may lead to great suffering and long illness, and may even involve the life of his patients and their babies, and, indeed, that of his own wife and child, we find ourselves face to face with great difficulties. Owing to the better systematizing of our small resources we are somewhat better off than in 1906, when I had the opportunity in Toronto of discussing this subject in my address at the meeting of the British Medical Association. How can any branch of medicine and surgery be properly taught in an out-patient department only—and the department scattered over an area of, say, a square mile, with no real and effective supervision, and without the aid of competent nursing? Hospital authorities have provided a few beds for special cases, but though these are of immense value what are they but a pittance?

I am not of the opinion that the value of a hospital for teaching purposes is necessarily improved in proportion to the large number of its beds; this depends on the number being adequate and on the ability of those in charge of it to make the best use of them. At Queen Charlotte's, where I worked regularly for twenty years, we had admirable opportunities for teaching. We had the great advantage of teaching at the bedside and in the labour wards mixed classes of students and post-graduates, together with midwives and monthly nurses, and it would be difficult to determine who gained most from the mixed classes—the students, who soon discovered how little they knew of the nurses' duties, or the nurses, who gradually began to realize their own ignorance and the difference between their superficial training and that of the doctors. This combined training, if general, would, in my opinion, also do much to place the relations of doctor and midwife on the friendly footing of mutual confidence and help that should exist for the benefit of the poorer women and their infants.

It is in the organization of maternity wards or hospitals in our great teaching centres, comparable to those devoted to medicine and surgery, that we must look for our next great improvement in the teaching of obstetrics, and without these we are severely handicapped in our endeavours. A three months' combined course in obstetrics and gynaecology, the whole time being given up to the subjects, would probably prove to be sufficient.

A CRITICISM OF SOME MODERN METHODS OF INFANT FEEDING.

BY
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I VENTURE to submit these few notes, on a subject of some importance, as the result of long and close observation of the progress of babies in general practice.

The following is approximately the method of artificial feeding adopted by some of the large London hospitals and institutions:

The baby is not fed for the first forty-eight hours after birth; he may be given a little sterile water. After this period the following mixture is used for the first week: milk (sterile) 1 part, water 3 parts, with sugar about 10 grains and cream 5 minims to an ounce of the mixture. This is given every four hours on the third day, and on the fourth day every three hours from 7 a.m. to 10 p.m. From 10 p.m. to 7 a.m. only one feed is given, making in the twenty-four hours a total of seven feeds. The quantity allowed at each feed is $1\frac{1}{2}$ ounces for the first week, sometimes 2 ounces. During the second week the mixture is strengthened to half milk and half water, and the quantity is increased to 2 ounces; the intervals are kept the same.

This method is apparently adopted in all cases irrespective of the size of the infant or his evident appetite. The principle of such feeding seems to me to be wrong, for I cannot see that it is a good imitation of the way in which a baby or any other young animal is naturally fed. The mixture is probably more or less correct, for it resembles the composition of the mother's milk; but, in my opinion, the quantity and the intervals between feeds are in many instances unsuitable, for the following reasons:

(a) *Quantity.*—A young healthy infant always sucks at the breast until he is satisfied; in doing this he very often empties it. The amount of milk which can be drawn from a woman's breast is usually about $2\frac{1}{2}$ or 3 ounces, though it may of course

be less. It seems to me unreasonable to give an infant less food than it would get from a healthy mother.

(b) *Intervals.*—In the course of a good many years of general practice I have asked nursing mothers how long intervals they gave between feeds. The answer is nearly always two to two and a quarter hours, perhaps two and a half hours, never longer, for at least the first month, except at night. When asked why they do not give longer intervals, some or all of the following reasons are invariably given: (1) If the interval is lengthened the baby cries a great deal; (2) the nights are bad because the baby does not sleep for many hours at a stretch; (3) the breasts get swollen and painful. These are very sound reasons for not giving long intervals.

From observation of many cases I am sure that bottle-fed babies do better, increase in weight and sleep well if the intervals are short. I have often been asked why the baby cries so much, and in nine cases out of ten I have told the mother to give the food more frequently and the baby ceases crying (provided it is allowed enough). Perhaps it is not realized how harmful it is to a mother to have her baby crying a great deal; she gets bad nights, feels worried, and becomes restless and nervous, and her recovery is very much retarded.

About twenty or twenty-five years ago a great deal was written and said about infant feeding, and it was pointed out that babies were grossly overfed; this was quite true in many instances, for they were given milk and very thick barley-water and much sugar and cream, and the food was more or less forced down their throats; but now we have gone to the other extreme and in consequence a great many infants are underfed and some nearly starved.

No hard and fast rule can be laid down as to the quantity of food an infant should be allowed irrespective of his size, weight, and natural appetite. It is obvious that a 10 lb. baby requires more food than one of $6\frac{1}{2}$ lb. I believe also that some babies digest their food more completely than others, exactly as in the case of adults, so that even with babies of the same weight one cannot be sure that they will do well on the same quantity of food.

The method I advocate is as follows:

(a) *Breast-fed Babies.*—The baby is put to the breast from twelve to sixteen hours after birth, and about every six hours after this until the milk comes. If he cries and seems thirsty he is given sterile water. After the milk has come the baby is put to the breast at least every two hours from about 8 a.m. until 10 p.m., leaving him there till he is satisfied, and, if necessary, waking him at the right times. A good supply of nourishment is thus obtained during the day so that much food is not needed during the night. After 10 p.m. the baby is allowed to sleep as long as he will; he usually has to be fed once or perhaps twice between 10 p.m. and 8 a.m.; after the first two or three weeks a baby will often sleep six or even eight hours at a stretch if he has had enough food during the daytime. In some cases, where the baby is small and weak and can only take a little food at a time, and wakes and cries within two hours, he is fed every hour and a half for the first seven days, or even longer. As the infant grows older the intervals of feeding can be gradually lengthened as a rule; about the third or fourth month, or sooner, the baby is often on three-hourly feeds, but this depends on the comfort of the mother and the appetite of the baby, and must not be a hard and fast rule.

(b) *Bottle Feeding.*—I endeavour to imitate nature as closely as possible; the times of feeding are practically the same as in breast-fed infants. The mixture is as follows, subject to variations: For the first two or three days 1 part milk, 3 parts water, cream $\frac{1}{2}$ drachm, sugar $\frac{1}{2}$ drachm to each feed. After this the mixture is gradually strengthened, till at the end of fourteen days it is 1 part milk, $1\frac{1}{2}$ parts water, 1 drachm cream, rather less than a drachm of sugar to each bottle; sodium citrate or sodium bicarbonate may be added. I do not want to emphasize the ingredients or strength of the mixture, or the variations which may be necessary, but to insist that enough must be given to satisfy the infant. The easiest way to make sure of this is to put enough of the mixture in the bottle, let the baby have it from twenty to thirty minutes (the hole of the teat being of a suitable size), and then take it away. If a baby finishes every bottle it is fairly certain that he is not having enough. A baby, like an adult, takes more at one meal than another, and it therefore follows that there should be something left in some of the bottles. I have found that the actual quantity varies very much, as one would expect—a 10 lb. baby takes more food than a $6\frac{1}{2}$ lb. baby, as a rule, though not always. Some babies are quite content on the stereotyped allowance of $1\frac{1}{2}$ oz. for the first week and 2 oz. for the second; others need much more. In the second week it is common for a baby to require quite 3 oz. in some of its feeds, notably in those following a long sleep. If a baby gets nine feeds in the twenty-four hours with an average of $2\frac{1}{2}$ oz. a feed he will get 22½ oz. in all. This is not an uncommon amount for an 8 lb. or 9 lb. baby to take, but some will require even more, others rather less.

Many doctors would object that by this method the baby would be grossly overfed, but I contend that it is difficult

to overfeed a baby, provided the strength of the mixture is right, the hole in the teat is not too large, and the baby is not allowed to suck too long. A baby at the breast takes as much as he wants, and only leaves off when he is satisfied; a baby at the bottle should do the same. If a breast-fed baby gets a little too much he regurgitates the surplus quite easily; a baby at the bottle does just the same. I would even go so far as to suggest that if a baby does not occasionally bring up a little food he is not getting enough to eat.

Unfortunately there is a school that teaches that the correct way to feed an infant is to give it a limited amount of food at three or even four hourly intervals. Most textbooks recommend intervals of about two hours, but nearly all lay down the exact amount of food to be given at each feed, even to within $\frac{1}{2}$ or $\frac{3}{4}$ oz., which to my mind is absurd. In two works a rational method is advocated: Hutchison and Stanfield Collier's *Index of Treatment* recommends that the baby be allowed to suck until he is satisfied, as he will easily regurgitate any surplus, but the amount of food is not mentioned. Tweedy and Wrench give the quantity of from 1 to 3 oz. at two-hourly intervals; this variation seems to me sound.

It is true that the infant mortality has much decreased of late years, but this, I suggest, is not due to the system of starvation, but to the general introduction of regular feeding, cleanliness, and the better mixture of the food. The system of long intervals and limited feeds is being advocated at many infant welfare centres, and I fear it will bring discredit on them, for the mothers will find that babies fed in this manner do not do so well as others, and that the plan often has to be abandoned.

A fitting judgement on those who condemn infants to be fed at such long intervals on such small quantities would be for them to live the rest of their lives in a small house with a succession of such babies and listen to their pitiful cries by day and by night.

TREATMENT OF EARLY SYPHILIS.

BY

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It is necessary in treating early syphilis to have a definite system of work, and to keep records for a stated term before making any deductions.

Mercury alone can cure many cases of syphilis if persisted in for a sufficiently long time, but it is questionable if a course of less than two years is of any value at any stage of the disease.

With salvarsan and its alternatives, however, the term of active treatment can be greatly shortened, and in the very early stages of the infection the disease can be aborted, although it may be advisable to keep the patient under observation for two years.

The following observations are made from the standpoint that a positive reaction is indicative of syphilis in its secondary stage, and that the disappearance of the positive reaction for six months after treatment with mercury has been discontinued is evidence of cure. These views are easily open to controversy, but I have not seen a case of secondary syphilis—which has not had any treatment—give a negative reaction; nor have I seen a case of secondary syphilis which gave a negative reaction for six months after treatment with mercury and salvarsan was discontinued again develop a positive blood test, unless reinfect.

In the scheme I suggest the terms "primary" and "secondary" are interpreted not according to clinical signs but according to the blood test.

Primary or Pre-positive Stage.

This stage extends from the date of infection until the blood test becomes positive. The length of this stage is variable, depending on many factors, such as the virulence of the infection, the resistance of the individual, and the delicacy of the test. I would put it at less than six weeks. In secondary syphilis the blood test has become positive though the clinical signs may not have appeared.

Course of Treatment of Primary Syphilis.

(Neokharsivan, novarsenobillon, or galyl given by intravenous injection; mercury by intramuscular.)

Day.	N., or NAB.	or Galyl.	Mercury.
First (consultation) ...	—	—	gr. j
Second	0.45 gram	0.25 gram	—
Ninth	0.45 ..	0.25 ..	gr. j
Sixteenth	0.6 ..	0.30 ..	gr. j
Twenty-third	0.6 ..	0.30 ..	gr. j
Thirtieth	0.75 ..	0.35 ..	gr. j
Thirty-seventh	0.75 ..	0.35 ..	gr. j
Forty-fourth	0.9 ..	0.40 ..	gr. j
Fifty-first	0.9 ..	0.40 ..	gr. j

N. = Neokharsivan. NAB. = Novarsenobillon.

This constitutes a course, but if the patient can stand two further weekly injections of mercury I prefer to give them. Local inunction of calomel ointment is ordered for the chancre.

At the end of five weeks potassium iodide gr. x is given three times a day for a week, and a blood test performed. If this is negative another test is performed twelve weeks later, and if this is negative the case is looked on as cured.

In many very early cases this course may be too long, but for the bulk of cases it is good, and from it satisfactory results may confidently be anticipated.

Secondary Syphilis.

In this stage it must be presumed that a profound change has taken place in the patient, and consequently the prognosis is not so good, and the treatment must be correspondingly lengthened. The course advocated for primary cases is given, and at the end of six weeks, if the blood test is negative, a second course of six weekly injections of mercury gr. j is given. This is followed by three similar courses at intervals of eight, ten, and twelve weeks. If the reaction is negative twelve weeks after the fifth course, a wait of another twelve weeks is enjoined before another test is performed. If this is negative the patient is looked on as cured. The idea by which the scheme is inspired is to nurse the case towards a six-month negative blood test.

The total length of time that a favourable case of secondary syphilis is under observation is seventy-four weeks, during which there are thirty weeks of active treatment.

The object of giving potassium iodide at the end of a definite time after the mercury is that I think it gives a better chance of getting a positive blood reaction. This may or may not be so, but I do not believe that iodide can render the reaction negative, as I have seen cases of obstinate tertiary palmar and plantar lesions in which iodide has been given for very long terms still show a strongly positive reaction.

The iodide is not given immediately the mercurial course is finished, as I have seen cases which stood the mercurial injections well develop mercurial poisoning when the iodide was given too early. The drugs used for intravenous injection have been galyl, neokharsivan and novarsenobillon. So far as I am able to judge, the results have been pretty much the same with all these preparations. Novarsenobillon is the most readily soluble and can easily be given with a syringe. Should any of the solution get into the subcutaneous tissues the pain—which is slightly delayed—is very acute. What I mean by "slightly delayed" is that the swelling caused by the effusion of the solution is noticed for some minutes before the patient complains. The subsequent reaction of the tissues is very great. The local effects of slight effusion of galyl and neokharsivan are not so great. Galyl, in the earlier days, was not readily soluble and did not appear to be always uniform in composition, that is, judging by the look of the solution, but this seems to have been remedied in the later preparations. Mercury emulsions of 10 per cent., 20 per cent., and 40 per cent. have been used.

I find that private patients bear intramuscular injections of mercury better than hospital cases, and in the latter class miners and footballers often complain so bitterly that