been laid upon the administration of large quantities of fluid by mouth and by the rectum, and in certain cases by infusion and transfusion; bowels have usually opened freely after large doses of magnesium sulphate. In those cases of eclampsia where the kidneys were

but slightly affected the patient's general condition improved in direct proportion to the diuresis obtained. Even in cases with considerable renal disturbance beneficial results were obtained so long as care was taken to see that the output of urine equalled or exceeded the quantity of fluid given.

6. A number of cases of chronic nephritis have been treated with more or less success. In a number of instances these cases showed marked improvement after delivery, but later in the puerperium, usually about the 7th day, became markedly worse—two of them died.

7. Probably the most interesting of all the complications of pregnancy has been tuberculosis. Five tuberculous patients have been confined and all have done remarkably well; the children were placed upon artificial feeding, and all born at term have survived.

Technique.—The technique in the hospital has been modified very little during the past year, except that the use of rubber gloves has become much more general. No operation on any of the public patients has been performed without gloves being used.

Douches have been used even less than last year; a post-partum douche was given in but a single instance while ante-partum douches were used only where there was marked rigidity of the cervix. In cases of slow involution, however, hot douches given from the 10th to the 14th day have had a marked beneficial effect.

Induction of labor.—For the induction of labor the use of the silk bougie has been practically abandoned and large rubber catheters (27 F.) have been used. These are more readily sterilized, and are also cheaper; while their insertion is perhaps slightly more difficult, there is less danger of rupture of the membranes or perforation of the uterus. The operation was performed eighteen times and its repetition was necessary but once, the labor invariably coming on within four to eighteen hours. The time of onset would seem to vary directly with the amount of irritation set up inside the uterus and the care taken in the insertion of the bougie.

Craniotomy.—Craniotomy was performed three times, and in each instance for the same condition:—Generally contracted pelvis with prolapse of the umbilical cord. In only one of these cases could the child have been saved; this was one seen outside the hospital, and at that time the child was alive. There was so much delay in bringing her to the hospital that the child had perished in the interval.

Pubiotomy.—Pubiotomy was done once on account of marked narrowing of the pelvic outlet, the patient having expressed a strong desire to have a living child. As the attempt to deliver by means of forceps were unsuccessful, version and rapid extraction were done to save the child.

The operation was complicated by an excessive tear of the perineum, and also one of the vagina which communicated directly with the pubic wound. Obstruction developed at the site of the pubic wound probably due to infection from the rectum, at the time of delivery. In this case the child was saved but the mother died.

In this type of pelvis, pubiotomy with version, seems an undesirable operation, for if, as in the majority of cases, the arms are swung above the head it is impossible to reduce them without extensive laceration of the vagina which is practically sawn through by the sharp edge of the pubic bone during the manipulation to free the arm on the side of the wound.

Cæsarean Section.—Cæsarean section was performed twice. The first patient had a simple flat pelvis, D.C. 9.5. with a child that she had carried eleven lunar months: this operation was eminently successful both for the mother and for the child.

The second was a private patient with chronic nephritis and such œdema of the vulva and vagina that delivery by ordinary means was absolutely impossible. In this instance too, the operation of itself was successful as the child was born alive and the mother's condition was much improved. Unfortunately uræmic convulsions supervened and the patient died of nephritis on the 14th day.

Complete tears of the perineum.—Complete tears of the perineum have occurred nine times, one of these cases being in a private ward. The complication was present once after pubiotomy; twice after version and extraction; and six times after the application of forceps. Immediate suture gave excellent results in all but two cases, one the private patient referred to, and the second a case in which the sutures were placed badly and infection from the rectum resulted. The routine has been first to bring the mucosa of the rectum together with fine cat gut, then to unite the ends of the torn sphincter by means of No. 2 cat gut, and after placing deep sutures of silk worm gut to bring the skin of the perineum together with a subcutaneous catgut suture.

Episiotomy.—Median episiotomy has been done in a number of cases, particularly where a narrow sub-pubic angle threw the head far back on the perineum. Delivery in these cases can only be accomplished with very extensive laceration, and indeed all cases of complete tear of the perineum were due to this condition. If, however, a straight cut is made when the perineum is distended there is much less danger of involving the sphincter, and the wound is easy to repair.

Hæmorrhage.—Hæmorrhage has not occurred as a serious complication in any of the labors. True, a number of patients have lost a large

quantity of blood, but this was ascertained by collecting and measuring the amount lost, rather than by any change in the patient's condition. In a number of cases the loss was 1,200 c.c., and in one instance 2,300 c.c., accompanied by no systemic disturbance, while the loss of much smaller amounts in other cases markedly affected the patient's pulse and general condition.

Ophthalmia.—In cases of severe ophthalmia we have been able, thanks to the courtesy of the visiting ophthalmologist, to obtain much more satisfactory results than heretofore, as a careful bacteriological examination of the secretion has shown that a number formerly suspected of being gonorrhœal were due to other organisms and responded readily to varying forms of treatment.

Outdoor.—1,047 visits were made from the outdoor department; 101 women were confined; 98 of the children lived.

The usual hospital routine has been modified and made even more simple for the conduct of these outdoor cases. When the patient is registered she is given a card which is sent to the hospital when the doctor is needed.

The patient is guaranteed attendance at confinement by a qualified physician and for ten days is visited by a nurse from the hospital. On the 10th day the doctor from the hospital is required to examine the patient and to see that she is in a fit condition to be discharged.

At the commencement of the service we had three cases with temperatures reaching 102°, but since the adoption of the same standard of hand sterilization as in use in the hospital and the uniform use of rubber gloves, we have had but one temperature above 101° in the last 80 cases confined.

Reviews and Notices of Books.

PATHOLOGISCHE PHYSIOLOGIE, Ein Lehrbuch für Studierende und Ærzte, von Rudolf Krehl. 5th Edition, 1907. Published by F. C. W. Vogel, Leipzig, Germany.

The present is the fifth edition of this work which has been revised and enlarged. The preceding editions of this volume were received with such approbation by the profession that an English translation of the fourth edition was made by Hewlett.

As is so frequently the case in all literature, the author's meaning and teaching can be obtained only by reading the original. Those familiar with the author and his teachings can follow him best by reading his own words and in this book the context is particularly easy to follow.

Krehl has endeavoured to apply the truths obtained at the post mortem table to the clinical findings at the bedside. The time has come when we have accumulated so many facts from the pathological examinations that these must now be collected together and made to serve a purpose in active practice. In other words, the "why and wherefore" of each sign, symptom and disease should, if possible, be placed upon a basis of experience and fact.

The author points out the difficulty that the pathologist has encountered in distinguishing the normal from the abnormal processes, as each species of animal, and even each individual, has a different normal standard. An arbitrary normal standard can, however, be established to admit of sufficient elasticity to cover the processes occurring in healthy races.

The first two hundred pages of this volume are devoted to a discussion of the circulation and the blood. The minute details of the pathological changes occurring in the muscle, valves or vessels is described at length. One can frequently read page after page of pure pathology and then be brought face to face with the clinical significance of the changes described.

The subject of the various forms of anæmias and leukemias is very well taken up, and, in the author's full description of the blood changes, it becomes apparent how closely the pathological must be linked to the clinical study of the disease. A very good summary of the processes of immunity which have been associated with Ehrlich's side chain one, and also opsonins, are discussed.

In all, the book contains ten chapters. The remaining ones deal with the respiratory, digestive, nervous and urinary systems, besides special attention being given to the subject of metabolism and fever.

Throughout the whole book we have found very interesting material, and many facts of unusual interest are presented in a very lucid style. It is a book that we could recommend in the "Grenzgebiete" of Pathology and Medicine, and would thus find a useful place on the shelves of both the practitioner and the pathologist.

PHYSICAL CHEMISTRY IN THE SERVICE OF MEDICINE. By Dr. Wolfgang Pauli, Vienna, Translated by Dr. Martin H. Fischer, Oakland, California. New York, John Wiley and Sons; London, Chapman and Hall, Limited.

The effect of recent advances in the science of physics and biological chemistry is already beginning to be felt in the realm of practical medicine. In pharmacology and therapeutics especially is this evident. The

study of the action of ions and of the relation of the physico-chemical properties of a substance to its therapeutic action has been fruitful of practical results. Dr. Pauli's lectures, as translated by Dr. Fischer, are full of interest and not too technical to be understood by the practising physician. A perusal of this little book should be of benefit to the general practitioner who wishes to keep himself informed of all that is new in medicine.

J. W. S.

SURGICAL APPLIED ANATOMY. By SIR FREDERICK TREVES, Bart., F.R.C.S. Fifth Edition. Revised by Arthur Keith, M.D., F.R.C.S. Illustrated. Philadelphia: Lea Brothers & Co.

The reappearance of this book in its fifth edition recalls the year 1883, when it first appeared. Men who are now old will remember with pleasure their reading of it twenty-five years ago, when Mr. Treves, as he then was, taught anatomy in the London Hospital. It is a real book in the sense that the personality of the writer is in it. There is much vivid illustration, and incident, many pointed phrases, humour even. Treves "Applied Anatomy" will always be a classic, in the way that Quain's "Anatomy" is. The student of to-day is likely to derive from it the pleasure and profit which his predecessors did.

HANDBOOK OF CUTANEOUS THERAPEUTICS, including Sections on the X-Ray, High-Frequency Current and the Minor Surgery of the Skin. For the use of General Practitioners. By W. A. Hardaway, M.D., LL.D., Professor of Diseases of the Skin and Syphilis in Washington University, St. Louis, and Joseph Grindon, Ph.B., M.D., Professor of Clinical Dermatology and Syphilis in Washington University, St. Louis. Lea Brothers & Co,. Philadelphia and New York, 1907.

A book of 600 pages entirely devoted to the treatment of skin diseases is a new departure in English medical literature. Descriptions of the various diseases are given in the briefest possible space and the differential diagnosis is almost entirely omitted. On the other hand the treatment is fully and ably described, not alone from the medicinal point of view, but also in respect to what the authors call the "physical and mechanical" treatment. The writers while stating fully the opinions of other dermatologists on debatable points do not hesitate to express their own convictions regarding their value, a feature which we think adds much to the value of the work to the reader. The more recent methods, opsonic, liquid air, Bier's, X-ray, radium, etc., which have been found of use in a certain class of dermatoses, have been described

in Part II. under General Treatment and Methods with a fulness of detail which leaves little to be desired.

When one learns from the preface that a work such as this is intended to aid the general physician and not the specialist, while in no way wishing to detract from its value as a treatise on cutaneous therapeutics, one cannot but question its suitability for this purpose. The great difficulty which confronts the physician of little experience in dermatology is that of diagnosis. What will be his state after deciding to call a case one of eczema, for example, when he finds on turning up the treatment that he has over one hundred prescriptions from which to select?

A MANUAL OF THE PRACTICE OF MEDICINE. By A. A. STEVENS, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. *Eighth Edition, Revised.* 12mo of 558 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Flexible Leather, $2.50 net. Canadian agents, J. A. Carveth & Co., Ltd.

Eight times we have mentioned this book since 1892, and always with praise. It is a concise and accurate statement of the essential facts in the practice of medicine. The volume contains 558 pages. It is easy to hold, easy to read, and is not disappointing in respect of the treatment of disease.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION, Vol. XXV. Edited by RICHARD H. HARTE, M.D., Recorder for the Association, 1907.

This volume contains 37 important papers upon surgical subjects by the leading surgeons in the United States. There are 14 papers upon Carcinoma of the Breast, of which nine deal specially with "end-results." The amount of work and the method of doing it indicated in this volume is entirely creditable to American surgery.

TRANSACTIONS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, Vol. XIII. Secretary: CHAS. N. PILGRIM, M.D., Poughkeepsie, New York.

The present volume contains the report of the proceedings of the meeting held in Boston, June 12th-15th, 1906. It contains nearly 600 pages, every one of which is precious to those who attended the meeting. The book is also valuable to physicians who wish to inform themselves of what is being done by those who have to do with the care of the insane.

A TREATISE ON DISEASES OF THE SKIN. For the use of advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Fifth Edition, Revised. Octavo 1,150 pages, 267 text-illustrations, and 34 full-page coloured and half-tone plates. Philadelphia and London: W. B. SAUNDERS COMPANY, 1907. Cloth, $6.00 net; Half Morocco, $7.50 net.

The fact that five editions of this work have been called for in so short a time is sufficient evidence of its great value. It is admitted now by most that Dr. Stelwagon has written the best book on Diseases of the skin which has been produced on this side of the Atlantic. The language is clear and uninvolved, the illustrations are unsurpassed, the substance is practical and comprehensive, and the classification is simple and scientific. It is an ideal work for those engaged in general practice and of great value to the specialist. This edition has been much improved by the addition of considerable new matter and "the elision of unnecessary and obsolete material."

The additions and changes have been chiefly in the line of tropical diseases but "dhobie itch," uncinarial dermatitis, tinea imbricata, frambesia, Oriental sore, etc., leukemic eruptions are for the first time described. Many new illustrations are added to the text and two new plates. We can heartily recommend this work to all who desire to acquire an accurate knowledge of Skin Diseases and to have the source of that knowledge presented in an attractive form.

THE OPERATING ROOM AND THE PATIENT. RUSSELL S. FOWLER, M.D., Prof. of Surgery, Brooklyn Post-Graduate Medical School: Second Edition, Enlarged and Revised. W.B. Saunders & Co., 1907, $2.00.

From the preface to this, the second edition, we learn that some chapters, at least, are designed to meet the needs of the general practitioner. We must confess, however, that in first looking over its pages we thought it far removed from the realm of the general practitioner, and most technically surgical.

The book begins with a description of what the operating room should be, its structure, arrangements, furniture, appliances and sterilization, its nurses including their training and duties, in fact something on everything connected with the operating suite of a large hospital. Many formulæ given here as to the preparation of catgut gauzes etc., are sure to prove useful.

After the operating room comes the anæsthetic room and finally the patient with his care before and after operation, with considerations as to the variety and the care of operative wounds. In the last pages numerous lists of the instruments required in various operative procedures are given at length.

The *raison d'être* is evidently to supply surgeons with a system of operating room technique, which has been tested by practice and which may be adopted or modified. It will find its chief usefulness in aiding recent graduates and those commencing surgical practise, who have never had the advantage of a hospital training, and in giving house surgeons an interpretation of the many procedures with which all large hospitals abound. The older surgeon may adopt many useful hints. Though he will also find many details with which he may not be quite in accord nevertheless he will be ready to acknowledge a finished technique in all instances.

The chapter on anæsthetics is good, only we miss mention of the newer local drugs, stovain, norokain, etc., also of ethylchloride anæsthesia. Only the author's method of giving ether is given.

In the pages devoted to occurrences following operation the remarks on parotitis are interesting (7 cases in several thousand laparotomies). The best chapter is that dealing with the after care of the patient.

The chapters on wound dressing are sound and thoroughly modern in their limited use of irrigation and antiseptics. While we cannot agree with such methods as the use of moist dressing in skin grafting and the use of large intravenous injections of saline at a high temperature, yet we are aware that the author will find plenty of support in these matters.

In short, and in no trifling spirit do we say it, "for those who need this sort of thing, this is the sort of thing they need," and we know no book in which the detail of operating room and surgical ward is more thoroughly and carefully placed before the reader.

The book is well printed and bound, of some 200 pages with an additional 50 pages devoted to the testing of instruments necessary to various operations.

R. P. C.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Lea Brothers & Company, Philadelphia, December 1st, 1907. Six dollars per annum.

The contributors to this Number are J. Dutton Steele, M.D.; John Rose Bradford, M.D.; Joseph C. Bloodgood, M.D.; William T. Belfield, M.D.; and H. R. M. Landis, M.D. The contents are: "Diseases of the Digestive Tract, the Liver, and Pancreas"; "Diseases of the

Kidneys"; "Surgery of the Extremities, Fractures, Dislocations, Tumours, Joints, Shock, Anæsthesia, and Infections"; "Genito-urinary Diseases"; and "Practical Therapeutic Referendum." An index for the year completes the volume, which contains 336 pages. These subjects are all of pressing interest, and they are competently dealt with. We note the reference to Adami's "Inflammation and Introduction to the Study of Pathology," which, Dr. Bloodgood states, "should be read by every practitioner." The same remark is applicable to "Progressive Medicine."

THE PANCREAS, ITS SURGERY AND PATHOLOGY. By A. W. MAYO ROBSON, D.Sc. (Leeds), F.R.C.S. (Eng.), London, and P. J. CAMMIDGE, M.B. (Lond.), D.P.H. (Camb.), London. Illustrated Philadelphia and London. W. B. SAUNDERS COMPANY, 1907. J. A. CARVETH & Co., Toronto, Ont., Agents for Canada. Price $5.00.

Few men have contributed more to our knowledge of the diseases of the pancreas than the editor of the volume. Few men have had larger experience in the surgery of the pancreas, and few men can speak more authoritatively on the different pathological lesions, involving the pancreas and their treatment. The present volume of over 500 pages, gives a brief history of the development of our knowledge, and presents to the reader, in a clear and concise way, the present views regarding the role played by this viscus in health and disease.

The first five chapters deal with comparative anatomy and embryology, anatomical anomalies and surgical anatomy. These chapters are clearly written, well illustrated, and place before the reader a knowledge of the results of laboratory work carried out by the different workers in different countries. They give infomation regarding the important and complex part that the pancreas plays in the physiology of the body which enables him to follow more clearly the varied deviations from the normal described in the following pages. The points brought out are by no means only of classical interest. Many of them have a practical bearing in the explanation of clinical phenomena observed from time to time. For example, the fact that in sixty-two per cent of cases, the common bile duct is so surrounded by the pancreas that it may be compressed from diseases of the pancreas itself, the outflow of bile being prevented, and well-marked jaundice a result.

A rare anomaly of much surgical interest is found in cases where the head of a well-developed gland embraces as much as one-third of

the circumference of a second part of the duodenum, and in still rarer cases, where the whole circumference of the bowel is enclosed in a ring of pancreatic tissue.

It is clearly shown that the pancreas plays a much more important role in the development of the body and particularly in digestion, than has hitherto been assigned to it. In fact, the pancreas is coming to be considered the digestive organ of the body par excellence. It acts actively on the three great classes of foods—fats, proteids and carbohydrates. This is emphasized in pancreatic infantilism, where the lack of development appears to be the result of insufficient pancreatic secretion for the metabolic needs of the body.

Then follow chapters on histology, physiology, pathology, fat necrosis, chemical pathology and diabetes; all written with a fullness of knowledge and clearness of expression that add greatly to their interest and value. The succeeding chapters deal with the general symptomatology and diagnosis, inflammatory changes and neoplasms. The close similarity in the symptoms of cancer and chronic pnacreatitis in the head of the gland is pointed out. Many cases of the latter have, in the past, been allowed to die unoperated upon under the mistaken idea that they were suffering from cancer, and the importance of a differential diagnosis is only now beginning to be appreciated. The authors take up this subject very fully and give in detail the tests which they have found useful in differentiating the one condition from the other. To the end of each chapter is appended a list of the more important papers and publications bearing on the subject therein discussed. The work is one of scientific interest and practical value.

G.E.A.

DISEASES OF CHILDREN FOR NURSES. By ROBERT S. MCCOMBS, M.D., Children's Hospital, Philadelphia. W. B. Saunders & Co. Two dollars. 431 pages.

HOSPITAL TRAINING-SCHOOL METHODS AND THE HEAD NURSE. By CHARLOTTE A. AIKENS, Associate Editor of the *National Hospital Record,* Philadelphia. W. B. Saunders & Co.

REFERENCE HANDBOOK FOR NURSES. By W. REYNOLDS WILSON, Physician to the Philadelphia Lying-in Charity. W. B. Saunders & Co., 1907.

We have chosen to group together these three books, all received in December, from J. A. Carveth & Co., the Canadian Agents of W. B. Saunders & Co., to emphasise the increasing volume of literature which is becoming available for nurses. Dr. McCombs book is a con-

siderable volume of over 400 pages, and contains much sound knowledge well arranged and presented. It is quite within the compass of the intelligent nurse. The observations of Miss Aikens upon hospital training-school methods are extremely sensible and might well be read by all physicians. Dr. Wilson's Reference Handbook contains in small compass all which it is essential for a nurse to know.

Medical News.

CANADIAN HOSPITAL ASSOCIATION.

At a meeting of the Executive of the Canadian Hospital Association, it was decided to hold the next meeting of the Association in Toronto in the Parliament Building, on Easter Monday and the following Tuesday, 1908. A reception will be given by the President, Miss. Louisa Brent in the new Nurses' Home of the Children's Hospital. Dr. S. S. Goldwater, Superintendent of the Mount Sinai Hospital, New York, and President of the American Hospital Association; Dr. C. K. Clarke, Superintendent of the Toronto Hospital for Insane; Dr. T. Sutton, editor of the *National Hospital Record*, Detroit; Dr. W. J. Dobbie, Superintendent of the Toronto Free Hospital for Consumptives, and Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, have promised to give papers. A number of Canadian superintendents have also been invited to contribute to the programme

ROYAL VICTORIA HOSPITAL.

Monthly report for December:—Patients admitted, 306; patients discharged, 270; patients died, 18. Medical, 99; surgical, 120; ophthalmological, 23; gynæcological, 38; laryngological, 26. Outdoor department:—Medical, 748; surgical, 664; eye and ear, 283; women's diseases, 82; nose and throat, 338; total, 2,115. Number of ambulance calls, 74.

The Nichols Hospital in Peterborough has received a further grant from the estate of the late Charlotte Nichols which gives it a total endowment fund of two hundred thousand dollars. This sum with the income from patients and the grant from the Government, will make the institution self-sustaining.

The executive committee for Ontario of the British Medical Association has presented to Dr. R. A. Reeve a painting of himself done by

Robert Harris. Dr. Reeve was president at the meeting of the Association in Toronto in 1906.

The Ottawa Board of Health has refused permission for the erection of the hospital for tuberculosis in Rideauville. The committee in charge of the hospital have decided not to appeal from this decision, in deference to public opinion, and owing to the proximity of houses to the property.

Epidemics of smallpox are reported from certain districts of Ontario, notably Berlin and Goderich. In the latter place the churches, as well as the schools, have been closed. The disease is of a mild type. Scarlet fever is also very prevalent in the province, appearing, for the most part, in an unusually mild form.

F. D. Corbett, a merchant of Halifax, presented a cheque for ten thousand dollars to the committee having in charge the raising of a fund for a children's hospital in Halifax.

Dr. Forrester, of Mimico Asylum, has been appointed assistant medical superintendent at London Asylum in succession to the late Dr. Buchan.

A new free dispensary has been started in Winnipeg, its maintenance being provided for by local physicians, fifteen in number.

A medical association for the County of Waterloo, Ontario, was organized recently. Dr. Warland, of Galt, was elected president.

Dr. William Bayard of St. John died December 17th, 1907 at the age of 94 years. Dr. Bayard graduated from Edinburgh University in 1837, and for seventy years practised medicine in St. John. He was the founder of the St. John General Public Hospital, was chairman of the Hospital Commission, and at various times had been chairman of the New Brunswick Medical Society, president of the Council of Physicians and Surgeons, was 28 years coroner, chairman of the provincial Board of Health, and in 1895 president of the Canadian Medical Society. In August last, on the 70th anniversary of Dr. Bayard's

graduation, the Faculty of Edinburgh University conferred upon him the honorary degree of LL.D. *in absentia*, stating in the letter received, the belief that Dr. Bayard was then the oldest living graduate of the university.

Dr. John A. Howitt, of Hespeler, Ont., died suddenly in Saskatchewan.

Dr. W. S. McInnes died in Brandon on November 4th, after an operation for appendicitis.

Dr. J. W. Tripp, of Simcoe, Ont., died November 25th, in his 70th year.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF DRS. ARMSTRONG, BARLOW, ARCHIBALD, AND CAMPBELL.

"Yeasts and the Oidial Mould Forms in Relation to Disease in Man."

Busse in 1894 described a case of generalized yeast infection, which ended fatally, in a woman, where the gross lesions greatly resembled those of tuberculosis. Gilchrist, in 1894, also described a hitherto unknown lesion of the skin, but only recognized the causative agent to be a species of yeast after the publication of Busse's article, and he published it as such in 1896. At first he classed the infecting organism in the oidia, but later termed it a blastomycete. Wernicke, in 1892, described a case of generalized infection and gave a doubtful diagnosis of mycosis fungoides. Rixford and Gilchrist, in 1896, described two similar cases and concluded that the infecting organisms were true sporozoa and gave the name "Coccidioides Immitis Pyogenes" to the disease. Ophuels, in 1900, describing two similar cases from the San Joaquin valley, recognized the cause to be a mould or yeast and gave to the disease the name "Coccidioidal Granuloma."

We see, therefore, that these infections as reported, naturally fall into two classes, (I) the dermatitides, and (II) The generalized infections.

In (I) the disease commences as a papule or pimple and later many similar lesions make their appearance around this, forming an area with a rough surface almost papillomatous in appearance and showing many small abscesses and marked incrustation on surface. There may

be a loss of tissue, forming a shallow ulcer. The lesion may heal spontaneously, or it may heal at the one side while extending at the other, and similar lesions may develop in other skin areas. It does not affect the general health of the patient and in only one case out of the sixty or seventy reported cases has the condition resulted in a generalized infection. Iodides are always a specific for this disease.

Histologically the tissue shows hypertrophy of the epithelium, many small dermal abscesses, that contain the organisms, and numerous giant cells.

In class (II) the disease usually commences with a feeling of malaise and with slight fever, until at the end of the second week abscesses make their appearance usually at first in the superficial parts. Moderate fever persists, new abscesses develop, and the disease ends fatally in about a year.

Iodides are of no benefit in this form. Macroscopically, the lesions resemble those of a rather acute tuberculosis, and histologically the tissue in the lesion may vary from that resembling a giant-celled sarcoma to a mass of the organism held in a very fine fibrous stroma. Busse's and Curtis' cases were similar to the above save that there the history of the onset was not obtainable.

We now find that corresponding to the different clinical picture in these two classes there are certain differences in the infecting organisms.

In the dermatitides the organism appears in the tissues as a round or oval body, 10 to 20 micromillimeters in diameter. It usually possesses a double-contoured capsule and is highly refractile. There is often a clear zone between the capsule and the cell protoplasm and there may be a second or adventitious capsule (brought out by treating with one to three per cent. acetic acid) causing the organism to show in tissues many concentric rings. Budding forms are often present but mycelia are never seen. The protoplasm is granular, often vacuolated and a nucleus can not be made out.

In cultures these organisms form aerial hyphæ which show lateral or terminal conidia or spore formation, and these spores may multiply by simple budding (just as do the true yeasts) or by sending out a hypha which later becomes septate and forms terminal spores as before. It does not ferment sugars and the so-called mould-skin forms on fluid media. These characteristics place the organisms among the oidia rather than among the true yeasts, and so the disease is now usually termed "Oidiomycosis."

In coccidioidal granuloma the organism has a similar appearance in the tissues save that it multiplies mainly by the formation of endo-spores

and to a much less degree by budding. It is also larger in size, the diameter reaching 30 micromillimeters. In cultures it forms septate hyphæ with terminal conidia and these conidia never directly give rise to hyphæ but multiply by endo-sporulation alone, thus showing marked resemblance to the yeasts. An adventitious capsule is occasionally present. This organism is also classed among the oidia and is termed the "Oidium Coccidioides."

In Busse's, in Curtis' and in Turck's cases the organism differed considerably from the above. In the tissues it showed as a double contoured body about 8 micromillimeters in diameter, often possessing an adventitious capsule. It reproduces by budding only. In cultures it fermented sugars to alcohol and did not form mould-skin on fluid media. It reproduced by budding or by the formation of 4 to 8 endogeneous spores. Short non-septate and non-conidia-bearing hyphæ were occasionally found. These characteristics caused the organism to be considered a true yeast or blastomycete and the disease was named "Saccharomycosis Hominis."

Blanchard's organisms correspond to the above type, but Ormsby and Miller's resemble more closely those of coccidioidal granuloma.

When searching for the organism all observers are agreed that the best and surest method is by examination of the fresh pus or of the teased or sectioned tissue in 30 per cent. potassium hydrate. Fat droplets are the only confusing structures. Stained specimens, whether fresh or hardened, are by no means as satisfactory and there is great diversity of opinion as to the most suitable stain. Busse, Curtis and Sanfelice state that their forms are not recognized in tissue stained by hæmatoxylin, by the Gram method, or by the simple aniline dyes and they employ complicated special methods. Sternberg states that the Gram-Weigert method is the most suitable, although the tinge taken by the organisms may vary from Gram-positive to Gram-negative. The American workers favour polychrome methylene blue and state that carbol-thionin, or even hæmatoxylin brings out the organisms well.

Yeast and the special oidia infections (apart from the Oidium Albicans) are still among the rare diseases and this is especially true of the generalized infections. Peterson and Exner found yeasts in freshly passed urine causing it to have a milky appearance. Lundsgarde found it in hypopyon-keratitis. Colpe and Buscke judged it to be the cause of a very chronic endo-metritis. Tokishige in Japan showed that a special disease among horses was caused by a yeast. Hansemann and also Turck found yeasts to be the cause of a fatal meningitis.

However, Sanfelice's view that yeasts may produce benign and malignant tumours finds at present almost no supporters. Van de Velde reports sexenty-seven cases of yeast infection, mainly of the female genitalia, but among these one case of mastitis where the suckling baby had a severe gastro-enteritis with the same organism in its stools. He also thinks that a chronic gonorrhœa favours yeast infection. He also claims to have isolated them from the blood of some of these patients in pure culture. C. B. K.

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MEDICINE

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON AND HOWARD.

HIRSCHFIELD. "Polycythæmia." *Berl. Klin. Woch.*, No. 41, 1907.
LOMMEL. *Deuts. Arch. f. Klin. Med.*, Bd. 82, 1907.

In the course of the past few years much has been written upon "Polycythæmia"—the symptom-complex characterized clinically by an increase in the number of red cells, splenic enlargement and cyanosis. Hirschfield has recently (*Berl. Klin. Woch*, No. 41, 1907) reviewed the autopsy findings in five cases. All showed post-mortem an enormous hyperplasia of the bone-marrow, in which the normaloblasts and leucocytes shared equally. The spleen, in spite of its great increase in size, showed no evidence of erythropoesis. The author believes that the white corpuscles do not play a passive rôle, for their reproductive centres, with the exception of the lymph-glands, show evidences of stimulation. In some cases pathological leucocytes occurred in the blood stream. The primary disease process is, however, a hyperproduction of the erythroblastic apparatus. He suggests the name "Erythæmic" to distinguish these cases from the secondary polycythæ-

mia of cardiac congestion, high altitudes, phosphorus poisoning, etc., which he designates "Erythrocytose."

Lommel, in the *Deutsches Archiv fur Klinische Medizin* (Bd. 92, 1907), publishes a long article on the same subject. He reports a case in detail and gives the results of his studies on the gas-metabolism of the lungs as determined by the Zuntz-Geppert method. He found an increase of the respiratory gas-metabolism as was shown previously by Senator in two cases. There was also a decided increase in the excretion of urobilin depending upon the increased erythropoesis. The oxygen-capacity of the hæmoglobin was within the lower limits of normal. This case showed clinically some "congestion-phenomena" depending, perhaps, upon a lesion in the pulmonary circulation. The author believes that more cases of "Idiopathic" polycythæmia may be really *secondary* to congestion, and refers to his first case reported in 1906 in which the autopsy revealed a congestion of the portal system.

C. P. H.

Omerod, J. A. "Two cases of Disseminated Sclerosis with Autopsy." *Brain*, No. 119, Vol. 30, 1907.

These two cases are of interest from several points of view. Firstly, because they are completed cases, well observed clinically and examined post mortem, and secondly, because they add to the gradually increasing number of authenticated cases demonstrating how insufficient the usual text-book description of the disease still is: they show also, thirdly, the marked hysterical manifestation obscuring the underlying organic disease.

Case I.—Woman, æt. 54. Onset sudden, 10 months previous, while in usual health, with extensive spasms of legs with diarrhœa repeated on four successive days. These spasms lasted an hour or two, after which she could flex legs normally. The spasms then disappeared for five weeks. She then suffered from cramps in which her legs went out straight and then drew up again, quickly associated with severe pains in hips and legs. A short time later these cramps were replaced by flexor spasms of the legs, which soon resulted in the legs being so flexed that the knees were in the axilla—movement of the legs was impossible but sensation was impaired; upper limbs were unaffected. There was nothing of importance in her previous history except a stroke of hemiplegia four years previous which cleared up in twenty-four hours. This may have been a premonitory symptom of her present illness. On examination, her cerebral functions were normal; she was somewhat emotional, possibly on account of the pain, her speech was

normal. The optic discs were both rather pale in the temporal half; there was no nystagmus of eyes. There was no tremor of the upper extremities. The lower ones were drawn up in extreme contractures as described. There was no objective loss of sensation in any of its forms.

The plantar reflexes were extensor in type, and there was incontinence of urine. The legs were œdematous and there was a sacral bed sore.

Microscopical examination of brain and cord showed dessiminated patches of sclerosis—affecting chiefly the myelin sheaths—in cord, medulla, pons and mid-brain.

Case II.—Woman, æt. 38. Lymphangitis with abscess of the right upper limb; stiffness of elbow and fingers followed the application of a splint, with paræsthesia in the fingers spreading to the right side of trunk. Afterwards abscess in right thigh and weakness of right lower limb; peculiar rash on right thigh and right side of body. On admission to St. Bartholomew's, three or four years after onset of illness, she was completely bed ridden. Right upper limb was rigid, particularly the fingers, where there was pain on passive movement; right hip was rigid, but less so than arm; wasting of right limbs, especially the arm; right hemianæthesia shown to be hysterical in origin and a rash of peculiar appearance and distribution—probably an artifact. Plantar reflexes extensor, partial optic atrophy.

Transferred to Queen Square Hospital four and a half months later, there was still extreme rigidity of the right fingers, anæsthesia had spread upwards to right clavicle; rash now stationary. No further change for the next three or four months, then spread of symptoms to the left side, viz., anæsthesia left as well as right from neck downwards, weakness of left limb, jumping movements, and disagreeable sensations in left limbs; further slight spread of the rash; general debility and depression.

She left Queen Square Hospital at Christmas, 1905, and died of abdominal cancer in November, 1906, *i.e.*, some five or six years after the onset. Examination of the nervous system showed the presence of disseminated sclerosis in the mid-brain and cord.

Although both of these cases are well marked examples of the disease as shown at autopsy, neither shows those symptoms which are usually described as the typical picture of advanced cases.

The symptoms common to both are a "hysteroid" condition and cramp-like twitchings of the legs, partial optic atrophy, and evidence

of involvement of the pyramidal tract as shown by the presence of Babinski's reflex. The paper is illustrated with a plate and diagrams showing the situation of the lesions. C. K. R.

OBSTETRICS.

UNDER THE CHARGE OF DRS. CAMERON, EVANS AND LITTLE.

PELVIC DEFORMITIES.

Under this heading there has appeared in the *Annales de Gynécologie et d'Obstétrique* for September and October, 1907, a very interesting and somewhat extensive analytical review of recent literature appertaining to the subject.

CÆSAREAN OPERATION.

The first paper is by Prof. Leopold, "Beitrag zur Sectio Cæsarea auf Grund von 239 Fallen." (*Arch. f. Gyn.* 1907, *Bd. LXXXI, Hft.* 3.) This is a review of 229 cases of Cæsarean section performed at the Royal Frauen Klinik of Dresden. The review was undertaken to ascertain whether the new operation of Hebotomy would modify the therapeutic procedure in any of the cases. The paper is a mass of statistics and does not lend itself to analysis; 200 of the cases are carefully studied from various standpoints.

In general, it may be said that the conservative operation was performed in 134 instances; while the radical operation (Porro) was followed in 66 cases. In 188 of the cases the indication was pelvic contraction. In 12 other cases the cause was of some other nature, such as tumors, cicatricial contraction of the soft parts, rupture of the uterus, etc.

In the cases of pelvic contraction the indications were relative in 132 instances, and positive in 56. In the total 200 cases the mortality was 7.5 per cent. of the mothers. In 52.9 per cent there was no fever in the puerperal period; 86 infants were born alive, 11 died in the course of delivery or immediately afterwards and 7 died within 3 weeks. Thus 88 per cent. of the infants left the hospital alive.

In the second series of 29 cases 2 mothers died and one child.

Certain cases are then related in detail and conclusions formulated upon them by Leopold. In one of these regarding a woman who had perished from sepsis after Cæsarean operation, he states that, in certain conditions, when all hope of terminating labour by the natural route fails, and the patient is in hospital, hebotomy enables one to deliver the woman with comparative safety to both mother and child. In pri-

vate practice if all the indications permit of it, hebotomy is an operation of preference. When this is not the case Leopold does not think that embryotomy on the living child is any crime.

In certain cases of intra-uterine infection where the infection is gonorrhœal, the author thinks that the Porro operation should be that of choice if the patient is in hospital, but in private the practitioner would be compelled to perforate the living infant.

Leopold has been able to follow the history of 47 infants delivered by Cæsarean section. Of these 47, 9 are still living after an interval of 8 years. Of the Porro operations, the history of 23 infants out of 37 has been obtained. Of these 23, 17 are still living after a period of 8 years.

J. NEUMAN. "Die Sectio Cæsarea an der Klinik Schauta." *Arch. f. Gyn. Bd. LXXXIX., Hft. I.*

One hundred and eighty Cæsarean operations are recorded in this article of which 175 were performed on the living and 5 upon the dead woman, the whole series being collected from the observations 20 years previous to 1905. The series was collected from the services directed by Schauta at Innsbruck, Prague, and Vienna, and correspond to a total of 1,374 labours.

As a whole the operation of Cæsarean section was performed in one out of every 289 cases of labour.

The author proposes the following nomenclature based on the varied operative technique; (1) the Cæsarean operation according to Sänger; (2) Cæsarean operation, with a consecutive operation upon the adnexa with the object of sterilization; (3) Cæsarean operation with consecutive:—(a) supra-vaginal amputation of the uterus after the method of Porro. Intra-peritoneal, retro-peritoneal, of the pedicle, and inversion into the vagina; (b) abdominal extirpation of the uterus; vaginal extirpation of the uterus.

In 171 of these cases the operations were for relative indications, and in 47, absolute. In 4 cases the operation was the result of tumor blocking the pelvis. In 8 cases cicatrical contraction of the soft parts, 7 patients were the subjects of eclampsia; 161 patients recovered and 14 died.

The author seems to think that the question as to the bag of waters being intact, has no influence whatever upon the recovery of the case. In the fatal cases, at least 8 of them were attributable to the operation.

In the first decade the mortality was 9 per cent., while in the second decade it fell to 2 per cent., figures which indicate the great improvements which have been obtained by modern methods; 145 children

were born living and 10 born dead, 20 were born asphyxiated but recovered.

Brief reference is made to two cases of Cæsarean section reported by F. Volenta in the *Gyn. Rundschau.*, 1907, *Hft.* 10. On one of them the operation was performed on account of obstruction by myoma in the pelvic cavity and in other it resulted from marked osteomalacia. The second case died on the third day with symptoms of pulmonary embolism.

LePage in the *Bulletin Médical*, 29 May, 1907, speaks of the "Operation Tardive." Three cases are reported, (1) Cæsarean operation upon a primipara who had been in labour for 36 hours, the dilatation being about the size of a silver dollar. The recovery was complicated by a phlebitis of the right leg.

(2) A woman having an oblique ovular pelvis, in labour for some hours whose bag of waters had ruptured 4 hours before the operation was undertaken.

(3) A II para in labour for more than 48 hours in which the infant was evidently suffering, as meconium had been passed in considerable quantity, staining the membranes and even the uterine wall. The recovery was absolutely uneventful.

He concludes that the operation is permissible in cases that have been in labour for some time, even after the rupture of the membranes. Reference is made in the paper to a few other cases of a similar nature reported by various authors.

PUBIOTOMY.

KANNEGISSER. "Uber subcutäne Hebotomie auf Grund von weiteren 30 Fällen and über die Dauererfolge der Operation." *Arbeiten aus d. kgl. Frauenklin, Dresden XII. Congress der deutsh. Gesellsch f. Gyn., Berlin,* 1907.

The author records in this paper a second series of 3 pelviotomies performed in the Dresden Klinik from December, 1905, to the end of March, 1907. They represent the proportion in 2,630 confinements or 1.40 per cent. and 13 were primiparæ and 17 were multiparæ.

The true conjugate varied between 6½ and 8 cm., 22 were the subject of flat rachitic pelves, with general contraction. In his first series of cases the author stated the indications as follows:—Pelviotomy is indicated in a contracted pelvis with the true conjugate 7 to 8½ cm. When the disproportion between the pelvis and the fœtus is a priori so marked that it is positively certain that the infant will not be able to pass through the excavation and live. In such conditions the only concurrent

operations are Cæsarean extremely grave, and perforation, which is upon the living infant but exceptionally permissable.

In the second series, the lower limit of the conjugate for this operation is reduced to 6½ cm., but in these lower grades it is important to ascertain the size of the fœtus and particularly the dimensions and hardness of the fœtal head. Not one of these 30 cases died, all the mothers going out in good condition. In all but one case the scar of the operation was not seen at the time of the patient's discharge from the hospital. The average time in the hospital was 25 days. The average time in getting out of bed was the 20th day. Every single one of the children was born alive and was born in good condition. Fourteen patients in each series developed a temperature of over 38° C., making a morbidity of 50 per cent.

The general principles of Leopold's klinik may be stated as follows:—(1) The safety of the mother is of the highest importance. In consequence when women with contracted pelves present themselves in the course of pregnancy, prematurely induced labour is still preferred rather than permitting the patient to go to term. (2) With the woman in labour, and in certain exceptional conditions where the safety of the mother is generally involved, perforation of the living child is considered justifiable. (3) Leopold prefers only to undertake hebotomy when dilatation is complete. (4) Hebotomy (always subcutaneous) is performed and, to terminate the labour without delay, depending on the case, forceps or version precede extraction.

In the 51 children in these two series of pelviotomies, 28 were extracted by means of forceps and 20 by version, 2 being breech cases were extracted by the feet, and one by craniotomy.

VERSION.

LICENSTEIN. "Ueber die Beeinflüssung der Indication zur Wendung und Extration durch die Hebotomine." *Ibid.*

In this article a study is made of 154 cases of version and extraction, carried out between the years 1901 and 1905 in Dresden at Leopold's Klinik. Forty-one infants were either born dead or moribund or died shortly after birth from traumatism which gives an infantile mortality of 62.5 per cent. The question is how would the operation of pubiotomy have influenced the results obtained in these cases.

A comparative study of the results;—(1) before hebotomy and (2) after hebotomy is very significant. One hundred and ten versions performed before the first hebotomy resulted in 35 dead children whereas 44 versions after hebotomy resulted in but 6 fœtal deaths, thus the in-

fantile mortality was 31.2 per cent. without, and 13 per cent. with hebotomy. The author considers that primiparity, and the presence of a marked contraction ring in the uterus contra-indicate efforts at version with or without hebotomy in deformed pelves.

"He concludes that hebotomy notably reduces the indications for the performance of version or extraction, but without compromising their undoubted value in special cases. The essential point being the exact appreciation of the reciprocal proportions between the pelvis and the child, the true conjugate not being *per se an* invariable guide to the necessity of performing the operation. On the whole, version and extraction remain for the general practitioner a method of operation happily efficient.

PREMATURE DELIVERY.

LEOPOLD & KONRAD. "Zur Berechtigungsfrage der künsetlichen Frühgeburt." *Ibid.*

This is a warm plea in favour of premature labour and is based upon a total of 84 induced labours on account of contracted pelvis in the Dresden Klinik between July 1900 and December 1906, in a total of 14,094 *accouchements* making one induced labour in every 168 confinements. In this space of about 6 years 11 women were submitted several times to the operation of induced labour. All the patients were multiparæ. Previously these women had 212 confinements with an infantile mortality of 62.5 per cent., statistics closely related to those of Sarvey.

With regard to the conditions required for the artificial premature delivery the author states these as:—(1) to preserve, if possible, the bag of waters until dilatation is complete, and when two hours after the rupture of the membranes the fœtal head has not become engaged in the superior strait, one ought to proceed to version and extraction. (2) The upper limit of the operation is a conjugate of 8.5 cm., and the lower limit for generally contracted pelvis 8 cm. and for the flat rachitic, and flat rachitic generally contracted pelvis 7.5 cm. (3) The most satisfactory time to induce labour is from the 35th to the 36th week, from the standpoint of obtaining an infant sufficiently developed to be viable. Certain exceptions may be made in regard to the time, in relation to a particularly rapid development of a fœtus.

The author gives a series of tables of a study of these cases from every standpoint.

Results:—(a) Infants.

Of the 84 obtained, 71 were living and 13 dead; of these 71 which were born alive, 13 died before the 10th day, and 58 left the clinic in good condition, being a percentage of 69.5.

(b) Mothers.

Puerperal apyretic 59, puerperal pyretic 24, died, 1.

The chief difficulty about premature delivery is that one has to deal with an infant frequently feeble and difficult to bring up successfully. In carefully studying this question the author has been able to obtain the records of 353 infants born alive after induced labour, and of these infants 74 or 20.96 per cent. died during the first year, which is about the same percentage as that of infants born at full term.

The general infantile mortality for the first year in Saxony is 20 per cent. Of 398 infants delivered as results of premature induction of labour, 85 died in the course of the first year, 21.3 per cent., which seems to be somewhat better than the general infantile mortality rate.

As a result of their study the authors strongly support the merits of premature induction of labour in cause of pelvic deformity, especially in general practice, believing it to be contra indicated (1) in primiparæ, (2) in certain multiparæ in whom previous labours seem to indicate it is better to wait for spontaneous labour. Their personal experience leads them to conclude:—(a) that in general contracted pelves with a lowest true conjugate of 8 cm.; (b) in flat rachitic pelves, and flat rachitic generally contracted pelves with lowest limit of true conjugate of 7 cm. to 7½ cm.; that in all these premature indication of labour in the 36th week promises to be successful both for the mother and for the child.

The operative technique which gave the best results in Dresden were:—(a) Bossi, plus hydrostatic dilators in flat rachitic pelvis; (b) and the bougie in cases of general contraction of the pelvis.

PERFORATION.

MEISSNER. "Die Perforation des lebenfrischen und absterbenden Kindes," 1892-1906. *Ibid.*

Between 1892-1906 perforation of the living child was performed 57 times, 112 times upon children dead or moribund, making a total of 169 perforations in 29,725 labours in the Dresden Klinik. The interesting point of this paper is the study of the question of the legitimacy of perforating the living child. Of the 57 women who were submitted to this procedure, 8 had normal pelves, and 49 had contracted pelves. The contractions varied between 5.6 cm. and 7.6 cm. Thirty-six cases were primiparæ and 21 multiparæ. The cases are arranged into definite groups according to the causes which led to the performance of the operation.

In the first group were placed malformations of the fœtus; in the second group 6 cases of eclampsia in which other procedures were im-

possible. In the third group, three women with extreme pelvic contraction, but in whom conditions were present which absolutely excluded the Cæsarean operation. The fourth, consisted of 8 women who entered the hospital in a serious condition, as a result of efforts at delivery outside the klinik. In the fifth group were placed 3 cases suffering from general diseases of a serious nature such as tuberculosis. In the sixth group were 10 cases which are given in detail, the causes being varied. In five at least of these the operation of hebotomy would probably be performed if the cases came under observation to-day, though the rule of the Klinik is "Erst die Mutter und dann das Kind!"

HIGH FORCEPS.

LEISWITU. "Ueber die Gange in der Therapie des engen Beckens zur Rettung des Kindes." *Ibid.*

Between January 1894 and January 1907 in a total of 27,138 labours in Dresden Klinik, 697 applications of the forceps were made, being a proportion of 2.55 per cent. (a) In the interest of the child, 440 times, 63.13 per cent. (b) In the interest exclusively of the mother, 99 times, being 14.2 per cent. (c) In the interest of both, 158 times, being 22.67 per cent. Thus, the most frequent cause for the application of the forceps was the endeavor to save the child. In the 440 applications to save the infant's life, in but 109 of them was the pelvis normal.

These 440 cases terminated by the forceps with the object of saving the child, resulted in the delivery of 63 dead children, 377 surviving the operation, a total of 85.68 per cent.

In conclusion the author says that high forceps in cases of deformed pelvis permit the delivery of the child with safety, but at the price of considerable damage to the mother.

Thus the principle is still maintained in the Dresden Klinik, that in cases of pelvic contraction the application of forceps is not an operation without danger to the mother, and in general practice its indications should be definitely defined.

Finally he considers that it is necessary, especially in general practice, to proscribe absolutely the high forceps operation and to substitue for it hebotomy, an operation less grave. In certain cases whatever may be the reason, when the physician is unable to perform hebotomy he should not delay to resort to perforation of the living child.

D. J. E.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The third regular meeting of the Society was held Friday evening, November 1st, 1907, Dr. Wesley Mills, President, in the Chair.

CONGENITAL HEART DISEASE.

CAMPBELL P. HOWARD, M.D., exhibited a case of congenital heart disease in a Hebrew child, 4 years of age, in which there was a history of cyanosis at birth persisting in a moderate degree to present date. There were also clubbing of the fingers, a rough, somewhat musical systolic murmur and thrill of maximum intensity over the pulmonary cartilage, and some retardation in the physical development. There was no polycythæmia. The various theories of cyanosis in this affection were briefly discussed.

COMPLETE INFARCTION OF THE RENAL CORTEX.

OSKAR KLOTZ, M.D. The specimen, which I wish to bring before the Society this evening, is that of a kidney from a woman twenty-five years old. The case is an interesting one both from the clinical and pathological aspect. The woman had been pregnant, and was delivered some days previous to death. There had been suppression of urine, and the marked symptoms during the latter stages of her pregnancy are referable to the kidney condition, which was found. I should like to ask Dr. Berwick to give a detailed clinical history of the case. At autopsy the extensive anasarca, ascites and hydrothorax were notable. The pericardium, too, contained a fluid, which shortly before death had become infected, giving an acute serofibrinous pericarditis.

The kidney showed two conditions: an old mixed nephritis, which showed a fair amount of glomerular fibrosis; and a recent condition of infarction of the outer half of the cortex. This latter condition is readily seen macroscopically as a yellow rim of necrotic tissue. This border is separated from the rest of the cortex by a hæmorrhagic zone. The medulla is not involved in this necrotic process. You will notice that there are occasional islands of healthy cortex lying within the necrotic border. These, I take it, are areas which receive their blood supply from the capsule.

Microscopic examination shows that the outer zone of the cortex contains only the outlines of the tubules devoid of nuclei. The greater portions are free from any infiltration, but, nevertheless, isolated areas of inflammatory exudate are seen. Some of the small arteries in the cortex contain a hyaline and granular thrombus, and it is to these that we must refer the damage done in the cortex. The main vessels enter-

ing at the hilus are free. Likewise, the vessels in the zone between the medulla and cortex are free from any sign of plugging. It would seem that only those branches of the arteries which form an arc in the middle of the cortex are involved. This being the case, it is probable that the agent bringing about this thrombosis is one manufactured in situ. What this can be, I am not able to say. We have, however, the interesting condition in both kidneys of this patient, of complete infarction of the outer zone of the kidney cortex. In the literature I find similar cases are reported, all of them in association with pregnancy. However, the lesion is a very unusual one, and one which requires much further study to explain the origin of the thrombosis. Infection, I think, we can exclude, as the thrombi in the vessels were not of an inflammatory nature. It may be that we are here dealing with non-inflammatory thrombosis similar to those met with in the liver in eclampsia.

GEO. A. BERWICK, M.D. The patient, a primipara, came under my notice about the middle of August. She was then about 7½ months pregnant. She gave a history of being well until about 3 weeks previously; when she began to suffer from insomnia. She was very pale and on boiling a specimen of the urine it was practically solid albumin. I put her to bed on August 24th and gave free saline purgation with liquid diet. She did not improve and on the 29th entered the Montreal Maternity Hospital. Here Dr. Chipman saw her with me. There was now tremendous œdema of the vulva which in spite of treatment seemed to increase and on the 31st the question of immediate delivery came up. Cæsarean section was the method decided upon and no difficulty was met with in performing the operation. She recovered fairly well from the operation, but on the day of the operation no urine was passed at all. She was then catheterized and the amount of urine varied from 95 cc. which was the lowest on any one day, to 465 cc. the highest. Before operating it varied from 150 to 300 cc. in the 24 hours. On September 5th, only 105 cc. were passed but without any particular complaint of headache. About 11 o'clock, however, after some restlessness she was seized with a convulsion which lasted a few minutes and about half an hour later another. 800 cc. of blood were removed and she regained consciousness and seemed fairly comfortable for a week after. The pulse was weak and on several occasions there was dyspnœa which was very marked on the night of the 11th, a hypodermic of strychnine gr. 1-30th and ¼ gr. morphine was given and two hours later a hypodermic of 1-100th gr. digitalin was given and she rallied and was considerably better that day. Two days before death pain was complained of over the heart and pericarditis was found to be present with beginning

ascites. From that time she became weaker and died on the 13th of September. During the time she was in hospital she was given frequent hot packs some of which were effectual, others not, and every four hours was given 300 cc. of saline solution.

The personal history of this case seemed to be normal; the first seven months of pregnancy were uneventful, and it was only after this time that she began to have any symptoms at all. There was no history of scarlet fever or rheumatism.

W. W. CHIPMAN, M.D. I was deeply interested in this case, especially in the matter of treatment. As you have heard, the operation of Cæsarean Section was performed upon this woman and she lived afterwards for thirteen days. At first she seemed to improve, but later the kidneys gradually failed. The child survived for four weeks, then it too died.

When I first saw this case with Dr. Berwick, the vulva was swollen as I have never seen it before, the labia majora were each the size of one's fist, and the lower half of the vaginal mucosa was extremely œdematous. It was with great difficulty that the cervix uteri could be reached by the examining finger. As all means to restore the kidney function has failed, we agreed that delivery of this woman was essential. The alternative forms of delivery were either the induction of labour by means of a bougie or Cæsarean Section. I could see many objections to the former procedure, and could fully realize that if a full-term child came down through the œdematous vagina and vulva, there would in all likelihood be considerable sloughing, and the consequent risk of infection. Moreover, as is well recognized, a bougie is slow in action and not infrequently fails altogether to initiate labour pains. Cæsarean Section was therefore decided upon. The patient was on the table under the hour and recovered well, and lived, as we have seen, a fortnight. My own feeling is that the operation threw no more additional work upon the over-loaded kidneys than the induction of labour would have done; but it is upon this point that I seek the opinion of the members of this Society.

A. LAPTHORN SMITH, M.D. I would like to offer my cordial support to Dr. Chipman for what he did in this case, but think that he should have waited only one hour after the urine had been found solid, before doing Cæsarean section. I had such a case last summer; the woman had seven convulsions and after spending one hour in moderate efforts to deliver with forceps, I removed her to the Samaritan Hospital and did Cæsarean section, both mother and child being alive and in splendid health at present.

M. LAUTERMAN, M.D. It seems unfortunate that a case presenting so many important points for discussion should be up for diagnosis at this hour. I would like to ask if any record was kept of the examination of the urine, the quantity of urea eliminated as well as the microscopic findings might have afforded valuable information. Was the question of renal decortication considered?

One of my own cases developed this unfortunate condition 15 days after the uterus had been completely emptied; it does seem that there should be some means at our command for dealing with such cases.

While in Berlin I had occasion to discuss the question of renal decortication with Professors Israel and Senator, who, while they thought that this measure offered some hope, were not particularly enthusiastic about the operation.

GEO. A. BERWICK, M.D. With regard to the child, it could not be nursed and artificial feeding did not agree with it, so one of the patients in the hospital undertook to nurse it for a time; she left hospital and another was tried, but the child did not thrive and died of acute intestinal disturbance; there were no symptoms of any trouble with the kidneys. As to the urine it was examined microscopically and after operation; the amount of albumin was less than before, 2½ grms. to the litre 24 hours after operation. The temperature never went above 99 1-6.

ECTOPIC GESTATION.—A CLINICAL STUDY.

W. W. CHIPMAN, M.D., read the paper of the evening illustrated by diagrams.

DR. WILLIAM GARDNER: In discussing a paper like this embodying so much experience, one who has also had a large experience can only corroborate and confirm all that has been said. The paper has practically covered the whole subject in the well-known excellent literary style which one may always expect from this quarter. The condition now known to be much more frequent than was formerly supposed may be met with in the experience of the practioner in almost every department of medicine, and to be forewarned is to be forearmed.

One point on which I do not remember the reader of the paper to have touched is the medico-legal aspect of the more severe type of case. This was well illustrated by one which occurred in this city a good many years ago, in which I was much interested. I had been giving this woman some local treatment for a minor pelvic affection for a few weeks, when she ceased to attend. The next thing I heard of her was that she had died after seven hours with intense abdominal symptoms. The nearest doctor was sent for and failing to recognize the true nature

of the case he prescribed a dose of morphia, which did not relieve. He was again sent for but refused to attend and ordered the morphia to be repeated. The woman died shortly after. The doctor was accused of poisoning her. This, of course, he denied, and demanded an autopsy. This was at first refused, but on the doctor threatening to bring in the coroner it was finally granted. Dr. Finley, I believe, did the autopsy when an enormous collection of free fluid blood was found in the peritoneal cavity. It had come from a minute rent in an expansion of the isthmus of one of the tubes, no larger than a shelled almond. The symptoms of this type of case sometimes resemble those of irritant poisoning. Operation is, as a matter of course in the present position of surgery, the only proper treatment, and I agree with Dr. Chipman that in all but a few exceptional cases it should be by abdominal section. One exception I should make would be the case of an acute infection of the collection where presumably the blood had ceased to flow.

While as a rule we must operate, I belive there exists a type of case of very early, tubal abortion from the fimbriated end of the tube, attended with very slight hæmorrhage, in which the peritoneum disposes of the collection. It must, however, be admitted that the diagnosis of such cases is difficult and often uncertain.

While discussion of details in the performance of operation is perhaps scarcely in order, I cannot refrain from entering a protest against the removal of the ovary of the affected side because it is embedded in blood clot and blood-stained, even if it is slightly cystic. Such ovaries are still capable of performing useful function. Still less can there be any justification for the removal of the other tube and ovary because in rare cases the woman has had a second ectopic pregnancy.

A. LAPTHORN SMITH, M.D. This paper has excited my admiration for the reasons given by the previous speaker and especially for the frankness with which Dr. Chipman has dwelt upon the difficulty of diagnosis. There is a feeling among a great many doctors that, unless you know the exact condition present you should not do anything. I think this paper of Dr. Chipman's will have a good effect, so that as soon as a practitioner has a suspicion in his mind that he is dealing with a case of a tubal pregnancy he will call in a specialist, and if the specialist is fairly certain that this is the condition present he will operate at once. The ovum has the power to eat through the vital tissues into the blood vessels and cause fatal hæmorrhage, and is therefore to some extent a malignant disease. When it comes to the question of taking such risk by waiting until we are certain, it is far better to operate at once and save every case, even if occasionally we find some other, but equally serious condition. I have made these most fortunate mistakes several

times, and I am glad to have made them, because they saved lives which would otherwise have been lost. Several of these fortunate mistakes revealed a perforated appendix which was quickly removed and the patients recovered. Another was a twisted ovarian cyst with a hæmorrhage of two quarts into it in a woman who was a month pregnant. Here we had all the symptoms of a ruptured tubal pregnancy, such as hæmorrhage, shock, high pulse, low temperature and sudden pain in a woman who was pregnant. Immediate operation. in the belief that it was a ruptured tubal pregnancy, saved her life. With regard to the frequency of tubal pregnancy my experience corresponds pretty exactly with Dr. Chipman's for I had my fortieth case last month out of 815 abdominal sections with two deaths, my thirtieth and twenty-eighth. Only one of mine had a pregnancy in the uterus as well as in the tube and I have not met with one in the broad ligament. A curious case I had was that of a woman who had been sterile for many years and I was treating her at the Montreal Dispensary for salpingitis; she became pregnant while I was treating her. I examined her twice a week and was able to feel a tubal pregnancy from the first. She entered the hospital and I operated by the vagina and removed the pregnancy which was unruptured and as large as a sausage. The result was very satisfactory. This was the only case I have done by the vagina. Dr. Chipman has just pointed out that one of the means of diagnosing is the open os. My 38th case was one which went on to full term, the woman had a furious labour and I could put two fingers easily into the uterus, but it was empty and the full time baby was alive in the abdominal cavity. It lived six hours and the woman lived eight days after operation. Her doctor believed from the third month that it was a tubal pregnancy, but I waited for characteristic signs and there allowed the case to go on till too late, adding one more to my already long list of victims of so-called conservatism.

(To be continued.)

ASYLUM SERVICE.—The Government of Ontario is responding nobly to the cry from the medical profession for reform in the asylum service —especially as to appointments. The Grit heads of asylums are getting gradually weeded out, or resigned out, or transferred out. By a singular and happy coincidence Tory heads are coming in to take the places of the useless Grits. The world moves on, and in the course of time Ontario will have the finest asylum service in the world. Appointments to senior positions will depend on merit alone—the merit of being good working Tories.—*The Canadian Practitioner*, December, 1907.