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On the use of
Chloral Hydrate in Midwifery,
with
Notes of Cases.

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Chloral Hydrate in Midwifery.

Introductory.

Chloral Hydrate was first employed in Midwifery by Professor Simpson of Edinburgh in 1869. In the Medical Times and Gazette of Jan. 1st 1870 he reported on its action, stating that the uterus continued to act strongly and regularly even while the patient was so completely under the influence of the drug as to be hardly aware that labour was going on at all. Since that time it has been extensively tried and reported on by many authorities in this country, on the continent, and in America, so that these results have received much additional confirmation, and the drug has now something of an established reputation. One of its most enthusiastic admirers is Dr. Playfair, who has brought it prominently before the profession in his admirable treatise on Midwifery (The Science and Practice of Midwifery, 4th edition pp. 348-50). His praises of it are high, but not more

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so than it deserves. I believe, however, that it is not by any means so frequently used as might be expected from its generally beneficial effects. In all departments of medical science, and rightly so, anything new has to face a very trying ordeal before it becomes an accepted remedy in general practice. Hence every reported case in which it has been used has its value as tending to swell the general mass of evidence, and it is with this view that I have drawn up the following short reports of cases in which chloral has been given as an aid in labour.

While there is a pretty general consensus of opinion on some points regarding the effects of chloral on labour, in regard to other points there is a want of certain knowledge. Thus, while most are agreed that it has the power of relieving to a certain extent by making the patient drowsy and destroying the acuteness of her sensibilities, some are still sceptical as to its power of promoting relaxation of the maternal tissues. This is particularly the case in regard to the perineum. Many who believe in

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The action of chloral as a relaxing agent on the cervix consider that it has little or no effect on the perineum. If it can be proved that it exercises the same effect on the perineum that it does on the cervix, something will have been added to our exact knowledge. Probably one reason why it is doubted if it exerts the action on the perineum alluded to is that it has been usually given only during the first stage of labour, so that its action on the perineum has not been so directly evident. But whether chloral has been given or not we cannot expect much relaxation of the perineum to occur until the descent of the head, and all that we can look for is simply whether or not, when the head has descended, relaxation follows more quickly than usual. And I believe that it will be observed that in most cases where chloral has been previously given, this relaxation occurs more rapidly and is more complete than it would otherwise be.

At the present day it might hardly seem necessary to advance arguments for the use of any agent which would lessen pain and promote

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rapidity in labour, if it could be shown at the same time that this result could be attained without damage to mother or child. Yet in the light of a recent discussion in the columns of the British Medical Journal (Brit. Med. Jour. 16th Feb. 1889 to the present date) regarding the use of the forceps in midwifery, it would seem that there are many practitioners of the old school still under the glamour of the adage that "meddlesome midwifery is bad", a saw which has a good deal to answer for, and, it is to be feared, has only too often been the cause of needless and sometimes fatal delay in cases which, rightly managed, might have had a favourable termination. When we hear of one medical gentleman of twenty years experience who has never applied the forceps without consultation and the assistance of a brother practitioner, we must feel that the case must be a very strong one before certain members of our profession can be induced to do much to aid suffering woman-kind. It is not yet so long since the introduction of chloroform but that many still living can remember

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The terrible outcry which arose in opposition to its use in obstetric practice. Times have changed for the better since then, but I am afraid that forty years has not been a long enough period to convince some, and that there are many medical men of the present day who never think of including chloroform in their armamentarium for attending a case of midwifery. So, I am afraid, in the case of chloral there are many who would condemn its use in labour as unnecessary — if they did not consider it absolutely hurtful — and ask what is the use of interference in cases which Nature is herself able to complete if we only give her time. But these gentlemen seem to forget — what seems to me to be a very important consideration, viz. that they are engaged to attend a woman in labour with the view of their aiding the patient by every means in their power, and making what at the best is a terrible ordeal to a tender woman as light for her to bear as possible. The man who loses sight of this view of the case seems to lose sight of his duty. Perhaps, however, in his

opinion, a medical man is only engaged to stand by in case of any terrible emergency arising in the course of labour or immediately following it.

With this view, however, we can hardly concur. If it is in our power to make the pains of labour less severe and of shorter duration for our patient, if this can be done without increasing her danger or that of the child, then it would appear to be our duty, not only as medical men but as Christian gentlemen, to do so. And I hope by the following notes to add to the evidence which we already possess that this can be done by the administration of chloral hydrate at certain times in certain cases.

It may not be out of place to enquire here if it is the case that labour is becoming more severe and trying than it formerly was. Is this really so? Among animals, it is known, labour is easier in those in the wild state than in domesticated animals of the same species. And in the human species the same rule holds good. It is a well-known fact that among savage races labour is a comparatively simple

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affair, approximating, in fact, to what it is in animals. But the higher we advance in the scale of civilisation the more difficult does labour become. So it is possible that the average labour in this country is more difficult now than it was (say) a century ago, for our advance in civilisation has been great during that time, and I believe that in this nineteenth century of ours there is a much larger proportion of nervous highly-strung women, keenly sensitive to pain, than there was then. In women of this type there is not only the sensitiveness to pain to be considered, but there is also the fact that this is frequently associated with a kind of spasmodic contraction of the parts and a great tendency to irregular and unsatisfactory pains. Anything which relieves the pain promotes greater regularity at the same time. Hence chloral sometimes appears actually to strengthen the pains, because by relieving the pain and soothing the nervous system, also relieving any tendency there may be to spasm, it tends to make the pains more regular, when they always set with more

effect. But this brings us to consider the general action of chloral on the various systems of the body. A consideration of this will better enable us to understand its action on labour, for this is simply the outcome of these effects.

Action of Chloral Hydrate.

The action of chloral hydrate has been pretty thoroughly investigated. Like all narcotics, it first acts as a stimulant; there is a stage of excitement; but this is soon followed by drowsiness, which in turn passes into sleep. This again, if the dose has been large enough, is followed by a condition of coma. The condition of sleep and the more advanced one of coma are associated with a contracted state of the bloodvessels of the brain, although the first action of the drug is probably to dilate these.

It slows the respiration, and if the dose is a large one, this is well seen. In the one fatal case (in midwifery) which has been reported, and which is alluded to at the end of this paper, this action was very marked.

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It lowers the blood-pressure; dilating the arterioles and at the same time depressing the action of the heart. The first of these results is due to weakening of the vaso-motor centre, the second to the action of the drug on the intrinsic ganglia of the heart itself.

There is a distinct fall of temperature produced if the dose has been at all considerable. After a dose of 40 - 80 grs. of a fall of 3° or 4° Fahrenheit - has been observed (Milner Fothergill, "The Practitioner's Handbook of Treatment," 3rd edition p. 98). This is probably due both to diminished heat production and to an increase in the amount of heat given off from the surface; the former owing to the slowing of the circulation and the diminished rate of respiration; the latter being due to the dilatation of the arterioles, in the same way that alcohol causes a loss of bodily heat. This increase in the amount of heat given off is perhaps the chief agent in lowering the temperature, as Hauser Brunton found it possible to keep rabbits alive when wrapped in cotton wool after a dose of chloral which would otherwise have been fatal. ("A Text-book of

Pharmacology, Therapeutics and Materia Medica, London 1885, p. 717).

The excitability of the spinal cord is at first increased, then diminished, and finally abolished if the dose is large enough. The pupil is usually contracted when a full dose has been given.

It produces complete muscular relaxation when injected into the veins of a rabbit. (Garrod's Materia Medica and Therapeutics 9th edition 170).

"The muscles and motor nerves are not paralyzed by chloral" (Brunton's Text-book of Pharmacology &c. before referred to, p. 716). This is of importance as it leads us a priori to expect what in actual practice we find to be the case, viz. that the uterine contractions are entirely unaffected by chloral. This is the reason we find it so valuable in practice, as, by diminishing the pain and promoting muscular relaxation, it lessens the resistance without at the same time lessening the forces acting in antagonism to this resistance.

It relieves pain, though not to the same extent, or in the same direct way, as in the case of morphia. Still it has a distinct power of making pain less acutely felt.

Precautions to be observed.

It is important to keep several points in the pharmacology of the drug in mind in administering it in labour.

1st Owing to its depressant action on the heart, we must ascertain that the patient's heart is sound before giving it. Some recommend us to refrain from its use even when there is only functional derangement of that organ, but in one of the cases in which I found excellent results follow the use of the drug (Case VI.) there was a good deal of functional derangement. Where there is no organic mischief it would seem unnecessary to refrain from the use of the drug, if the indications for its use are present.

2nd Owing to its well-marked effect on the body temperature when given in doses such as are frequently employed in midwifery, we must take care that the patient is kept well covered up after it is given, so that she may escape a chill.

3rd Owing to the first effect being one of excitement, it would perhaps be as well not to give it when the labour is very far advanced. As the stage of

excitement is very short as a rule however, this is not of so much importance. Still it must not be forgotten that in Case VIII. there was only excitement - without any drowsiness after as much as $3\frac{1}{2}$ of chloral had been given.

Cases where it is valuable.

It is only in a certain percentage of cases that chloral is required. It is of value wherever there is undue rigidity, whether of the cervix, vagina, or perineum. As it has been generally recommended to be given during the first stage of labour, it is more frequently given for a rigid os uteri than for anything else. And since delay in dilatation is more frequent in primiparae, it is perhaps in primiparae that it is most frequently called for. It will be noticed however, that in the subjoined list of cases there are an equal number of primiparae and multiparae. Indeed so far as my experience goes the benefit derived from its use seems fully as great in multiparae as in primiparae.

It is also useful whenever the pain is felt very acutely, and this is often the

case when rigidity is present. In nervous women of delicate susceptibilities this sensitiveness to pain is sometimes very great. In these cases, as pointed out by Dr. Playfair (see reference on page 2), chloral is of the greatest value. In hysterical women we also find it exert a most beneficial effect. It might be given where there was any reason to fear the occurrence of purpural convulsions. It has also been recommended as a remedy in these (Playfair, "The Science and Practice of Midwifery", 4th edition, Vol. II. page 310. Lusk, "The Science and Art of Midwifery", London 1882, page 538.). I have only had an opportunity of trying it in one case of purpural convulsions, and as this case resisted all treatment, terminating fatally about twenty-four hours after delivery, I cannot speak on this point. From its known effects, however, we would expect it to be a useful adjunct to our other treatment, and as a prevention it might be given in conjunction with the usual remedies.

Since chloral produces a marked lowering of the blood-pressure, does it not tend to prevent haemorrhage? We know that a fall in blood-pressure tends to prevent haemorrhage, that it is, in

fact, a great factor in the natural arrest of haemorrhage. In only one case in which I have given chloral was there the slightest tendency to haemorrhage, and that was only slight (Case I.). Theoretically I think something might be claimed for chloral from this point of view.

Time and manner of administration.

This may be pretty well understood from what has been already stated. It is usually in the first stage of labour that chloral should be given, when the pains are trying for the patient but are not accompanied by satisfactory dilatation of the os uteri. In some cases, however, it may be given at a later stage, when the head has descended to the floor of the pelvis, but the perineum is still tense and rigid. Chloral I consider to have a distinct power of relaxing this, just as it relaxes the cervix.

I have usually given it in the way recommended by Dr Playfair (see reference on page 2), viz. 15 grs. every twenty minutes until three doses are given, then occasionally 15 grs. in an hour after the last of these. I have not usually

given more than 45 grs. altogether, but have sometimes given as much as 3*ʒ*. Occasionally 20 grs. were given hourly or half-hourly. Either way one seemed to get the effect equally well. In only one case was this insufficient (Case VIII.) when 3*ʒ* only caused excitement without drowsiness. Still, even in this case, the effect on the cervix was well-marked.

D^r. Playfair states that in some cases it causes sickness, and suggests that it should be given per rectum when this occurs, but I have never found it necessary to do this, the patients always taking it very well when dissolved in water with a little sugar.

Notes of Cases.

Case I.

Mrs E. aet. 33. She had been pregnant six times previously to this, but of these six pregnancies only three went on to term. Labour began at 5 p.m. on the 8th January 1887, and terminated naturally at 11 a.m. on the 9th January. The waters broke three hours after the onset of labour. Seven hours from the beginning of labour the parts were found to be fairly lax; but the pains were feeble, and dilatation was exceedingly slow. Chloral was administered (3*ʒ* in four doses). The parts became more relaxed than before, and the pains seemed much stronger, and were more regular. Dilatation of the os uteri now went on steadily. The second stage was very rapid, and during it the woman hardly felt any pain. The uterus did not contract properly after the birth of the child, but kept relaxing under the hand, and the pulse rate was 120 per minute. There was only a trifling amount of haemorrhage however, but in the circumstances it was thought advisable to give an

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injection of hot water, and this was followed by good contraction of the uterus.

The after progress of the mother and child was satisfactory.

The patient stated that she had never experienced such an easy labour before, always having had "bad times".

Case II.

Mrs M. aet. 44. Five previous pregnancies, all completed by labour at term.

Labour began at 9-30 p.m. on the 7th February 1887, and was completed naturally at 4-30 a.m. on the 8th Feb. The waters broke at the commencement of the labour. For a considerable time the pains continued slight and inefficient. The os uteri was very rigid. After three doses of chloral (15-grs. each) it relaxed rapidly, and full dilatation speedily took place. The expulsive pains which followed were very strong, though not felt very acutely, and completed the labour in a very short time.

The patient had suffered from puerperal convulsions after her last labour. There had been a good deal of swelling of the feet and legs, with puffiness of the

eyelids in the morning, for some time previous to her present confinement, but the patient had not consulted me on the subject, though when she engaged me, knowing her previous history, I had warned her to apprise me of the occurrence of these and other symptoms. There had therefore been no opportunity of making an examination of the urine before, but when I was called to attend her, it was found to be albuminous. On this occasion, however, there was no tendency towards convulsions. Whether the chloral given had any share in their prevention it is difficult to say.

Case III.

W^o: B. aet. 27. Primipara. .
Labour began at 3 a.m. on the 24th March 1887, and was terminated with the forceps at 10.30 p.m. on the 26th March. In the first stage the pains were of a severe and lacerating character, but dilatation was exceedingly slow. 45 grs. of chloral given in three doses had the effect of making the patient drowsy and greatly relieving the severity of the pains, but dilatation still went on very slowly. The pains of the second stage were of a very satisfactory kind, strong bearing-down pains, but the child was

large, and as the patient was getting rather exhausted, the short forceps were applied and labour readily terminated. Had the labour not been such a lingering one, so that it was thought better not to tax the patient's strength too much, the pains were of such a kind that delivery would have taken place naturally after a time.

Case IV.

Mrs J. aet. 20. Primipara.

The waters broke about 3 a.m. on the 31st May 1887, and the pains did not come on until about twelve hours later.

At 9 p.m. the pains were very strong, but the os uteri rigid, and less than the size of a shilling. 45 grs. of chloral given in three doses. After two doses had been given, the os began to soften and dilatation then went on steadily. The

second stage was very quick, with very strong expulsive pains, and the patient was delivered at 1.30 a.m. on the

1st June. ~~But~~ so that the pains were only present for about ten hours altogether, a singularly quick first labour.

Case V.

Mrs H. aet. 22. Two previous pregnancies, both ending in labour at term. For a considerable time previously to the onset of this labour there had been occasional pains, but the pains did not become regular until about 4 p.m. on the 1st June 1887. On examination at 8 p.m. on the same day the os uteri was found to be rather rigid, but the pains were regular and good. ʒs of chloral, in two doses, was followed by very rapid dilatation the parts being found more relaxed about half-an-hour after the first dose, when the second dose was given. The second stage was easy and natural, the child being born at 11 p.m. on the same day.

Case VI.

Mrs C. aet. 33. Two or three previous pregnancies, but of these only four went on to term. In the first labour at term the forceps failed to accomplish delivery, and craniotomy had to be performed. In the other three cases delivery was accomplished by means of the forceps. Chloroform was given in all the four cases. Owing to this experience she had been looking forward to the present

confinement with a great deal of dread. The labour began at 8 a.m. on the 19th October 1887. I was called to see her about 7 p.m. on the same day. I found her in the first stage of labour, with the parts fairly dilatable, and the os about the size of a shilling. There was no pelvic deformity to account for the difficulty of her previous labours. The pains, however, were felt very acutely indeed. The patient is a highly nervous woman, very sensitive to pain. She suffers a great deal from dyspepsia, accompanied by much palpitation of the heart. There is no organic heart disease. 3i of chloral was given in three doses of 20 grs. each at intervals of half an hour. This was followed by marked relief to the patient, although the pains continued to act as strongly as before. A little before nine o'clock I returned home, as the woman lives only a few doors away from my house, leaving directions with the experienced nurse in attendance that I was to be called as soon as she thought it necessary. About ten o'clock I was called hurriedly, and on reaching the patient's bedside I found that the

child was already born, and that the woman had only had one or two bearing-down pains altogether, which, however, were strong ones.

She herself ascribed the ease of her delivery to the chloral she had received, although nothing had been said to her in regard to its probable effects. It was quite a new experience for her to have such a labour.

It is difficult to understand why this woman's previous labours were so difficult. Perhaps in the present case also, had we waited until the completion of the first stage, and then given chloroform, the pains might have become fewer and the forceps have been required. Of course this theory does not explain her first labour, in which craniotomy was necessary, but it is possible that in that case the fault may have been in the child, either malposition or extra large head. Whatever the cause, the contrast between her first labours and the present one is very striking, and the case is an instructive one.

Case VII.

W^{rs} H. aet. 33. Two previous pregnancies, both completed at term. Labour began at twelve o'clock (noon) on the 21st

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November 1887. The first stage was lingering, and when I was called to see her, late in the evening of the same day, but little progress had been made. Dilatation was very slow. $\text{3}\frac{1}{2}$ chloral was now given (in four doses). Dilatation went on steadily after this, and on the completion of the first stage a very rapid second stage followed. The child was born at 4-30 a.m. on the 22nd November.

Case VIII.

Mrs H. aet. 30. Primipara. Labour began at 10 p.m. on the 24th January 1888. In the first stage the pains were frequent but of short duration. $\text{3}\frac{1}{2}$ chloral was given in three doses, 20 grs. every hour. This was followed only by excitement, without any drowsiness. The os uteri became soft and dilatable nevertheless. The pains in the second stage were inefficient, and delivery was accomplished by the forceps at 7 p.m. on the 25th January.

Case IX.

Mrs B. aet. 35. Three previous pregnancies, all completed at term. Labour began at 8 p.m. on the 15th May 1888. The first stage was lingering.

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Three doses of chloral were given (15 grs. each), and dilatation then went on quickly, and this was accompanied with much relief to the patient, who had been feeling the pains rather acutely. A very rapid and easy second stage followed. The labour terminated at 10 p.m. on the 16th May.

Case X.

Mrs C. aet. 22. One previous pregnancy, which terminated in labour at term. Labour began at 7 p.m. on the 20th May 1888. At 4 p.m. on the 21st the pains were strong, but the os uteri was found to be very rigid and but little dilated. Two doses of chloral (of 15 grs. each) were given, and this was followed by softening and dilatation of the os. The second stage was easy, and terminated at 7 p.m. (21st May).

Case XI.

Mrs G. aet. 21. Primipara. Labour began at 5 p.m. on the 16th July 1888, and delivery took place at 8.30 a.m. on the 17th. When called to see the patient I found her in the first stage. The pains were strong and the

parts fairly well relaxed. Dilatation went on steadily, but as the pains were acutely felt three doses of chloral (15 grs. each) were administered with the view of giving relief. This markedly increased the rate of dilatation, and relieved the pain so much that the patient said that I was trying to put the pains away, although vaginal examination proved that they were acting quite as strongly as before. For a first case the second stage was a very easy one, and the whole labour was completed in less than sixteen hours.

Case XII.

Wrs St. aet. 30? Primipara.
Labour began early on the 8th November 1888. The pains were strong and acutely felt, the patient being a highly nervous and excitable woman. $3\frac{1}{2}$ of chloral in four doses gave marked relief from the pain, and relaxation and dilatation were much promoted. Delivery was effected with the forceps at 7.30 a.m. on the 9th Nov., as the patient felt quite exhausted, and is rather a weakly woman.

Case XIII.

No. 6. aet. 22. Primipara.
Labour began at 10 p.m. on 2nd March
1889. The pains in the first stage were
strong but of short duration. Dilatation was
promoted by chloral, which gave marked
relief to the patient. Delivery effected
with the forceps at 5 a.m. on the 4th
March.

Case XIV.

No. 7. aet. 28. Primipara.
Labour began early in the morning of
the 23rd March 1889, and was completed
naturally at 2 a.m. on the 24th. At
8 p.m. on the 23rd the pains were regular,
but there was no dilatation of the os uteri.
At twelve o'clock (midnight) the os was only
dilated to the size of a shilling. Two doses
of chloral (20 grs. each) were accordingly
given, with half-an-hour's interval between them,
and rapid dilatation then occurred. This was
followed by a quick second stage, with strong
well-sustained pains, which, however, did
not appear to be felt very acutely.

In this case only two hours elapsed
between the time when the os uteri was only
the size of a shilling and the birth of the
child, which was remarkable in a primipara.

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Remarks on the above cases.

In looking over the above list, which is a record of all the cases in which I have given chloral hydrate previous to delivery in midwifery practice, it is not surprising to find that in three of the cases of rigid cervix the waters broke either at the commencement or shortly after the onset of labour. In one case they broke twelve hours before the pains came on. There can be no doubt but that early rupture of the membranes is one of the most fruitful causes of delay in the first stage of labour.

Accidentally it happens that there are seven primiparæ and seven multiparæ in the list.

There is a pretty constant agreement in results in all the cases. Although it is not stated in the notes of some of them that the pain was relieved, still I am under the impression that this constantly occurred, except perhaps in Case VIII. where we find that $\frac{3}{4}$ of chloral had only the effect of exciting the patient. It is possible, indeed probable, that this patient only required a little more of the drug

to get the usual effect produced, and a very little might have been sufficient to cause the excitement to pass into the drowsy stage which usually succeeds it.

In every case, except one, we find that dilatation of the os uteri was promoted, and this in some cases even when the dose seems a comparatively small one (30 grs.). The one exception is Case III. in which 45 grs. of chloral had the effect of making the patient drowsy and relieving the pain, but did not seem to affect the dilatation to any great extent. In this case also it is possible that good results might have been obtained had more chloral been given later, when the drowsiness was passing off a little.

In the first stage we find that the effect of chloral is to diminish the susceptibility of the patient to the pains without decreasing their strength, and at the same time to render their work more easy by producing a relaxed condition of the maternal passages.

In regard to the second stage, what strikes one at the first glance is the singular frequency with which we find it noted that a very rapid second stage followed the use of the drug.

In all the cases in which chloral was given to multiparæ the second stage was easy, and in five out of the seven cases it was also very rapid. Among the primiparæ, as might be expected, the results are more variable. But here also we find the second stage reported quick and easy in two cases, and easy in a third. The cases which required the forceps seem rather to tell in the opposite direction, but in two of these at least I am of opinion that the parts were more relaxed than what they would probably have been had not chloral been given previously. It is also necessary to consider that chloral was only given in cases where the rigidity of the parts demanded it - (with the exception of one or two cases to relieve pain, and neither of these required the forceps), and when we consider the very rapid second stages occurring in most of these, I think it must be acquitted of having any share in the causes which led to the application of the forceps.

So rapid indeed has the second stage often been after the administration of chloral, and so much shorter than

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might reasonably have been anticipated, that I now make it a rule never to leave the patient, if a multipara, after giving it, until the termination of the labour, however slight the amount of dilatation may be at the time of the administration of the drug. I think that this very rapid second stage having followed its use so frequently is a strong argument in favour of the opinion that chloral has the power of softening and relaxing the vagina and perineum, just as it softens and relaxes a rigid cervix. It is only in this way that the production of a quick second stage by it can be explained. It cannot be that it actually increases the pains. It may apparently do so by making them more regular, but its chief action must be its relaxing one, diminishing the resistance to the passage of the child.

In regard to the third stage there is nothing special to be noted. In only one case, the first, was there any tendency to haemorrhage, in all the others good contraction of the uterus was secured at once.

The after progress of mother and

child was satisfactory in all the cases -

Conclusion -

Does chloral ever produce any bad effects when given during labour? I have never met with any awkward symptoms resulting from its use. Some time ago, being desirous of obtaining satisfactory information on this point, I wrote to the British Medical Journal enquiring if any readers of the Journal had met with bad results following its use in midwifery practice, and asking if any death had been reported. I only received one reply, referring me to an article on the use of chloral in midwifery in "The American System of Gynecology and Obstetrics" (Edinburgh, 1888, Obstetrics, Vol. I. - page 683). On reference to this article, which is by Dr. Peever, I find that one death has been reported as having followed the use of the drug in obstetrics. I have failed to obtain the original report of the case (which was, I believe, reported by Dr. Kane), but it is Dr. Peever's opinion that death does not appear to have been caused by the chloral alone. As his reasons for this

opinion he states that in seven hours the respiration rate had fallen to five per minute, and that five hours later still the temperature was 103° Fahrenheit.

But the slow respiration quite agrees with the general testimony regarding the action of chloral on the respiratory system. The rise of temperature one certainly would not expect, as the effect of chloral is quite the contrary. I am not aware whether or not the heart was sound in this case.

No doubt chloral, like all powerful drugs, requires care in its administration, and in every case in which it is given the effect must be carefully watched for a time, as, notwithstanding all the precautions we may take before giving it, it is not to be expected but that we will discover idiosyncrasies in some of our patients which will warn us to discontinue its use in that particular case. This is true of all active remedies, and it would be strange indeed if chloral were an exception to the general rule.

Still, taking all things into consideration, I think we must allow that in chloral we have an agent which is able to render

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no good service in many of the cases
met with in general practice, and one
which it is well worth our while to
include in our obstetric armamentarium.

D. H. A. W. S. O. R.