BUFFALO MEDICAL JOURNAL.

VOL. LXVI. AUGUST, 1910. NO. 1

ORIGINAL COMMUNICATIONS.

Progress in Obstetrics and Gynecology[1]

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LECTURE I.—OBSTETRICS—PART I.

THE most ancient writings on medical subjects belong to Egypt, though the fragments possessed by us give but an imperfect idea of the exact status of medical science and practice in the early periods of its history. The most important document is the Ebers papyrus, now in the University of Leipzig. Its date was about 1500 B. C. It deals with the construction of the body and diseases of various parts, including special maladies of women.

The most important Egyptian medical works were six volumes of the series known as the Hermetic Books. Though these do not now exist, their titles are known, and it is interesting to note that one was a treatise on diseases of women. They were the authoritative guides to the practitioners of the time, priest-physicians. According to the Herodotus there was a fairly well-defined specialism in Egypt, though as regards obstetric practice it is probable that it was entirely in the hands of midwives, the references to obstetric subjects in the Ebers papyrus being very scanty.

In ancient Greece the practice of medicine was for a long period in the hands of the priests. Only in the centuries immediately preceding the Christian era did others enter the field, some actually studying diseases of the body, others working at the anatomy of animals, while still others became experts in the subject of personal hygiene.

Obstetric cases were attended by midwives who, according to Plato, were accustomed to give medicines to hasten labor, to tie and cut the cord, and to induce abortions. The genuine writings of Hippocrates contain very scanty accounts of obstetric and

1. The second series of Harrington Lectures delivered at the University of Buffalo, May 24, 25, 26, 1910.

in Constantinople, there is a volume on obstetrics and gynecology, which gives an interesting account of the knowledge of these subjects at the time. He considers such subjects as the signs of pregnancy, diagnosis of fetal sex, care of pregnant women, signs of labor, difficult labor, and the like. He quotes largely from Soranus, Galen, and older authors and it is interesting that several of his chapters were written by the female physician, or midwife, Aspasia.

Paulus Aegineta, who worked in Greece and Alexandria, appears to have given special prominence to diseases of women and obstetrics and is generally regarded as the first great male specialist and teacher of these subjects. He had a great influence among the Arabians by whom he was referred to as "The Obstetrician."

After the destruction of Alexandria by the Arabs in 646 A.D., Greek influence in medicine very markedly waned. Bagdad, under the ambitious Arabian Caliphs, became the new seat of learning. Later, Cordova, in Spain, became an important educational center. Translations of medical works taken from the Alexandrian libraries formed the chief source of instruction of physicians, who gradually came to form an important class in the Mohammedan world.

Of the prominent Arabian authorities whose names have come down to us, few are associated with obstetrics and gynecology, owing to the laws which forbade men to examine the genital organs of women, gynecological practice being consequently limited to women. It is known, however, that various important obstetric instruments were devised by the Arabians, and Albucasis, of Cordova, in the eleventh century described a case of ectopic pregnancy in which the fetus escaped by a suppurative process through the abdominal wall,—the first definite record relating to this form of gestation found in ancient writings.

During the period of Arabian dominance, medicine in western Europe was entirely neglected. There were no important writers or teachers or indeed, any professional class. With the revival of learning in the fifteenth century, Latin translations of the old Greek medical authors began to appear in Italy, leading anew to the study of the long neglected science. One of the first new works on obstetrics was that issued by Eucharius Rhodion, of Rhodes, in 1532. It was translated into English in 1552 by Thomas Reynold, under the title "The Byrth of Mankind," otherwise named "Woman's Boke."

That the publication of this work met with a good deal of opposition is evident from the preface in which reference is made to those who

"think it is not meete nor fitting such matters to be entreated of so plainly in our mother and vulgar language, to the dishonour

(as they say) of womanhood and the derision of their own secrets, by the detection and discovery thereof, men it reading or hearing, shall be moved thereby, the more to abhore and loath the company of woman, every boy and knave reading them as openly as the tales of 'Robin Hood.'"

In 1566, Caspar Wolf made a compendium of obstetric writings collected from older writers. Ambrose Paré published a work on obstetrics in 1567, therein describing version. Israel Spach published an encyclopedia of obstetrics in 1597. As male physicians began to give more attention to these subjects they met with strong opposition from the midwives. That popular feeling was, in some parts of Europe, in favor of the latter class is shown by the record of a physician being burned alive in Hamburg in 1521 for practising obstetrics.

The following quotation from an English pamphlet of the sixteenth century is of interest in this connection:

The men have but lately come into fashion. In praise of Scotland and Ireland be it spoken, the women of these countries are still too modest to employ them. What is the consequence? Adulteries happen very seldom in these countries; and every farm swarms with strong, healthy, well-limbed children.

Dr. Willughby, practising in England in the latter part of the seventeenth century, whose daughter was a midwife, has left on record the following account, illustrating the state of obstetrical practice at the time:

In Middlesex, anno 1685, my daughter, with my assistance, delivered Sir Tennebs Evank's lady of a living daughter. All the morning my daughter was much troubled, and told me that she feared that ye birth would come by ye buttocks. About seven o'clock that night labour approached. At my daughter's request, unknown to the lady, I crept into the chamber upon my hands and knees, and returned, and it was not perceived by ye lady. My daughter followed me, and I being deceived through hast to go away, said that it was he head, but she affirmed the contrary. However, if it should prove ye buttocks, that she knew how to deliver her. Her husband's great Oliverian power, with some rash expressions that he uttered, flowing too unhandsomely from his mouth, dismayed my daughter. She could not be quieted until I crept privately again the second time into ye chamber, and then I found her words true. I willed her to bring down her foot, the which she soon did, but being much disquieted with fear of ensuing danger, shee prayed mee to carry on the rest of the work."

One of the strongest opponents of male obstetricians in Europe in the seventeenth century was Louyse Bourgeois, the most famous midwife of Paris. She was a strong-minded woman

and expended a good deal of violent language in denouncing those who ventured to trespass in her sphere of work. Two physicians in particular were favored with her strongest invective—namely, Guillerneau, and Honoré. These attacks were made as early as 1600 and it is, therefore, clear that Astruc was in error when he wrote that males began to practise obstetrics in France about 1663.

Louyse Bourgeois had the patronage of the Court and carried on a very large practice in aristocratic circles. One of the infants delivered by her was Henrietta Maria, afterward wife of Charles I of England. She also had the honor of having been the first modern woman to write a work on midwifery, though the honor is of doubtful value, since it has been clearly shown that the book was to a great extent a resumé of Ambrose Paré's treatise of 1573. The lady made no acknowledgment of her indebtedness to this distinguished man and she achieved much popularity in the profession, her book appearing in several editions during the seventeenth century.

It was from the 1642 edition of Louyse Bourgeois's book that the first popular English textbook was chiefly compiled. This work continued to be a standard authority for many years. It is worthy of some notice as giving an account of the theory and practice of midwifery and diseases of women, as taught during the second half of the seventeenth century. The work was published in London in 1656 and was celled "The Compleat Midwife's Practice." It was edited by four physicians whose initials only are given on the title page. The editors state in the preface that the work gives the practice not only in English, but of Spanish, French, and other nationalities. They state their indebtedness to Louyse Bourgeois. On the title page are two biblical passages—namely, "Exod.1.17, But the Midwives feared God; v.20, Therefore God dealt well with the Midwives."

One great object in publishing the book was for the better teaching of midwives who, according to the editors, neglected "all the wholesome and profitable rules of art which might concern them in the occult diseases of women, as also the anatomical parts of the body." The first part of the book is concerned with midwifery, the second with diseases of women and children, the third with certain clinical discourses. There is an appendix in the form of a letter of instruction from a dying midwife to her daughter. At the beginning of the first part there is an interesting account of the anatomy and physiology of the male and female genitals. It is most interesting reading, and serves as a standard wherewith we can measure the advance made in our knowledge during the last two centuries.

In a chapter on the signs of conception the following sentence occurs: "Take the urine of a woman and shut it up for three days in a glass; if she have conceived at the end of three days there will appear in the urine certain live things to creep up and down." It is a pity that no account of these "live things" is given. The description must, of course, refer to the growth of colonies of microörganisms in the urine, and it is interesting to note that the appearance presented by standing urine was attributed to action of living organisms. It is not likely, however, that the microbial composition of the masses seen in the urine was known.

Two chapters deal with the diagnosis of the sex of the fetus during pregnancy. It is stated that when there is a male *in utero* "The woman's right eye will move swifter and look clearer than the left. The right pap will also rise and swell beyond the left. If you cast the milk of the woman upon the urine it will presently sink to the bottom. As the woman goes she always puts her right leg forward, and in rising she eases all she can her right side sooner than her left." As regards the conception of a female it is taught that "girls are begot of parents who are by nature more cold and moist, their seed being more cold and moist and liquid."

It was evidently part of the duty of midwives in the seventeenth century to teach pregnant women how to take care of themselves. A chapter of wholesome advice ends as follows: "As soon as ever they perceive themselves to be with child, they must lay aside their busks and not straighten (constrict) themselves in any way, for fear of hurting the fruit of their womb, by not giving it its full libertie of growth." To prevent the breasts from becoming too large several means were adopted, one of which was the wearing of a small gold or steel chain around the neck during pregnancy. To keep the abdomen firm and smooth, various ointments were used with or without a dressed dogskin. During the last month of confinement it was the rule to rub the belly, perineum, hips and thighs with ointment for the purpose of softening the parts.

Among the causes of parturition is mentioned: "the narrowness of the place where the infant lies, so that he is forced to seek room otherwhere, which makes him to break the membranes wherein he is contained, pressing and constraining the mother, by the sharpness of those waters, to do her duty for his release." As regards the lying-in, it is interesting to note that of all the methods of delivery employed "the best and safest is to lie in their beds," though it is particularly enjoined that the patient should not lie down too much during the first stage.

In the management of a case, the midwives are told particularly not to be too hasty. The ignorance of some women is referred to, who, in "their haste to be gone to other women, do tear the membranes with their nail, to the danger both of the woman and the child, which then remains dry," thus causing delay and increasing the pain. They are advised to keep their nails pared close and to wear no rings. "She ought to be courteous, sober, chaste, not repining, cholerick, or covetous; she ought to be prudent, wary and cunning, ofttimes to use faire and flattering words."

In the treatment of the third stage, among the many methods of assisting the delivery of the afterbirth is mentioned rubbing the belly with the hand; the reason assigned is that it causes a breaking of wind in the bowel, this condition having been considered an important cause of delay in the third stage. The value of this plan really consisted in its stimulation of the uterus. When this method failed it was taught that the hand should be introduced into the vagina for the purpose of removing the placenta.

(*Continued in September*).

706 RELIANCE BUILDING.

The Prevention and Cure of Disease by Means of the Inclined Desk-leaf or Drawing Table

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THE literary monks of the middle ages learned that writing on a flat table or desk was injurious to mental, ocular, and physical health. They habitually used one that was sharply pitched or inclined. We have still to profit by their experience, and when we come to a realising sense of the truth we shall then also recognise that its practical application will be of more value to the world in preventing and curing disease than, lumped together, all the medical and hygienic reforms of the day. Between four-fifths and nine-tenths of our school-educated young men and women have lateral curvature of the spinal column. And not a thing is done, not a finger lifted, either to prevent or to cure the disease. The morbid anomaly itself, together with its secondary or induced diseases, of the sixty or more millions of American citizens, could all have been prevented, or, if once in progress, could have been cured if set about early enough. The prevention could have been secured by means of the inclined desk-leaf in schools, and at home, used for all writing, and for most reading.

If one will make a simple test with the drawing-table here pictured the matter will become clear. Even a piece of board

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LECTURE II.—OBSTETRICS—PART I.

AMONG the means of checking post-partum hemorrhage is mentioned careful bandaging of the abdomen in order to press the uterus well into the pelvis, thus compressing blood-vessels.

After difficult or tedious labors, it was advised to envelop the loins of the patient in the raw skin of a sheep flayed alive, and to place on her abdomen the skin of a hare flayed alive, and washed in the hot blood of the animal. These applications lasted two hours in winter and one in summer. In France this was a common practice and is mentioned in particular in Louyse Bourgeois's book. According to her "it constringes the parts overstretched by labor, removes bad blood and chases away the vapors."

In some cases the afterbirth was placed on the abdomen instead of a hare's skin. Louyse states that the sheep must be a black one, and Ambrose Paré, in his work, declared that a white sheepskin was not efficacious.

An interesting story is told of a birth in the Royal Family, at which the black sheep was used on the mother. The unfortunate animal, which had been flayed alive in the room next to the delivery chamber, rushed after the butcher who had hastily removed its skin and had hurried to the bedside leaving the door open behind him. There was a sudden scattering of the lords and ladies in attendance.

For delayed labors due to rigidity of the cervix powdered hellebore or pepper was blown into the nostrils of the mother in order to make her sneeze as much as possible. Several drugs

1. The second series of Harrington Lectures delivered at the University of Buffalo. May 24, 25, 26, 1910.

were also given, and the milk of another woman, if it could be obtained, was mixed with maidenhair and applied warm to the navel.

Throughout the book prescriptions of the most complicated nature are used. As an example one which was used in delayed labors was the following:

Take two yolkes of eggs and boyle them in ould wine, then mix with them these spices; cinnamon half an ounce, rind of cassia two drams; or you may leave out the cassia, and instead thereof put in the more cinnamon; saffron half a scruple, savine, betonie, Venus-haire, dittaine, fenugrekke, lawrelberries, mint, of each one dram; the bone of the heart of a hart, pearles prepared, mingle all these with sugar, and make a thick powder and give it.

The danger of leaving any part of the placenta or membranes in the uterus is clearly pointed out in the following terms: "retention causes suffocation and divers other evils, for being long detained, they putrefie and cause an evil smell, which ascending up to the heart, liver, stomach, diaphragma, and so to the brain, cause pains in the head and the lungs, shortness of breath, faintness, cold sweats; so that there is great danger." The chapters dealing with hemorrhage in connection with labor, show that the writers were alive to the importance of careful and active treatment.

The advice that is given regarding the choice of a wet nurse contains the following sentences: "see whether her sight be no way imperfect, as whether she be squint-eyed or have a downcast look; you must have a special care that she be not red haired, for their milk is extremely hot.

Among the causes of barrenness are mentioned: "against which it is affirmed that the drinking a draught of cold water that drops from the mouth of a young horse as he drinks is very potent." The following are also mentioned: "all sorrow, anger and much sleep: the eating of milk, fresh cheese, and anything that is made of dough." Numerous other articles of diet are to be avoided, for example, spinach, beets, lettuce, nuts, cherries, onions. All these are apt to give the womb "some cold and moist distemper, whereby it cannot draw into itself the semen."

In the final chapter on the instructions of a dying midwife to her daughter, some excellent advice is given, for example:

Be diligent, and leave nothing unsearched that may tend to the advantage of thy practice. And to this end be always learning to the last day of your life; which that thou mayest not cease to do, be always humble . . . . Hide none of those good receits which thou knowest, either from midwives or physicians;

for otherwise they will estiem them as little as those of mountebanks. . . . . Above all you must be aware (for any treasure in the world) of adhering to one vice, such as they are guilty of who give remedies to cause abortion. . . . If you are sent for to any house, inform yourself of what condition they are; and whether they be rich, or whether they be the poorest creatures in the world, serve them with like pains and affection.

Never be dismayed if everything go not well, for fear disorders the senses; and a person that keeps her wits together, without suffering them to be scattered by fear, is capable of giving assistance in weighty affairs, and especially where things are done with leisure; for in some cases nature helps us marvelously when we are most at a stand. . . . My last advice is that thou do well, and in so doing fear nothing but God that he may bless thee and thy endeavors.

Gradually popular opposition to the practice of obstetrics by men died down and the term man-midwife (*accoucheur*) became applied to those who were expert in this branch of work. Dionis writing in 1718 in reference to the qualifications necessary in such a practitioner says:

In a word, he must show himself a perfect honest man, who squares all his actions by the word of God. He must therefore, be virtuous, of a sweet temper, affable, full of compassion, and always contented with any handsome or moderate fee that is given him.

He begins his description of the necessary qualifications of a midwife thus:

Midwives ought not only to have all the good qualities required in men-midwives, but must also leave off several vices proper to their sex and profession.

Here is the account given by Mr. Tolver, a London man-midwife, who visited Paris after the middle of the eighteenth century, of the course of lectures given by a M. Payen:

This profession has rose into notice, rather through intrigue than merit, and was set up in opposition to M. Levret. The lectures he reads were penned by a very eminent physician and man-midwife, expressly for that purpose. . . . Each course continues about three or four months; and as the expense is only one guinea, the pupils of both sexes are seldom less than threescore. Here barbers, women, and regulars promiscuously assemble, and are present together upon all occasions, a circumstance very disgusting to the gentleman, and frequently repugnant to the delicacy of a Briton.

There were various reasons for the gradual transfer of obstetric practice from midwives to physicians. Prominent among these was the renaissance of anatomical investigations after the

fifteenth century. Previous to this time the anatomy of the human body was very imperfectly known, and was mostly based on the writings of the Ancient Greek authors, the oldest of which are those of Hippocrates and Aristotle, who described the human uterus as it was found in animals. Though human dissection had been practised in Alexandria by Herophilus and Erasistratus, it left no permanent impress on medical literature. Even the celebrated Celsus had no accurate knowledge of the female genitalia. Diocles described mammary processes in the uterus used by the fetus for its nourishment.

Soranus in the beginning of the Christian era described accurately the relation of the uterus to the bladder, the uterine ligaments, the ovarian arteries, arbor vitæ and external genitals. He missed the fallopian tubes, however. Galen used the Hippocratic description of the uterus, stating that he intended to write on the function of its two horns. Mondino, of Bologna, in the fourteenth century dissected the female cadaver, but he described the uterus as having seven cavities.

The sixteenth century marks the real commencement of anatomical study, the following workers being the chief contributors to our knowledge of female pelvic anatomy previous to the nineteenth century: Berengario da Carpi (1522), Vesalius (1543), Eustachius (1552), Fallopius (1561), De Graaf (1672), Malpighi (1687). In the eighteenth century Ruysch, Douglas, Haller, Albinus, Smellie, Donald, and Alexander Monro, Roederer, William Hunter.

Albinus was the first to describe the gravid uterus. He published a series of seven plates in Leyden in 1747. Though the drawings were beautiful they were wanting in accuracy. Ruysch worked at the musculature of the pregnant uterus describing the fibers of the fundus as of use in expelling the placenta.

Smellie in 1754 and Roederer in 1757 published plates of the gravid uterus. These and the publication of Albinus are to be regarded as the first contributions to the literature of the anatomy of pregnancy.

In 1774 William Hunter published his "Atlas on the Anatomy of the Human Gravid Uterus Exhibited in Figures." He died before his description of the plates appeared, but his manuscript was issued and edited by Baillie in 1794. In the nineteenth century the anatomy of pregnancy and labor was further elaborated both by dissectional and sectional studies.

Though in previous centuries Leonardo da Vinci Berengario da Carpi, Vesalius, Eustachius, Ambrose Paré and others gave some attention to the relationships of structures, they made no

special study of the female pelvis. This was first described in sections by Huschke in 1844. Freezing, first employed by Pirogoff in making topographical studies, has been used to great advantage in Germany and Scotland especially in the study of the anatomy of pregnancy, labor and the puerperium. In the latter part of the nineteenth century and the beginning of the twentieth, the most careful histologic studies of the female genitalia were made both in the non-pregnant condition, in pregnancy, labor and the puerperium, so that, at the present time, it may be stated that very little remains for investigators to discover in this field of work.

Another great reason for the transfer of obstetric practice from midwives to men was the invention of forceps. Though this instrument was kept a secret in the Chamberlen family in England during the latter part of the seventeenth century, it gradually came into use in Europe during the eighteenth century. It is on record that the Amsterdam Medico-Pharmaceutic College in the first half of the eighteenth century would give no license to one who could not use the forceps (or rather lever).

After the important improvements introduced by Levret (1751), and Smellie (1752), the forceps became widely known, and as the public realised that living children could be produced in cases where previously the mother might die or the infants be destroyed by embryotomy, men-physicians became a much more important factor in obstetric practice. Education also proved a very important factor in bringing about this change. For centuries the midwives worked empirically to a great extent. They used rules and precepts which for the most part had been transmitted orally from generation to generation.

Before the era of printing there were few books. There was no hospital or dispensary teaching and little individual instruction. The renaissance of anatomical investigation in the sixteenth century not only led to the establishment of a more scientific basis for the study of medicine, but stimulated the ardor and interest of teachers and students in various parts of Europe.

As Goodell puts it: "in proportion as people grew wiser by reading books and by having them to read, the ignorance of midwives became more and more manifest. The physician developed with the times the midwife did not. The battle between knowledge and ignorance is never a drawn one; either Christian must die or Apollyon give way."

In the eighteenth century students learned mostly from being apprentices to practitioners. Certain men of prominence gave special instruction, for example, Smellie in London; Levret in

France, and Ruysch, professor of anatomy in Amsterdam, who sold a large anatomical collection to Peter the Great, taught obstetrics for a time. The first university professorship of obstetrics and diseases of women was established in Edinburg in 1726, Joseph Gibson being professor. A generation later the first German chair was established in Göttingen, Roederer being the professor.

In Italy King Victor Amadeus II. of Piedmont in 1728, set apart a ward in San Giovanni Hospital for lying-in women where midwives could be taught. At Bologna, Galli, Professor of Surgery during the first part of the eighteenth century was made professor of obstetrics in 1757, as he had been teaching the subject privately for some time.

During the nineteenth century great advances were made, dispensaries for women, special obstetric wards in general hospitals, and independent maternities being everywhere established. Until the epoch-making researches of Pasteur and Lister, the value of these institutions was greatly marred by the great prevalence of septic infection. Now that this terror has been overcome, hospital obstetric practice has been established as the safest and most satisfactory. Indeed, at the present time. in the leading civilised countries, private obstetric practice cannot compete with institutional practice as regards freedom from mortality and morbidity. Various prominent authorities, especially in England and America, have recently drawn attention to this state of matters, criticising many of the mistakes commonly made in general practice.

In conclusion I wish to refer to three topics of great importance to the general practitioner—namely, douching of the genital tract, digital examination, and instrumental delivery. Too strong a protest cannot be urged against the indiscriminate and unscientific use of antiseptic vaginal douches in obstetric practice. In spite of the careful work carried on in different countries by numerous observers, there is widespread ignorance of the following facts—namely, that there is a normal bactericidal influence exerted in the genital canal tending to produce continued asepticity, and that this influence may be considerably weakened by the chemical action of many antiseptics. Many physicians are accustomed to employ antiseptic douches in pregnancy as a prophylactic measure. That this is unnecessary in the great majority of instances has been sufficiently demonstrated. Of course, if there is any local acute or chronic infective or venereal process on vulva, vagina or cervix, the pregnant woman should be treated most carefully so as to diminish the chance of infection in labor, and to achieve this end the most vigorous use of antiseptics may be necessary.

Apart from such conditions, douches are unnecessary in pregnancy. It is scarcely necessary to remark in this connection that the condition of the husband is of importance. Sexual intercourse should not be allowed during the weeks previous to labor, and if he shows evidences of uncured venereal disease coitus should be prohibited for months.

There has been much difference of opinion among workers as to the normal condition of the vaginal contents, but the causes of their differences have been recently fairly well elucidated, and at the present time it may be accepted as proven that the genital canal tends to be maintained in a state of asepticity by natural means. Prophylactic douching during pregnancy is unnecessary, neither is it needed after labor, if the patient be not exposed to contamination by those who attend her during parturition. Given a sterile genital canal, the aim should always be to conduct the labor aseptically.

Most frequently the sterile tract is contaminated by unnecessary or careless manipulation carried out by doctor and nurse. Nothing is more to be deprecated than frequent routine vaginal examination of parturient women in practice. It is absolutely unnecessary in the great majority of cases. The abdominal examination is ordinarily a sufficient source of information to the physician, though there are, of course, occasions when vaginal examination is necessary. Then it should be made with as much care as is exercised in the best technic of surgical operations, not in the hasty or careless manner only too frequent in ordinary practice. There should be as much strictness as regards cleanliness, in introducing the fingers into the vagina of the parturient women, as in exploring the peritoneal cavity in an abdominal section. In the latter proceeding every precaution is taken to cleanse the skin of the patient, as well as that of the operator's hands. How often, in obstetrical practice, is the accoucheur satisfied with a hurried application of soap and water, a momentary dip in some antiseptic solution, often not of measured strength, but made of an unknown number of drops in an unknown quantity of water? How often does he neglect to cleanse the external parts with the same thoroughness which he observes in preparing for surgical work?

The hair-covered vulva is ordinarily infested with myriads of microörganisms, including many of a pathogenic nature. It matters little how clean the fingers are, if this region be not attended to. They cannot be introduced into the vagina without carrying the external contamination. The only way in which this risk can be reduced to a minimum is by shaving the vulva before every labor, cleansing it thoroughly when labor begins,

and keeping it covered during labor with dressings soaked in an antiseptic solution. If shaving cannot be carried out, the hairs may be clipped close with scissors.

As regards hands, I believe, that in addition to careful cleansing, sterile rubber gloves should always be used when examinations or operative procedure is to be carried out. As regards after-douching, in the majority of cases it is not necessary. When there is a tendency to the accumulation of blood clots in the vagina, sterile salt solution may be used. Antiseptic solutions are only to be employed when local infection exists before labor, when the patient is subjected to the risk of infection during labor or when the perineum has been badly lacerated. To keep the external parts as clean as possible, it is advisable to wash them with an antiseptic lotion during the first few days of the puerperium or to keep them covered with dressings soaked in the solution.

The Abuse and Misuse of Forceps.—There can be little doubt that since the introduction of anesthesia into obstetrical practice artificial delivery by various procedures has become very much more frequent than in the pre-anesthetic days, when interference was avoided as much as possible because of the increased suffering to the patient. Much of the newer practice is legitimate and life-saving, but it cannot be denied that anesthesia has also served as a cloak to widespread and unwarrantable license in the employment of methods for hastening labor.

It is too often forgotten that the majority of labors are natural, that they should be interfered with as little as possible, that interference, even by the most skilled hands, is always accompanied with risks. It is amazing to notice with what boldness many physicians will undertake the most difficult obstetric maneuvers, when they will positively shrink from performing some surgical operation, which they may have witnessed many times. When it happens, as is not infrequent, that this obstetrical boldness is accompanied with surgical uncleanliness, the result of the conjunction is sometimes the death of the unfortunate patient, often the establishment of a pathological museum in her pelvis. The best evidence of the truth of what I state is derived from our gynecological case records.

Forceps operations, especially, are undoubtedly undertaken with too great frequency. It is common to meet those who use instruments in 10, 20 or 30 per cent. of their deliveries, or even in a larger proportion, so frequent are the indications for interference in their practice. How often these indications are their own creation they do not state. Nor do they confess how frequently they are influenced by a desire to curtail the dreary time of waiting at the bedside, or are inspired by a humane desire to cut short the sufferings of the patient.

To give an idea of the frequency with which forceps are used in various European hospitals, I quote the following list, compiled by Wahl: von Walla, Budapest, 1882-1895, 1.04 per cent.; Kezmarszky, Budapest, 1874-1882, 1.4 per cent.; Abegg, Danzig, 1872-1885, 2.2 per cent.; Leopold, Dresden, 1879-1885, 2.56 per cent.; Gusserow, Berlin, 1882-1886, 2.66 per cent.; Ahlfeld, Marburg, 1881-1888, 3.5 per cent.; von Rosthorn, Prag, 1891-1894, 3.63 per cent.; Braun, Wien, 4.3 per cent.; Fehling, Basel, 1887-1893, 5.33 per cent.; von Säxinger, Tübingen, 6.5 per cent.; Schauta, Innsbruck, 1881-1887, 9.16, per cent.; Schultze, Jena, 11.6; von Winckel, München, 1884-1890, 22.6 per cent.

These figures taken from teaching institutions represent a higher percentage of indications than actually existed, for in many instances the instruments were used, where they were not necessary, in order to give instruction to students. Taking this into consideration, it is indeed, striking that the percentages are so low. As more difficult cases occur in maternity practice than in private, it is very evident that the necessity for instrumental delivery in private practice must be very small.

The risks attendant upon the use of instruments are well recognised by those who are experts in applying them, and who cannot avoid them in a considerable percentage of cases, even by the exercise of marked skill and judgment. Too frequently among those who are not experts and do not work with scientific knowledge, is found a disregard of these dangers. One occasionally hears experienced practitioners boast of the hundreds of women they have delivered without mortality. They do not think of the stretching and tearing which they do not see, and make light of those which are visible, unless of the most severe nature. As long as a patient does not die from hemorrhage or sepsis, the labor is considered satisfactory. Responsibility for a long list of mechanical and infective troubles which follow the disregarded lesions is not shared by them.

As a gynecologist, I cannot too strongly emphasize, among the etiological factors concerned in the production of women's diseases, those which arise from injudicious and meddlesome interference with the normal parturient process.

AEROTHERAPY.—J. George Sauer, New York, *Medical Record,* August 13, 1910, proposes that we shall sleep in beds that are so arranged that the head projects out of the window in all weathers. This induces good sleep and good health. To secure this he removes the legs of the head of the bed to the middle of the side frames, so that the head may be pushed out of the window, and the window shut down upon the lower portion of the body, the upper part projecting out of the window, well protected by a hood and warm bedding in winter.

BUFFALO MEDICAL JOURNAL

VOL. LXVI. OCTOBER, 1910. No. 3

ORIGINAL COMMUNICATIONS

Progress in Obstetrics and Gynecology[1]

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LECTURE III.—GYNECOLOGY—PART II.

HISTORICAL research proves that the ancients knew more about gynecology than obstetrics. From references in the old writings to works which are no longer extant, it would appear that in some parts knowledge was much more extensive than is generally believed. If we had complete records, for example, of the Alexandrian schools in their best period, we would doubtless be very much surprised, not only at the variety of the diseases with which the masters were familiar, but at the therapeutic measures which were employed to cure them. The following brief references are interesting in this connection :

Rigidity and stenosis of the cervix were described by Hippocrates, Soranus, and later writers. Dilatation by means of wooden and metal rods, flax and sponge tents, was used to change these conditions. Hematometra, hydrometra and pyometra were well described by Hippocrates. Laceration and erosion of the cervix were recognised and treated. The author of the work on gynecology wrongly attributed to Hippocrates gives a good description of chronic metritis, as well as of septic metritis resulting from abortion.

Various authors describe all the known uterine displacements, some discussing their etiology. Aetius has given an account of their symptomatology and of methods of correcting the deviations by the knee-chest position, as well as by the sound. The etiology and symptomatology of prolapsus were very considerably understood at the beginning of the Christian era, the condition being treated by the use of astringent tampons and various forms of vaginal plugs.

1. The second series of Harrington Lectures delivered at the University of Buffalo, May 24, 25, 26, 1910.

Inversion was known, Soranus clearly pointing out that it might be caused by traction on the cord. Carcinoma was recognised in very early times, Hippocrates having pointed out its incurability. Fibroid tumor is not clearly described, but various ancient writers seem to have included this growth with other swellings under the term "mole." Calculus of the uterus was described by Hippocrates and Aetius, and can only refer to calcification of a fibromyoma.

Pelvic inflammation, suppurative and non-suppurative, and hematocele were noted by various writers. Soranus referred to inflammatory swellings of the adnexa and described a case of inguinal ovarian hernia. Ovarian cysts were probably described as abdominal dropsy and, like the latter, were often tapped.

Atresia of the cervix and vagina was known, and the operative treatment of the latter has been given by Celsus and Aetius. They also pointed out the importance of keeping the opening patent after the operation. Malignant growths and inflammatory affections of the outer genitals were described by many. Under certain conditions vulvar abscess was treated by incision.

Clitoridectomy was described by Aetius. That venereal disease existed in the times of these various writers and even earlier can scarcely be doubted, though it does not appear that gonorrhea was recognised as an important etiological factor in the production of disease in women. The Jerusalem Talmud has various references which clearly describe this disease. The Arabians recognised its importance as an etiologic factor in affections of the bladder and testicles.

As regards abdominal examination, inspection, palpation, and percussion were practised as early as the times of Hippocrates. Long before his time the Egyptians practised digital vaginal examination. Though the bimanual method never seems to have been generally employed, it is distinctly described by Aetius in the diagnosis of stone in the bladder and uterine tumor.

Rectal examination by the finger and speculum was known and dilatation of strictures by bougies practised. The lithotomy position for the investigation of gynecologic troubles was described by Archigenes (referred to by Aetius). The Hindus also employed it in rectal operations. The lateral position was used and the knee-chest posture is referred to by Aetius in the correction of retroflexion of the uterus.

An inverted position of the body (the extreme Trendelenburg of today) was practised very early in the treatment of procidentia, being described by Hippocrates. The vaginal, as well as the rectal speculum is a very ancient instrument, having been used in ancient India and Greece, the earliest forms being many-bladed. The sound was used by Hippocrates to dilate the uterus

and to correct displacements. It was also used to measure the vagina. Special dilators of wood and metal were also employed. Aetius refers to Archigenes as also using sponge tents, while various sizes of flax tents were recommended by Hippocrates. Albucases in the twelfth century describes a metal dilator with expanding blades.

Catheters were used for emptying and irrigating the bladder. Among the Hindus the injection was made by means of a dried bladder of the cow or pig, a forerunner of our rubber reservoirs. Irrigation of the uterus was carried out in diseased conditions. Hippocrates used metal catheters for this purpose, the fluid flowing from a dried pig's bladder attached to the catheter. Vaginal and rectal injections, sitz-baths, vapor baths and fumigations of the uterus and vagina were widely employed in ancient times.

Hot fomentations and poultices were common forms of treatment. Dry heat was also applied by means of vessels of hot oil or water. Leeching, cupping and bleeding are described by many authors in the treatment of gynecological diseases.

The cautery was used in opening abscesses, in destroying disease and in checking hemorrhage. In incision of the breast, Galen used a cautery knife,—a razor heated in fire. Cauterization with arsenic and other substances was known. General and local massage was practised in very ancient times among many nations.

Pessaries and suppositories were used by the Egyptians and Hindus as well as by the Greeks and Romans. Vaginal wool tampons soaked in medicines were also widely employed. In checking hemorrhages cold applications, styptics and the cautery were widely used. The ligature was used in the time of Celsus. Various authors refer to torsion of vessels as a valuable agency. The Arabians undoubtedly used catgut for ligatures and sutures, Albucasis referring to the sewing of wounds with thread made of the twisted gut of animals.

Owing to the lack of free communication between various countries in ancient times, the scanty dissemination of knowledge by means of books, together with the overthrow of nations by war it is not surprising that medical knowledge was not transmitted from one generation to another, as is the case in modern times under more favorable conditions. At the time of the Italian renaissance far more had been lost or forgotten than had been retained. Indeed, at the beginning of the nineteenth century European gynecology was but a moiety of the combined knowledge of the subject as it was known to the best Greek and Arabian masters.

If we examine the textbook of Dr. Thomas Denman, the leading English practitioner in gynecology in 1805, we are amazed to

find that his account refers only to enlargement of the clitoris, excrescences which form at the meatus urinarius, uterine polypus, and ovarian dropsy. Bimanual examination at this period was unknown and even abdominal palpation was very imperfectly carried out.

In Gooch's *Account of some of the most important diseases peculiar to women,* published in 1831, the greater portion refers to obstetric conditions, diseases of children, and the plague. He devotes 47 pages to uterine polypi and a few to irritable uterus. Blundell's work (1837) was of a much higher order. He described uterine displacements and inversion, carcinoma, polypi, bladder diseases, ovarian dropsy, and functional diseases. He suggested (though he did not carry out in practice) division of the Fallopian tubes at the time of Cesarean section for contracted pelves, extirpation of the ovaries for dysmenorrhea and hemorrhage following uterine inversion, Porro's modification of the Cesarean operation, and extirpation of the cancerous uterus.

In the fourth decade of the nineteenth century, ulceration of the neck of the womb was the chief condition for which women were treated, Dr. Henry Bennett attributing nineteen out of twenty cases of women's diseases to this condition. There are well founded traditions of fabulous fortunes made by fashionable practitioners, who devoted their lives to the touching of these diseased spots with various applications. Hodge, of Philadelphia, previous to 1860, was one of the strongest opponents of the prevalent "ulceration" pathology and the clinical views founded upon it. Years afterward he was supported by many workers, especially by Ruge and Veit, who showed that the so-called "ulcer of the cervix" was no ulcer at all, but merely the extension outward of the columnar epithelium of the cervical canal, displacing the squamous epithelium of the portio vaginalis.

The greatest advance in the accurate diagnosis of pelvic diseases was due to

1. Improved abdominal palpation.
2. Use of the uterine sound.
3. Bimanual examination.

Sir James Y. Simpson deserves chief credit for insisting on these methods. He reintroduced the sound and showed how it could be used with the bimanual examination. His pioneer views have been greatly modified, for the sound has been almost entirely discarded in diagnosis, but his work was instrumental in directing attention to the need of thorough local examination. In his memoir on the sound he pointed out that this had been generally disregarded, and that gynecological diagnosis was based on the following considerations:

1. The state of uterine functions and those of neighboring viscera.

2. The existence of sympathetic mammary or spinal pains.
3. The condition of patient's health.

If Simpson had devoted as much attention to the bimanual examination as he did to the sound, the history of gynecological progress in the last fifty years would have been considerably different from what it has been, and the clinical discovery of diseased tubes and ovaries would not have been so long delayed. As it was, the introduction of the sound led to a most disproportionate consideration of uterine flexions and versions as the chief causes of women's pains and troubles, much ingenuity being exercised in devising pessaries to correct these distortions and deformities. This was the happy era when suffering women found relief in the office administrations of the zealous practitioner, and must have been in Clifford Albutt's mind when he referred to the patient "entangled in the web of the gynecologist, who finds her uterus, like her nose, a little on one side; or again, like that organ, running a little; or as flabby as her biceps, so that the unhappy viscus is impaled upon a stem, or perched upon a prop, or is painted with carbolic acid every week in the year, when the gynecologist is grouse-shooting, or salmon-catching, or leading the fashion in the upper Engadine."

In the midst of this era, gynecology received a new impulse as a result of a renaissance in repair surgery, due mainly to the efforts of Marion Sims and Bozeman of America, as well as to the establishment of ovariotomy as a feasible operation. The pioneer work of McDowell in America had never impressed the public and had been almost forgotten. Charles Clay's work in England in the early forties, splendid though it was for the time, attracted little attention. It remained for Spencer Wells to show the profession that ovarian tumors could be successfully dealt with by surgery. In America, Atlee was to a great extent responsible for the popularising of the operation.

Thomas Keith, of Edinburgh, soon afterward entered the field and taught the profession that uterine fibroids could be successfully removed by abdominal surgery. This distinguished surgeon attained results, even before the Listerian era, which were remarkable. Indeed, for several years, he stood alone as the one successful operator in cases of fibromyoma uteri. This was mainly due to his technic. He was careful as regards cleanliness, his standard being in effect an aseptic technic, and he employed drainage with great freedom.

The next great advance was made in the treatment of diseases of the uterine appendages. Tubal diseases had been

neglected though recognised and somewhat described by Cruveilhier, Boivin and Duges, Hooper, Bernutz, Goupil and others; but no rational treatment was carried out until 1872, when, within a period of six months, Battey of Georgia, Lawson Tait of England, and Hegar of Germany did their first operations. The former removed the ovaries from a young woman subject to marked neurotic symptoms associated with menstruation. Tait's operation was the removal of the appendages in a case of bleeding fibroid, while Hegar's procedure was to cure "ovarian neuralgia." To these pioneers suffering women have owed an enormous debt of gratitude, in spite of the fact that the operation has been vastly abused and often misapplied.

As Lister's great discovery became gradually known, and diseased conditions in the pelvis and abdomen were attacked with more boldness, the era of modern gynecology really began. Clinical observations were accompanied by laboratory research, and the study of women's diseases was at last established on a scientific basis. General surgery is greatly indebted to the work of gynecological operators, for their brilliant results blazed the path for the exploration of the entire abdomen and other body cavities.

On reviewing the history of gynecology during the last hundred years, it would not be amiss to describe it as a succession of "fads and fancies," as late, at least, as the present scientific era. Throughout, there has been an amazing exercise of the speculative habit, bad logic, imperfect clinical examination, and lack of study of *post-mortem* material. When Bernutz and Goupil published their splendid pathological work relating to the pelvis, little attention was paid to it.

What now about the present? Are we entirely free from the faults of mind of our predecessors? Is the logical and scientific habit so universally prevalent that our work represents the highest possible achievement? In the early days of my professional work, owing to the marked trend in gynecological practice, a narrow and debased specialism had been gradually evolved, resulting in the establishment of a school whose motto was Michelet's dogma, *Le bassin c'est la femme*, and whose remedial measures were limited to different forms of mechanical procedure, from repairing the cervix to removing the ovaries. The opprobrious denunciation heaped upon this school has not been unmerited. Too strong a protest cannot be urged against the centralisation of attention on local pelvic conditions, regardless of wider physical and psychical relationships.

Pascal has a chapter in his famous book, entitled "Man's Disproportion." The term might justly be applied to the

mechanical school of gynecologists, who have done so much harm, by their failure to give to the various symptoms related to the pelvis their proper proportional values.

It is in the treatment of neuroses in women that the modern gynecologist has shown himself at his worst. In the correction of bent wombs, and repairing of slight tears he has been little better than Bennett of old, who believed that touching a supposed ulcerated cervix was a cure for all women's troubles. We cannot value too highly the important work of men like Playfair, Clifford Albutt, Weir Mitchell, Beard and others in analysing the neuroses of women and in establishing the treatment of neurasthenia on a rational basis.

That neuroses should be so common in women is not to be wondered at. Though Michelet's statement that "woman's life is a history of disease" is not quite accurate, it must be admitted that it is prone to physiologic unrest and pathologic changes unknown to man. When we remember the marked disturbances which accentuate the advent and departure of the reproductive era of her life,—the profound changes taking place during ovulation, menstruation, pregnancy, labor and lactation; the subtle and complex activities of physical life in its various diastaltic functions,—it is not remarkable that neuroses should manifest themselves particularly in relation to her reproductive mechanism.

That they are increasing, *pari passu,* with the advance in our highest civilisation cannot be denied,—among the poor, the inducing factors being overwork, overworry, ill-regulated and poor nutrition and bad hygienic surroundings; among the well to do, educational overstrain, overindulgence, the stress of artificial life and emotional excitement. A condition is developed in which the whole nervous system is below par, the manifestations being irregular or excessive activity, abnormal sensitiveness, mental unrest and anxiety. Though there is a deficiency of nerve force, there is an increase in energising, due to a weakness in inhibitory power and to the too ready response of the nervous system to stimuli.

In the worse stages of the condition the increasing excitability may change to a state in which there is an actual obtunding of nerve sensibility. Hyperesthesia and motor weakness, then, are the chief features of neurasthenia. Abnormal sensations and pains may be felt in different parts of the body. Cramps and twitchings may develop. The pupils may be unequal in size; the tendon reflexes are often exaggerated; there is often, too, a feeling of languor and of unfitness for work. The appetite fails; pains in the stomach and bowels may develop, along with indigestion, constipation, and the like. Emaciation

is common, though in some cases, fat is increased, the patient at the same time, however, appearing pale and unhealthy. The urine is often of low specific gravity, may contain deficient urea, and often abundant phosphates. Sleeplessness frequently develops. The woman may become very anxious and be subject to various fears; numerous other abnormal emotional and mental symptoms may gradually become established and in extreme cases, some form of insanity may arise. Neurasthenia may lead to hysteria, and may have symptoms which are found in hysteria, but it is important to keep in mind the great differences between the conditions.

As Albutt puts it, neurasthenia is the state in which there is "defect of indurance," hysteria that in which there is "defect of the higher gifts and dominion of mind," the higher nervous centers being at fault. In the hysteric there is an abnormal degree of response to suggestion, a partial or complete loss of inhibition in regard to voluntary actions, and a disturbance of the centers regulating the automatic movements. The powers of the higher centers may greatly alter in regard to the initiation of movements, sensory perception may be partially or entirely wanting.

Grateful as we must be to the physicians and neurologists who have insisted upon the multiformity of the manifestations of the neurasthenic state, we must not be sparing in our criticism of them when they have tried to underrate the importance of real pathologic changes in the genital organs, in inducing many of these manifestations. Valuable as are the therapeutic measures employed by the physicians to counteract the disturbances of neurasthenia—namely, change of scene and occupation, freedom from overwork, worry, emotional excitement, improved nutrition, massage, together with mental suggestion, encouragement, insistence on self-control, relaxation, and avoidance of introspection, they will often be useless in inducing permanent cure if disturbing pathologic conditions in the pelvis and abdomen are neglected.

Some very prominent specialists in the treatment of neurasthenia, by erring in this direction have made blunders as serious as those made by the much-abused gynecologist whose range of vision has been restricted to the pelvic organs. Might I state that within a year I have seen two cases each treated for neurasthenia by prominent neurologists for a period of six or eight weeks, in which no physical examination had been made at all. In one, a married woman, I found bilateral chronic tubo-ovarian abscesses, not producing much pelvic pain and without a history of acute onset. The removal of these masses effected what

all the ministrations of the neurologist had been unable to accomplish.

The other case was more instructive. It was that of a girl of twenty-one, engaged to be married. For years she had been under the care of a physician notorious for his opposition to surgery. For several years she had many manifestations of neurasthenia, with irregular and scanty menstruation, marked constipation and irritability of the bladder. She had been abundantly dosed with iron and other tonics, and had been sent to health resorts by the seaside and in the mountains, without very much change. Finally, as marriage was impending, the doctor sent her to a distinguished physician, prominent for his skill in dealing with the neuropathics of the fair sex. For eight weeks she was under the influence of his impressive personality. He cajolled her, bullied her, stuffed her with milk and eggs, but, as the patient herself expressed it, he never laid hands on her. In other words, no physical examination of any kind except a blood analysis had been made. When she returned to Chicago, a chastened though not a healthier woman, a friend induced her to see a plain ordinary gynecologist, who found the following condition: atresia of one-half of a bicornuate uterus with distension of the horn and corresponding tube forming a mass which filled a large portion of the pelvic cavity, interfering with the functions of the rectum and bladder to a very considerable extent. Under the circumstances, even the family doctor agreed that surgical measures should be tried.

From a pretty extensive experience with women, I am convinced that careful investigation will considerably reduce the percentage of cases of neurasthenia in which the causes are intangible or undiscoverable, with a consequent improvement in the results of a logical and rational therapy. But this great desideratum will not be attained if gynecologists restrict their attention to the pelvis, and if physicians and neurologists forget that various forms of trauma and diseases affecting the pelvis and abdomen, may be the starting point of a variety of symptoms, local or distant, affecting sensory, motor, circulatory, visceral or even mental functions.

In the last twenty-five years the investigation of the entire abdominal cavity has revealed a variety of diseased conditions which had been previously to a great extent unrecognised, and which are now known to be responsible for symptoms which have far too often been attributed to neurasthenia. I refer to diseases of the kidneys, stomach, appendix, and gall-bladder. Of great importance are visceral displacements, termed ptoses.

Glenard first pointed out in 1885 the importance of downward dragging of the large intestine in the production of neurasthenic

disturbances and, though many of his views have been discredited, his work was responsible for directing attention to this very important subject. Though the nature of the normal relationships of the abdominal and pelvic viscera and the method by which they are altered are not yet thoroughly understood, great progress has been made in the elucidation of these problems.

Important as the specialty of gynecology is, it can no longer be limited as it has been in the past. A successful worker in this branch must give his attention to the entire abdomen and he cannot afford to be ignorant of obstetrics. Owing to the limited facilities afforded in most medical schools for the study of the special diseases of women, those who would attain to excellence in work must necessarily carry on prolonged post-graduate study as assistants to able teachers. As surgery plays such an important part in the treatment of the specialty, a strenuous apprenticeship in the operating room, whereby thorough drill in aseptic technic can alone be obtained is all important.

The term "aseptic surgery" has come to be regarded in the minds of many as a kind of mascot, which is supposed to permit operative procedures to be carried out on the human body under any circumstances, without let or hindrance. The fascination of exhibiting manipulative dexterity too often destroys the sense of proportion and makes the operator oblivious to other considerations. It is, therefore, easy to understand why there may often be found a tendency to neglect conditions which might be contraindications to surgical procedures, or might lead to a modification of them. In pre-Listerian days, there was some excuse for the concentration of the surgeon's attention on the mechanics of surgery; in the present era, much more is required of him.

The careless use of anesthetics is responsible for an unnecessary number of deaths both immediate and indirect. It is very easy to fall into a routine administration, neglecting to give careful individual consideration to the proper selection and use of an anesthetic, or to exercise supervision over the anesthetiser. In many serious cases, a fatal issue may result from the use of chloroform or ether, which might be avoided by the use of nitrous oxide or oxygen, for example, or local anesthesia. The administration of anesthetics is too often left to those who have had no special instruction in the art, a prevailing opinion being that no special fitness or preparation is required. Too strong a protest cannot be raised against such practice. The greatest degree of safety and efficiency is obtained only when the anesthetiser combines thorough knowledge with practical experience.

But it is the actual work in the operating room to which I desire to call special attention. In pre-Listerian days, the sur-

geon concerned himself only with the mechancial details of his operation. Knowing nothing of the causes of wound infection, though full of dread with regard to the occurrence, his chief object was to perform his work with speed and dexterity. Under modern conditions, the manipulations of the operator are but part of a series of activities, each of which is of the greatest importance in determining the outcome of surgical work.

The sterilisation of instruments and dressings, the preparation of solutions and suture material, the cleansing of the skin and other details of technic require constant supervision and scrutiny. Too often is this necessary oversight lacking on the part of operators, with the result that faults and imperfections creep into the system and remain there.

Modern technic is simple in theory, but its practical details are elaborate and cannot be disregarded by the successful operator. He should insist upon the methodic training of the hands and eyes of his assistants and nurses, so that the habit of working with precision may be required. Perfection in work, whether of the individual or of the combined staff, is usually automatic and without conscious effort. Yet this standard is reached only after a long period of training, the minutest details being often repeated, in the early stages, with conscious effort, guided by an active intelligence. It is only gradually that the habit is acquired of acting without special attention. Unless this method of education be pursued, bad habits are certain to be formed so that the operator or his staff, in crises or emergencies, or even in ordinary circumstances, may easily deviate from the proper line of action, and commit more or less serious errors in technic. Yet, in the surgical world comparatively few have subjected themselves to this rigorous training.

A knowledge of the most important facts in bacteriology is essential to the greatest success, and it is advisable that this information should be gained by practical work in a bacteriological laboratory. The censorship of the latter should always be welcomed by the operating room, for by this alone can the failures to obtain perfect asepsis be determined. The limitation of our knowledge and other considerations may place absolute perfection in surgical work beyond our reach, but it is certain that the irreducible minimum of fatality in surgical work may be brought considerably nearer to the vanishing point, if operators give as much attention to bacteriology, physiology, self-discipline and team training as they do to the mechanics of their craft.

The rapid increase in the numbers of those who undertake all kinds of surgical work without proper preparation or control, is not in the best interests of the public. I drew attention to this subject in an editorial in the Journal of the American Medical

Association a few years ago, and it does not seem ill-fitting on this occasion to repeat my statements and to call the attention of the profession to an undoubted growing evil.

A marked characteristic of the present generation is the rapid multiplication of hospitals both in urban and rural communities. That such an extension of these institutions has been a boon must be universally admitted. But it cannot be denied that the benefits are in many instances accompanied with a serious evil, the practice of surgery by the irresponsible and untrained. In the leading European countries surgical practice is almost entirely in the hands of those who have been specially trained under competent masters, the period of apprenticeship amounting to five or more years in the great majority of instances.

A medical man, whether old or young, would find it practically impossible to obtain a surgical practice without such a preliminary training. He would be frowned upon by the rest of the profession and by the public. In Great Britain additional requirements are necessary, for in most hospitals staff appointments are given only to practitioners who in addition to having had special training, have obtained extra qualifications from either the College of Surgeons, or the College of Physicians. These qualifications are obtained only through difficult examinations, and they are a guarantee that candidates have made a thorough post-graduate study of anatomy, pathology, bacteriology as well as of practical medicine and surgery.

Maurice Richardson referring to conditions in America, without specifying any special community or man, says: "there is no doubt whatever that surgery is being practised by those who are incompetent to practise it—by those whose education is imperfect, who lack natural aptitude, whose invironment is such that they never can gain that personal experience which alone will really fit them for what surgery means today. They are unable to make correct deductions from histories; to predict probable events; to perform operations skilfully; or to manage aftertreatment. Surgical operations should be performed only by those who are educated for that special purpose."

If these remarks be true, a heavy responsibility rests upon the best elements in the medical profession, upon our educational institutions and upon State Boards of Health. Unless medical standards are changed from within the profession they are likely to be rudely changed by forces acting from without. Irresponsible, amateurish surgery means increased mortality and morbidity. The sufferers are the public. It will not be surprising if they institute reforms and demand supervision of hospitals and of the credentials of those responsible for the surgical work. There

is no reason why the records of operations should not be open to supervision.

All conscientious workers, who have spent years in training and improving themselves for the responsible work of surgery, and who best know the dangers and difficulties of its practice, must stand together and support such leaders as Maurice Richardson in their demand for a better scientific and practical education, as well as for a keener sense of responsibility on the part of those who meditate a surgical career. Opportunities should be afforded by leading schools and hospitals for giving the proper training. Graduates should be encouraged more and more to adopt the European system, of spending several years in severe and unremunerative apprenticeship, and their reward should be responsible positions which afford them the opportunity of developing towards a ripe surgical maturity, in the full confidence of their professional brethren and the public.

Ichthyosis[1]

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THE writer's object in presenting this paper on ichthyosis is to produce an interchange of thought which shall tend to raise this affection above the idea now held of it as being an incurable disease, for which palliative treatment only can be rendered, hence none other is sought for. Such conclusion checks investigation and in like manner retards progress in etiological and therapeutical knowledge.

Since but little is known of ichthyosis, practically nothing of its etiology and of its pathology, the aid of fancy or of speculation must be invoked and substituted for the unknown. Such substitution must necessarily be here inserted. Fancy or imagination, is essential, is a necessity in the study of any and all "ologies"; without it chasms would remain unbridged and the unknown beyond, unexplored.

Macroscopically ichthyosis may be defined as a cutaneous affection appearing at or shortly after birth; frequently, but not always localised, consisting of horny epidermic scales, amphibian in appearance, varying in color from light to dark grey, dependent upon the thickness of the cuticle affected. I shall not take the time to refer to the numerous forms of ichthyosis as described in the various textbooks. It seems to me that the classification as given by most writers of ichthyosis congenita, ichthyosis hystrix, ichthyosis linearis, and the like, is absolutely valueless

1. Read at the forty-second annual meeting of the Medical Association of Central New York, held at Auburn, October 19, 1909.