

IV. *The President (Professor Stephenson)* delivered his Presidential Address as follows:—

#### FORE WORDS.

Those only who have gone through the ordeal, can realise the momentous effect on the mind, of having to select a subject for an address, that the hand of custom, irrespective of aptitude or appetite, has ruthlessly thrust upon one. On the present occasion, the high honour merits an effort, but proportionately enhances the difficulty. A wise counsellor gave this advice to lecturers, "first gauge the capacity of your audience": that but increases the quandary, for I am consciously overpowered by the mental calibre and critical faculty of the members of this learned Society. However, if years and long service count for anything, I may take heart and faint not; knowing also your kind indulgence.

The first inkling of a subject came to me from a remark often heard, that the history of Medicine is sadly neglected. Historical then let the subject be. And on the back of this, for my benefit, a little bird whispered a proverbial thought—dry data seasoned with dates make dreich listening. So that cut out Hippocritus and all his followers—and sense came further upon me; to keep within bounds, and to avoid futile claims to priority, better to limit the subject to British Midwifery alone.

#### OUR FOUR FOREFATHERS IN MIDWIFERY.

##### A HISTORICAL STUDY.

THERE is interest and value in the endeavour to trace the growth and workings of the obstetric mind; using that phrase in a collective sense, to imply the knowledge possessed at any one period; the principles deduced therefrom; the mental conceptions, true or false, thus formed; and how from time to time the attitude and conduct, in relation to pregnancy and parturition, have been determined.

The aim is to present, not a chronological narrative, but a critical review of portions of our obstetric history, the general features and outstanding facts of which are well known, and need but a reference.

With years, the course of ordinary labour does not change; the complications and dangers attendant upon parturition are the same now as of old; many of the problems our forefathers dealt with are problems of to-day; operative procedures, version, craniotomy, forceps, induction of labour, the Sigaultian operation, Caesarean section, all are more or less venerable by age; but how different the mental light that plays around them now!

Opinions are ever changing, principles are modified, mere sentiment and doubtful doctrines have less sway; the intellectual atmosphere is clearer; but sheer mechanical might and hurry are marring the work now.

To trace the influences that produce such changes is to get at the gist, or the Geist, of history; but there are limits in an address. During the time at our disposal, however, some of the pathways of progress may be followed.

Chief in their bearings on practice, inter-penetrating the whole subject, are the knowledge of the Mechanism of Labour, and the conception of Uterine Action. Historically, that of the former preceded the latter; the lie and the mode of passing of the head were known before the nature of the expelling force was understood.

Regarding the mechanism, considerable unanimity exists; yet, in text-books of to-day, archaic views and errors are to be found, transmitted, without thought, from author to author. This pathway, however, we cannot, for the present, follow.

Concerning the parturient force, knowledge came with slow and stumbling footsteps. Yet a truer conception of uterine action was held towards the end of the eighteenth and in the early years of the nineteenth century than for fully sixty years

thereafter. Certain views of the early writers were overlooked for a time, error crept in, the effects of which are still perceptible in present-day writings.

By accuracy in the conception of, and personal intimacy with the mechanism, the right hand acquires its cunning in the management of labour, and adroitness in the use of artificial aid. At the same time the left hand must be ever on guard over the uterus; on a true conception of its spontaneous action largely depends the safety of the mother in the prevention and speedy arrest of hæmorrhage.

In the eighteenth century began with midwifery the gradual transition from idle theory and arbitrary custom, to reasoning from real facts and accurate observation. By the middle of the century a solid and enduring foundation to the science and art was laid by the work of two men, contemporaries and friends, fellow-Scotsmen, and natives of the same county. They possessed true scientific insight, and employed scientific methods, but each worked on different lines.

The contributions of WILLIAM SMELLIE (1697-1763) were eminently *practical*, based on close observation of nature *in action*; those of WILLIAM HUNTER (1718-1783) were purely *anatomical*, depicting the still life of the gravid uterus, in engraved plates, marvellous in accuracy and beauty of delineation. His scientific work was excellent, its influence has been great and lasting; it drove from the obstetric mind many a fanciful and grotesque notion regarding intra-uterine life, and provided a true knowledge of the various structures involved in pregnancy and labour.

In practical matters, however, he was timid and not initiative; his mind was deeply imbued with the doctrine, then and for long after prevailing, of implicit faith in nature's forces to overcome obstacles. He held, with others of his time, that long forbearance should be exercised, and that interference was



justified only by the actual approach of dangerous constitutional disturbance.

Against universal opinion he had the courage to put to the test this doctrine of non-interference in the third stage of labour. The trial promised well at first, but, ere long, sad experience taught him that the expulsion of the placenta could not, with safety, be left indefinitely to the unaided forces of nature. The profession is indebted to him for this experiment, so carefully carried out; it was strictly logical, and so decisive that it has never been repeated. It was long, however, before the obstetric mind realised that the doctrine was likewise fallacious regarding labour generally.

The use of the forceps he looked upon with grave doubts. "I admit," he said, "that the forceps may sometimes be of service. . . . I have sometimes used them with advantage, . . . yet I am clearly of opinion, from all the information which I have been able to procure, that the forceps (midwifery instruments in general, I fear) upon the whole has done more harm than good."

Smellie, by his sagacity and keen observation, made manifest to the ken, if not the understanding of men, the relations between the foetal head and the pelvis. His account of the mechanism of labour is not written with the verbal precision afterwards gradually attained; but that he truly grasped the subject is clear—the picture he presents is drawn in simple comprehensive lines, true to nature, and without the over-elaboration and inaccuracies of later writers. He was the first to recognise the various positions in which the head may lie, and the movements imparted to it in its passage through the pelvis. He demonstrated the necessity of occipital rotation, and the relative facility or the difficulties dependent upon the particular lie of the head. He discovered also that in such difficulties the rotation could be aided by the fingers or the forceps. This instrument, it is well known, he greatly

improved, and advocated its use in the high as well as the low operations.

Whilst these pregnant additions to knowledge were being made, adverse influences were at work to hinder their acceptance. The turmoil with the midwives was at its height; the jealousy or prejudice, and the acrimonious disposition of his less-learned rivals vainly tried to belittle their value; the ignorance of the general practitioner was immense; a generation and more had to pass before the value of his teaching was duly appreciated.

At this period, taking the views of Smellie as representative, ideas regarding the uterus were in a vague and fogged condition. It is difficult for us, with present-day knowledge, to realise the dim light in which men then worked. The pain and straining at expulsion was evident enough; and the simple phrase "labour pains" was sufficiently descriptive, without theorising. The thickness of the walls and the size of the uterus, relative to the period of gestation, were noted; but the composition of the walls was wrongly interpreted. At that time injection of the blood-vessels and lymphatics was the only known means of investigation, and this led the mind astray.

Smellie thus describes the structure: "The thick substance of the uterus is composed of a plexus of arteries, lymphatics, veins, and nerves, . . . without any muscular fibres, except such as compose the coats of the vessels." And in the next paragraph he remarks: "The substance of the uterus appears more compact and pale than that of muscles; or, if it be muscular, at least the fibres are more close, and more intricately disposed, than in other muscular parts."

Hunter, by his keener scientific discernment, had no difficulty in pronouncing the uterus to be strongly muscular, and depicted what he believed to be the arrangement of the fibres. Nevertheless, Smellie's idea continued to sway the obstetric mind for fully a generation.

At this time another befogging notion was generally accepted. Parturient action was believed to be due to "stretching of the fundus in proportion to the augmentation of its contents," the cervix also, from the third month, participating in the stretching, till in the ninth month the neck of the womb is altogether distended."

Smellie's description of a labour pain is, for one so observant, amazingly accurate.<sup>1</sup>

"Now that the whole substance of the uterus is stretched, the neck and os internum, which were at first the strongest, become the weakest part of the womb, and the stretching force being still continued by the increase of the fœtus and secundines, which are extended by the enclosed waters in a globular form, the os uteri begins gradually to give way. In the beginning of its dilatation, the nervous fibres in this place, being more sensible than any other part of the uterus, are irritated, and yield an uneasy sensation, to alleviate which, the woman squeezes her uterus by contracting her abdominal muscles, and at the same time filling the lungs with air, by which the diaphragm is kept down; the pain being rather increased than abated by this straining, is communicated to all the neighbouring parts, and by this compression of the uterus the waters and membranes are squeezed against the os uteri, which is of consequence a little more opened" (p. 112).

On another page he says: "At every pain the uterus is strongly compressed by the same effort which expels the contents of the rectum at stool" (p. 207).

Thus, throughout the whole process, he attributes no

<sup>1</sup> For convenience of reference, the edition of Smellie's *Midwifery* made use of is that edited by Dr M'Clintock, published by the New Sydenham Society, 1876.



expulsive action to the uterus itself; and yet, in various parts of his treatise, he makes use of the expression, "*the uterus contracts.*" The following examples explain his meaning:—"By the help of strong pains the child will be forced along, *as the child advances the uterus contracts*" (p. 223).

"The mouth of the womb being sufficiently opened, the membranes are forced into the middle of the vagina, *then the uterus contracts* and comes into contact with the body of the child" (p. 209). "As the waters are discharged, *the uterus contracts itself and grows thicker*" (p. 101).

The action he thus indicates is not one of expulsion, but the shrinking in the capacity of the uterus in proportion to the lessening in bulk of the contents. Here, be it noted, is the germ, thus early recognised, of what with scientific accuracy is now termed *retraction*.

The celebrated Dr THOMAS DENMAN (1733-1815) writing in 1782—thirty years after the publication of Smellie's work—retains some of the old ideas, but makes an important advance by recognising the "expulsatory" action of the uterus. The structure of the organ he describes in the same terms as Smellie, but along with vessels, lymphatics, and nerves he includes muscular fibres, adding, however, that when distended by pregnancy they are "*very thinly scattered.*" Further, he stumblingly remarks: "It does not seem reasonable to attribute the extraordinary action of the uterus at the time of labour to its muscular fibres only, if we are to judge of the power of a muscle by the number of fibres of which it is composed." Nevertheless, he correctly divines the situation. Already the uterus was known to retract as the contents diminish; now he recognises that expulsion also is due to uterine action. The following passage, displaying much foresight, is notable:—

“At the time of labour a new principle supersedes those of distension and ascent. This gives a disposition to the uterus to exclude whatever it contained in its cavity, and the effect produced is in proportion to the energy of the principle and the power of the uterus. A perfect intelligence of this principle and of the mode of its operation would be of infinite use in practice, as we might be enabled to suppress the action thereby occasioned when premature, moderate it when too violent, strengthen it when too feeble, and regulate it in a variety of ways conducive to the welfare of our patients. On the knowledge we at present have of the manner in which this principle operates, and the circumstances by which it is influenced, the assistance which science and dexterity can give in cases of difficult parturition very much depend.”<sup>1</sup> (p. 189).

Further, Denman clearly differentiates the two actions of the uterus, and when discussing questions refers to them under different terms, showing that he regarded them as distinct. The one, expulsive, he calls “*the action of the uterus*,” and uses the phrase as synonymous with “labour pains”; when speaking of the other, the permanent contraction, he, like Smellie, says “*the uterus contracts*.” “This,” he remarks, “may, in fact, be considered as the exercise of that inherent disposition in the uterus by which its efforts are made to recover its primitive size and situation.”<sup>2</sup>

From this period the powerful muscular nature of the uterus and its functions were no longer doubted. In 1784 Professor Hamilton, Senior, of Edinburgh, speaks of “the uterus itself as a hollow muscle.”

<sup>1</sup> *Introduction to the Practice of Midwifery*. Part the First. By Thomas Denman, M.D., Physician-Man-Midwife to the Middlesex Hospital, and Teacher of Midwifery in London. London, 1782.

<sup>2</sup> *Ibid.* Vol. ii. (1795), p. 282.



In the early years of last century Dr John Burns, who was then Professor of Midwifery in Glasgow, not only upheld the twofold action, but also directed attention to the practical bearing of this view. Discussing the subject of hæmorrhage before or during labour, and referring to the temporary and permanent actions, he remarks:—

“It is chiefly to the permanent or *tonic* contraction that we are indebted for the stoppage of hæmorrhage, because this contraction lessens the size of the vessels and keeps up a firm pressure of the uterine surface upon the ovum until the pains have accomplished the expulsion or delivery of the child. The pains could not do this good, for coming only at intervals their effect would be fugacious. On the other hand, the permanent contraction would not be adequate to the purpose without the pains, for these temporary paroxysms excite this action to a stronger degree, and by ultimately forcing down the child accomplish delivery before the powers of the uterus be worn out.”

Thus in these early days the expulsive and the retractive forces were held distinct from one another, and the management of labour was based thereon. Unfortunately, from the ambiguity of words and the indiscriminate use of the same word in more than one sense, confusion arose; retraction came to be regarded as the product of repeated contraction, and that practically retraction could be obtained only by exciting contraction.

The earliest statement I have found of this myopic view is in *Practical Observation in Midwifery*, by Dr Ramsbotham, Senior, of London, written in 1821. Referring to the subject, he says: “*The permanent state is the result of the repeated returns of the temporary.*” From this time down to 1886, a period of sixty-five years, when Dr Matthews Duncan read

his classical paper on the subject, muscular contraction alone dominated the mind, retraction became degraded and unheeded. In the discussion that followed the reading of the paper it was affirmed by successive speakers that retraction is but the retention of ground gained by contraction; that without contraction there could be no retraction; and that after the uterus is emptied re-expansion does not occur, because there is no expanding force.

To discuss so important a question is beyond the purview of this address; but to keep the historical balance, the view revived by Duncan, and as now more clearly defined in the mind's eye, may be stated briefly, all the more because, even in the present day, its character and its bearing on practice have not been generally realised.

Contraction and retraction are distinct properties of the uterus. Contraction, the discharge of muscle-energy under a stimulus, is intermittent, and supplies the only uterine expulsive force. Retraction is not expulsive; it is a persistent action dependent upon the tonicity of the walls, and varies in degree. By virtue of this inherent property of the muscular sac the cavity is lessened in proportion to the diminution of its contents. Whether such diminution be effected by the natural force of expulsion or, in the absence of contractions, by artificial means, all the same in either case retraction occurs. The movement is a gradual shrinking and requires time. It restrains the circulation, and if from any cause it be defective there is in the blood-pressure sufficient force to re-expand the uterus to a dangerous degree, thus favouring hæmorrhage.

Such is the mental conception which ought to quicken and direct the management of labour. To understand its influence we turn again to the teaching of the earlier writers, who had recognised not only the distinctive effect of the two forces, but also the cognate truth that retraction is slow and must be given time. They acted accordingly.

Professor Hamilton, speaking of the *extraction* of the child after version, says: "The operation of delivery should be slowly performed."

Professor Burns remarks: "The placenta will be less apt to be retained if the expulsion of the child be conducted slowly, and the uterus made to contract fully upon it." And again he says: "Delivery therefore is not to be hurried; the steps of expulsion should be gradual. Instead of pulling out the body of the child whenever the head is born, we should rather retard the expulsion when it is likely to take place rapidly."

In the present day of haste these principles are liable to be overlooked or purposely disregarded. And, further, they are at times misinterpreted, as in the following injunction by a recent authority. "The principle," he says, "not to deliver *in the absence of uterine contractions*, is the first point in the prevention of post-partum hæmorrhage." The older writers had a truer grip of the subject; it was not for pains they waited, but to allow time for the slow process of retraction; and experience has abundantly proved that delivery can be effected with safety "in the absence of uterine contractions," but, as they directed, the extraction must be gradual and deliberate; or, as Denman puts it, "*not proceeding rashly or affecting dexterity, but giving our heads time to guide our hands.*"

Shrewd and observant as our forefathers were, it was long ere they perceived or put in practice the stimulating and restraining influence which the hand, externally, can exert over the uterus. Smellie nowhere refers to it; in his time, ignorance of uterine action, and it may be, a feeling of delicacy, withheld them from placing the hand above the pubes. When, however, knowledge regarding uterine action increased, the use, but not the full value, of external pressure was perceived. Denman, in 1782, wrote, "To promote the separation and exclusion of the placenta, the application of the half-closed



hand to the abdomen, so as to make a moderate pressure, is sometimes of use, by aiding the uterus in its contraction." One year later, Mr Dease of Dublin recommended the same expedient in very similar terms: "Should the detachment of the placenta," he says, "not be effected in the usual time, it will be much facilitated by the operator's judiciously applying his hand to the region of the uterus, which he may excite to the necessary contraction by gentle friction." "This method," adds Dr McClintock, "may justly be called the '*Dublin Method*.'" *If this be all*, then unfortunately Denman had anticipated it by a year.

In the recommendations of these writers there is but the germ of what, in course of years, has developed into a safe and efficient method; to which, however, no individual or school can strictly lay claim as having originated or perfected. It has developed gradually and taken definite form as the obstetric vision cleared. Credé's good service lay in so convincing the profession of the superiority and safety of the method he advocated that men turned from their evil ways. There was at first, however, a savour of error in what he taught.

Any method may be conducted in *apparently* the same manner, but with different objects in view, and with varying results. It is the mind that works the method, not the hands. From time immemorial delivery of the placenta has been the sole thought in the third stage. At first Credé made an early expulsion his aim, but in the course of time this was modified. Nevertheless, stimulating the uterus to expulsive action, and further aiding by direct pressure, is the dominant, and often the sole, object in the mind of many.

But the *root idea* from which the management springs is not the ready expulsion of the placenta, though that comes with it, but the prevention of an undue loss of blood, by giving support to the uterus, so long as retraction is incomplete. Hence the great, the nuclear thought is continuous, not casual,

supervision by the alert grasp of the hand over the fundus, from the birth of the child onwards, and so limit the degree of expansion; for *before* extrusion of the placenta there may be an unnecessary, sometimes serious, amount of internal bleeding; and *after* expulsion there may be too free and alarming loss of blood; the supervision, therefore, must be kept up until the empty uterus is firmly set.

Kindred with the above there is in the teaching of the older writers a telling point that somehow has slipped from notice. It is unknown to many, and mentioned by few. When the placenta has been retained beyond a reasonable time, and external stimulus has proved futile, it is necessary to introduce the hand to remove the cause of retention. All concur in this proposition; but what is the *primary* object? Listen to Denman's teaching: "Whether on the introduction of the hand we found the placenta separated, or whether it was necessary to separate it, *we are not to extract it immediately, but to wait till the uterus begins to contract*, and then to withdraw the hand, including the placenta, more quickly or slowly according to the degree of contraction."

Burns also strongly inculcates this principle. "Our primary object," he says, "is not to extract the placenta, but to excite the uterus to brisker action;" and he further adds an important point: "Until the fibres contract neither the hand nor the placenta should be withdrawn. But the moment we find the uterus beginning to contract, the placenta is to be removed, even if the hand should require to be reintroduced, *as emptying the uterus under these circumstances promotes further contraction*" (retraction).

Neither of these writers, in their emphatic recommendation of this treatment, makes mention of the simultaneous use of the external and internal hand. The beneficial effect of pressure and friction over the uterus is referred to under other circumstances, but the combined method here is not mentioned.

Thus gradually does method advance point on point towards perfection.

The recommendation above mentioned, to empty the uterus to promote retraction, is in strict accordance with the law "in proportion to the bulk of contents," and applies equally to undue distention from blood as to retained placenta. The hand, however, need not be withdrawn further than the os uteri, sufficient merely to slip the placenta or blood-clot past the wrist into the vagina. Repeated withdrawals and reintroductions should be avoided. Denman wisely remarks: "The hand when introduced should never be (wholly) withdrawn till the end for which it was introduced is, if possible, accomplished."

Most cases of too free bleeding, if no constitutional effects are showing, can be controlled by the strenuous action of the external hand, together with, if need be, swabbing the vulva with very hot water.

But *active hæmorrhage* brooks no delay; evil effects therefrom gather rapidly; prompt action by the most reliable means is peremptorily demanded. The surest and readiest expedient is, what the early writers taught, the introduction of the hand *in uterum*. From this simple and direct course the mind has sadly wandered. From fear of a possible risk men dally with an imminent danger; what should at once be done is regarded as a last resort.

With contraction, and contraction alone in view, the main thought too long has been to stimulate the uterus to contract by hot douching and less reliable means, each of which occupies time in preparation and administration. A fatigued uterus is ever slow in response, and further contractions, when obtained, are often delusive; the hæmorrhage is stayed for a time, but relaxation follows, and, with it, the risk of bleeding.

Moreover, expulsive action need not be waited for, it is not needed; the hand introduced can speedily empty the uterus if



necessary. Retraction is the primary, nuclear thought, and can be secured by use of the combined hands, steadily moulding the uterus between them like a plastic shrinking mass, till it be firmly set. Peradventure, this proving ineffectual, which I have never yet experienced, the nozzle of the douche can be passed up to the hand *in utero*, and hot water injected.

In perusing recent discussions on the treatment of post-partum hæmorrhage, one cannot but feel there is madness in the method advocated. Can anyone, not bereft of the reasoning faculty, believe that bearing the whole weight of their body on the abdominal aorta will make any material impression on uterine circulation so long as the ovarian arteries are left free? Compression of the aorta I have found of signal benefit, not in checking hæmorrhage, but in warding off and relieving faintness and collapse.

In this ramble through old books a point has been reached where a halt may be called. In the middle of the eighteenth century, we have seen the science and art of Midwifery emerging from the murky atmosphere and false imaginings of ignorance. We have traced the varying phases through which the conception of the uterus and its action has passed; and have indicated, more than discussed, the bearing of the older teaching on modern thought and methods.

The group of writers to whose works I have referred, and from which I have freely quoted—Smellie, Hunter, Denman, and Burns, must be regarded as strictly the four forefathers of British Midwifery. Their eminence and the classical character of their works rest on the true, scientific, and practical spirit that pervades their writings, the soundness of the principles they inculcate, and an absence of the false reasoning, the timidity, and grandmotherly advice, that mar the writings of many of their successors. The first three names are familiar and well-remembered, that of the last, Prof. John Burns of Glasgow, I

fear, is almost forgotten. And yet his work on *The Principles of Midwifery* went through seven editions, and will be found stimulating and instructing to the practitioner even of to-day. He follows closely the teaching of Denman, and develops the important subject of fatigue of the uterus and its management; that, however, opens up another pathway in the history of obstetrics, which must wait for another occasion.