herself, whenever possible, until towards the end of the second stage. It is curious to note how much attention is given to the preservation of the perineum, the principle borne in mind being to deliver gradually, and to contrast this with the frequent treatment—namely, hurrying—adopted when the presenting part is passing through an incompletely dilated cervix—an almost analogous condition. It follows that the membranes should only be ruptured artificially when the indications are definite, and as a routine method of hastening labour should not be practised. In those cases in which such treatment becomes necessary, the best time to rupture appears to be when the os is about half dilated, and on no account should they be ruptured towards the end of the first stage. Moreover, when the os is nearly fully dilated, the character of the pains gradually merges into that of the second; hence, the best chance will be given to the membranes to rupture at the critical time if the woman be advised neither to strain or bear down.

In conclusion, let me say that I in no way consider the results in my paper as finally settling this most important point. My original wish was to base them upon a thousand cases, but the opportunities for doing so having passed, I publish this paper rather in the nature of a preliminary communication, and in the belief that it opens up a neglected field for research in obstetrics.

Much labour has been expended in its production, the greater proportion of which has been borne by others rather than myself. Upon Miss Olive Haydon, the head midwife at the General Lying-in Hospital, has fallen by far the greater share; and to her my thanks are chiefly due, for without her patient help in many directions the paper must have remained unwritten.

REFERENCES.

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A SHORT CRITICISM OF THE SO-CALLED
"RATIONAL PUERPERIUM."

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I THINK Dr. Haultain's paper entitled "A Plea for a Rational Puerperium" should receive more criticism than it has. For some time past many German surgeons and obstetricians have been recommending early rising on the second or third day following abdominal operations and labour. Professor Kroenig has practised this early rising during the puerperium for more than two years. I admit that many of us keep our abdominal section cases in bed for too long a period, but I feel convinced that the ten to fourteen days' rest in bed during the puerperium is not only right but rational. I think Dr. Haultain's arguments in favour of early rising are far from convincing. He first mentions a few social reasons in favour of early rising, and says that multiparous patients spoke in eulogistic terms of it in comparison with their former experience. This may well be, because to them such treatment was a novelty, and the public, as a rule, likes something which they imagine to be new. On the other hand, one finds that women of the poorer classes complain commonly of having been forced to get up on the third or fourth day on account of domestic affairs, and they frequently date their uterine trouble from this period.

I do not believe that many women will agree with Dr. Haultain's patients that the ten days of rest is irksome to a degree, nor is it the rule for women to look upon their puerperal rest as either "invalidism or penal servitude." In my experience the majority of puerperal patients lie in bed after the birth of the child in a contented and happy frame of mind, while the uterus and surrounding structures undergo involution, and the process of lactation becomes established. It is true that labour and the puerperium are physiological processes, but this statement requires qualification. It would be more accurate to describe the puerperium as an extraordinary physiological process which, on account of the profound alterations in the local and general condition of the patient, may become immediately or remotely pathological. If this be not so, what is the use of the presence of the doctor? Now, con-

sidering that these profound changes are taking place during the puerperium, we have to place our patient in the best position to help Nature, and to avoid the many pathological incidents that may arise.

Dr. Haultain and some of the German authorities would have us believe that the upright position will not only help a normal puerperium, but will also prevent displacements and even benefit septic uterine conditions by affording better drainage. I am quite convinced that there is no real evidence that the lying-in period during the puerperium should be curtailed or altered in any way; and, further, that the position of rest for ten or fourteen days is the best means of aiding the natural physiological processes at work during this time, and that it also lessens the likelihood of incidental pathological complications. Dr. Haultain has given several specific examples in support of early rising. First, he says that by getting the patient up the active movements of the abdominal wall quickly increase the tone of the muscles, and therefore increase the intra-abdominal pressure, which he thinks of great importance in relieving venous engorgement and preventing constipation. In opposition to this theory I maintain that the abdominal walls will undergo involution just as well while the patient is lying in bed, for in spite of all theories to the contrary, the one great method of relieving congestion and venous engorgement of the lower abdominal viscera is to place the patient in the natural position of rest—namely, recumbent. Moreover, if the patient is allowed to be in the upright position on the second or third day, the abdominal muscles will have to bear the weight of a large uterus together with all the mobile abdominal viscera while they are yet in a slack and softened condition. This pressure must cause permanent stretching and pendulosity, and it seems to me that the useless obstetric abdominal binder would in this case be of some small use. In the recumbent position the abdominal muscles undergo a quiet and passive involution, unmolested by the weight of the viscera above, and aided to a small degree by active respiratory movements. I believe that rest, good food, and a happy state of mind will do more to prevent pendulosity and visceral proptosis during the involution changes of the puerperium than any small amount of tone that can be acquired in six or seven days of indifferent active muscular movements in the upright position. In ten to fourteen days profound physiological changes take place which render the abdominal walls able to withstand the visceral pressure of the upright position, let alone the fact that the uterus at the end of this period has sunk below the level of the pubes, and therefore no longer throws its weight upon the abdominal walls.

SEPSIS.

Dr. Haultain says rightly that the position of the patient has no influence as a primary cause of sepsis, and I suppose no one would allow a bad case of sepsis to be wandering about even if she could do so. So I will confine myself to the less virulent forms. Dr. Haultain quotes an ancient authority in connexion with this point (Rueff, 1634), and then goes on to say that several of his cases during their first day's exercise passed large clots which, had the woman rested in the recumbent position, would probably have remained in the genital passages for an indefinite period as a medium of septic incubation. He further states that the upright position affords better drainage of septic lochia. Now, if a puerperium is normal and the uterus is undergoing involution as it should, the passage of large clots is of rare occurrence. Again, if the lochia is septic, our duty is to clear out the uterine cavity and keep the patient all the more at rest in order that the circulation should be as quiet as possible, and thus prevent a local condition becoming a general infection. Further, I cannot see any reason for supposing that the uterus, which, after all, is the most important organ concerned, drains one whit more satisfactorily in the upright than in the recumbent position. No doubt if clots form they may remain in the upper part of the vagina for a short while, but some excessive respiratory movement or active straining at once dislodges them. Moreover, the upper part of the vagina should be sterile, and infection by this means extremely rare.

The last point which I wish to touch upon is the question of uterine displacements. For the sake of

brevity I will epitomize Dr. Haultain's conclusion. He says that at first sight the upright position would seem to favour a backward and downward displacement of the uterus, but this is not borne out by clinical facts, and that only 2 per cent. of his 100 cases showed displacements. Dr. Haultain forgets that against his 100 cases it would, perhaps, be possible to bring thousands of women who had gone through labour, followed by a restful puerperium, without uterine displacements. He then lays stress on the forward lie of the uterus being favoured by the upright position, and writes of the importance of the round ligament in maintaining this position. He says that the recumbent position must allow of the heavy uterus falling backwards and thus stretching the round ligament and predisposing to retroversion. Now, this theory may at first sight appear to favour early rising on anatomical grounds, but it is not the round ligaments alone which we have to preserve from strain and pressure while they are yet in their softened condition. More important by far are the structures which form the pelvic floor. Now, if the pelvic diaphragm is injured during labour, there is a very good chance that the ligaments, fascia, and muscles, which are in a softened and stretched condition, will undergo involution and heal if venous engorgement be lessened as much as possible, and the weight of the heavy uterus and other viscera be not borne by them while in their lacerated and softened condition. The early upright position must throw most of the weight of the uterus and other abdominal viscera upon the pelvic floor, as well as increase venous engorgement. These two factors are therefore extremely potent causes of pelvic visceral proptosis. I certainly do not understand Dr. Haultain's meaning when he says:

It is unnecessary to argue that prolapse, like retroversion, will be equally avoided by the early upright position, as the prime factor in the initial stages of the downward displacements is retroversion.

Every one knows that when a uterus prolapses it must retrovert during the process of descent, but in these cases the prime factors at work are softening, atony, wasting and laceration of the complex structures of the pelvic floor, and the retroversion is a mere incident in the descent. Dr. Haultain gives what he calls an extreme example of the benefit derived from the early upright position in a patient who developed retroversion after a previous confinement, which was cured by early rising after a subsequent delivery. Apart from the fact that simple retroversion is quite a different thing from prolapse *plus* retroversion, this example is not convincing, for one has frequently seen such cases completely cured by satisfactory involution after a subsequent labour. There is abundant clinical evidence that the uterus not only maintains its normal position more easily when a patient is in the recumbent position, but, further, that even a retroverted or prolapsed gravid uterus will in nine cases out of ten rise from its displaced to a normal position after a few hours' rest in bed, even when incarceration has taken place.

Why is it that this well-known clinical phenomenon occurs? It is because the recumbent position at once relieves the venous engorgement of the pelvic organs and allows the weakened natural uterine supports to exert their forces, while at the same time, being free from engorgement, they tend to regain their tone. If a heavy retroverted gravid uterus will rise spontaneously to its normal level and anteverted position after a few hours' rest in bed, and will at once fall back after a few hours in the upright position, it surely requires no further clinical evidence to prove conclusively that a heavy subinvolved uterus will keep its normal position better with the patient recumbent than taking exercise in the upright position. To argue that ten days in bed during a normal puerperium causes loss of voluntary muscular tone to any degree is an exaggeration.

One of the arguments in favour of early rising is that by stimulating the circulation those mild but extremely irksome cases of venous thrombosis will be less likely to occur. Well, we do not quite know the pathology of post-partum and post-operative thrombosis, but what little we do know points to its being due to a mild form of staphylococcal infection, and it may even be possible that the formation of a thrombus may be a natural protection against a general infection; further, there is absolutely no

proof that stimulating the circulation will avoid it. The only scientific evidence in favour of increasing the rate of the circulation comes from the fact that coagulation nearly always picks out the most stagnant part of the blood stream. Lastly, we must not forget that there is always a chance that an embolus may become detached and block a vital portion of the circulation.

THE BLOOD-TIGHT UTERUS AND ITS INFLUENCE ON INVOLUTION.*

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By a blood-tight uterus I mean a uterus which not only does not allow blood to pass through its walls, but one which is itself empty of blood, and is actually anaemic. This is, I think, the ideal condition to be aimed at in the management of labour, and I shall attempt, first, to show the extent of Nature's endeavour to attain this ideal condition; secondly, to define the relation existing between this ideal condition and the process of involution of the uterus; and, lastly, to formulate a more definite conception of involution than, so far as I am aware, has hitherto been submitted to the criticism of the profession.

Natural Methods of Haemostasis after Delivery.

I believe that Nature provided at least two lines of defence against haemorrhage, and possibly she has another card up her sleeve as a reserve. We have two excessively vascular organs—the uterus and the placenta—connected together. It is essential that their union should possess at least three characteristics:

1. It must be sufficiently firm to minimize all chances of accidental detachment of the placenta.
2. It must be sufficiently delicate to allow the placenta to peel off readily when its functions have been fulfilled; and
3. This happy medium, when found, must itself be exceedingly vascular and capable of transmitting enormous quantities of blood.

There are no means of ascertaining exactly the volume of blood which passes through the uterus at term, but a rough estimate, based upon the collective diameter of the arteries supplying the uterus, would, I think, place it very close to the volume which passes through the femoral artery.

The preliminary stages of the problem were cleared and the happy medium was provided by the adaptation of the mucous membrane of the uterus, which, in its decidual form, fulfils, in addition to other functions, the three requirements I have postulated as being necessary to it. The critical point of the problem then presents itself. How is the cleavage of this very vascular union between two very vascular organs to take place with the loss of a minimum quantity of blood? One cannot resist the temptation to describe the solution in Horace's immortal phrase, *Simplex munditiis*. It is done simply and efficiently by the anatomical arrangement of the arteries. As you know, these thread their way between the bundles of uterine muscle in an exceedingly tortuous manner. During contraction of the muscle bundles the vessels which they enclose are compressed and kinked in such a fashion that it is practically impossible for any blood to pour through them, and the uterus becomes anaemic. In the periods between the contractions the compression and kinking of the vessels is kept up to a certain extent by means of that function of the uterine muscle which is called "retraction," which I believe partakes more of the nature of a passive elastic recoil than of an active force. If this be so, it will be perceived that during the periods of relaxation of the uterus the vessels are only held by the passive elasticity of the muscle bundle.

Now we have to take into consideration the pressure of the blood stream which is trying to force its way through the vessels in the uterine wall. Some years ago I made a series of observations upon about 150 primigravidae to ascertain the variations of blood pressure during the later months of pregnancy, and I found that there was a distinct rise of about 20 mm. of Hg at term. An American

* Read before the Gloucestershire Branch of the British Medical Association.