The midwifery Chair in its relations to medical education and the influence of scientific research on practice : an introductory lecture / by William Stephenson.

THE MIDWIFERY CHAIR

IN ITS RELATIONS TO

MEDICAL EDUCATION,

AND THE INFLUENCE OF SCIENTIFIC RESEARCH ON PRACTICE.

AN INTRODUCTORY LECTURE

BY

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INTRODUCTORY ADDRESS.

GENTLEMEN—The ordeal which custom has imposed upon a new Professor, of delivering a special Introductory Address, affords a fitting opportunity of discussing subjects which do not come directly within the scope of his systematic course. The number of topics at his disposal is however embarrassing. History throws wide open her door and invites him to enter and inspect her dusty volumes and quaint old plates. But a mere cataloguing of the one, or description of the other, is dry work, and still drier listening.

The laboratories and studios of present workers are open to him, to inspect the much uncompleted work, or the few finished pieces; the meaning and final destination of which might afford room for much speculation.

The present might be compared with the past, and the rapid and extensive progress of our science would supply subjects for congratulation. Or the past might be recalled before the present, to show how much of our ingenuity and discoveries are to be found written in Arabic characters, or buried beneath the lava of Vesuvius.

But, Gentlemen, such quiet walks, or holiday rambles in the field of midwifery, have not been of late to me, on whose shoulders have so recently been placed these honourable robes. In the line of thought which

I have had to pursue, however, there lie topics which have an interest in common to all whom I now address; to those of you who are about to become members of this class, to my learned colleagues and friends who honour us with their presence, and to myself in anticipation of the duties which devolve upon me. We have all an interest in the relations of this Chair to medical education, and in the full development of its functions, both as regards teaching and the advancement of the science. Medical education should be proportionate with the requirements of practice on the one hand, and the extent and progress of our knowledge on the other; whilst with reference to both should be considered the means and opportunities for teaching which are at our disposal.

The departments of medicine deputed to this Chair are Midwifery and the Diseases peculiar to Women and Children. It is unnecessary to attempt to estimate how much of general practice falls under these heads. I need only appeal to the experience of medical men as a body to say how far comparatively the present system of medical education fitted them to enter on the performance of their duties. My own experience under the illustrious Simpson was, that while the diseases of women had some share of attention, instruction as to the care of children stopped short with the first week of life. Medical men are still sent out from our schools ignorant of the physiological and pathological peculiarities of childhood. Whilst much time is devoted to the teaching of the physical examination of the chest in the adult, students are left ignorant of the peculiarities of auscultation in the infant, and have no means, until they enter on practice, of becoming familiar with the far more difficult language of disease peculiar to childhood.

Midwifery, as a branch of medical science and education, holds even yet a subordinate position. The cause of this is easily found. She is the junior branch, and her two elder sisters, Medicine and Surgery, were long before they would recognise her claims. At the beginning of this century if any gentlemen paid her attention, the two sisters at once regarded them as unfit for their company. It was only after young Midwifery was herself brought out in society that her claims were acknowledged. In 1825 the first Obstetrical Society in London was formed, and during the three years of its existence it succeeded in gaining some recognition for the friends of Midwifery from those who had formerly stood aloof. But not till after 1858, when the present Obstetrical Society was formed, did she succeed in establishing for herself any proper social status.

Even yet her position is not what it should be in many quarters. In most of our schools she is still forced to appear in short dresses. Medicine and Surgery claim six and twelve months' courses, but Midwifery has to make the best appearance she can in three.

All the branches of our profession have largely increased. Formerly one Professor taught both Anatomy and Surgery. Now each has a teacher. Nay more, Surgery has further developed, and now requires two to herself. Medicine has two, sometimes more. The inequality of time a student must spend at the different branches is also remarkable—

Medicine and Clinical Medicine,	12 to 39	months.	
Surgery and Clinical Surgery,	12 ... 30	...	
Anatomy, - - -	12 ... 18	...	
Chemistry, - -	9	...	
Materia Medica and Pharmacy,	6 ... 9	...	
Midwifery, - -	3 ... 6	...	and six Cases.

The Diseases of Women and Children are left to look after themselves. The growth of Midwifery has been so great that she requires for herself nearly the whole of our narrow limits. Gynecology still survives, but its growth is puny; whilst Pediatrics is found only in the title of the Chair, like a flattened retained abortion among the membranes.

This anomalous position of my subjects in relation to the necessities of practice, is in a measure due to an inadequate idea, on the part of those who regulate medical education, of the increase in the amount of teaching work which has arisen from the progress of the science.

Formerly, as with Anatomy and Surgery, all could be readily combined in one course; and as with Medicine and Materia Medica—so long as empiricism was the rule of treatment—scientific data occupied but little time. Midwifery, however, has now gained a scientific basis as advanced as any other branch of medicine.

With the advance in science in each department, and the increase in number of our text books, the necessity for the old style of lectures has diminished, whilst that of practical teaching and demonstration has increased. In Midwifery there is need of the introduction into our teaching of the scientific practical element. Every student should have the pelvis placed in his hands, and be made to study it obstetrically. What anatomy is to the surgeon, so is a knowledge of the mechanism of labour to the obstetrician; and the one cannot properly be acquired any more than the other without personally handling the parts. That is what I mean by practical scientific teaching—not that which is spoken of in our educational regulations as practical midwifery, by which a student must attend six cases.

Neither six cases nor six hundred will teach him what he should know if left to himself. I have frequently had before me, as an examiner, gentlemen who boasted of their hundreds of cases, and yet who had never diagnosed the position of the fœtal head, and who knew of no advantage to be gained from such knowledge. Others could tell you what you asked as from a book, but could not pass a fœtal head through a pelvis, because they had never before had these objects in their hands.

Not a few jokes have been cracked at obstetricians for their efforts in purely scientific research, the practical bearing of which is not always apparent. Reading of axes, planes, synclitic movements, and seeing formulae such as this representing the tensile strength of the membranes $\cdot 123 \frac{l\lambda}{l-\lambda}\left(h+\frac{a^2}{h}\right)$ reviewers have sagely expressed their surprise at how, before the present generation of accoucheurs, babies succeeded in being born alive. Nay more, a poet makes one of our scientific men remark:—

"When I reflect on all I've done,
By dint of sheer invention,
To rectify great Nature's plan,
It beats my comprehension—
Not how of old the babes were born,
Mid danger that beset them;
But how mankind, before *I* came,
E'er managed to beget them."

Notwithstanding these jokes, a change has taken place in the genus accoucheur. He is no longer, or rather should no longer be, a mere "*howdie*" or man-midwife, but a "*geburtshelfer*,"—a labour helper. Ignorance of how great this change is—how much of teaching work is required to produce the change—is another reason why the obstetric teaching holds the subordinate place before referred to. Your duty, be it remembered, is no longer a mere attendant, waiting on

nature, and only putting forth your hand when nature fails or complications arise. You can even in natural labour do much to help—if you know how.

The progress of the art has been steadily in the direction of Conservative Midwifery. Not merely in endeavouring to save the life of the mother and child, but to diminish the duration of labour and lessen the expenditure of physical power. Nature can undoubtedly by her unaided efforts complete a very large proportion of labour cases. But if by our knowledge of nature's ways we can without violence save our patients even one pain, and if by our art we can avoid or lessen the fruitless efforts of nature, is it not our duty to put forth our hand?

To be a true helper, however, a well grounded knowledge of the mechanism of labour is essential. If you apply your aid always in the same direction, as in assisting the dilatation of the cervix, in one out of every four cases at least you may retard instead of help on the labour. Experience in time does teach men much that they might sooner have acquired, but their knowledge is empirical, without scientific basis, and, as such, cannot be applied with the same precision, still less can they impart it to others.

To illustrate the points I have been discussing I would briefly review some of the more recent researches in obstetrics. To give a better point and more interest to my remarks, I select one subject only, viz., the diagnosis and treatment of cases where the head is arrested at the brim from contracted pelvis.

The mere fact that the head has not entered the brim, or has been arrested in its progress through it, is easily made out. But it is not so easy to determine whether nature unaided is likely to complete the labour, and, if not, what treatment is best suited to the case—

when and how we are to interfere. An accurate diagnosis is all important. The attendant's power of forming a diagnosis and skill in treatment will depend to a large degree on his knowledge of the purely scientific side of obstetrics.

The mechanism of labour in contraction of the brim varies from the normal in certain respects. Michaelis and others believe that by the nature of these deviations you can not only recognise contraction where a less careful observer would only see the normal course of labour, but also that you can infer the nature of the contraction.

This is a subject which has not received due attention in this country. In Germany it has been more carefully studied. The reason is that the scientific data on which the power of diagnosis depends have only quite recently been determined, and are yet far from being fully completed.

Every deviation from the normal position of the head ought to carry its own inference. But till lately the normal position was unknown, and the error which existed in men's idea of the normal, blinded them to the lessons of abnormal positions.

To Naegele is due the merit of first placing the mechanism of labour on a scientific basis. All important as is the work he performed, he erred in several respects. He systematised too much, and tried to bind nature to lines he himself had drawn. But his great error was describing the head as presenting at the brim not directly but flexed towards either shoulder, so that the transverse plane of the fœtal head lay obliquely and not parallel to the plane of the brim. This opinion still continues to be held by some writers. Many distinguished obstetricians, however, including Velpeau, Caseaux, Kueneke, Hodge, Matthews Duncan, and

Leishman, now regard this opinion as erroneous, and believe that the head presents directly, the axis of the inlet passing through the sagittal suture, and the transverse plane of the head corresponding with the plane of the brim. This is known as the *synclitic* position.

One reason doubtless why Naegele fell into this error was that before his time the position of the pelvis was regarded the same as when you place it upon the table—that is horizontal. It is now known to be inclined to the axis of the body at an angle of 55^0, and although the error was discovered in Naegele's time, yet his mind seems to have remained under the trammels of early received ideas. *This fact shows the value of scientific data, however obscure their use at first may appear.*

That Naegele's error has continued to be believed in for upwards of half a century proves how necessary it is that while acquiring our ideas we should be guided by correct views. Familiarity with the various planes and angles of the pelvis, so as to view things aright, is as important to the medical man as is a knowledge of perspective to an artist. If the meridian of a globe is in direct line with the eye, it is readily seen that it divides it into two equal hemispheres,—but step to one side so as to view it "obliquely." One division is now actually to the eye larger than the other. And this is exactly what happens in the supposed obliquity of Naegele, regarding the foetal head, the point of the finger taking the place of the eye.

The long diameter of the head it is well known lies normally in an oblique diameter of the inlet, and the chin is somewhat flexed upon the chest. These positions, together with the synclitic relation, constitute what is now regarded as the normal position of the head. Any deviation from this normal I have said

should bear its own inference. It would occupy too much time to enter on a full exposition of this subject, but I may here state some general rules which are now accepted, and which have been observed more carefully in Germany than in this country. I give them in the words of Schroeder :—" In the simple flat pelvis the head enters the brim with the forehead low down, and as soon as the pains have fixed the head in the inlet the sagittal suture is found running almost transversely or a little obliquely close to the sacrum, and the large fontanelle is situated not far from the promontory. Instead of the parietal, the smaller and more compressible bitemporal diameter of the child's head has entered the narrow conjugate." The head having passed the brim, if the rest of the pelvis is normal the normal relations are restored, if the outlet also is contracted the low condition of the anterior fontanelle is retained.

" In the generally uniformly contracted pelvis the mechanism of labour is the same as in the normal pelvis, only its details are more pronounced. The posterior fontanelle always comes very low down. If the cavity and outlet are free from contractions the unusually deep descent of the small fontanelle ceases, and the mechanism of labour now becomes normal, but if the uniform contraction extends to the outlet the small fontanelle continues very low, and first becomes visible above the frenulum instead of below the pubic arch."

Having noted such points as these, the medical attendant can draw some inferences as to the size and form of the pelvis. It often happens in such cases, in the first and second confinements, when the child is as a rule smaller, and the uterine power is unimpared, nature is sufficient to overcome the difficulties. But in subsequent labours the head is liable to present in malpositions, and artificial aid is required. With the

medical attendant's previous experience, if he has acquired the power of observing accurately and drawing inferences, he will be in a better position to diagnose early the cause of the delay, and to apply his skill with greater precision.

The advance in our knowledge of the mechanism of labour in cases of contracted brim opens up anew the question of their management, a subject which has been extensively and continuously discussed for a hundred years.

"Turning" in these cases, says Dr Grailey Hewitt, (*Lancet*, August 1864), "is a comparatively old operation, and was formerly much resorted to, but it fell into disuse on the invention of the forceps. Sir James Simpson has revived the practice of turning, and set forth the advantages which will arise from its adoption in a very admirable and valuable paper, the arguments and deductions contained in which, although attacked, have remained unanswered." This paper has perhaps more than any other influenced professional opinion and practice, yet I cannot but think that its effect has been in some respects injurious, and beyond the actual question discussed therein. The fact that so high an authority refers to it in such terms, in reference to the question of Turning *v.* Forceps, of itself proves the truth of the remark. The paper is really only on Turning as a substitute for *Craniotomy*. Although the use of the forceps appears in the title, it is never properly discussed, it is introduced occasionally but never fairly treated of, and the author carefully guards himself by the repeated remark, "but it is principally as an alternative for Craniotomy that I feel anxious to introduce the operation of Turning to the consideration of my professional brethren." The true object of his paper has been fully attained, and it has done much good. But

I cannot receive it as in any way determining the question as to the use of the forceps in the high operation. In this respect the undue influence it has had on medical practice must be regarded as injurious. It has given high authority for the substitution of the more dangerous operation of turning for that of forceps, in cases where such instrumental aid is fit and proper. It has thus unjustly pushed aside the forceps. There are cases where you will fail with forceps and succeed by turning, but that is no reason for the substitution of the latter for the former in all, when the risks to the child are greater. Further, turning has become associated with the induction of premature labour, whereas the object of the latter mode of interference is to remove the case out of the class where Turning or Craniotomy is absolutely necessary into that where nature herself may succeed, or at worst forceps be necessary. In reference to this mode of treatment, must be taken the statistics of Spiegelberg and Litzman, who show by a large collection of cases that worse results to both mother and child follow this interference than where the pregnancies were allowed to go to the full term.* I have already spoken of the more recent observations on the mechanism which occurs in cases of contracted brim, where the natural powers are sufficient to overcome the obstruction. I have given enough to show that the mechanism of deformity has important deviations from the normal. These however have not been sufficiently studied, or taken into account in the arguments for and against the use of the forceps. If we are ever to determine correctly in what case we should turn, and in what apply the forceps, it is by the indications we can derive by studying the position of the head in the brim, and the deductions to be drawn therefrom as to the size and shape of

* Archiv. für Gynäkol., B. I. und II.

the inlet. Borinsky * has come to the conclusion that we may turn in the simply flattened pelvis with roomy sides, but that it is improper to do so in the generally contracted pelvis.

In studying this subject it is an error to take into consideration only one diameter of the head or of the brim. Here are two heads, the transverse parietal diameter of which is the same, but the antero-posterior is much longer in the one than in the other. Mark the difference of their passage through a contracted pelvis. The fact is that to get a real arrestment you must have three points at least, and they will be found not in one diameter only, but in two.

Another mode of studying the mechanism in a deformed pelvis is by the changes in form which the fœtal head acquires in its passage. Dr Barnes has drawn attention to this subject and given outlines, but he does not enter into any scientific explanation of their production, nor does he distinguish between the swelling known as the caput succedaneum and the changes of the bones in relation one with another. The latter is what is now termed "Shearing," (*verschiebung*) and has been described by Dohrn and Olshausen. It affords a more accurate means of studying the direction in which the pressure has acted on the head, but the subject has not yet been sufficiently observed to enable us to draw conclusions therefrom with certainty.

Time will not permit me to enter into an examination of the researches of Edward Martin and Henri Fasbender,† as to the nature and frequency of the lesions in the child which arise from forcible extraction by the feet. But they markedly confirm the opinion I have expressed, that we cannot make use of the supposed

* Archiv. für Gynäkol. B. iv. S. 230.

† Zeitschrift fur Geb. und Frauenkrank. 1875.

advantages of turning without great danger to the child. I can also but refer to the researches of Dr Matthews Duncan upon the limit of power which can with safety be exerted in extraction by the feet, and which does not exceed 100 lbs, and to his other researches, and those of Poppel, on the power of the uterus. The lowness of their estimate * below what has generally been supposed, points to the fact that it is not the attendant with the strongest arm that is able to afford most material aid, but he who has acquired the greatest amount of skill in making observations as to the position of the head and the form of the pelvis, and who has studied most carefully the mechanism of nature by which she overcomes difficulties. A stiff pull we often encounter, and such is occasionally necessary. At times, too, nature makes most humiliating commentaries on our efforts ; as when, after a hard pull in vain, we make almost unconsciously a slight turn, and are surprised with what ease extraction is thereafter made. Still more, as in a case where two attendants, both exhausted by their exertions, while resting their aching and wearied arms, and wiping the perspiration from their foreheads, turn and find to their utter astonishment that nature had quietly completed the labour herself.

Many of you may not have been able to follow me,

* Both experimentors take the force required to rupture the membranes as the basis of their estimate. Poppel's experiments, reduced to the same standard as Duncan's, give a force of from 6 to 27 lbs : Duncan's from 4·08 lbs to 37·58 lbs, and the average 16·73 lbs.

"We may safely venture to assert," says Duncan, "as a highly probable conclusion, that the great majority of labours are completed by a propelling force not exceeding 40 lbs."

The extreme power of labour cannot be so readily or accurately determined. Joulin estimates it at a little over 100 lbs. Duncan says, "I do not deny that, in very rare cases, such a force may possibly be produced ; but I am sure that it is nearer the truth to estimate the maximum expulsive power of labour (including with the uterine contractions the assistant expulsive efforts) as not exceeding 80 lbs."

See "Mechanism of Natural and Morbid Parturition." By Dr. Matthews Duncan. (Edinburgh, 1875.)

from the subject being new and strange to you. But in showing the practical bearing of scientific research, as illustrated by one subject only, the mere number of separate observations and researches to which I have had to allude should of itself be sufficient to impress upon all the importance of what appears to many "dry and useless scientific stuff." It is practical work we want, "*say they.*" Ah! well, "*let them say.*" But be you impressed by the fact that "knowledge is power," that your self-reliance in the hour of danger, and the readiness of your resource, will depend upon the care with which you have cultivated the power of observation, and your familiarity with the latest scientific researches. Keep a record of all your cases, and when you have had not "six" nor "twenty," but three or four hundred, you will find that you are beginning to have some power of accurate observation: you will find the reason why errors have so long prevailed in Midwifery: you will find that there is a great deal more to be learned from every case of Midwifery than some men dream of in their philosophy. And in all this, too, you will find the means of making the many long waits that are in store for you pass quickly and profitably away.

GENTLEMEN,—It is the duty of a Professor not only to teach what is already known, but also to help on the advance of our knowledge. If I succeed in so training and inspiring you with enthusiasm for our art that you will be able to become the observant scientific practitioners I have indicated, I feel I shall be contributing more to the progress of Midwifery than I can ever aspire to by personal research. It will be the lot of most of you to be country practitioners—and so at the beginning of their career were the fathers of obstetrics, Smellie and William Hunter. Hospital appointments

are not essentials to good and useful work. What Midwifery greatly needs is the statistics of general practice, and in country districts you have at times unusual facilities, from the less complicated characters of the problems which can there be worked out. As an example worthy of your consideration, and of peculiar interest to us, I would refer to a small book I have here in my hand, printed in 1795, in which the contagious character of puerperal fever was first pointed out and demonstrated. It is by Dr Alexander Gordon, *Physician to the Dispensary in Aberdeen.* I might also refer to a small pamphlet on the same subject by Dr A. D. L. Napier of Fraserburgh.

Into the subjects of the Diseases of Women and Children I cannot now enter, further than point out the defect in our educational appliances which exist regarding them. It is bad enough to have a scanty time for instruction meted out to those very branches in which so much of your practice in after life will lie. So far as lectures are concerned, I shall develope them to the utmost of my power in all three departments. But there exist no means attached to this Chair of enabling you to acquire a practical acquaintance with the subjects. Surgery and Medicine have each their clinical wards, and clinical lectures; none exist for the Diseases of Women and Children.

Such is the defect. But it does not lie in the power of the profession or University authorities to remove it. It is the public alone that can do it. They must put their hands into their pockets and furnish the means by the establishment of separate institutions, or, better still, additional wards in the Infirmary. I know there often exists in the minds of the public a distrust in medical men, because "they understand so little about children." But they themselves, in the first part, are to blame, and

unless they supply the means, not only of instruction, but for the investigation of disease and the advancement of scientific knowledge, they cannot expect us to combat more successfully with the widely spread, the far reaching in point of time, and grievously fatal influences which strike sorrow into our hearts, and carry suffering to those who are dearest to and most dependent upon us. Medical Charity when associated with a medical school is more directly than any other "twice blessed." The arid atmosphere of disease must always absorb largely from the streams of benevolence, but if well directed, what is so withdrawn should return again

"Dropping as the gentle rain upon the place beneath."

ABERDEEN, *October* 1875.