under that a further dose is dangerous. With experience, however, I found like several others that I can gauge whether the patient is under or not by noticing her demeanour and attitude and conversation. This is easy if a few minutes after one has conversed with the patient she turns to the nurse and asks if the doctor has come yet this morning. The patient never required a second dose who, when asked if she had had any pains since I left the room, said, "Oh, I don't know; have I, nurse?" Another patient who had been under treatment for twenty hours and had repeated injections, settled the question of an additional dose by saying, "Oh, doctor, the pains are beginning to get a little sharp; you will begin the twilight sleep soon, won't you, and not make the mistake of leaving it till it is too late."

At first some failures in relieving pain are all but inevitable; with increased experience success may be assured. Time, however, is essential; many go under in twenty minutes or less and never require another dose; others require two or three doses, or even a little whiff of chloroform after the third dose. More than three hours, therefore, may elapse before the patient is under. Partly for this reason, and partly because the worst cases of asphyxia occur if the child is born within a few hours of the administration of morphine, it is not wise to carry out the treatment unless the patient presents herself not less than four hours before delivery may be expected.

In illustration of my contention that failure to relieve suffering is due to faulty technique, I may state that of the thirty hospital cases only three were unsuccessful, and two of those occurred in the first three of the series; the first was due to too small an initial dose, which was not repeated; another was due to beginning too late. In the thirty private cases, which I did not begin till after I had had several in hospital, four were unsuccessful in that they got but little relief; three of these occurred in the first four; two of them might be called partial successes, especially as one was so satisfied that she returned for the same treatment. As illustrating the value of improved technique I may say that although her second labour was as long as the first, and she only had the same quantities of the drugs, yet she said she never felt any pain from the time of the first injection. The two complete failures were due to beginning too late, the patient having been in labour several hours and being nearer delivery than I estimated.

It is sometimes said that the use of scopolamine-morphine necessitates more frequent employment of forceps; in the thirty private cases forceps were applied ten times—not a big percentage—as it is my custom to terminate labour with as little delay as possible, and several patients came because they had contracted pelvis, and had had difficult labours previously. In the thirty hospital cases forceps were applied six times.

In the hospital cases labour was very long—twenty-four and a half hours on the average; this is not the effect of the drugs, as most were primiparae, and many had already been many hours in labour before they came under treatment. It is to be explained by the fact that in a hospital where patients are admitted only after labour has begun, few, if any, cases of easy labour are available for treatment. In the private cases, where treatment could be started at the beginning of labour, the average time was 22.6 hours for primiparae and 7.2 for multiparae; this does not differ much from the average, especially if allowance is made for the fact that rapid cases of labour are necessarily excluded.

Summary and Conclusions.

The great bugbear is an asphyxiated or stillborn baby; in the absence of an obstetric abnormality which would with any treatment have produced the condition, faulty technique is to blame. In the series of thirty private cases seven babies showed some degree of asphyxia; four of these occurred in the first seven; the three others presented only a mild degree (oligopnoea) and two of these occurred with contracted pelvis. In the first of the asphyxiated cases forceps were required; the next was a small child more than two months premature, while the mother of the third had had phthisis and a previous miscarriage, and in this pregnancy had suffered from severe tachycardia. In the series of thirty hospital cases there were six cases of asphyxia; three of them occurred in

the first eight. In addition to the thirteen cases of asphyxia in the whole sixty, four were stillborn; only one of these occurred in the private cases; as the fetus was macerated and only one dose had been given four hours before birth, the drugs were not to blame. The three others were hospital cases of contracted pelvis who ought to have been treated by induction or Caesarean section, but only came into hospital after being examined outside and after being in labour for many hours. In one, forceps having been applied unsuccessfully both before and after admission to hospital, version was performed, but the aftercoming head had to be perforated. In the second, a primipara, the child was born after more than seventy hours of labour; only one dose was given, and this was not responsible for the delay, but the facts that the child weighed 8 lb. and the diagonal conjugate measured only 3½ in. The third was a breech case in a multipara; labour lasted for thirty-four hours, there being great delay in the extraction of the aftercoming head. These facts, and the further facts that several cases had pelvic contraction, while one was a face case, one an occipito-posterior persistent lasting twenty-one hours and delivered by forceps, one a twin labour lasting sixty-three hours, both babies being born alive and not asphyxiated, one a rigid cervix treated by version forty hours after labour began, and another a rigid cervix treated by dilatation and the introduction of a Champetier de Ribes bag, labour lasting seventy-seven and a half hours, show that the fetal mortality is not increased. In two cases forceps had to be used owing to slowing of the fetal heart; both babies were saved.

Some patients had only one dose, but most a larger number; three had eight injections and one nine, the average number being 2.8 in hospital cases and 3.13 in private practice. Several patients slept continuously, others slept in the intervals, waking when pains occurred, but remembering nothing afterwards. One patient said the baby was not hers, as hers was still unborn, the house-surgeon having given her an injection which had stopped everything! In the thirty hospital cases three had morbid temperatures, but two of these had been examined before admission. In the thirty private cases only one (Case vii) had a morbid temperature. Two patients, one in hospital and one in private, had some *post-partum* haemorrhage, for which the uterus was plugged. One hospital patient was peculiar for two days after treatment; her husband said she was of a very excitable nature. All the patients did well afterwards, and all were able to go home in fourteen days. All the babies were satisfactory.

The drugs are powerful and treatment must not be lightly undertaken, but with experience, care, and close supervision the treatment does not involve any risk other than those inherent in labour itself. The relief of suffering is an enormous gain, but an even greater advantage is that, owing to the elimination of all nervous shock and exhaustion, patients are well when they wake, and present a marked contrast to those women who have gone through in the ordinary way. The close supervision and control of the patient in bed reduces the risk of infection, and enables all emergencies to be promptly dealt with. The diminished fetal mortality and morbidity of the mother shown in all statistics of cases treated on Gauss's lines follow as a matter of course.

OBSERVATIONS ON PAINLESS CHILDBIRTH.

WITH NOTES OF FIFTY CONSECUTIVE CASES TREATED
BY THE HYOSCINE (SCOPOLAMINE) AND
MORPHINE METHOD.

BY

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So much has been written both for and against the use of the hyoscine (scopolamine) and morphine method in labour that a brief account of fifty consecutive cases in which the treatment was successfully administered may be of interest.

Dosage.—When the scopolamine-morphine method first came into prominence in this country we were told that, in order to ensure success, it was essential for the practitioner to remain in attendance throughout the labour.

Careful observation was said to be necessary to determine the dosage, and numerous elaborate tests were given for ascertaining whether the patient were in the required state of semi-narcosis. If it were true that the practitioner could not safely leave the bedside, this fact would in itself constitute an insuperable objection to the employment of the method in a very large number of cases. There are very few practitioners, especially in war time, who could devote so much time to each maternity case, and, even if they could do so, the fee would necessarily be prohibitive in the great majority of cases. Moreover, a method that demands such close observation suggests an undesirable element of danger.

In my first cases I strictly obeyed this rule, never leaving the bedside after the administration of the first injection. By keeping a careful record of the dosage, I soon came to the conclusion, however, that as good results could be obtained by adhering to a fixed dose, which need be varied only under abnormal conditions such as individual idiosyncrasy, or unduly prolonged labour due to uterine inertia, or any other cause.

My experience has taught me that the best results are obtained by means of a large initial dose administered as soon as the pains are strong and regular, followed by a small dose at intervals of two hours. One must use one's judgement as to the right moment for beginning the treatment, the size of the dose not being a reliable criterion.

My first injection consists of omnopon $\frac{3}{4}$ gr., with scopolamine $\frac{1}{16}$ gr., and within ten minutes of its administration the patient is almost invariably sound asleep, her mind remaining a blank until the confinement is over. The exceptions, which in my experience amount to about 6 per cent. of the cases, are those women who, probably owing to some personal idiosyncrasy, are apparently not susceptible to the drug. Though their faces are flushed and their pupils enlarged, they remain wide awake, and will subsequently state that they felt the pains with undiminished severity.

The second and subsequent injections consist of scopolamine $\frac{3}{16}$ gr., administered at two-hourly intervals, provided the pains continue to be strong and regular. If the pains cease, the injections are suspended until the pains resume their proper course. In primiparae, if the os is dilating very slowly and the pains occur only at long intervals, say every half or three-quarters of an hour, the scopolamine injections should be given every three or four hours only. In many cases I have given ten injections in all. In one case I gave fifteen, and in another sixteen, without any injurious results either to the mother or baby. The largest total amount of scopolamine was one-tenth of a grain, and the baby was not even sleepy when it came into the world.

It is, of course, undeniable that some babies are affected by the drug, and a few of them have caused me some anxiety, owing to their "blueness" and reluctance to breathe. In no single case, however, has a baby failed to respond to artificial respiration, hot and cold baths, etc., and I am of opinion that this condition of oligopnoea, though alarming to the uninitiated, is not really dangerous. I have entirely failed to find any connexion between oligopnoea in the infant and the amount of the drug administered to the mother; the worst cases occurred when only four or five injections had been given, while in the prolonged cases I have mentioned, in which fifteen and sixteen injections were given, the infants showed no signs of poisoning. It has been stated that if the opium or morphine is repeated after the first injection, the baby will be born "blue," and this would no doubt be the case if opium were given with each injection. In some prolonged cases, when a patient has become very restless, I have, however, added morphine $\frac{1}{4}$ gr. to one of the intermediate injections without in any way adversely affecting the baby.

By adopting the above-mentioned routine for the injections, the latter can safely be left to a trained nurse in an ordinary straightforward case, and the doctor, having given the first injection, will not be required until the head is showing. The confinement need not, therefore, occupy any more of the doctor's time than an ordinary case, and one of the chief objections to the method thus falls to the ground.

Duration of Labour.

It has been stated that labour is greatly prolonged, but I have found this to be the case only in a very minor

degree. The patient, being semiconscious, cannot of course help herself by bearing down, as a fully conscious patient can, and for this reason the labour is perhaps slightly prolonged. This disadvantage is, however, more than balanced by the advantage arising to the patient from the absence of shock.

One doctor told me that in every case in which he had attempted the method the labour pains had ceased immediately after the first injection, and he had consequently been forced to discontinue the treatment. I cannot, however, believe that he was correct in thinking that the cessation of the pains was due to the injection. How often has one not observed a temporary cessation of the pains in an ordinary labour where no injections have been given!

Of the fifty cases in which I have used the method, thirty have been perfectly successful; the patient has slept quietly throughout the labour, a slight change in the breathing being the only outward manifestation of the uterine contractions. Fourteen patients were restless and noisy, complaining loudly of each pain, and struggling violently during the actual birth. The next day, however, they remembered nothing, and showed no signs of exhaustion. Three cases were a complete failure, and the remaining three were multiparae, whose confinements were so rapid that there was time for only one injection in each case.

The Patient's Surroundings.

It is often stated that the method can be properly administered only in a nursing home or hospital and should never be attempted in the patient's own home. This is true to some extent, although in a private house, where perfect quiet can be obtained, together with the services of a competent nurse, there is no reason why the treatment should not be as successful as in a nursing home. It is of course absolutely essential that the patient should be kept perfectly quiet; the room should be darkened and the nurse should wear soft slippers and be careful to avoid all unnecessary disturbance of the patient. If the house is in a noisy street it is advisable to deaden the sounds by putting a little cotton-wool in the patient's ears. After the confinement, the nurse must wash the infant in another room and discourage conversation on the mother's part. If allowed to talk she will possibly recall isolated incidents, and may even fancy that she remembers the whole process of labour. Provided the baby is removed at once, and the mother kept perfectly quiet in a darkened room, the latter usually sleeps for several hours and remembers nothing on waking. If the patient seems restless and excited, I sometimes give an injection of morphine hydrochloride gr. $\frac{1}{4}$ after the conclusion of labour.

Of the fifty babies, forty-nine are alive and well, the exception being premature and stillborn. Nine were born "blue," but of these only three caused me any anxiety. In four cases forceps were necessary, and these were the only patients to whom a little chloroform was administered, more as a measure of precaution than from any real necessity.

The effects of the drugs pass off rapidly; in a few cases the patients' pupils were dilated the next day, and some of the mothers complained of being very thirsty. There is one precaution which must never be neglected—that of passing a catheter at regular intervals if the labour lasts more than eight hours. If this is not done the labour is likely to be considerably retarded.

The drugs used for the injections were Hoffmann-La Roche's omnopon ampoules and Parke Davis's scopolamine tablets.

AN illustrated pamphlet, entitled, "Britain's greatest need," has been issued by Dr. Barnardo's homes pointing out the importance to the empire of securing that, so far as possible, every child born within its limits shall be brought to man's estate. For fifty years Dr. Barnardo's homes have been doing the work which has been so urged upon us during the war. In that time the homes have taken charge of 84,000 children, and 10,264 Barnardo boys are now serving in defence of their country. Since war broke out Dr. Barnardo's homes have admitted 5,033 boys and girls, and with increased support many more could be taken. Gifts of all kinds—money, food, clothing, blankets, etc.—will be welcomed by the honorary director, Mr. William Baker, M.A., LL.B., at head quarters, 18 to 26, Stepney Causeway, London, E.1.