On 'supporting the perinaeum' : practical considerations respecting the causes and prevention of laceration of the perinaeum during labour / by Graily Hewitt.

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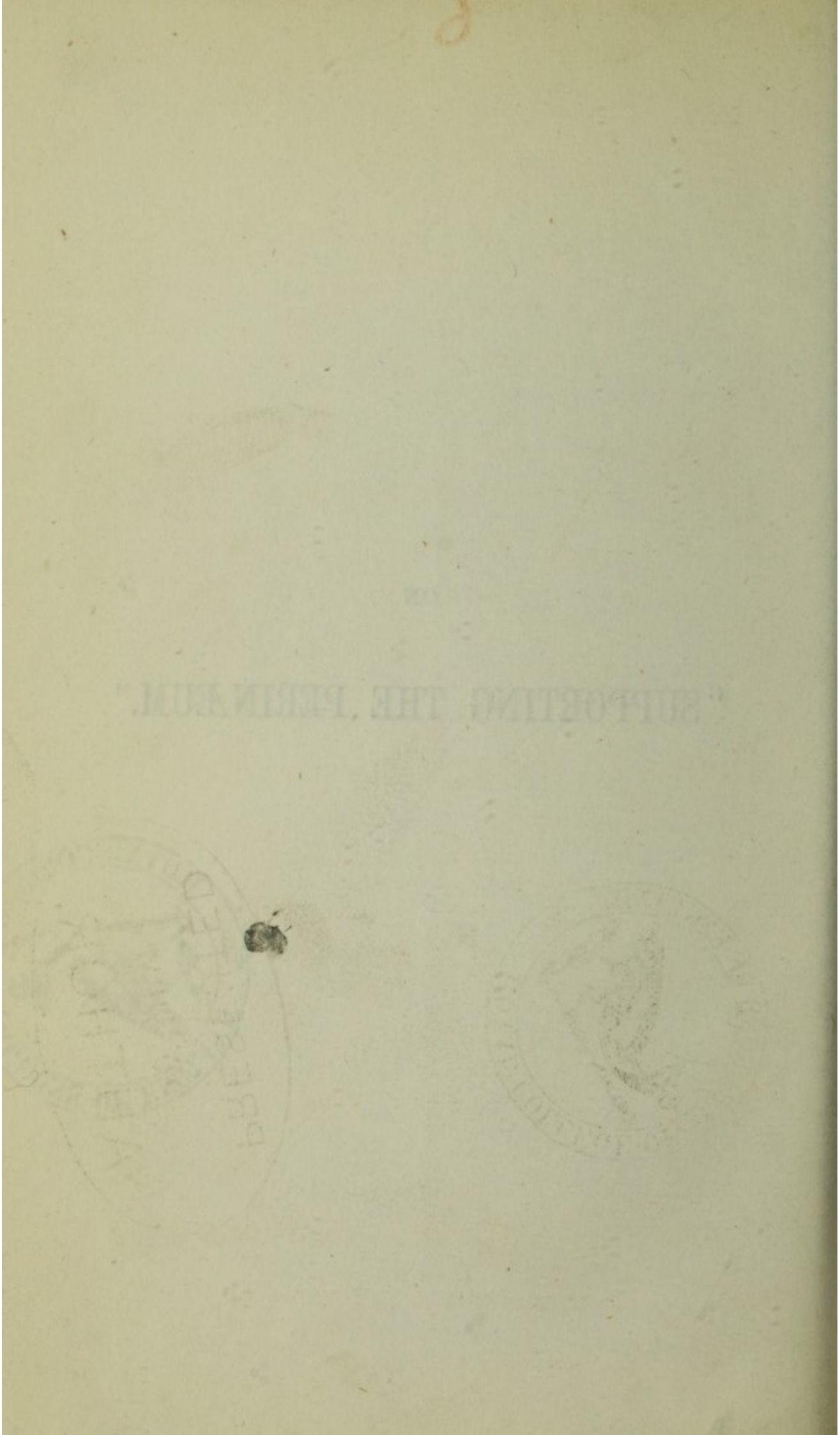

ON

"SUPPORTING THE PERINÆUM:"

PRACTICAL CONSIDERATIONS RESPECTING

THE CAUSES AND PREVENTION OF LACERATION OF THE PERINÆUM DURING LABOUR.

BY

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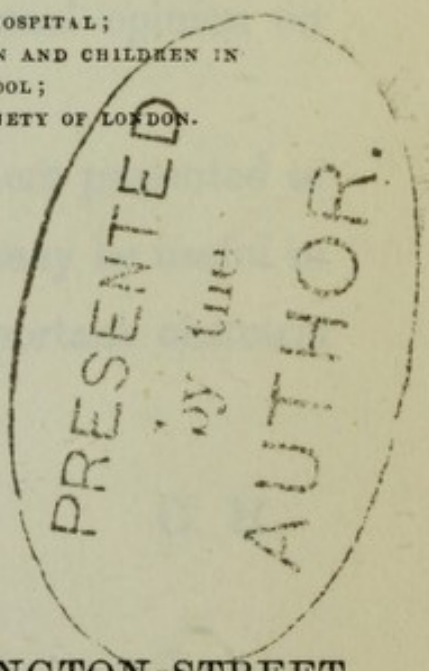

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THE following is, in substance, a reprint of certain Papers recently published in the *British Medical Journal*:—

That there is really a necessity for discussing the question of the proper management of the Perinæum during labour a little more fully and carefully than has hitherto been the case, will, I think, be conceded by any one who will be at the pains to examine, as I have done, into the state of professional opinion on the matter.

I trust the analysis of the subject here presented to the reader, imperfect though it be, may be useful in promoting the settlement of an important obstetric question.

G. H.

36, BERKELEY SQUARE,
June, 1861.

ON

"SUPPORTING THE PERINÆUM."

Is it possible once and for all to settle the vexed question of the proper treatment of the perinæum in labour? It is very certain that the formation of some definitive conclusions on the subject would be acceptable to those—and they are many—who are engaged in the arduous duties of obstetric practice, and to whom a divided opinion among "the best authorities" on a matter of such every-day occurrence as the management of a natural labour is perplexing and unsatisfactory in the extreme.

The following remarks may or may not assist in the formation of such definitive conclusions; they are, at all events, put forward as a *bonâ fide* attempt to arrive at the truth of the matter.

The fact with which we have to deal is, that, in a certain proportion of cases, the birth of the child is the occasion of an accident to the perinæum; the soft

parts which surround the inferior termination of the parturient canal are lacerated by the mere mechanical act of stretching which they undergo—in other words, laceration of the perinæum takes place.

With the knowledge of this fact before them, practitioners have been accustomed to look on laceration of the perinæum as an accident always liable to occur; and a certain preventive procedure, known as "supporting the perinæum," has been invented. This has been adopted by almost all the highest obstetric authorities, systematically enjoined by obstetric teachers on their pupils, and most extensively carried into effect by practitioners throughout, it may perhaps without exaggeration be stated, the civilized world. It is only quite recently that the propriety of the practice alluded to has been at all seriously questioned;* and at the present time the almost universal practice still is to endeavour to prevent perinæal laceration by, as it is termed, "supporting the perinæum."

Is the treatment in question proper? Is it based on sound principles? Is "supporting the perinæum" really and truly calculated to prevent laceration of this part during labour? If these questions are to

* Allusion is here more particularly made to a very able paper by Dr. Leishman, in the *Glasgow Medical Journal* for January, 1860.

be answered in the negative, much obstetric teaching that has been quietly acquiesced in for many years past will have to be thrown aside; and it will be rendered evident that much valuable time and very much physical exertion have been expended, that much anxious thought has been bestowed, on what was, after all, valueless and to no purpose. If the thing be good, let it be retained; if it be bad, let it be discarded.

Now, however practised, there is this *primâ facie* objection to "supporting the perinæum" in natural labour, that it is an interference with a natural process; that, admirably adapted and contrived as are all the parts concerned in the act of parturition, it is not reasonable to suppose that such contrivance and adaptation should exist in reference to one and not to every part of the process, that the perinæum should be left in this respect destitute and dependent for its protection on something extraneous; viz., artificial assistance. This objection was long ago enunciated by Denman; it could not fail, indeed, immediately to strike any one giving the matter the very smallest consideration. The reply which some would be likely to make to this is, that the artificial conditions modern civilization has imposed upon us render artificial expedients necessary for the maintenance of health and the cure of disease. I do not

consider that this really constitutes a fair or sufficient reply in the present instance ; and I should not have alluded to it, were it not for the circumstance that on this very argument some very remarkable obstetric practice has quite recently been based, or, at all events, defended. It must, I think, be conceded that nature is likely to be adequate to the protection of the perinæum from serious injury in "natural" labours

But it is not proposed to rest satisfied with this conclusion. The procedure "supporting the perinæum" must be examined, and its efficacy in preserving the perinæum from laceration under all circumstances thoroughly weighed and sifted.

In limine, I would ask what the term "supporting the perinæum" really means? It is not easy to answer this question, however simple it may appear to those who have not thoroughly considered the matter ; for, although in the main the plan recommended by various authorities is identical, the reasons given for advising its adoption, and particularly the ends contemplated by its different patrons, are the most dissonant possible. By one authority we are told that the perinæum is to be "supported" on account of its insuring one thing ; another authority contemplates a different, perhaps a directly contrary advantage or gain therefrom ; all agreeing, however, in the conclusion that, in some way or other, "supporting the

perinæum" saves it from laceration. This diversity of opinion as to the *rationale* of the procedure is, to say the least of it, most suspicious. The fact, indeed, appears to be that the practice, originally established vaguely, and on quite insufficient grounds, came first, the theory afterwards; but having been established, it was of course necessary that each advocate of it should give a reason to justify the practice to himself and the public. Hence the sameness of the practice, the diversity of the principles on which it has been defended.

The term "supporting" the perinæum has a good deal to answer for; to its use must be ascribed much of the confusion which exists in the minds of practitioners, and a great deal of the diversity of reasoning adopted by different writers on this subject. The term may or may not be applicable, according to the mode of reasoning adopted, and it is consequently meaningless as a scientific expression, and useless and mischievous in its effects on obstetric practice. The very use of the word "support," as applied to the procedure now under consideration, is calculated, as will at once be perceived, to enlist popular sympathy in its favour. It being known that the perinæum is now and then likely to give way, what more natural than to presume that "support" is likely to be useful in preventing it? The perinæum—the passive agent

in the matter—in danger on the one side of being torn by the head of the child, is defended on the other by the hand of the operator. What could be better than "support" under such circumstances? The word itself, "support," in fact implied, as it will be perceived, a foregone conclusion as to the conservative nature of the procedure in reference to the perinæum; and, seeing that no trouble was taken to ascertain what the operation actually was, in the absence, in fact, of anything that could be called an analysis of its effects, it is not to be wondered at that "supporting the perinæum" has been so long in vogue.

The text-books which have in this country been most extensively read and followed of late years by obstetric students and practitioners, are those of Lee, Rigby, Ramsbotham, Churchill, Murphy, and Tyler Smith. In all these text-books, with one exception, that of Dr. Tyler Smith, it appears to be taken for granted that "supporting" the perinæum is an useful operation. That the particular objects and effects of the procedure are most variously conceived by these eminent authorities will be rendered evident by placing their respective statements on the subject side by side.

The object of the operation, as gathered from Dr. Lee's instructions, is to press the head forward to the

symphysis pubis, and thus prevent "the whole force of the uterine action being directed against the perinæum."*

In the *System of Midwifery* by the late Dr. Rigby, the author says: "Our object is not merely to support the perinæum, but to direct the head as much forwards under the pubic arch as possible, in order that the anterior portions of the os externum should undergo their share of dilatation, and thus in some measure spare the perinæum." The object of so placing the hand is to "push the soft parts somewhat forwards, and thus relax them. By this means we not only direct the head against the other parts of the os externum, but avoid the danger of its perforating the perinæum." (p. 112.) Further on (p. 114), Dr. Rigby mentions another advantage derived from supporting the perinæum—that, when at the last the pains fail, "and the labour becomes very lingering, ... firm pressure applied at the lower end of the sacrum, in a direction forwards, materially adds to the effects of each pain in bringing the head through the os externum, and seems almost to excite the patient to make a more powerful effort with the abdominal muscles."

Dr. Ramsbotham, the most strenuous advocate of the practice of supporting the perinæum, does not

* *Lectures on the Theory and Practice of Midwifery*, p. 225.

inform us how the operation does good; he makes no attempt to show the *rationale* of the process.

Dr. Fleetwood Churchill states (*Manual for Midwives and Nurses*, p. 42), in order "that you may do so intelligently [support the perinæum], it may be well to ascertain what it is you want to effect;" that what is wanted to be effected in supporting the perinæum is "to offer some gentle support externally against the pressure internally, to guard against the sudden escape of the head, to guide it forward, and at the same time to draw the integuments gently *forward*, but never backward." Here, and also in his larger work, Dr. Churchill altogether objects to attempts to retard the progress of the child.

Dr. Murphy says the object in view is "to obviate the effects of too violent distension;" but he gives no further explanation* of the *modus operandi* of the procedure, although the steps of the procedure itself are dwelt upon at some length.

* In a letter published since these remarks first appeared, Dr. Murphy states that "the support of the perinæum is essential in order to prevent those causes coming into operation which interfere with the act of dilatation;" the causes referred to being "congestion and inflammation." And further on—"The object of supporting the perinæum seems to me to be twofold:—First, to prevent or allay irritation, and to diminish congestion, so that the act of dilatation may not be interfered with; secondly, to counteract too violent action of the uterus."—*Brit. Med. Journ.*, April 20, 1861.

Dr. Tyler Smith considers the procedure objectionable, for a reason to be afterwards stated; and, judging from a passage in one of his earlier writings, evidently mistrusts its efficacy from a mechanical point of view. In his latest work (*Manual of Obstetrics*, p. 307), he expresses himself as follows. He objects to the "constant and sustained support of the perinæum during the latter part of labour;" recommends that the forefinger of the left hand be kept upon the "anterior margin of the perinæum during the last pains, and the right upon the head, with a view to ascertain the moment when the perinæum is distended to a dangerous extent, with one hand, and at the same moment to retard the advance of the head with the other. The head should be pressed on passing close to the pubes, so as to strain the perinæum as little as possible."

In the Dublin school, the practice of which is further gathered from the reports of Johnston and Sinclair, and of M'Clintock and Hardy, the object of the operation is considered to be to retard the advance of the head. These authors do not explain the *rationale* of the process.

Dr. Leishman, the most recent writer on the subject, and a firm opponent of the practice of supporting the perinæum, appears to think it a good thing that the advance of the head should be retarded, in order to save the perinæum, although he strongly

objects to the practice of supporting the perinæum *as a means to that end*. He also speaks of the advisability and advantage of directing the head forwards, as having the effect of saving the perinæum; from which it is evident that he considers the ends good, which the supporters of the perinæum have in view, his objection being to the manner in which these ends are attempted to be secured.

The modern French writers, all of whom speak of supporting the perinæum as a recognised procedure, do not explain its advantages. The same may be said of the chief German authorities.

Let us now examine for a moment the nature of the objects, effects, or advantages of administering "support," as gathered from the authorities now cited. They may be summed up as follows:—

By the operation, the head is directed forwards, and the perinæum thus relieved from pressure.

The skin of the perinæum is directed forwards, and the soft parts are thus relaxed.

The progress of the head is to be retarded.

The progress of the head is not to be retarded.

The progress of the head is hastened by supporting the perinæum.

It must be confessed that these conclusions, drawn from statements in the works of the modern authors above alluded to, and which may fairly be taken to

represent the present state of opinion on the subject, are not a little vague and contradictory. It is evidently not clear to those who uphold the practice of supporting the perinæum what the effects or immediate objects of the operation are. On the one hand, its advantages are supposed to be derivable from a direct action on the structures of the perinæum themselves: on the other, the operation is supposed advantageous, because it retards the advance of the head.

With the view of ascertaining the value or advantages of the operation "supporting the perinæum," it is necessary, in the presence of such conflicting opinions as to its objects and effects, to examine what those effects really are.

Such an examination will place us in a position for judging whether the "objects" of the procedure are legitimate ones, and whether the advantages supposed to accrue from it are real or only imaginary.

It is not necessary to occupy space by a minute description of the operation "supporting the perinæum;" it is familiar enough to all. The directions given by obstetric authorities as to the "method" to be pursued amount, in substance, to this—that, when the head of the child has begun to distend the perinæal structures, pressure should be applied to the perinæum by means of the hand, a napkin being generally directed to be interposed. By some, the

pressure or support is directed to be applied early, and kept up during the access of the pains, until the head and shoulders be expelled; by others, the time at which the support is to be commenced is fixed somewhat later, and nearer to the time at which the birth of the head may be expected to occur. All the recent writers whose opinions I have quoted agree in all essential respects as to the *manner* in which the "support" should be applied. The perinæum is to be pressed "forwards." There is a difference only as to the "force" to be used, and as to the period of the labour at which it is to be commenced.

Such pressure, such support, must have an effect —1, on the head of the child; 2, on the perinæum itself.

1. *Its Effects on the Head of the Child.*

The pressure exercised primarily on the perinæum acts secondarily on the head of the child. The lines representing respectively the *effect* of the pressure as usually exercised, and the axis of the outlet of the pelvis, are practically nearly coincident; the effect on the head of the child is that of a pressure exercised directly upwards, and immediately in the axis of the pelvis. I say practically speaking; for, according to a well-known law in physics, the combined effect of

the passive resistance of the pubic arch anteriorly, and the active resistance of the hand of the operator posteriorly, together resisting the propulsive efforts produced by the contraction of the uterus above, is that which has been represented.

Clearly, then, it will be said, the pressure in question has one tendency; viz., to retard the advance of the fœtal head. At first sight, this proposition carries truth on the face of it. Will it bear examination? It is remarkable that, by one obstetric authority, "supporting" is recommended in order to retard the advance of the head; while we have it on the statement of another, that the pressure actually accelerates its progress. As previously stated, Dr. Rigby expressly remarks that he has found this effect from it, and that Madame la Chapelle had observed the same thing before him; and Dr. Tyler Smith particularly calls attention to the effect of pressure on the perinæum in exciting reflex action of the uterus, and in thus accelerating the progress of the labour. As a matter of experience, then, and as a deduction from theory, we find it stated on the one hand, that the pressure does accelerate the advance of the head; on the other, we are told that the object of the support is to retard the advance of the head. How are these conflicting statements and opinions to be reconciled?

Looking at the facts of the case, it seems hardly likely that any pressure exercised from without could have much *direct* effect in retarding the advance of the head, unless a tolerable amount of force were used. The force and power of the uterine contraction is, it must be remembered, in many cases something remarkable. In those particular cases in which support is most recommended—where, in the latter part of the expulsive stage of labour, the uterus is acting with very great vigour, and the perinæum is subjected to considerable pressure—the force required to counteract in any degree these uterine contractions, to render them inoperative, must be something infinitely greater than that capable of being exercised by the mere pressure of the hand from without. There are some operators who probably *do* apply their pressure in a manner calculated to have some such effect in retarding the head. Dr. Ramsbotham's plan of placing the elbow on the bedstead, and rendering it a fixed point against which the head is allowed to be protruded, must be one calculated to offer almost as much resistance in one direction as the pubic arch does in the other; and that this plan has an effect in retarding the progress of the head, would seem evident from the length of time ("many hours") during which Dr. Ramsbotham has occasionally been "compelled to remain by the side of the bed." It is

not to be wondered at that the duty should be found "exceedingly fatiguing." On the other hand, if the pressure be slight in degree, it must be *mechanically* perfectly useless as regards its direct effect in retarding the advance of the head.

The *acceleration* in the advance of the head experienced by La Chapelle and Drs. Rigby and Tyler Smith, as a consequence of supporting the perinæum, now requires to be dealt with. The explanation given by Dr. Tyler Smith of this fact does not appear to me to include the whole truth. Is not the acceleration due rather to the effect of the resistance offered to the advance of the head of the child, than to the excitation of reflex action? Any resistance to the action of the uterus calls that action into more violent and powerful manifestation, as is well known; and I should be disposed to explain the beneficial "accelerating" action of pressure on the perinæum in this manner. I am at the same time quite prepared to admit that reflex contraction of the uterus may be set up by continual pressure on, or by irritation and manipulation of, the perinæum. All I contend for is, that this is only a part of the explanation.

The conclusions to be drawn from these considerations are, that extreme degrees of pressure may retard the advance of the head; that a slighter degree of pressure either accelerates, by exciting uterine reflex

action, or has no effect whatever on, the advance of the head; from which it necessarily follows that those who recommend moderate support of the perinæum, with a view of retarding the advance of the head, recommend that which is, mechanically speaking, useless.

It will be observed that the question of the advisability of retarding or accelerating the advance of the head, in order to preserve the perinæum from laceration, has not now been touched upon. This is a perfectly distinct question, and will receive attention in its proper place.

Another effect of supporting the perinæum, which has been alluded to by most writers on this subject, is that of *directing the head forwards*, and thus relieving the perinæum from pressure; and, as considerable importance appears to be attached to this element of the procedure, it is necessary to examine it somewhat particularly. Drs. Lee, Rigby, Churchill, and Tyler Smith all agree in recommending that the head should be *directed forwards*. But how is this to be done? Anteriorly, we have the hard resisting bones forming the pubic arch. Endeavouring to press the head forwards against this would seem purposeless and futile in the extreme. When the head is engaged in passing through the os externum, under ordinary circumstances, let any one attempt to pass the

finger between the head and the pubic arch, and it will be found that the head and the pubic bones are so perfectly in apposition that the passage of the finger is generally impossible—there is certainly no space to spare *there*. It is well known that the pubic symphysis is loosened during labour; but it has been found by Schwegel (*Mon. für Geburtsk.*, Feb. 1859), who has carefully examined into the matter, that this loosening does not admit of an increase in the transverse diameter of the pelvis of more than one line; and it cannot for a moment be supposed that any pressure exercised in "directing the head forwards" can give any additional *space* for the passage of the head. In certain cases of pelvic deformity, the construction of the hard parts may be such that the head is really not so far "forwards" as it should be, or the construction of the head itself may be such that the same result follows; but these are not "ordinary" cases. More, the attempt to direct the head forwards would appear to be actually mischievous, by pressing it still more forcibly, if that were possible, against the pubic arch, and thus interfering with its passage beneath that arch. *Indirectly*, the effect of such pressure "forwards" may thus have an effect which those who recommend it have not contemplated from it; viz., the retardation of the progress of the head. It is well known that it is the

part of the head which is most anterior—that, viz., which is in contact with the pubic arch—which emerges first; and the sooner this part of the head can be made to glide under the pubic arch the better. Now, by pressing forcibly against the perinæum—that is, against the part of the child's head which is directly opposite to this—the effect must be to delay the desired emergence of the part of the head in question. If it be so delayed, while the other and opposite side advances, it necessarily happens, as those who have paid attention to the relative position of the axes of the head in delivery will perceive, that a larger diameter of the head is presented to the perinæum than would otherwise be the case. The part of the head in contact with the pubic arch advances much more slowly than that in contact with the fourchette, the head making a sweep as on a pivot, of which the fixed point is the pubic arch.

The pressure of the operator is applied, we suppose, as represented in the accompanying woodcut, in the direction of the line A B. How this pressure can assist the head in passing under the ossa pubis, or how it can help the head "in making its turn," it is difficult to conceive; for until a considerable portion of the head has passed under the arch of the pubes—until, in fact, the head has advanced to a position roughly indicated by the dotted line C—mechanical

pressure in the direction of the line A B will be manifestly useless in helping the head forwards. If the pressure be applied before that time, it may be inju-

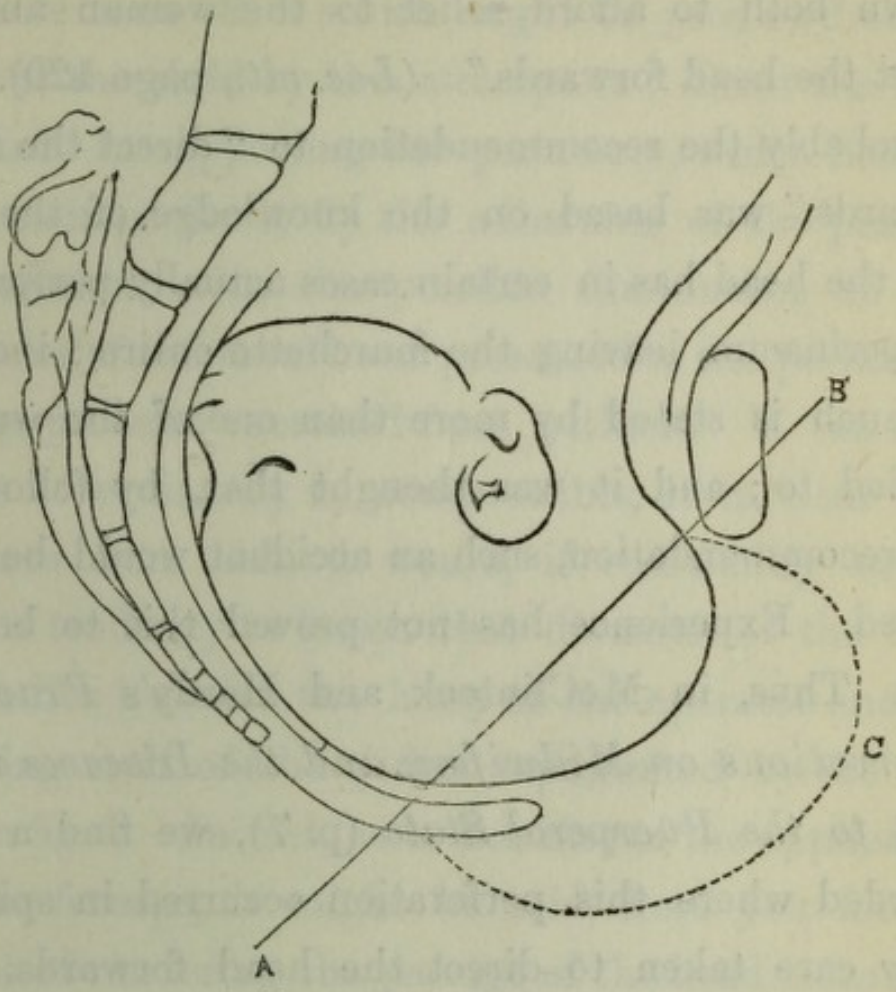

Fig. 1.

rious for the reasons already stated; if applied afterwards, it is useless, as the difficulty in the latter case, so far at least as the perinæum is concerned, is at an end, and the period of greatest danger to the perinæum has been passed over.

Even Dr. Leishman, who is opposed to the practice of supporting the perinæum in natural labour, and who has evidently devoted some little thought to the

whole question, does not appear to have perceived the futility of this endeavour to direct the head forwards; for he says, "Pressure against the sacrum is well known both to afford relief to the woman and to direct the head forwards." (*Loc. cit.*, page 420).

Probably the recommendation to "direct the head forwards" was based on the knowledge of the fact that the head has in certain cases actually perforated the perinæum, leaving the fourchette entire; indeed, as much is stated by more than one of the writers alluded to; and it was thought that, by following this recommendation, such an accident would be prevented. Experience has not proved this to be the case. Thus, in McClintock and Hardy's *Practical Observations on Midwifery and the Diseases incident to the Puerperal State* (p. 7), we find a case recorded where this perforation occurred in spite of every care taken to direct the head forwards. In these rare cases of central perforation of the perinæum which have been recorded, there is not the slightest proof that the fault lay in the manner in which the head was directed: the cause must be sought elsewhere. Another reason for "directing" the head forwards, and which is given as a cause of laceration of the perinæum, is the possible presence of too slight curvature of the sacrum, whereby the head is allowed to descend too directly on the perinæum. Proofs of

the connexion between unusual straightness of the sacrum and laceration are however entirely wanting.

There is an effect which might be produced on the head of the child by this attempt to "direct the head forward" in supporting the perinæum, which has not been claimed for it by the adherents of the practice in question; viz., the possible diminution of that diameter of the fœtal head presented to the perinæum, by the pressure exercised from without. If the head be, as it ordinarily is, compressible, it is clear that pressure from behind would, if sufficiently strong, have a tendency to lessen that diameter of the head which lies between the hand of the operator and the resisting arch of the pubes, represented by the line A B in fig. 1. In fact, as in the case of the application of the forceps, it might be said, here you have a means of rendering the passage of the head more easy for the perinæum; and I can quite conceive that pressure might be so directed by the hand as to actually produce a tangible effect of this kind. The obvious criticism on such a mode of facilitating the delivery would be, that in the use of the forceps there is a better means of arriving at the same end. Compression by the forceps would at the same time be more effectual and less liable to injure the soft structures which in the other case are necessarily inter-

posed between the head of the child and the hand of the operator—the perinæum.

From this analysis of the effect of "supporting the perinæum" on the fœtal head itself, it seems impossible to come to any other conclusion than that its supposed useful mechanical effect on the advance of the head is very questionable. Its imagined or imaginary effect in "directing the head forwards" I think I have sufficiently disposed of.

I shall in the next place examine the effects of the procedure on the perinæum itself.

2. *Its Effects on the Perinæum itself.*

In order that we may deal with this part of the subject in a fitting manner, it is necessary to give a little consideration to the mechanism of the process by which the perinæum is distended, and provision made for the passage of the head of the child through the vaginal outlet; in other words, to study the *behaviour of the perinæum during normal labour.*

The effect of the pressure of the head of the child is, that the perinæal structures are spread out, the area of the perinæum increased to a very remarkable extent; so that, when the head is just about to emerge, and the vaginal outlet is stretched to the utmost, the surface offered by the perinæum exceeds

by many square inches the area presented when the parts are at rest. The increase in size takes place from side to side quite as much as from before backwards. Now, on reflecting carefully on the matter, it will at once be seen that the distension required is in a circular direction. My meaning will be rendered more intelligible by reference to the accompanying drawing. P represents the section of the perinæum

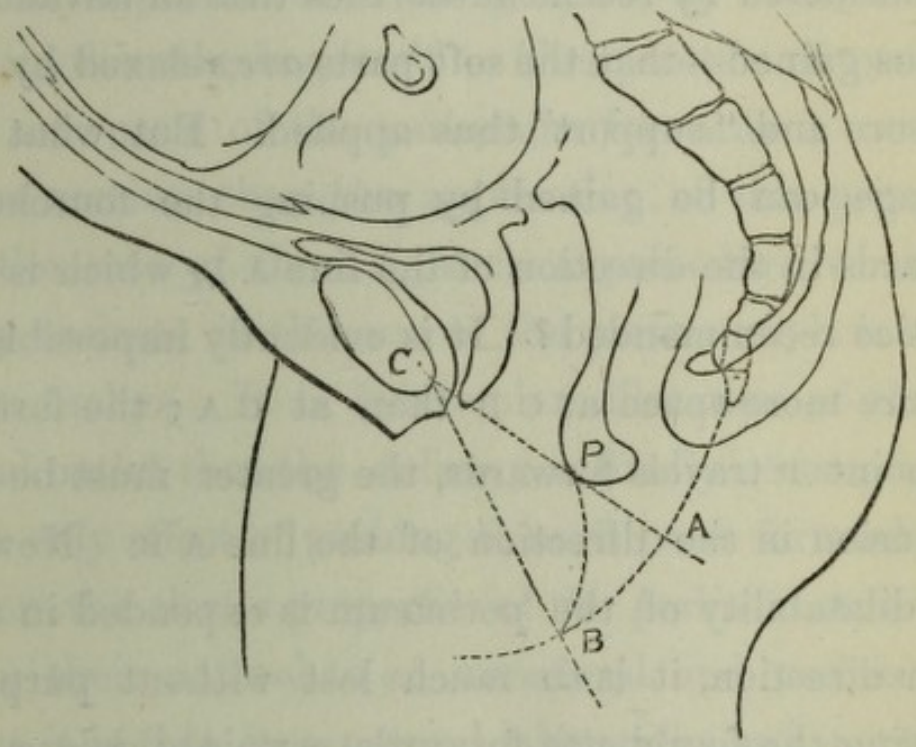

Fig. 2.

when at rest, and before labour has commenced. When labour has so far advanced that the head begins to press on the perinæum, and to enlarge the inferior outlet, the result will be that the point P will travel backwards towards the point A; but, inasmuch as the stretching and distension which take place, by

driving the borders of the outlet forwards, lengthens the perinæum also in the direction from before backwards, the result of the two operations will be that the point P will travel, not directly backwards towards A, but more nearly downwards and forwards; that is to say, in the direction from P towards B. The modern practice is to push the soft parts forwards, and thus, it is said, "relax them;" and it appears to be considered by recent authorities that an advantage is thus gained—that the soft parts *are* relaxed by the pressure and "support" thus applied. But what advantage can be gained by pushing the fourchette forwards in the direction of the line A B, which is the practice recommended? It is evidently impossible to procure more space at C B than at C A; the farther the point P travels forwards, the greater must be the distension in the direction of the line A B. Now, if the dilatability of the perinæum is expended in this latter direction, it is so much lost without purpose. Pressing the fourchette forwards certainly *delays* the emergence of the head through the ostium vaginæ; the mistake has been in supposing that anything is gained by this as regards *facility* in the delivery. On the other hand, it is unquestionable that delay obtained in this manner is attended with the great disadvantage now enunciated—that, by pushing the soft parts forwards, the substance of the perinæum is ex-

pended, so to speak, in a useless manner. Sooner or later, the vaginal outlet must be sufficiently dilated to allow the head to pass. There is no escape from this, and whether the head is allowed to pass at the point C A or at the point C B, the size of the aperture required for its passage is the same.

What would be thought of an individual who, desirous of enlarging the aperture of a bag, set about the accomplishment of his purpose by endeavouring to lengthen the bag itself? The practice of pressing the soft parts of the perinæum forwards is nothing more nor less than the application of this principle. In the case of the bag, such a procedure would be only useless; in the case of the perinæum, it is worse than useless. It is by circular dilatation of the vaginal outlet that the delivery is finally accomplished. The only effect of pushing the soft parts forward is to divert the elastic properties of the perinæal structures from their natural to an unnatural and useless end. True it is that, in a natural labour, the soft parts *are* pushed forwards; that the fourchette advances in the direction of the line A B (fig. 2); but it does not follow that dilatation in this direction is mechanically useful. It is, in fact, a positive disadvantage when it occurs to any considerable extent.

How it came to be imagined that pressing the fourchette forwards was an advantage it is not easy

to explain; and the very fact that so many recent writers appear to agree in considering it an advantage shows how little the matter has been really studied by them. Curiously enough, Hamilton, who was, as appears from Dr. Leishman's statement, the first teacher who systematically "supported" the perinæum, did not fall into this error. The hand should be applied, says Hamilton, "as the head advances, to regulate its progress by pressing the perinæum as it were backwards, in a direction towards the coccyx." Hamilton thus conceived that, in order to save the perinæum from laceration, we ought to press the perinæum *backwards*. With a similar object, most modern authorities say "press it *forwards*." There can be no doubt that, in regard to the economical distribution of the soft parts, Hamilton's plan is more in accordance with the mechanical requirements of the case, as I have indeed just shown. Dr. Leishman gives us a quotation from Rœderer, from which it appears that Rœderer's practice was to press the perinæum "towards the sacrum;" as I find in the original, "Sub quovis ingruente dolore digitis his perinæum versus os sacrum premit." (*El. Art. Obst.*, § 311.) It is thus evident that neither Rœderer nor Hamilton supposed it an advantage to press the perinæum forwards.

Thus the argument for supporting the perinæum,

"that the soft parts are relaxed by pressing them forwards," turns out to have no foundation.

Thus far the object I have had in view has been to show, from an appeal to the facts of the case, the mechanism of the process—in fact, what the effects of the operation "supporting the perinæum" really are. It has been shown that, in the main, the reasoning on which it is, or has been, supposed that the operation is good as regards its conservative action on the perinæum, is inadmissible; that effects have been supposed to result from it which have no substantial existence; and that, in certain cases, the real effects of the operation are precisely opposite to those which are attributed to it.*

* An anonymous critic (C. H.) in the *Brit. Med. Jour.* (April 27th, 1861) stated:—"If any one will take a very thin elastic tissue, and, stretching it tightly across his parted knees, roll over it a rounded body, he will find a tearing of the free edge very easy. Let him now place a pad or support of any kind under the extended material, and again pass over it the same body, laceration will be found much more difficult." This "experiment" is taken by the writer to prove that "supporting the perinæum" tends to preserve it from laceration. My reply (*Vide Brit. Med. Jour.* May 4th) was as follows:—"The *principle* of C. H.'s experiment—which experiment, by the by, I have found it practically impossible so to perform as to remove every source of fallacy from the result obtained—will be better illustrated by the following one:—

"Lay a piece of sheet India-rubber, say four inches square, on a table. Fix the India-rubber to the table by means of four or

I have preferred, in endeavouring to analyse the effect of the operation, to meet its defenders on their own ground, and have considered its supposed advantages in the order in which they have presented themselves; and for this reason the method of treating the subject may have appeared somewhat irregular, and wanting in order of arrangement.

The Effects of "Supporting the Perinæum" in Delaying, Impeding, or Interfering with the Normal Process of Distension and Dilatation of the Perinæum.

The manner in which the dilatation of the perinæal structures takes place, its direction and nature, have been alluded to; and the errors of prevailing notions regarding the same have been pointed out. But the *agency* of the dilatation in question—the

more nails, the nails placed so as to inclose an area in the centre one inch square. If traction be now applied at the free edges of the sheet of India-rubber, the central portion inclosed by the nails will be necessarily unaffected by that traction.

"The area of the perinæum covered by the hand represents the area inclosed by the nails in the above experiment; and it is evident that, if the hand be applied *forcibly enough*, the area in question will be less stretched than other portions.

"So far, then, the result is, that counter-pressure may *delay dilatation*. This is the sum and substance of the whole matter. It is another question, however, whether so to delay dilatation is good for the safety of the perinæum."

force by means of which the perinæal surface, previously so small, is increased and extended so as to allow the head of the child to pass—have not been considered; nor whether the plan of "supporting the perinæum" is calculated to modify, assist, or interfere with this important process.

In "making its sweep," as it is termed, over the perinæum, the portion of the head encircled by the

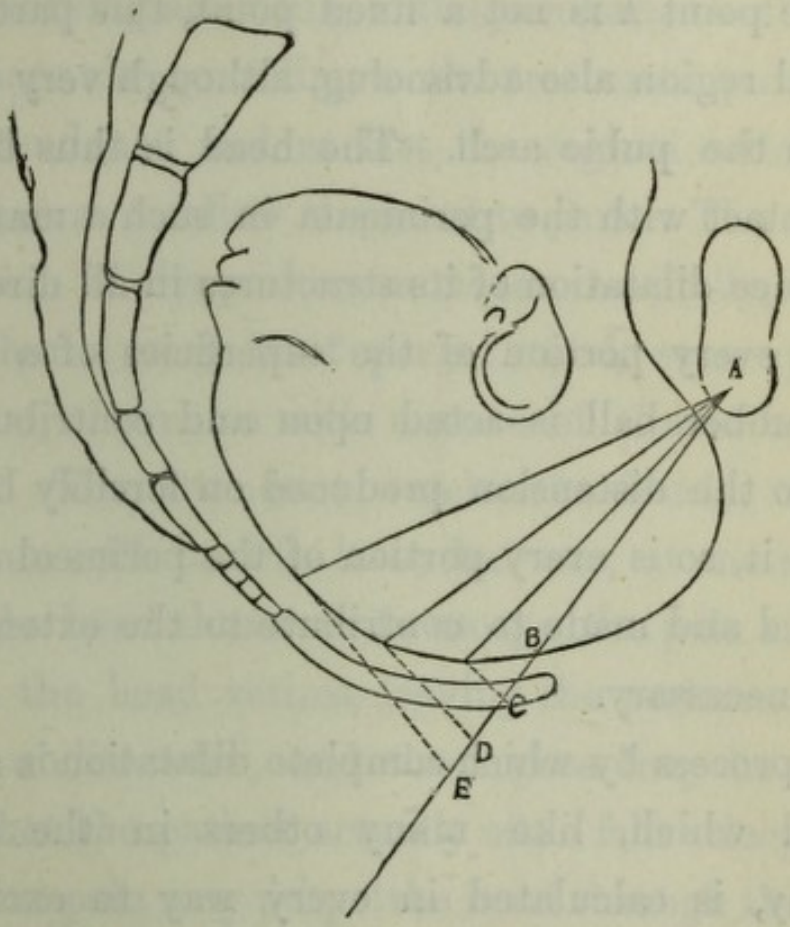

Fig. 3.

ostium vaginæ progressively increases in circumference; the perinæum has, on every successive pain, to encounter and deal with a section of the head becoming larger and larger. Thus, whereas at the

commencement of dilatation the diameter presented to the perinæum is roughly represented in fig. 3 by the line A B, as the head advances the diameter presented to and stretching the perinæum is represented by the line A C; and, before the head can be delivered, the ostium vaginæ has to be dilated to an extent represented by the lines A D and A E. The real effect is here a little exaggerated, owing to the circumstance that the point A is not a fixed point, this part of the occipital region also advancing, although very slowly, beneath the pubic arch. The head is thus brought into contact with the perinæum in such a manner as to produce dilatation of its structures in all directions. Just as every portion of the superficies of a hollow India-rubber ball is acted upon and contributes its quota to the distension produced on forcibly blowing air into it, so is every portion of the perinæal surface stretched and made to contribute to the extension of surface necessary.

The process by which complete dilatation is arrived at, and which, like many others in the animal economy, is calculated in every way to excite our admiration, is generally a very gradual one, especially in a first labour. The head descends, driven downwards by the uterine contractions; and the attendant receives an intimation that the perinæum is about to undergo dilatation, in the fact that the perinæum is

slightly bulged downwards during the acme of the uterine contraction. When the "pain" has gone off, the perinæal tumour has entirely vanished also. The next pain propels the perinæum downwards a little more; but the difference between the effect of two successive pains is so slight that it is hardly perceivable. To this process of alternate stretching and repose the perinæal structures are subjected for a period varying according to the peculiarities of the case —perhaps also according to the treatment pursued by the attendant; and at last the vaginal outlet is distended so as to allow the head to pass. The extreme distension of the perinæum never, normally, lasts for more than a very brief period; and, even up to the very last, alternates with a state of almost complete repose. The attendant watches anxiously, thinking each pain will be the last; but no; at the moment when the head threatens to escape, the pain suddenly ceases, the head retires, leaving the perinæum apparently undistended, and the repose may be so complete that the patient actually often falls asleep. The very next pain may propel the head through the outlet.

Such is the normal process, which appears to be one of alternate attack and retreat, the attack not being more vigorous than the retreat is decided. The construction of the perinæum is such that this peculiar method of dilating its structures is the best and the

most efficacious. It appears to be owing to the elasticity of these structures that the head is driven backwards into the pelvis when the uterine action ceases; and without doubt this is nature's provision for safety.

Now, what takes place when the perinæum is "supported" persistently and forcibly, and in such a way as recommended by certain authorities? If the uterus be acting feebly, such support may render the attempts on the part of nature to dilate the perinæal structures futile, or may so impede the action of these efforts as to postpone the delivery for a considerable time. In the case of a "rigid perinæum," as it is called, what we require is that it should be distended. How is this to be accomplished, if the means nature has provided to this end are rendered nugatory? How can the structures be properly stretched, if every uterine contraction is opposed by the operator's hand forcibly pressed against the perinæum? If the uterine pains be violent, they will, in spite of the operator, drive the head downwards; if they are weak, the labour will be rendered tedious by the interference of the "support."

The majority of authorities do not recommend the "support" to be carried to such a degree as to interfere materially with the distensive action of the head on the perinæal structures; and so far as this part of

the question is concerned, the slight support they recommend probably does very little harm or good. When the "support" is in degree such that the formation of the perinæal tumour is actually interfered with, the labour is not merely rendered tedious. The support assiduously rendered has, we will suppose, prevented any great distension of the perinæum, and at the last, consequently, when the head emerges, it is distended to this extent for *the first time;* whereas, in the absence of assistance, the same degree of dilatation—practically the same, at least—would have been produced three, four, or more times, in as many pains, before the final expulsion of the head.

Dr. Leishman, who believes that support of the perinæum is one of the causes of its laceration, takes a line of argument somewhat analogous to the one just stated. "The pressure of the hand being chiefly directed against the posterior and middle portions of the perinæum, not only subjects a part already on the stretch to an injurious amount of pressure, but prevents the lateral portions of the perinæum from bearing their due share of the tension. Labour advances, and the time has arrived when the head must complete the curve of Carus and pass under the pubic arch. The whole perinæum is now on the stretch, but the lateral portions having been prevented from undergoing that beautifully graduated dilatation

which nature alone effects, do not yield sufficiently." (*Loc. cit.* p. 417.)

From this appeal to the mechanism of the process of distension of the perinæum and of the vaginal outlet, it must be concluded that the systematic application of pressure may have the effect of interfering with the necessary dilatation of the soft parts: so to interfere with the dilatation must be to imperil the safety of the perinæum.

The effects produced by "supporting the perinæum" have now been considered and discussed *seriatim;* the mechanism by which the perinæum is distended under ordinary circumstances, has also been described at some length. How far the operation falls short of effecting what it has been supposed to effect, how considerably it may interfere with the mechanism of the process of dilatation on which the safety of the perinæum depends, all this I have attempted to show.

Before coming to any conclusion as to what should be the proper management of the perinæum in labour, I propose to examine briefly the question—What are the causes of laceration of the perinæum? The mechanism of distension of the perinæum during the birth of the head having been considered, we are now in a better position for discussing this part of the subject.

The Causes of Laceration of the Perinæum during Labour.

I am not aware that any attempt has been made to collect together fairly and dispassionately the facts scattered over obstetric literature, on the subject of perinæal laceration during labour, in such a manner as to obtain anything like conclusive evidence as to the causes of the accident. Indeed, it is questionable whether any results of value could be obtained by any one making the attempt; and for this reason, that the judgment of the individual recording a particular observation is so likely to be warped and distorted by his own preconceived opinions on the matter. Few, comparatively speaking, go out of the beaten track; and when recognised procedures fail in procuring the end desired, it is generally the case that the failure is set down by the practitioner to his own want of skill in applying the remedy, rather than to the want of potency in the remedy itself. Hence the difficulty of arriving at the truth in such a question as that of the causes of laceration of the perinæum. Added to this, there is this particular difficulty, or disturbing element, that we can hardly say, from experience, what is the percentage of cases in which laceration actually occurs, or would occur, were the perinæum left to take care

of itself, the practice of artificially tending it being so universally the one adopted.

The parts concerned, and the respective condition of each of which it is necessary particularly to investigate in reference to this question, are—

1. The uterus; and the force and frequency of its contractions.
2. The presenting part of the child.
3. The pelvis.
4. The perinæum itself.

The answer to the question, What are the causes of laceration? is, that a faulty condition, absolutely or relatively, of any one of these, or of two or more associated, is sufficient to produce laceration.

It is impossible to dissociate these elements in arriving at a real conclusion as to the cause of the laceration in a particular case, as will be at once admitted on looking the facts fairly in the face. Thus, when we are told that "great size of the child's head" was the cause in a particular instance, this may convey but a very small part of the truth. We must be told what was the force and frequency of the pains; what, also, was the condition of the perinæum, before we are able to say that the size of the head was the *real* cause. It is well known that heads of remarkable size do pass through the ostium vaginæ

without inflicting the smallest injury on the soft parts; the mere fact that the head was large may have had very little to do with the laceration.

It is to be remarked, that the recorders of particular cases of laceration have generally failed to supply us with such full information as would enable us to say whether the cause of laceration, as stated by them, was really the cause or not. The conclusion arrived at by particular observers is, in too many cases, open to this serious objection.

Premising that these sources of fallacy will have to be encountered in any statistical inquiry on the subject, let us examine for a moment some of the documentary evidence obtainable as to the cause of laceration of the perinæum. Take, for instance, the eighty-one cases, most of them of severe laceration, recorded as operated on by Mr. Baker Brown.* The information which I have been able to extract from the reports of these eighty-one cases, and bearing on the present inquiry, is as follows:—

The laceration occurred during a first labour in forty-nine cases, and the labour was terminated by instrumental aid in nineteen of these cases.

The laceration occurred in seventeen cases in which the labour was not the first, and in four of these it is stated that recourse was had to instrumental aid.

* *On Surgical Diseases of Women.* Second Edition. 1861.

There are fourteen other cases in which it is not stated whether the accident occurred during a first or during a subsequent labour. In eight of these instruments were used; in six, not. Thus, instruments were used in thirty-one cases, and not used in forty-nine.

The proportion of cases in primiparæ to those in multiparæ was about as three to one.

The great preponderance of cases of primiparæ is very striking, and shows us convincingly that laceration is far more likely to occur in first than in subsequent labours.

With reference to this part of the question, it may be here incidentally mentioned that Dr. Snow Beck gives the result of some observations, from which it would appear that laceration to a considerable extent may and does take place in primiparæ very much more frequently than is generally supposed. Thus, in 112 primiparal labours, the perinæum was lacerated "through the whole extent" in seventy-five cases.—(*Med. Times and Gazette*, Feb. 23, 1856.) Dr. Beck believes that lacerations to this extent do occur much more frequently than is supposed, but that they are overlooked, and occasion, in most cases, little inconvenience. Before any conclusion can be based on this opinion, a large number of observations made for the special purpose of determining this point will

be necessary. So far, however, Dr. Beck's observations confirm the general opinion as to the greater frequency of laceration in primiparæ.

To return to Mr. Brown's statistics. The cases in which instruments are stated to have been used can hardly be analysed with any useful result; for it is very difficult to say whether the laceration and the use of instruments were necessarily and unavoidably, or only accidentally, connected.

The causes of laceration in the thirty cases of primiparæ in which no instruments were used chiefly interest us here. Now, in four of these cases, the laceration was evidently, as it appears to me, connected with great rapidity of labour. In one of these cases, Mr. Brown reports the cause to have been rapid labour; but, in the other three, although the labour is stated to have been rapid, the cause is considered to have been the absence of medical assistance. The mere fact that laceration occurred in these cases before medical assistance could be obtained, in itself shows that the labours must have been more rapid than usual. There is, therefore, as much reason—as I believe, infinitely more—for supposing the cause to have been rapid labour, as want of assistance. As regards the remainder of the thirty cases, the details given are insufficient for the purpose of arriving at any general conclusion.

Mr. Brown draws the conclusion which his statistics so far bear out, that old primiparæ are more liable to the accident than younger individuals.

Such are the chief deductions obtainable from the cases in question; and it is hardly likely that any better or more conclusive information could be obtained from any statistical data at present available.

Logically, the conclusions we are justified in forming from the facts just quoted are:—

That in a primipara labour is more likely to be attended with laceration; but especially is this the case if the labour happen to be a rapid one.

That, in the hands of many individuals, the use of the forceps is dangerous to the integrity of the perinæal structures.

It would be unfair, from the mere fact that laceration occurred when the forceps were used, as I would again remark, to conclude that the use of the forceps and the laceration were necessarily connected. The forceps may be used so as to imperil the perinæal structures in the very highest degree; but we must be very careful of drawing a conclusion inimical to the use of the instrument in question, simply because, in many cases, laceration of the perinæum has appeared to have been caused by its use. This is not the place to enlarge on the proper method of using this invaluable instrument; but I may remark that

it is very easy to understand how laceration of the perinæum might be caused by the forceps, in the hands of an inexperienced or ignorant operator, and how difficult it must be for one who has not thoroughly studied the mechanism of parturition to be properly imbued with the necessity for exercising his traction in the direction of a curve, the segment of a circle, of which the pubic arch is the centre. It is highly probable that it is not the use, but the misuse of instruments to which the perinæum is indebted for being torn.

Statistics failing to give the desired information respecting the causes of laceration of the perinæum during labour—at all events to an adequate extent—it may be well to inquire what are the deductions obtainable from reasoning.

Force of uterine contractions in relation to laceration.—Putting on one side those cases in which laceration is said to have been due to the use of instruments, all reasoning is in favour of the supposition that when laceration occurs to any considerable extent, it is, in a large proportion of cases, mainly attributable to unduly forcible uterine contractions. The results of observation are that, if only a sufficient time be allowed, the perinæal structures will undergo almost any amount of distension without laceration, both in cases where the difficulty is caused by the tightness,

resistance, or so-called "rigidity" of the perinæum itself, and in those cases where the difficulty is created by undue size of the presenting part of the child.

The resistance of the perinæum, and the force of the uterine contractions, are two opposing forces, and, as a rule, these are so proportioned one to the other, that parturition is effected without injury, certainly without serious injury, to the soft parts. But if the uterus act with unusual force and rapidity, the head may descend, and, before the perinæum has been at all dilated, or has had time to dilate, the head is thrust through, and laceration occurs. For this effect to result, it would seem reasonable to conclude that the pelvis must be capacious, the head moderately large, the perinæum firm, or as it is termed, "rigid." It seems quite necessary to admit that mere rapidity of labour, the head in such cases presenting normally, and coming into contact with the perinæum in the most advantageous manner, may give rise to laceration. Concerning the "rigidity" I shall have something further to say presently.

Some of the older authors, Denman for instance, conceived that the laceration was due in many cases to violent voluntary efforts on the part of the patient during the expulsive stage, the theory of Denman being, that the perinæum was able to resist the effects of the "instinctive" force produced by the uterine

contractions; but that when the woman added to these violent contractions of the voluntary muscles, the effect of the two together was more than the perinæum could withstand. Dr. Leishman appears to have adopted this view to a certain extent.

This is only another way of saying that the laceration is liable to occur when the labour is too rapid.

What is the share which abnormal or unusual conditions of the presenting part of the fœtus play in the production of perinæal laceration? A knowledge of the mechanism of the expulsion of the head will assist us in answering this question. Thus, it being the fact that, normally, distension of the perinæum is accomplished gradually, and that each part of the perinæum is equally stretched and dilated, it is clear that if the presenting part be *irregular in shape*, or less capable, in fact, than usual, of assuming that conical shape so admirably adapted for dilating the vaginal outlet, the perinæal structures cannot be equably dilated, and the uterine contractions may expel the fœtus before the structures in question have really undergone proper dilatation. Such a condition of things is met with when the head is very firmly ossified, or when the presentation is in any way abnormal. The reason that an angular or irregular presentation is not more often attended with lacera-

tion probably is, that the labour being in such cases more tedious than usual, the perinæum is allowed more time for dilatation.

Further, the association of the two conditions, mal-presentation and unusually forcible or quick contractions of the uterus, must be favourable to the occurrence of perinæal laceration in the very highest degree.

Breech presentations must be regarded as unfavourable to the integrity of the perinæal structures, especially when the delivery is quick, owing either to rapidity of uterine contractions, or what amounts to the same thing, rapid artificial extraction of the child, after turning or otherwise. In Dr. Figg's practice, we have illustrations of the possible injurious tendency of the combination—breech presentation and rapid extraction—to produce laceration. Dr. Figg states (*Med. Times and Gaz.*, Oct. 13, 1860, p. 354) that "in version the exit of the head is too rapid for the production of such injury to any extent;" but in the very same paper he informs us of a fact which is not quite in unison with this statement—namely, that in two cases very severe laceration of the perinæum occurred in primiparæ in delivery after version.

In the reports of the cases operated on by Mr. Baker Brown, we find some particulars also as to the

influence of this mode of delivery in the production of laceration. There are in the whole five instances (three of these in primiparæ) in which laceration occurred in cases of pelvic or footling presentation: in two of these, turning had been performed. Numerically, these five cases bear a certain important proportion to the whole number recorded by Mr. Brown.

Conditions of the Pelvis leading to Laceration.—Normally, the head is so moved and turned in its course through the pelvis, that it is presented to the perinæal outlet in the manner the most favourable to dilatation of the soft parts; but if there be deformity of the pelvis, or if there be such a want of proportion between the head and the pelvic bones as to interfere with this, the perinæum is not equably dilated, and it may be that without previous warning the perinæum has to deal with one of the long diameters of the head. This state of things may occur from undue ossification of the head, from mere size of the same, from very slight contraction of the pelvis, from exostosis, possibly from an unusually straight condition of the sacrum, &c. Again, the combination of one of these conditions with rapidity of uterine contraction would be more likely to give rise to laceration than when alone: the laceration may be at the last actually due to a very trifling, almost intangible but additional abnormal element.

The Condition of the Perinœum itself,

as a cause of laceration, merits our very best attention, for the reason that a great degree of importance has been given to it—whether deservedly or not, it is now my purpose to inquire.

As a cause of laceration, we frequently hear "*rigidity of the perinœum*" spoken of. What does this mean?

In the phrase "rigidity of the perinæum," as it appears to me, we find an illustration of the manner in which the true knowledge of a subject is often impeded and obscured by the use of an apparently simple but worthless expression. The phrase "supporting the perinæum" I have had occasion to find fault with; and for a like reason the phrase now under consideration seems to me to be objectionable, and obstructive to all true advance in the knowledge of the subject. What is "rigidity"? As concerns the perinæum, the physical condition of the parts to which it is applied is a hardness, a resistance, and, it is asserted, a want of dilatability of the soft parts. Now, if the perinæum be examined before labour has commenced, it will be found that the physical condition is precisely that characterized by the foregoing expressions. It is hard, dense, generally thick, and, above all, resistant. What is "rigidity" of the

perinæum more than a persistence of this condition? From the manner in which it has been constantly spoken of by obstetric authorities, it has come to be considered, however, as a positive entity, as a kind of disease with which the parturient process is liable to be affected in certain cases, for which this or that remedy should be used, and its removal thus effected.

The results of my own observation have led me to believe that most of the so-called cases of "rigidity" are cases in which the perinæal structures are rigid, simply because they have not yet been put on the stretch. Cases of "rigidity," it will be recollected, are most common in primiparæ. In such cases, the expulsion of the head through the pelvis and vagina occupies a long time. A period arrives when the head is low down; the attendant imagines that the further descent is arrested by the perinæum; and, finding this dense, thick, and resisting, as the perinæum naturally is, the case is forthwith called one of "rigid perinæum," and means are in the next place devised for the purpose of overcoming the rigidity, and of preventing the anticipated laceration; the fact being, that the period of liability to laceration has not even arrived.

We hear of the labour being arrested in its progress for hours together, owing to the rigidity of the perinæum; but the mere statement to this effect is in-

sufficient to substantiate it. In my own experience, limited as it has been, I can recal cases in which the delay would have been attributed, on superficial examination, to the cause here alluded to—"rigidity of the perinæum." The event of such cases, however, generally convinced me that the real cause of the delay was not really the resistance of the perinæum, as it at first appeared to be; and from these and other considerations, it seems most reasonable to conclude that most of the so-called cases of rigidity are really cases of impeded labour, due to deficient power in the contractions of the uterus; or to the circumstances that the presenting part of the child is angular, irregular, or so placed as not to press in the proper manner on the perinæum; or, lastly, to difficulties encountered in the passage of the child through the pelvis itself.

The term "rigidity" ought evidently to be restricted to those cases in which the head of the child, having had time and opportunity, so to speak, for producing an effect on the perinæum, has failed to do so. I have already pointed out how necessary for the production of expansion of the perinæum it is that the stretching force should be applied equably and gradually. Unless it be so applied, the perinæal structures cannot be said to have a proper opportunity for dilatation. It is only when the head has

begun to emerge, and has actually separated the labia so as to be visible from the outside, that the edge of the perinæum can be said to be really subjected to the dilating action of the head's pressure—at least, in ordinary cases. Now, where the head is delayed for a long time at the aperture itself, and has advanced so far that any difficulties in the passage of the pelvis itself must have been overcome, supposing them to have existed; where the position and shape of the head are natural, the uterine contractions strong; where the perinæal structures continue dense, firm, and unexpanded,—it is only in such cases, and under such circumstances, that "rigidity" of the perinæum can be properly said to be present. Such cases are extremely rare; but it is easy to see how ordinary cases of delay might be mistaken for them.

On this view of the case, the perinæum would be considered as a passive agent in the matter, and its "rigidity" or dilatability a matter of accident, or determined at least by conditions of other elements and agencies concerned in parturition—the uterus and the fœtus itself.

Some writers—Cazeaux, for instance—attempt to explain the so-called "rigidity of the perinæum" by saying that the muscles of the perinæum are in a state of spasmodic contraction. That the perinæum is provided with muscles is certain; but it is not evident

how spasmodic contraction of these could continue so persistently, so undeviatingly, if we may use such a term, as to constitute the condition actually met with in practice, and to which the explanation professes to apply. But admitting the possibility of such spasmodic action of the perinæum, it would surely be soon overpowered if the force of the uterine contractions were allowed to play upon it continuously; the persistence of such spasmodic action would seem to be indicative of *absence* or insufficiency of uterine contraction.

Again, we hear congestion and inflammation of the perinæum spoken of as conditions liable to arise, and which, interfering with dilatation, justify "support" of the perinæum. This appears to be Dr. Murphy's view of the subject (see his letter in *British Medical Journal*, April 20, 1861). With all due deference to such an eminent authority, I would submit that there is no evidence of the existence of such conditions in the cases where laceration has been known to occur. The labour in such cases has generally been too rapid for anything that could be properly called "inflammation" of the perinæum to have supervened. Neither can I allow "congestion" a place in the list of causes of laceration, or that it can be considered, properly speaking, as capable of interfering with the process of dilatation. If the position of the head

were such as to allow of equable pressure on the perinæal structures, any congestion which existed would be speedily removed by the mere pressure from above. There is another statement made in the letter in question, which appears to call for some remark. Dr. Murphy considers that the tissues of the perinæum possess a power of expansion independent of the force employed against them; that there is an "act of dilatation," and that laceration is liable to occur, when this act of dilatation does not take place. What is the nature of this "act"? The dilatation of the perinæum is surely a passive process of giving way to pressure. It would be as reasonable to speak of a door as in the "act" of opening itself.

There are a few cases in which the condition of the perinæum and of the vaginal outlet is such that laceration may be considered to be almost inevitable. I refer to cases where the vaginal outlet is *congenitally very small*. Remarkable as are the stretching capabilities of the skin and tissues of this part of the body, they have their limit; and if the ostium vaginæ be really very small, laceration may occur when this limit has been reached. These cannot be considered as cases of "rigidity." Also, if the outlet have been *artificially narrowed*, the result may be that laceration will occur. In both these cases, laceration would more certainly occur if the uterine con-

tractions were unusually powerful or rapid in their succession.

It has been said that, in some cases, the perinæum has given way in consequence of the textures of which it is composed having undergone *fatty degeneration*, or become weakened by disease. There is no evidence that this can be considered as actually constituting a cause of laceration; and laceration occurs, it must be remembered, more frequently in primiparæ, in whom the perinæum might be reasonably expected to be particularly sound.

Extraneous Causes of Laceration.

There are a few causes of perinæal laceration which require a place for themselves, and are not capable of being easily brought under any of the previous categories. Thus we have, in the first place, those cases in which the perinæum is torn in *a rapid labour, because the head is not allowed to move forwards.* If the legs be forcibly kept in apposition, the thighs being well rounded and well covered with flesh, while, at the same time, the legs are kept in a straight line with the trunk, the head of the child, at the same moment emerging from the vulva, would find its natural course impeded; the consequence would be that an undue stress would be laid on the perinæum. Such an occurrence is related by Dr. Archibald Hall, in his late

Report of the Lying-in Hospital, Montreal. In the case in question there was spasmodic rigidity of the lower extremities; and the patient "closed the thighs on the head of the fœtus when it was passing the perinæum;" a considerable laceration followed. (*Brit. Amer. Journal,* May, 1860, p. 197.) I cannot but consider it as highly probable that, in many of those cases of laceration which are attributed to the sudden withdrawal of support of the perinæum, the patient suddenly starting away from out of the reach of the attendant, the laceration is really due to the occurrence of the condition of things described by Dr. Archibald Hall in this particular case. This mode of production of laceration is analogous to that noticed in cases in which artificial delivery by the forceps, or by extraction after version, is performed, and in which, the operator not taking sufficient care to exercise traction in the proper direction, the perinæum is lacerated almost as a matter of course. The same result may follow in ordinary labours during the extraction of the shoulders, if the operator do not take care to exercise his traction in the proper direction.

Another extraneous cause of laceration is, according to Dr. Leishman, *the artificial support given to the perinæum.* The arguments in favour of this view of the question have been already alluded to, and need not be, therefore, repeated. I do not think that, prac-

tically speaking, many cases of laceration really do proceed from this cause, for the reason that the support, as ordinarily administered, is not generally sufficiently forcible in degree to produce all the bad effects which might be produced if more force were applied; but I quite believe that, were the practice recommended by Dr. Ramsbotham carried out universally, we should hear much more frequently of laceration taking place. Those in favour of supporting the perinæum adduce the fact that severe laceration has sometimes occurred at the last moment, *owing to the temporary or accidental discontinuance of the support.* Of the actual occurrence of laceration under these circumstances, there can be no doubt. Smellie records a case of this kind in his own practice. In the letter before referred to, Dr. Murphy defends anew the practice of "supporting the perinæum," on the foregoing argument. To this argument, it has been well replied by Dr. Leishman, that it is the artificial treatment of the perinæum which produced the laceration in such cases. The equable and uniform dilatation of the perinæal structures having been interfered with, the laceration occurs because the expulsive action of the uterus, being no longer opposed, effects in a moment what naturally it would have occupied some considerable time in accomplishing. To the force exercised by gradual dilatation, the peri-

næum can accommodate itself; how and why, I have already explained: there is another explanation of the occurrence of laceration in these cases to which I have already directed attention.

The Use of Instruments.—That laceration of the perinæum is very frequently due to the use of instruments, such as the forceps, there can be no question. Incidentally, I have already had occasion to remark upon this fact. I have stated my belief that the use of the forceps and the laceration are not, however, by any means necessarily connected. With proper care, the use of the forceps *need* not be dangerous to the perinæum. The danger is in exercising traction in the wrong direction. If traction be exercised downwards, laceration is and must be, unless the perinæal structures be most unusually distensible, almost inevitable. If the perinæum is to be maintained in a state of integrity, the forceps must only be used by one well acquainted with the mechanism of parturition, and who has studied the operations of nature closely enough to imitate them. The accidents accruing to patients from the use of the forceps by individuals who have never taken the pains to master the rudiments of the obstetric art, have brought a discredit to the instrument which ought, in many cases, to attach to the operator himself.

From this examination of the question—what are

the causes of laceration of the perinæum?—it appears evident that laceration of the perinæum is not constantly produced by the occurrence of the same circumstances. In one case, one combination of circumstances produces it; in another case, the same combination being present, no laceration occurs. Unquestionably, the causes of laceration are many and various; and this is one of those cases, not so uncommon as is usually supposed, in which it is not in the nature of things that "simplicity" should be attainable, however much it may be desired. In such a complex process as is involved in the expansion and dilatation of the perinæum, not one, but every element in the case must be duly weighed and allowed for, in arriving at any conclusion as to the cause of the laceration.

The Treatment of the Perinæum in Labour.—With a view of arriving at some definite conclusions as to the proper treatment of the perinæum during labour, I have now carefully examined two questions. 1. The effects actually produced by the operation "supporting the perinæum;" and 2. The causes of laceration of the perinæum.

The result obtained by examination of the first of these questions was this: that the only effect which could be said to be produced by "supporting the perinæum" was, retardation of the advance of the head;

and that, unless by the exercise of a considerable degree of force, even this effect would not be obtained. Further, it was shown that other advantages which had been claimed for the operation had no real existence. And it was also pointed out, how retarding the advance of the head was likely to interfere with the mechanism of the natural process by which dilatation is brought about.

The results arrived at by an examination of the second question — the causes of laceration — was, that so far as it was possible to form a conclusive opinion on the matter, unusual rapidity of labour was one of the principal causes of the accident in question. It resulted, from an examination of the subject, that the causes of laceration were, however, very different in different cases; and hence the conclusion, that each particular case must be considered by itself.

What, then, is the practical result of this double inquiry into the value of the remedy—"supporting the perinæum," as applicable to the prevention of the evil—laceration of the perinæum?

It appears to me that the only conclusion we can come to is, that the operation must be rejected. In ordinary cases of labour, as a device for preserving the perinæum from laceration, I believe it to be practically worthless, and there are grave

reasons for surmising that in many cases it has led to the very evil it was intended to prevent.

The arguments derived from a careful consideration of the mechanism of the process of dilatation of the perinæum and expulsion of head, all, in fact, lead us to the conclusion that the proper treatment of the perinæum in labour is, under all ordinary circumstances, to abstain from active interference of any kind.

Is the conclusion arrived at by reasoning, countenanced by the results of practice?

In the work of Denman we find the following:—"When women were delivered without assistance, I have not, in any case, observed any considerable laceration." (Vol. i. p. 60.) That the accident does occur, however, in cases where the delivery occurs unassisted is now well known. The explanation I have already given of this occurrence—that the laceration is due in these cases, not to the absence of support of the perinæum, but to the rapidity of the labour—I would now repeat.

Drs. McClintock and Hardy consider medical assistance so necessary, that they endeavour to explain why laceration does *not* occur in cases of unassisted labour, on the theory, "that inasmuch as these females are almost always involuntarily subjected to the deprivation we have mentioned, they habitually use

their utmost endeavour to retard the birth of the child when they feel the head in the vagina, in the hope of aid reaching them before the critical moment of delivery; and another reason is that such patients have been spared the ill effects arising from vaginal examinations."—(*Report, &c.*, p. 9.) It may, I think, be doubted whether patients do, as a rule, under such circumstances, exercise the kind of control mentioned. The exemption from laceration in such cases appears to be explicable in a very different manner. It is very certain that many deliveries, and rapid ones, do take place in the entire absence of all assistance, and with perfect safety to the mother, so far as the perinæum is concerned. The only conclusion to be drawn from the fact is, that assistance must be of little service in ordinary cases, seeing that no bad result usually ensues in extraordinary ones when it is absent.

We cannot, at this moment, procure any considerable numerical testimony as to the results of the non-interfering system; the practice of supporting the perinæum has been too universally adopted to allow of this being the case; but so far as the evidence procurable goes, it is calculated to give us every confidence in the resources of nature. Dr. West of Alford, and Dr. Swayne of Bristol, both assure us, from the results of a large number of cases, that the plan of

"letting the perinæum alone" has with them given very satisfactory results.

Is there, then, nothing to be done to preserve the perinæum from laceration?

There are certain precautions which it is necessary to take, and to which I should be disposed to attach very considerable importance. When the head is passing through the vaginal outlet, care must be taken that there be no impediment to its passage forwards. If the thighs of the patient be closed, and if the legs be in a straight line with the body, there may be an impediment of this kind, as in the case of Dr. Hall before alluded to, and the natural result is, that the fourchette is called upon to bear a much greater strain than is necessary. The practice adopted in France, of delivering the woman lying on the back with the legs separated, is the one best calculated to remove this source of danger to the perinæum. So, again, in the delivery of the shoulders, care must be taken to direct the delivery as much forwards as possible. It is very easy to see how infinite mischief may be produced by want of attention to this rule, and it is, in fact, extremely probable that laceration is not seldom due to this cause. I need hardly remark that a distinction is to be made between the attempt to direct the head forwards, as it is passing *through* the vaginal outlet, and the directing it forwards *after* it has es-

caped from the vagina altogether. I have previously attempted to show the uselessness of the one, as I would now enforce the advisability of the other procedure.

By adopting these simple precautions, I believe that the practitioner will do all that is possible to *prevent laceration* in ordinary cases.

Some other points in reference to the treatment and management of the perinæum during labour must now be considered.

Inunction.—It has been recommended that the soft parts should be well and frequently lubricated with oil or lard during the last stage of labour, and with the view of promoting the stretching of the soft parts. It is difficult to see how such lubrication can relax the perinæum, or promote the stretching process; it can do no more than render the surfaces to which it is applied smooth, and so far facilitate the passage of the parts of the child over the same. Like "supporting the perinæum," however, the practice of inunction has had an efficacy imputed to it which it is very far from deserving. There can, however, be no objection to using lard or oil; and when the parts are hot and dry, the patient certainly derives satisfaction therefrom.

Dilatation of the vaginal aperture is a procedure which was formerly much in vogue; the fingers being

introduced in form of a cone, and the orifice thus dilated. Unless, however, such force were used as would be quite unjustifiable, little could be thus effected. The head of the child is the best dilator.

Dr. Snow Beck believes, that by preventing the perinæum from being pushed down before the head, and "by drawing it backwards and upwards over the protruding part, rupture may sometimes be avoided." (*Brit. Med. Jour.*, March 10, 1860.) It is certainly a far more rational proceeding, as I have before shown, to endeavour to procure dilatation in this manner, than to attempt to do so by pushing the perinæum forwards. The principle of the recommendation is undoubtedly correct, and it was, as I have already remarked, the principle of Rœderer and Hamilton; it is possible that the delivery may, in a few cases, be facilitated by the exercise of a slight distensive action in the direction indicated. The exercise of any degree of force would certainly be most objectionable; and moreover, there must be a slight risk of producing laceration by the procedure in question.

In the next place, I would offer a few remarks on the treatment of the perinæum in cases where the labour does not come under the category "ordinary."

Supposing laceration to be impending, what is to be done?

In the first place, what are the signs that laceration

is impending? This we must first determine. Now, I have attempted to show that in most cases of what is called "rigidity of the perinæum" the condition present is one which is not calculated to excite apprehensions on this score, and having got rid of these cases, the number remaining is very few. I believe that the presence of *elasticity* of the perinæum is a sign of favourable import in the labour, and one which is indicative that laceration need not be feared. When the head recedes quickly after each pain, this indicates possession of elasticity. When such recession does not occur, when the pains are very violent, when the perinæal tumour has suddenly become much larger, and the parts are evidently very much stretched —if all these conditions are present together in a first labour, the practitioner may, perhaps, reasonably dread the occurrence of laceration. This I believe to be the most ordinary combination of circumstances under which laceration may be said to be imminent, and even these are very few and far between.

In such a case as the one just put, the obvious indication would, at first sight, seem *to retard the progress of the head.* I believe, however, that any attempt mechanically to retard the progress of the head is objectionable, as well in cases of natural labour as in those cases where laceration is believed to be impending, and for the reasons which have already been

stated. The chief of these are—1. That, by retarding the head, we lose the beneficial stretching action of the head on the perinæum; and, 2. Because the attempt is not likely to be successful in those cases where it would be supposed to be most required. It appears even probable that, by interposing actual mechanical resistance, the undue force with which the uterus is acting may be increased. In fact, most of the objections (not all) which applied to the operation "supporting the perinæum," apply equally to attempts to retard the progress of the head as a means of saving the perinæum from laceration.

The proper method of retarding the head, supposing it to be resolved to attempt it, would seem to be that recommended by Dr. Leishman; namely, to oppose the fingers inserted within the vagina directly against the head itself.

A careful survey of the facts on record and the history of the subject generally, have led me to the conclusion that, where laceration is actually threatened, the proper treatment would be to procure additional space by making a slight incision, an inch or so in length, by means of a blunt-pointed bistoury, into the stretched and dilated perinæal structures on each side of, and at a short distance from, the fourchette. Experience has shown that incisions thus made subsequently heal with very great rapidity.

The incisions are to be made so as to run no risk of injuring the rectum. Such a procedure as this will, I believe, be called for in an extremely small number of cases; and here I would remark, that the *so-called* cases of "rigidity" do not by any means come under the category of cases necessitating such treatment. The congenitally narrow condition of the vaginal outlet would seem to be the one most requiring it.

The subject of the treatment of cases of *rigidity of the perinæum* requires a few words. There may be *real* rigidity constituted by the presence of firm, unyielding bands, cicatricial or otherwise, around the outlet of the vagina, or in cases where the vaginal orifice is naturally very small. For these very exceptional and rare cases, when a sufficient time has been allowed to elapse, incision is a proper remedy. I refer now, however, more particularly to the treatment of those cases more commonly met with, and to which I have previously alluded as cases of *so-called* "rigidity," where the perinæum is not dilated, because the force from above required for such dilatation has not been yet exercised; these being cases, not of rigid perinæum, but of imperfectly acting uterus, or of obstruction from certain causes which I need not here again enumerate. We hear of certain remedies having a special power of relaxing the perinæum. I have no faith in the existence of such remedies, and

interpret their action in the particular class of cases now under consideration in a very different manner to that usually given. The perinæum must be considered a passive agent in the matter. I believe that the remedies which are said to procure "relaxation," produce this apparent effect chiefly by rousing the uterus to greater activity; the rigidity disappearing because a greater force is brought to bear on the perinæal structures. In cases of the kind now under consideration, the attention of the practitioner will be most profitably employed in ascertaining why it is that the head of the child is not propelled downwards with greater rapidity on the perinæum. In many of these cases of so-called rigidity of the perinæum, a careful use of the forceps is the best, the proper remedy, the uterine contractions being deficient in power.

The case which I have, in the course of the series of practical observations now brought to a conclusion argued, is the one of rational *versus* empirical treatment of the perinæum during labour. I think there can be little doubt as to the nature of the decision, which will be formed by those who take the pains to consider the question attentively and dispassionately.

THE END.