It seems as if extremely small doses are usually adequate. Profiting by earlier painful experiences (Meulengracht, 1933)—there an attempt was made to cut down the dose and to individualize it—it was felt to be more rational that the dose should be fixed in excess of what is absolutely needed, so that each patient might be covered and protected against unpleasant surprises in the form of incomplete compensation of the anaemia or a myelopathy attack.

Since the economic factor is less important than hitherto, I would recommend, as a result of the experiences here recorded, that the initial dose in fresh cases be fixed at two capsules three times daily, but the maintenance dose has yet to be fixed by further experiments.

With regard to the plan of dosage, I have endeavoured to give these between meals in order not to mix up the small quantities involved with a large meal; but whether this is reasonable and appropriate I honestly do not know, for there is no evidence in favour of this procedure, and I cannot conclude anything definite from my own experiments.

Summary

It has been shown that even very small doses of dried pyloric mucosa from the pig's stomach given alone exert a definite but, in comparison with Bethell and Goldhamer's and Schiødt's standards, slight anti-anaemic effect.

It has also been demonstrated that the same very small amounts of pyloric mucosa, when combined with vitamin B₁₂ in quantities which in themselves are inactive when given orally, exert a strong anti-anaemic effect which is practically the same as the standards referred to.

A commercial preparation, cycoplex mco, in daily dosage of 0.15 g. of dried pyloric mucosa and 15 µg. of vitamin B₁₂, exerts a strong anti-anaemic effect which corresponds to the standards cited. In the routine treatment of pernicious anaemia patients, in order to be well on the safe side, a dosage is recommended which corresponds to 0.3 g. of dried pyloric mucosa and 30 µg. of vitamin B₁₂ for the initial doses. The maintenance dose has yet to be fixed.

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The "Odlum Fund," recently set up by the National Association for Mental Health through the generosity of Dr. Doris Odlum and others, is to be used as a permanent fund for the production of pamphlets by the association. The fund, which amounts to about £1,000, will enable the association to consider the possibility of publications without reference to its general finances. In its annual report for 1952-3 the association states that its financial position, extremely serious at the beginning of the year, has now greatly improved. The report gives a short account of considerable and varied activities. An inquiry into the necessity for a change in the law for dealing with aggressive psychopaths has reached the stage where discussions with the Home Office are imminent. In the case-work department the number of advisory cases referred during the year was 1,650.

DOMICILIARY OBSTETRICS*

A SURVEY AND COMMENTARY

BY

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Domiciliary midwifery is gradually diminishing in spite of the ample evidence that good results are compatible with a high proportion of domiciliary deliveries. Delivery in hospital is no panacea, and is expensive. It may be that for the same expenditure better results can be obtained by improving the domiciliary services than by expanding maternity hospitals, for the former make greater use of the patient's own resources; but it is difficult to say how improvements could be made, or how cases should be selected for hospital delivery, for the literature relating to domiciliary work is very small.

This survey is a superficial study of 4,441 births, with the primary object of collecting information on which can be based the selection of cases for hospital delivery so that the remainder will consist of those who can be delivered at home in reasonable, if not absolute, safety. It is also intended to indicate the type of obstetrical problem likely to be met in general practice, and to show whether maternity cases may safely be supervised by a practitioner who has consultant support but no post-graduate experience.

Material

The patients of a general practitioner with a list of 2,500 (rather more than average) will produce only about 40 babies a year. Approximately half will be born in hospital, and some of the remainder may be attended entirely by midwives. It is evident that a general practitioner cannot study domiciliary midwifery effectively in his own practice alone, for on an average he would take ten years to accumulate records of 150 cases. Therefore, in addition to a small personal series, two much larger groups have been studied, the survey con-

TABLE I.—Number of Primiparae and Multiparae in Each Group, and Place of Delivery

	Domiciliary			Hospital			Nursing-home		
	Prim.	Mult.	Total	Prim.	Mult.	Total	Prim.	Mult.	Total
Personal	15	85	100	16	28	44	19	5	24
City	365	1,119	1,484	892	897	1,789			
County	176	824	1,000						
Total	556	2,028	2,584	908	925	1,833	19	5	24

sisting of (1) 168 confinements of patients of a general practitioner between 1946 and 1952; (2) 3,273 confinements of residents in a city in 1949, 1950, and 1951, either at home or in hospital; and (3) 1,000 domiciliary deliveries in the surrounding district but outside the city boundary in the early months of 1952.

These three groups are called "personal," "city," and "county" cases respectively. The inclusion of hospital and nursing-home cases (Table I) makes it possible to study domiciliary cases in relation to the group from which they were selected, and to consider all the cases for which a general practitioner could assume responsibility.

*A revised version of the Sir Charles Hastings Clinical Prize essay for 1953.

Obstetrics in a Community

The city series consists of almost all births, at home or in hospital, to residents in the City of Gloucester over a period of three years. As it includes 97.4% of all births to city residents, and also 97.1% of all stillbirths and neonatal deaths, it is believed to give a true account of obstetrics in that area, a community of about 67,000 inhabitants.

Supervision of the majority of the 1,484 domiciliary deliveries was carried out by midwives, for practitioners arranged in advance to attend only 242, representing 29.8% and 11.8% respectively of those primiparae and multiparae who were delivered at home. Medical aid was requested during pregnancy, labour, or the puerperium in 26% of all cases.

TABLE II.—*Total Numbers of Certain Types of Case in the City Group, and the Proportions Delivered at Home*

Type of Case	Total No. of Such Cases	Delivered at Home	
		Cases	% of Total
All deliveries	3,273	1,484	45.3
Multiple pregnancy .. .	39	16	41.0
Stillbirth	69	30	43.4
Neonatal death	69	29	42.0
Babies under 5½ lb. (2.5 kg.) ..	219	93	42.4
Mature stillbirth or neonatal death	62	20	32.2
Ante-partum haemorrhage .. .	29	6	20.2
Post-partum	95	32	33.6
Manual removal of placenta ..	47	8	17.0
Primiparae	1,257	365	29.0
Primiparous forceps	102	32	31.3
" breech	43	7	16.2
" episiotomy	168	28	16.6
Multiparae	2,016	1,119	55.5
Multiparous forceps	15	11	73.3
" breech	68	24	35.2
" episiotomy	40	4	10.0

Selection of cases for home delivery, shown in Table II, was, of course, dependent on the force of circumstance and the whims of the patient, as well as on the advice of the attendants. It seems that primiparae and breech presentations were to some extent selected for hospital delivery, but the district took almost its full proportionate share of twins and premature deliveries, and, perhaps in consequence, of stillbirths and neonatal deaths. It is axiomatic that a high foetal risk necessitates delivery under the best possible conditions, and it appears that, although over 50% of deliveries took place in hospital, too many cases in which the baby was in danger were delivered at home. If, however, it had been possible to arrange for all premature babies to be delivered in hospital, the number of babies lost after delivery at home would have been reduced from 59 to 20, a combined stillbirth and neonatal death rate of only 14.2 per thousand.

Table II also shows that only a small proportion of the cases having episiotomies were delivered at home. As the types of case needing forceps delivery and episiotomy are very similar the relatively low proportion of the latter on the district is likely to be due to management rather than to case selection.

The additional 1,000 domiciliary deliveries collected from the county of Gloucestershire include abnormalities in proportions similar to those in the city series, except that the proportions of premature birth, stillbirth, and neonatal death were lower, presumably owing to case selection. Primiparae had apparently been selected for hospital delivery on a rather larger scale, for only 17.6% of the deliveries were primiparous, compared with 24.5% of the city domiciliary cases. Of the county cases, 3% had been induced, either medically or surgically; 30.2% had blood examinations during pregnancy;

and 2.8% were admitted to hospital after delivery, half of them for either prematurity or post-partum haemorrhage. The proportion of domiciliary deliveries attended by a doctor, either by prearrangement or in response to calls for medical aid, was 15.6%.

Obstetrics in a General Practice

The personal series consists of the booked maternity cases from a practice rather larger than average, over a period of six years. During that time there were 168 cases booked for delivery under the practitioner's care, either at home or in nursing-homes or hospital, the last being possible only during a period of clinical assistantship and relating to 29 patients. Fourteen patients developed abnormalities and had to be transferred to a hospital where they could not remain under the practitioner's direct supervision, but they have not been excluded from the series on that account. It follows that some forceps deliveries, surgical inductions, and the like were not performed personally.

The average number of antenatal examinations was 8.3, and the two most common abnormalities during pregnancy were breech presentation and hypertension (over 140/90 mm. Hg), with 18 and 14 cases respectively. There were six cases of retroverted gravid uterus, five being corrected by the insertion of a large rubber ring as recommended by Sinclair (1900), and the sixth bimanually. Other abnormalities were multiple pregnancy 3, thrush vaginitis 4, trichomonas vaginitis 1, pyelitis 2, fibroids 2, pelvic tumour (a retroperitoneal fibrolipoma) 1, mitral stenosis 1, anaemia (Hb below 70%) 4, and ante-partum haemorrhage 4. It is notable that there were only two cases of pelvic contraction and that both patients were born prior to the 1914-18 war.

Consultations.—Consultant opinion is easily obtainable either at local clinics or, when necessary, in the home, and there were 33 consultations, for the following reasons: suspected multiple pregnancy 5, breech presentation 2, high head at term 6, toxæmia 4, post-maturity 5, previous obstetric history 4, and 1 each for pelvic tumour, mitral stenosis, retroverted gravid uterus, recurrent pyelitis, deficient perineum, vulval varices, and uterine inertia.

Transfers to Hospital Before Delivery.—Fourteen of the 114 domiciliary and 1 of the 24 nursing-home bookings were transferred to hospital. The principal reasons were collapse of domestic arrangements, and toxæmia, which accounted for two cases each; with one each for uterine inertia, premature labour, mitral stenosis, ante-partum haemorrhage, contracted pelvis, deficient perineum, pelvic tumour, unstable lie, vulval varices, triplets, and suspected diabetes. The cases of unstable lie and triplets account for three of the six babies lost in the whole series so that before labour began it was possible to arrange hospital delivery for half the babies so destined. Of the other three, one was a premature stillbirth, labour being so rapid that transfer was impossible, and the remaining two had gross deformities.

Difficult Cases Delivered at Home

There were, in addition to the cases transferred to hospital, 24 domiciliary or nursing-home cases which were actually or potentially difficult, some of which were the subject of consultation as above. There were nine in which it was decided that a surgical induction was necessary (Table III), and it was decided with some reluctance to deliver one breech and two sets of twins at home. All these could, of course, have been transferred to hospital, or induced at hospital and returned home for delivery. In fact, all but one had uneventful deliveries, the exception being a twin delivery which produced an intra-partum haemorrhage due to premature separation of the first placenta. It was possible to extract the second baby quickly, and a transfusion was not necessary at the time, but a pint (570 ml.) of blood was given during the puerperium.

Two cases of ante-partum haemorrhage were not transferred to hospital. One was a loss of about 4 oz. (110 ml.) at low membrane rupture for post-maturity, but labour

TABLE III.—*A General Practitioner's Booked Maternity Cases Between 1946 and 1952. Details Relating to Labour and Delivery*

	Place of Delivery		Total
	Home or Nursing-home	Hospital	
Total deliveries	124	44	168
Primiparae	34	16	50
Multiparae	90	28	118
Deliveries attended	106	17	123
Total babies born	126	46	172
Babies under 5½ lb. (2.5 kg.)	2	8	10
Stillbirths	1	0	1
Neonatal deaths	2	3	5
Analgesia:			
Pethidine			84
Gas and air			60
Chloroform			7
Trichlorethylene			92
Induction of labour:			
Medical	25	8	33
Surgical	9	10	19
Uterine inertia	0	2	2
Forceps delivery:			
Primiparae	3	2	5
Multiparae	0	0	0
Breech delivery	1	2	3
Face presentation	1	0	1
Spontaneous P.O.P.	3	1	4
Episiotomy	16	9	25
Perineal tear	35	11	46
Intra- or post-partum haemorrhage	5	2	7
Manual removal	1	0	1
Blood transfusion	3	0	3
Pulmonary embolus	1	0	1
General anaesthesia	5	2	7

started at once and delivery was normal. A second patient lost 1 oz. (28 ml.) at 35 weeks, at a time when she had raised blood pressure. This subsided completely with rest, and she went to term without further loss.

There were three persistent occipito-posterior cases, but all were multiparae, and two delivered themselves easily before the diagnosis was made. The third succeeded after an episiotomy.

Three post-partum haemorrhages were relatively slight and were controlled by ergometrine. The fourth followed a manual removal at which a combination of chloroform and amyl nitrite was used, and the uterus became so atonic that there was heavy loss. No fluid was necessary at the time, but a transfusion was given during the puerperium. The patient could have gone to hospital for the manual removal, but was dealt with at home at her own request.

Finally there were three forceps deliveries. In two cases the head was on the perineum, and in the third only a little higher, and the occiput was anterior in all three. All were fairly easy extractions; but one patient, who had a mild pyrexia for most of the first week, had a small pulmonary embolus on the 18th day, after she had been getting up for a week. Apart from a baby with haemolytic disease whose rhesus-negative mother had been labelled positive, this was the only patient admitted to hospital after delivery, and she was not too upset by the experience to have another baby, normally, two years later.

Post-natal Examination

At post-natal examination, which since the introduction of an appointment system has been attended by 98% of patients, it was noted that failure to restore the perineum completely occurred once in four cases after a tear, but only once in eighteen after an episiotomy. The two primiparae with stress incontinence (Table IV) both had episiotomies, for forceps and breech delivery respectively, and both regained con-

TABLE IV.—*Abnormalities Noted at Post-natal Examination Six Weeks After Delivery*

	Total Exams	Cervical Erosion	Pro-lapse	Deficient Perineum	Stress Incont.	Retro-version	Hyper-tension
Primiparae	43	2	6	7	2	6	7
Multiparae	99	4	13	17	5	20	3
All cases	142	6	19	24	7	26	10

trol after faradism. During the two and a half years for which records have been kept of the number of babies entirely breast-fed at the time of post-natal examination, the proportion has been 77.2% and 55.5% for primiparae and multiparae respectively.

Forceps Delivery

The forceps rates shown in Table V illustrate the well-recognized difference between primiparae and multiparae, the rates being 1 in 10 and 1 in 128 respectively. The caesarean section rate in the area is 1.06%.

TABLE V.—*Forceps Rates, and the Number of Babies Lost After Forceps Delivery*

	Primiparae				Multiparae			
	Total Cases	Forceps Cases	Rate %	Babies Lost	Total Cases	Forceps Cases	Rate %	Babies Lost
Personal series	50	5	10.0	2	118	0	0	0
City and county domiciliary cases	541	55	10.1	4	1,943	19	0.9	1
All city cases	1,257	102	8.1	9	2,016	15	0.7	1

It would be useful to be able to predict the probability of a forceps delivery either before the end of the first stage of labour or, better still, during pregnancy. Table VI, which refers only to the primiparae of the county series, shows what would have been the effect on the number of primiparous forceps deliveries at home if certain groups of these patients had been selected, either before the onset of labour or during the first stage, for delivery in hospital.

TABLE VI.—*The Probable Effect on the Number of Primiparous Forceps Deliveries at Home if Certain Groups of Those Patients Delivered at Home Had Been Transferred to Hospital for Delivery*

If the Types of Patient Below had been Transferred to Hospital for Delivery	The Total Number Transferred Would Have Been	The Number of Primiparous Forceps Deliveries	
		Among Those Transferred	Among Those Remaining at Home
All primiparae	176	23	Nil
Primiparae over age 30	12	6	17
Primiparae "with" delayed 1st stage:	6	3	20
Over 24 hours	20	8	15
36 " "	8	4	19
Primiparae over age 30 or with 1st stage over 24 hours	30	12	11

The admission of all primiparae shows a poor return for the number of beds taken up. Each of the other groups has a forceps delivery rate of more than 1 in 3, and there seems to be a good case for recommending hospital delivery for primiparae over 30 years of age, and for those not fully dilated after 24 hours in labour, if it is desired to avoid forceps delivery at home. But the home rate would not have been reduced below 1 in 15, and the only patient who lost her baby would still have been delivered at home.

Table VII refers to the domiciliary cases in the city series, and compares the forceps delivery rates and the length of

TABLE VII.—*Comparison of Forceps Rate and Average Length of Second Stage in Forceps Cases, in Maternity and Midwifery Cases in the City Domiciliary Series*

	Primiparae				Multiparae			
	Total Cases	Cases	Rate %	Average 2nd Stage	Total Cases	Cases	Rate %	Average 2nd Stage
Maternity cases	109	19	17.9	1 hr. 53 min.	133	5	3.7	1 hr. 35 min.
Midwifery cases	256	13	5.0	3 " 16 "	986	6	0.6	2 " 21 "

the average second stage in "maternity" and midwifery cases, maternity cases being those in which a practitioner had arranged in advance to attend the delivery.

In comparison with that for midwifery cases, the forceps rate for maternity cases is more than three times as high for primiparae and six times for multiparae. Even when allowance is made for the time taken to call a doctor, $3\frac{1}{4}$ hours is long for the average second stage, and the extreme was 5 hours 40 minutes.

In addition to the long second stages ending in forceps delivery, there are many ending in normal birth, and the number of second stages exceeding various lengths has been determined in the primiparae of the county series, being shown in Table VIII.

TABLE VIII.—*Showing the Number of Patients, out of the 176 Primiparae of the County Series, Whose Second Stage of Labour was Prolonged, and the Number Eventually Delivered with Forceps*

	Length of Second Stage of Labour in Hours				
	2 or More	2½ or More	3 or More	4 or More	5 or More
Total cases	44	32	23	9	3
Forceps deliveries .. .	20	18	14	4	0

Many would think it unwise to tolerate a high proportion of long second stages, and, even without resorting to a high forceps rate, it may be unnecessary to do so. Table IX compares the primiparous forceps and episiotomy rates, and the proportion of primiparae having second stages of over three hours and four hours in the county series, with the corresponding figures for personal cases; it appears that a large proportion of long second stages can be eliminated by episiotomy.

TABLE IX.—*Comparison of Forceps and Episiotomy Rates in Primiparae of the Personal and County Series, Showing the Proportion of All Cases Having a Long Second Stage*

	Forceps Rate %	Episiotomy Rate %	Length of Second Stage	
			Over 3 Hours	Over 4 Hours
County cases .. .	13.0	7.4	13.0%	5.1%
Personal cases .. .	10.0	36.0	2.0%	Nil

It is possible that some of the forceps deliveries might also have been eliminated by preliminary episiotomy, for Table X shows that an episiotomy was carried out in less than one domiciliary forceps delivery in four.

TABLE X.—*Condition of Perineum After Forceps Delivery at Home*

	Forceps Deliveries	Condition of Perineum			
		Intact	Episiotomy	Tear	Third-degree Tear
Primiparae	55	16	15	24	4
Multiparae	19	9	2	8	0
All cases	74	25	17	32	4

Suturing was avoided in only 25 cases out of 74, and at a cost of four third-degree tears. This alone seems too high a price to pay; in addition there is the greater difficulty of repairing tears as compared with episiotomies, and there may be concealed vaginal lacerations and stretched levatores ani in those cases in which the perineum is intact. Four primiparae and two multiparae were delivered face to pubes without episiotomy, but as these account for only one of the third-degree tears it is not enough to perform the episiotomy only when the baby is so delivered. It appears that episiotomy is a desirable preliminary to most if not all forceps deliveries, and, performed before an anaesthetic is given in those cases in which the head is on the perineum, it may make forceps delivery unnecessary.

Breech Presentation

Breech delivery can be foreseen and, to a great extent, prevented. The domiciliary obstetrician can, if he chooses, reduce the breech delivery rate to very small proportions, and he can arrange in advance for the inevitable cases to be delivered in hospital. This survey includes 51 breech deliveries at home, with the loss of 23.5% of the babies. Not all were lost as a result of breech delivery itself, but, after excluding all babies weighing less than $5\frac{1}{2}$ lb. (2.5 kg.) and all in whom there was an obvious cause of death other than breech delivery, the percentage loss remains formidable, and is shown in Table XI, where it is compared with results obtained in hospital.

TABLE XI.—*Proportion of Babies Lost, Either by Stillbirth or Neonatal Death, Following Breech Delivery, After Eliminating all Babies Weighing Less than $5\frac{1}{2}$ lb. (2.5 kg.) and All in Whom There Was an Obvious Cause of Death Other Than Breech Delivery*

	Corrected Loss %		
	Primiparae	Multiparae	All Cases
Domiciliary cases .. .	25.0	10.2	13.7
Hospital .. .	11.1	9.0	10.0

These figures suggest that there would still be a very considerable mortality after breech delivery if all such cases were delivered in hospital. Cox (1950) has shown that the mortality for mature babies after breech delivery can be much lower than this, but the figure of 5.2%, extracted from his findings, may not be universally attainable, for it related to a centre dealing with a large number of cases, and involved a caesarean section rate of 12.4%. A low mortality in a small centre might be dependent on a high breech delivery rate to provide the staff with enough practice in breech delivery, and this would tend to cancel the gain due to a lower mortality. It does not appear that the problems of breech delivery can be solved merely by the transfer of cases to hospital.

In the personal series, version was performed whenever a breech presentation was diagnosed after the 30th week, and there were only two inevitable breech deliveries—a rate of 1.19%. Abercrombie (1952) performed version as soon after the 30th week as he felt that it was becoming difficult, and had only two breech deliveries in 249 cases. Dalley (1952) quotes a series of 576 booked cases in which early version resulted in a breech delivery rate of 0.86%. If the breech delivery rate in the city had been reduced to 1%, the number of babies lost would probably have been halved, allowing for the mortality of version. Since this would achieve the same saving in babies' lives, without the risks of a caesarean section rate of 12.4%, as would reduction of mortality to Cox's figure, it suggests that the primary aim in a small centre should be not the reduction of mortality but the elimination of breech delivery itself.

The Perineum

It is difficult for the general practitioner to observe a large number of normal primiparous deliveries, because the number delivered at home is small, and before 1948 he could attend normal cases only if the patient could afford to pay private fees. Table XII records the fate of the perineum in all the personally observed normal primiparous deliveries during a period of six years, including a few not qualified for inclusion in the personal series. These cases can be

TABLE XII.—*Fate of Perineum in 40 Personally Observed Normal Primiparous Deliveries*

No Delay on the Perineum			Delay on the Perineum		
Intact	Tear	Episiotomy	Intact	Tear	Episiotomy
10	16	2	0	2	10

divided into three groups: (1) no undue delay and an intact perineum, 25%; (2) no undue delay but a torn or incised perineum, 45%; and (3) delay on the perineum, 30%.

The delay in most of the cases having an episiotomy for delay was very considerable, for many date back to a time when episiotomy was used reluctantly. In retrospect it is thought that at least one, and possibly two, of the forceps deliveries in the personal series could have been avoided if an incision had been made before the patient and the uterus had become too exhausted to make full use of it. If this is correct, second stages of over three hours could have been eliminated from the personal series, at the same time reducing the primiparous forceps rate to 6%. These results suggest that nearly one-third of primiparae need episiotomy to avoid delay on the perineum, and to avoid the forceps delivery that may result if the perineum resists until the patient and the uterus are exhausted.

Table XIII shows tear, episiotomy, and suture rates in cases having a normal delivery. Episiotomy was rarely used in the absence of a doctor, and in multiparae the absence of a doctor reduced the incidence of recorded tears by nearly a half, although it is likely in all cases, and quite certain in the personal ones, that the actual delivery was almost invariably controlled by the midwife.

TABLE XIII.—*Fate of Perineum in Normal Domiciliary Deliveries, Showing Effect of the Presence of a Doctor*

	Primiparae			Multiparae		
	Tear Rate %	Episiotomy Rate %	Suture Rate %	Tear Rate %	Episiotomy Rate %	Suture Rate %
County and city cases:						
Doctor present	38.7	14.4	53.1	25.6	2.2	27.9
Doctor not present	34.1	3.0	37.1	13.3	Nil	13.3
Personal cases	36.3	27.2	63.5	25.6	5.1	30.7

Post-partum Haemorrhage

The post-partum haemorrhage rate in domiciliary cases varied with parity, being 2.6% for primiparae and 6.9% for patients with a parity of five or more. A much greater difference, however, is that between normal and forceps deliveries (Table XIV), possibly due to the use of chloroform, which, in the city series, was certainly used in 67% of forceps deliveries, and possibly in 87%.

TABLE XIV.—*Post-partum Haemorrhage Rate in Domiciliary Cases, Showing the Difference Between Forceps Deliveries and Normal Deliveries*

	Total Cases	Post-partum Haemorrhage	
		Cases	Rate %
All deliveries	2,484	70	2.8
Forceps deliveries	74	10	13.2
All deliveries, excluding forceps	2,410	60	2.4

Lister (1950) suggested that the use of ergometrine at the end of the second stage should be practised only under hospital conditions, where team-work is possible. To explore the possibility of using it routinely in domiciliary work, the intention recently has been to give it to all cases in the personal series. Over a series of 48 consecutive domiciliary deliveries it was found possible to give an intravenous injection between the time of head crowning and of birth of the anterior shoulder in 64%; it is considered that, after elaborating a routine and working with the same midwife, the proportion could be raised to 80%. In domiciliary practice, where blood transfusion is not readily available, it is particularly important to prevent post-partum haemorrhage, and there is no doubt that the use of intravenous ergometrine is a great advance in this direction. If it cannot be given in all domiciliary cases it seems most important to make the attempt in all cases of forceps delivery, and in all those with a parity of five or more.

Hypertension in Pregnancy

Hypertension has been studied only in the personal series in which patients were normally examined monthly from the time of booking up to 32 weeks, at 34 weeks, at 36 weeks, and then weekly until delivered. Where necessary, several readings were taken to eliminate labile pressures. The cases

TABLE XV.—*Hypertensive Patients of Personal Series Divided Into Three Groups According to Highest Pressure Reached in Late Pregnancy. Bracketed Figures Show the Number Developing Albuminuria*

	Total Cases	Highest Pressure Recorded in Late Pregnancy		
		Between 130/85 and 140/90	Between 140/90 and 150/100	150/100 and Over
Primiparae	50	9 (0)	7 (4)	7 (5)
Multiparae	118	7 (1)	7 (2)	1 (1)

have been divided into three groups according to the highest stable pressure recorded in late pregnancy (Table XV): 14% of primiparae and only 1% of multiparae qualify for the highest group, which is 87% primiparous, confirming the higher incidence of toxæmia in primiparae. In 46% of primiparae a pressure of 130/85 occurred at some time during late pregnancy, and 18% developed albuminuria.

Of the first six primiparae in the personal series, two developed toxæmia severe enough to require admission to hospital and premature induction, both having a considerable amount of albumin. In retrospect it was thought that insufficient attention had been paid to slight early rises of pressure in these cases, and since then the following regime has been instituted.

Stage 1.—Blood pressure over 120/80. No work except light household duties. Rest from 2 to 3 p.m. Bed at 9 p.m.

Stage 2.—Blood pressure over 130/85. As Stage 1, but bed until 10 a.m. Rest from 2 to 4 p.m. Phenobarbitone, $\frac{1}{2}$ gr. (32 mg.) three times a day.

Stage 3.—Blood pressure over 140/90. Complete rest in bed. Phenobarbitone 1 gr. (65 mg.) three times a day.

This regime has been varied a little to suit individual cases, according to parity, age, the lowest pressure recorded in mid-pregnancy, and the presence of albumin or oedema. It has not prevented 45% of primiparae from developing a pressure of 130/85 or more, and 25% have required rest in bed. Four (9%) eventually passed the 150/100 level, but only two needed induction before term. There were no babies under 6 lb. (2.7 kg.) in weight, and none appeared to be in real danger on account of toxæmia. The number of cases is, of course, so small that a similar result might well have been obtained by chance.

Induction of Labour

McKiddie (1949), using figures for Aberdeen, showed that the stillbirth rates for patients delivered in the second, third, and fourth weeks after term were about 1 in 60, 1 in 30, and 1 in 15 respectively. The neonatal death rates were unaffected. McKeown and Gibson (1951) showed that the stillbirth rate in Birmingham in 1947 was 11.5 per thousand for babies born in the 41st and 42nd weeks, and 25.5 for babies more than two weeks post-mature.

In the personal series the policy has been to induce at about two weeks after the expected date, if that seemed reliable. In addition, patients with a raised blood pressure were rarely allowed to go past term. This has led to a very high induction rate, and the proportion of patients successfully induced was 21.4% (Table XVI).

For post-maturity 13% of all patients were induced, and for toxæmia 16% of primiparae and 1.7% of multiparae. There was only one stillbirth in the whole series, this baby being five weeks premature and not induced. Only one baby was lost after induction, this being the neonatal death of a post-mature monster.

The results so far recorded in this small series do not indicate the need for a change in the policy regarding in-

TABLE XVI.—*Medical and Surgical Induction in Personal Series*

	Total Cases	Medical Induction			Surgical Induction	Induction Rate (Successful Cases Only)
		Total	Failed	Successful		
Primiparae	50	14	4	10	10	40.0%
Multiparae	118	19	12	7	9	13.5%
All cases . .	168	33	16	17	19	21.4%

duction, but a simple calculation based on McKeown and Gibson's figures shows that, if the average general practitioner eliminates post-maturity of more than two weeks' duration from his domiciliary practice, he will save the lives of only 1.5 babies in his lifetime.

Stillbirths and Neonatal Deaths

McKeown and Gibson (1951), who investigated all births in the City of Birmingham in 1947, suggested that babies born more than four weeks before the expected date should be delivered in hospital whenever possible. They showed that such babies had a collective mortality of 1 in 3, but the mortality for babies born in the 36th and 37th weeks was 150 and 94 per thousand respectively. This suggests that, for babies born prematurely, a dividing line between suitability for hospital and home delivery might be placed at an expected mortality of 100 per thousand. The line would not necessarily be at the same level for other types of case, for the difference in the relative safety of hospital and home delivery may vary. It would, for instance, be very considerable for a primiparous breech delivery, and almost non-existent for a normal patient having her second baby. It has not been possible in this survey to attempt to compare the results of hospital and home delivery of identical cases, but Table XVII shows the total mortality, stillbirths, and neonatal deaths together, for certain types of patient and for certain abnormalities.

TABLE XVII.—*Total Mortality, Stillbirths, and Neonatal Deaths Together, for Certain Types of Patient and for Certain Abnormalities*

	Babies Lost per 1,000 Births	
	All Domiciliary Cases	All City Cases
All first births	45.7	52.7
" other	29.5	34.7
Babies over 5½ lb. (2.5 kg.):		
First births	17.9	26.7
Other	14.9	16.0
Forceps deliveries:		
All cases	67.5	85.4
First births	72.7	88.8
Breech deliveries:		
All cases	235.2	207.2
First births	250.0	232.5
Over 5½ lb.	139.5	144.3
Multiple births:		
All cases	229.1	191.5
Over 5½ lb.	100.0	111.1
All babies under 5½ lb. . .	330.8	347.0

Many of these groups are composite, and, if the total numbers had been large enough, might have been broken down into smaller groups with varying mortalities. For instance, twins in a multipara, if both were presenting by the vertex and were expected to be over 5½ lb. (2.5 kg.), might be expected to have a mortality appreciably lower than 100 per thousand. With such reservations, it seems that all breech, multiple, and premature deliveries should take place in hospital. First births, however, if the baby is mature, are relatively so innocuous that it seems ridiculous to suggest that primiparity alone is a reason for hospital delivery, for the rate for those at present selected for home delivery is at the low figure of 17.9 per thousand, and is only 3 per thousand higher than the corresponding figure for multiparae.

The General-Practitioner Obstetrician

When the National Health Service was introduced the conception of the general-practitioner obstetrician appeared

to be one who had postgraduate experience of obstetrics, examined his patients at 12 weeks, 36 weeks, and 6 weeks after delivery, and, apart from that, merely attended abnormal cases at the request of the midwife. By and large, unless his midwives are exceptional, this type of practitioner will not see anaemia of pregnancy in time to cure it without transfusion, hypertension in its earliest stages at a time when it may be possible to prevent serious toxæmia and to avoid premature induction, breech presentation in time for early version, or multiple pregnancy in time to advise on the avoidance of premature labour. Post-maturity will not be eliminated, his primiparae and their foetuses will endure unnecessary hours of the second stage, little will be done to prevent post-partum haemorrhage, and the vulval orifices of his multiparae will enlarge a little at each delivery because minor tears will be left unsutured.

If the results of domiciliary midwifery have been bad in the past, it is important, before attempting to improve matters by introducing a special obstetric list, to inquire why it was so, and whether the same causes would operate in the future. One cause, possibly the major one, was that the family doctor could undertake only the maternity work for which his patients could afford to pay—and that in many practices was very little. Many patients who did engage him wished to pay not for antenatal and post-natal care, but only for analgesia at the delivery. This gave the family doctor very little experience of the normal and little opportunity of practising preventive obstetrics, but, on the other hand, arrangements for consultant help were often inadequate, so that he was obliged to undertake difficult abnormal cases in response to midwives' requests for help. Local authority schemes, when introduced, allowed the practitioner to examine his patients at 12 and 36 weeks, but did not permit him to be paid for any other attendance on normal cases. The result was that, having seen little of the normal, and having had little opportunity of preventing the abnormal, he was obliged to deal with the latter when it occurred.

Since 1948 it has been possible for the family doctor to give adequate attention to all cases, normal and abnormal. Specialist opinion is easy to obtain, and the opportunity exists for the next generation of family doctors to acquire adequate experience of normal midwifery, to learn to recognize the abnormal at an early stage, and often to prevent the occurrence of dangerous conditions. If this is likely to happen, it is not at all certain that the maternity services will be improved by regulations aimed at making the patient forsake her family doctor for a stranger with a little more experience of abnormal obstetrics.

In any discussion of the competence of the newly qualified practitioner it will inevitably be said that he has no experience of forceps or breech delivery. In practice, as the average family doctor has only one imperative forceps delivery in two years, and as most are either able to carry out a forceps delivery or have the help of a competent colleague, it is no more necessary for the inexperienced single-handed practitioner to apply forceps himself than it would be for him to remove an appendix on the kitchen table. The number of such cases is so small that he need not hesitate to call a consultant. As for domiciliary breech delivery, it is too dangerous to be justified, and the inability to conduct a breech delivery, an abnormality which can be foreseen, does not prevent the family doctor from being an adequate domiciliary obstetrician if he aims at the avoidance of breech delivery altogether, handing the inevitable cases over to hospital.

It may be true, as Farquhar Murray (1952) says, that there are insufficient forceps deliveries to permit the student to perform even one before qualification, but the same explanation cannot be offered if he has not sutured a perineum, for there are about a quarter of a million to repair per annum in England and Wales. It is an essential accomplishment for the domiciliary obstetrician, but it can, and should, be taught before qualification.

In dealing with hypertension, the inexperienced practitioner who knows a few simple rules and sees his antenatal

patients regularly will see serious cases of toxæmia so rarely that the postgraduate obstetric experience necessary to decide when to induce before term, or when to carry out a caesarean section, would rarely be of use to him. When the need arose—say once in two or three years—the help of a specialist could be obtained.

It does not need postgraduate obstetric experience to select for hospital women who have had many previous deliveries and those with a history of an abnormal third stage, or to prevent pregnancy anaemia, or to give an intravenous injection when the head crowns. Students are familiar with intravenous infusion, and any enthusiast who has provided himself with ergometrine, suitable fluid, and a "giving" set, can greatly reduce the incidence and danger of post-partum haemorrhage, and, in the occasional difficult case, keep the patient in good condition until the flying squad arrives.

The possibility of disproportion causes much concern, but, because rickets in childhood has been eliminated almost completely, pelvic contraction is rare and likely to become more so. The only two cases in the personal series were aged 37 and 41, an incidence of 6% in patients over 35 and nil in younger patients. If consultant opinion is available the family doctor should not meet serious trouble with disproportion.

These are some of the more common abnormalities with which the domiciliary obstetrician has to deal. There are many others, but in domiciliary practice most of them are rare. The number of years for which the average family doctor would have to practise to see a case among his domiciliary patients is, for prolapsed cord, 10 years; transverse presentation in labour, 10 years; mento-posterior presentation, 40 years; brow presentation, 50 years; hydatidiform mole, 50 years; ruptured uterus, 300 years; inverted uterus, 600 years. Averages cannot be applied to individuals, but they help to keep a sense of proportion. General practice would be impossible if one of the qualifications for it were postgraduate experience of abnormalities unlikely to be encountered in 10 years of practice.

There are good reasons for making adequate experience in obstetrics an essential qualification for practice in remote country districts, but it appears equally clear that any family doctor who is interested in obstetrics, and who, as a student, has had adequate instruction in the aspects of midwifery likely to be met in general practice, can be allowed to supervise maternity cases in any area where consultant support is available, without the risk of serious consequences for his patients. The role of practitioners with postgraduate obstetrical experience should be to practise either in country areas where consultant help is not readily available or as members of a group, where, by helping their colleagues with difficult cases and by providing a liaison between them and recent advances in obstetrics, they can help to maintain a high standard throughout the group, without taking the day-to-day care of maternity cases out of the hands of the family doctor.

Summary and Conclusions

An inquiry has been made into the practice of obstetrics (1) in a general practice over a period of six years; (2) in a community of 67,000 inhabitants over a period of three years; and (3) in a further 1,000 domiciliary deliveries.

In group 1 the case records were those of a medical practitioner, and in groups 2 and 3 those of midwives. The following suggestions are offered.

Premature delivery, breech delivery, and multiple birth carry a stillbirth or neonatal death rate too high to be acceptable for domiciliary delivery. The rates for first births do not suggest that normal primiparae should be delivered in hospital.

Domiciliary forceps delivery is inevitable in a small proportion of cases, but the risks are not great. The proportion can be reduced considerably if hospital

delivery is arranged for primiparae who are over 30 years of age or who are not fully dilated after 24 hours in labour.

More frequent use of episiotomy in domiciliary work would reduce the forceps rate and the incidence of severe tears, and would avoid many long second stages of labour.

Toxæmia can be controlled to a very great extent if blood pressures are observed frequently and if adequate attention is paid to slight rises.

Intravenous ergometrine at the end of the second stage can be used with advantage in domiciliary practice, particularly in forceps deliveries.

Interest in obstetrics and adequate instruction as a student are the only essential qualifications for the family doctor who wishes to practise obstetrics in an area where consultant support is available.

Acknowledgments are due to the medical officers of health who made available the records of their midwives.

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CONDITIONS ASSOCIATED WITH THE GROWTH OF BOYS, 1950-1

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The changes which have taken place over the years in the growth of children are generally, and we think rightly, attributed to improvements in their food. Whereas during the slump years dietary surveys showed a grossly deficient diet, a study made in 1949 by Beltram and Bransby (1950) of children from the lowest income group (parent earning £4 10s. or less a week) showed average intakes which compared "satisfactorily" with the recommendations of the B.M.A. Committee on Nutrition (1950) in respect of all nutrients with the exception of vitamin D, the requirement of which at school age is still a matter of complete uncertainty. If this was the case for the lowest income group, then it could be argued that an actual margin of safety existed in higher income groups. It is, of course, obvious that about half of the group surveyed by Beltram and Bransby must have had intakes below the B.M.A. recommendations, but nutritional "standards" are set, deliberately, on the safe side of the optimum, and it is at least questionable whether many boys, even in this group, consumed too little of any nutrient.

There is, too, evidence from the past to suggest that schoolboys' diets may now be adequate. The last large milk-feeding experiment, carried out for a year on 2,800 children in 1934-6, showed gains in height and weight