

## Prolonged Labour

BY

L. G. R. VAN DONGEN, M.S.C., M.D., M.R.C.O.G.  
*Senior Obstetrician, Queen Victoria Maternity  
Hospital, Johannesburg*

Abnormal action of the uterus during labour is one of the most difficult problems which face us to-day in modern obstetrics. Not only does it create a most trying and distressing experience for the patient, but it adds greatly to the stresses and strains imposed on the foetus and its placenta. In addition, it inevitably causes mounting mental strain and worry for the doctor responsible for the case, as he quickly becomes the fount from which speedy relief is expected by the patient, by her relatives and even by the nursing staff concerned with the case. In his dilemma, the doctor's judgment may easily be distracted, leading often to ill-advised or unnecessary interference. The problem is formidable because of our ignorance of the normal physiology of the uterus in labour. Without this fundamental knowledge we cannot obtain a satisfactory scientific solution to the problem of abnormal uterine action.

Over 30 years ago Sir James Simpson<sup>1</sup> wrote: "The mortality to the mother and infant is ten-fold greater in labours prolonged beyond, than in labours terminated within, twenty-four hours; and the mortality to the mother and infant is fifty-fold greater in labours prolonged beyond thirty-six hours, than in labours terminated within the first two hours." Though the results have improved tremendously since 1871, in terms of maternal and foetal mortality, they are still disproportionately high judged by modern obstetric standards. MacRae<sup>2</sup>, in 1949, described a series of cases of primary uterine inertia from Queen Charlotte's Hospital which included labours lasting over 48 hours. He found that the maternal death rate was 0.47 per cent., while the foetal loss was over 12 per cent.

The term primary uterine inertia is now becoming obsolete, though there are those who strenuously object to its passing, and its place is being taken by the term prolonged labour. This new term simply indicates that labour has lasted beyond a specified time, without attempting to define the underlying cause for the delay. The time limit imposed varies from one institution to another, though 48 hours seems to be the period accepted by most. At the Queen Victoria Hospital in Johannesburg, we have adopted 24 hours as the time limit and after this period

every case is reviewed as a case of prolonged labour. On this basis there have been 720 cases of prolonged labour during the past five years, encompassing 16,750 hospital deliveries — an incidence of 4.3 per cent. Of this series, 108 patients had a labour lasting over 48 hours — an incidence of 0.64 per cent. One must, of course, be careful to distinguish spurious or "false" labour from true labour, since it is only with true labour that we are concerned. It may be of interest to mention here that no less than 20 per cent. of all our antenatal admissions are due to false labour, the patient eventually being allowed home again to await true labour.

To decide exactly when labour starts is almost impossible. The universally accepted standard is when the patient first experiences regular painful contractions. This, however, must necessarily be inaccurate, since the threshold to pain varies so markedly from one patient to another. Indeed, we have all met the patient who is conscious of slightly painful contractions throughout the last two or three weeks of her pregnancy (Braxton-Hick's contractions), while at the other extreme is the patient who has practically a painless labour and who does not admit to pain with contractions even when nearing the second stage of labour. However, for the want of anything better, we still have to accept this standard when deciding when labour starts.

A generally accepted criterion to distinguish between true and false labour is the effect the contractions have on the cervix. Braxton-Hick's contractions, which appear early on in pregnancy, tend to become stronger and more frequent during the last few weeks before term. They serve not only the essential function of a pump or heart action on the placental circulation, but also form or stretch the lower uterine segment and efface the cervix. In many cases this effect on the cervix commences after the 36th or 37th week, particularly if the foetal head is engaged. Thus it is not at all uncommon to find a well effaced cervix at term, sometimes dilated to one finger or a little more. The actual dilatation of the remaining cervix then becomes the function of the uterine contractions in first stage of labour. These contractions are then really enhanced Braxton-Hick's contractions which have become stronger, more frequent, and painful. It would appear, therefore, that what we regard as true labour is merely the culmination of a process that starts some considerable time before term.

We have found the average duration of labour for primiparae to be 11 hrs. 38 mins., and for

multiparae 8 hrs. 4 mins. These averages are based on 1,000 perfectly normal cases delivered in the Queen Victoria Hospital.

We do not yet know by what mechanisms true labour is initiated. Certainly there is no single cause for the onset of labour, but rather the stage is gradually set and prepared, and when this has been made ready, any suitably applied stimulus will set off the chain reaction which will bring about the final or culminating step of dilating the cervix and emptying of the uterus. There are four factors which are known to have influence over the onset of labour, but these can be recognised merely in their broadest outline and the actual detail involved in each is still quite obscure. These four factors are:

(1) The general health of the mother. It is recognised to-day that malnutrition in the mother will cause a high incidence of premature labour, as was witnessed during the siege of Leningrad in 1942. Here the incidence of premature labours rose from 6 to 41 per cent. Similarly cardiac disease, or acute febrile conditions may precipitate premature labour.

(2) The foetus itself probably has some control over the onset of labour. Malpas<sup>3</sup> has pointed out that labour becomes long overdue in a high proportion of cases where the foetus is an anencephalic. Here the adrenal and pituitary glands of the foetus are often abnormal, indicating that the control may be through a hormonal influence.

(3) The placenta wields its influence almost certainly through the hormones it produces. Towards term there is a drop in the amount of progesterone and progesterone-like substances circulating in the blood, and these are known to have an inhibitory influence on myometrial activity. On the other hand, there is a concurrent increase in the oestrogen level, and oestrogen is known to increase the activity of the uterine muscle by the favourable metabolic changes that it brings about.

(4) The actual mechanical bulk of the uterine contents must also play a part as witnessed by the number of premature labours associated with multiple pregnancy and hydramnios.

The tension in the myometrium is known to be proportional to the square of the principal radii of curvature for each part of the uterus, and Reynolds has shown that because of this, the tension in the area of the fundus is some three times greater than in the region of the lower segment. The result of this difference

in tensions is that with each contraction, muscle tissue is drawn up towards the fundus, thus thinning out the lower segment and taking up the cervix in the same process.

Once the membranes have ruptured and the liquor has escaped, this fundal dominance becomes even more pronounced. In addition, the force of the contraction no longer works on the centre of gravity of the uterine contents as when the foetus is a floating object, but it can now bear direct pressure downwards on the presenting part. We all know that if this presenting part is a well-fitting one, then this lends greater reflex stimulus to uterine contractions and aids tremendously in efficient cervical dilatation.

Caldeyro, Alvarez and Reynolds<sup>4</sup> (1950), by a system of external strain gauges together with a sensitive intra-uterine manometer, have shown that in labour each contraction begins in the region of the tubal ostia. These then spread downwards from each side in a smooth and symmetrical manner. They have also demonstrated asymmetrical spread of these contractions in abnormal uterine action, which may be due to some abnormal metabolism in the uterine muscle or may be due to ectopic pacemakers. These workers have found the following features to be consistent with efficient uterine action:

- (1) There is fundal dominance as compared to the remainder of the uterus.
- (2) There is good synchronisation of the contractions from each side of the uterus.
- (3) The wave pattern is regular.
- (4) There is good relaxation of the uterus between contractions as evidenced by the base-line of intra-uterine pressure.

It is obviously most important that good relaxation does take place between contractions, since it allows the utero-placental circulation to regain its volume. In some types of abnormal uterine action the uterus does not relax sufficiently, with resulting diminution in the blood supply to the chorio-decidual space of the placenta, and foetal distress ensues.

Pain in labour is felt mainly in two areas—the hypogastrium and the back. The pain in the hypogastrium is referred from the body of the uterus and is probably ischaemic in origin. It is said that the critical level of pain production occurs when the intra-uterine pressure exceeds 25 mm. of mercury. The pain experienced in the back is from the lower segment and cervix, and is probably due to stretching of these structures during contractions. The worse the

backache, the more does it indicate resistance in the lower segment or cervix, due either to some abnormality in these structures or due to faulty expulsive efforts on the part of the body of the uterus.

#### ETIOLOGY OF PROLONGED LABOUR

Let it be said right away that no satisfactory explanation can be offered in a large proportion of the cases suffering from prolonged labour. It is only when we know more of the physiology of normal uterine action that these cases will be elucidated.

However, there are certain features that occur sufficiently often in association with prolonged labour to deserve comment. The first of these is that the condition is found most commonly in primiparae. Of our 720 cases of prolonged labour, 79 per cent. occurred in primiparae, indicating that the condition is four times more common in the first labour than in all subsequent labours. It should be noted in passing that prolonged labour can and does occur in grande multiparae. Indeed the proportion of grande multiparae in the present series was twice what it normally is for all deliveries in the hospital.

Though prolonged labour occurs in all age groups during the reproductive period of life, analysis of our figures shows that there is a preponderance of the condition in the very young patient under 20 years of age and again in the elderly parturient over the age of 40 years. Of the mothers delivered in the hospital, 2.8 per cent. were over 40 years of age, while 5.2 per cent. of all the mothers with prolonged labour were over 40 years.

Emotional factors have long been quoted as a possible underlying cause for a protracted first stage. Grantly Dick Read owes his fame to the teaching of his "Fear—Tension—Pain" syndrome. He has indicated that fear of labour causes tension of the circular fibres of the cervix and renders it less easily dilatible. This theory rests largely on the nervous control of the uterus, but as is well known, the nerve supply of the uterus has never been satisfactorily demonstrated and certainly we know very little of the physiology of the uterine nervous system. Professor Heyns of Johannesburg has advanced a somewhat different theory to explain why fear and tension may prolong the first stage of labour. Observation in labour shows that when the uterus contracts it comes forwards in the abdomen and presses hard against the anterior abdominal wall. By so doing the uterus becomes symmetrical when viewed from the lateral aspect, and at

the same time it brings the long axis of the foetus into the optimum axis for engagement into the pelvis. If the abdominal wall is relaxed this can occur without hindrance, but if the abdominal wall is held tight the uterus is held back behind the optimum axis and is in effect "kinked" over the sacral promontory, and the force of the contraction is not permitted to work to maximum effect on the cervix, nor does it drive the presenting part downwards in the optimum axis. It is common knowledge that multiparae have a quicker first stage than do primiparae, and this can partly be explained by Heyns' concept, since the abdominal wall in most multiparae has already been stretched and is more relaxed than in primiparae. Hence antenatal relaxation classes probably bring about easier labours not so much by reducing the tension in the cervix, but rather by reducing the tension in the abdominal wall. Professor Heyns has designed a decompression chamber that fits the full term abdomen, and with this machine the anterior abdominal wall can be "sucked out" as it were, allowing the uterus to come forwards during a contraction. With this machine labours have been shortened to a surprising extent. This brilliant work was presented in a paper by Professor Heyns at the Annual Medical Congress in Pretoria, in October, 1955.

It is generally taught that labours which are induced more often become prolonged than do spontaneous labours. In our experience at the Queen Victoria Hospital this is not significantly so, since over a four year period, the incidence of prolonged labour was 4.1 per cent. where the labour had been induced, and it was 3.8 per cent. where the labour was spontaneous in onset.

There are certain types of obese patients who tend to have inert labours and an extreme example is the dystrophia dystocia syndrome, which suggests that the endocrine make-up of the patient is important in a general sense.

Overdistension of the uterus, such as occurs with hydramnios and multiple pregnancy, has traditionally been regarded as a cause of protracted labour. Our figures of twin pregnancies show that inert labours occurred twice as frequently as with single pregnancies, but on the other hand, almost half the cases of twin pregnancies had a rapid and smooth labour lasting less than six hours.

Malpresentations and malpositions are very real etiological factors. Malpresentations usually dominate the clinical picture and demand treatment in their own right. The most common

malposition met with in prolonged labour is the occipito-posterior position, and in our series of 720 cases, 18 per cent. were found to have occipito-posterior positions. A vicious circle often operates here, since these heads are often poorly flexed and do not fit the cervix well, resulting in poor uterine contractions. With good strong uterine action these heads would probably flex up and rotate anteriorly stimulating the uterus to even better action.

One of the most important etiological factors is the presence of disproportion. A degree of disproportion was recognised in 11 per cent. of our series of cases, but Sturrock and Brown<sup>5</sup> (1956) found that relative disproportion existed in nearly 50 per cent. of their cases. Minor degrees of disproportion may not be easily appreciated during first stage but it behoves one to keep the possibility in mind and keep a vigilant watch for it in all cases of prolonged labour. This point cannot be over-emphasized.

Finally, mention must be made of the full bladder and the full rectum in labour. Not only are uterine contractions reflexly inhibited, but it is surprising how a full bladder can prevent engagement of the presenting part. The rectum should be cleared by an enema at the commencement of every labour and close watch must be kept that the bladder is frequently emptied during labour, if necessary, even by catheterisation.

#### TYPES OF PROLONGED LABOUR

In a large proportion of cases suffering from prolonged labour there is some abnormal uterine action present. Abnormal uterine action has been divided into the following categories:

1. Hypotonic inertia.
2. Hypertonic inertia, which includes
  - (a) defective polarity,
  - (b) colicky uterus, and
  - (c) constriction ring.
3. Cervical dystocia.

In clear-cut clinical pictures there is no difficulty in diagnosing these various types of disordered activity, but in the border-like cases the diagnosis rests upon the individual doctor's own interpretation and there may arise differences of opinion.

(1) *Hypotonic Inertia* is the least serious of the above types of abnormal uterine action. The uterine contractions are weak to normal in strength, but they are infrequent, with long periods of rest occurring between each contraction. In a sense, this condition occupies a position

mid-way between false labour and normal labour. Labour actually does progress, but in low gear, as it were. The contractions are not abnormal in character, and are painful just at the apex of the contraction as in normal labour. The uterus is not irritable to palpation and allows easy palpation of the foetus. The mother is not distressed by the actual contractions but rather by the slow progress that is taking place.

2. *Hypertonic Inertia* presents a totally different clinical picture. Here the uterus is almost overactive and very irritable. The tone of the uterus is excessive and the intra-uterine pressures may exceed 25 mm. of mercury, which is the critical pain threshold level, even between contractions. (The normal pressure between contractions is 5 to 6 mm. of mercury.) Because of this increased tone during the resting phase the utero-placental circulation is impeded and foetal asphyxia may develop, in some cases even though the membranes are still intact. The tone in the lower segment and cervix is likewise increased and offers greater resistance to stretching by contractions of the upper segment, thus leading to severe pain in the back. The contractions of the upper segment are very often abnormal such as in the "colicky" uterus. Here there is a lack of polarity and the uterus appears to be suffering from a continual crop of extrasystoles without any co-ordination to give them effect. In other cases, the waves of contractions from each side do not synchronise, thereby leading again to ineffectual effort.

There is often associated distension of the stomach and bladder, so that vomiting and retention of urine, or at least failure to empty the bladder spontaneously, make matters worse. The patient suffers much, complaining of almost continuous pain which is heightened at the time of the contractions. The uterus is tender to palpation and very irritable, so that it contracts when attempts are made to palpate the foetus, a procedure which becomes very difficult. Because of the increased tension, the patient complains of the pain before a uterine contraction can be appreciated by the palpating hand, and this pain lingers on after the contraction appears to have passed off. The contractions may be very frequent and appear very strong or they may be irregular in periodicity and strength. Efforts on the part of the patient to "bear down" before the cervix is fully dilated is not uncommon, and is thought to be due to spasm occurring in the lower bowel.

Constriction rings are relatively rare, and represent a localised area of hyperactivity in

the uterus. Their usual site is the junction of the upper and lower segments, though it has been said that they may also appear either in the upper segment or in the lower segment. The ring forms around some indentation on the foetus, most commonly around the neck, and its diagnosis is most frequently made in the second stage of labour by intra-uterine examination. It suggests its presence by lack of advance of the presenting part, or by an apparent small advance, due to the secondary powers of expulsion, which is lost as soon as the patient ceases to bear down.

3. *Cervical Dystocia* is a relatively uncommon condition. The uterine action is usually normal in these cases and the cervix is taken up, but the cervical os does not dilate. The cause may be organic in origin or it may be functional. One can readily understand an organic cause, such as excessive fibrosis following previous trauma, or else a carcinoma of the cervix, preventing dilatation of cervix. A functional cause is more difficult to understand. In these cases of rigid cervix, achalasia of the cervix, or conglutination of the external os, as it is variously called, the cervix appears perfectly normal in all respects from a histological point of view. Nevertheless, the external os will not dilate even when normal strong uterine action is present, and on vaginal examination it feels like a hard, tough, undilatable rim. Cases are on record where the cervix has become torn off by the force of the contractions (annular detachment) and the infant has been born with a cap of cervix on its head.

A somewhat similar condition occasionally occurs in which the external os is displaced markedly posteriorly and upwards. The presenting part then tends to sacculate the tissues in front of the os and birth is often achieved by spontaneously tearing through the soft tissue obstruction.

#### MANAGEMENT AND TREATMENT OF PROLONGED LABOUR

In all cases of prolonged labour the possible existence of a malpresentation, such as a brow presentation, should be ruled out. If such a malpresentation is present it should be dealt with accordingly. In every case where labour has gone on for more than 24 hours, a very diligent and determined assessment should be made to rule out cephalo-pelvic disproportion. If disproportion is found, its degree should be evaluated together with the other circumstances of the individual case, and a decision should

be made as to whether labour should be allowed to proceed or whether it should be terminated by lower segment Caesarean section.

In all cases the rectum should be kept empty and the bladder should be emptied at regular intervals, by catheterisation if necessary. A careful record should be kept of the mother's pulse rate, her temperature, and the presence or otherwise of acetone in each specimen of urine voided. The foetal heart-rate should be checked and recorded at regular intervals, and if the membranes are ruptured, whether the liquor is clear or meconium-stained. If the membranes have been ruptured for 24 hours it has been our practice to give antibiotics prophylactically. The type of uterine action should be re-assessed as to whether it is hypotonic, normotonic, or hypertonic.

In cases with *hypotonic inertia*, sedation is not required to any great degree, except to ensure a good night's rest. If malpresentation and disproportion have definitely been ruled out, then we have found that stimulation of the uterus with a pitocin drip is a most useful and satisfactory treatment. Five units of pitocin in 1,000 cc. of 10 per cent. invert sugar, given as an intravenous drip, has proved quite a safe procedure provided the patient is under constant supervision by an adequately trained person. Stripping of the membranes from around the internal os, with artificial rupture of the forewaters, has been adopted as a form of treatment, particularly in America, on the basis that this stimulates uterine action and enhances fundal dominance during contractions. Naturally the patient must be reassured, and care must be taken that she has adequate fluids and nourishment.

In cases with *hypertonic inertia* the management and treatment is more difficult and less satisfactory. Again, malpresentation and disproportion must be excluded, and this may be difficult to assess clinically, since the uterus is so irritable that it contracts painfully whenever abdominal palpation is attempted. A careful vaginal examination should be done by a competent person and thereafter further vaginal examinations should be avoided. Intra-partum X-rays are of great assistance, especially an erect lateral view and, if possible, a postero-anterior view of the lower abdomen.

Sedation should be given early and in adequate amounts. Pethidine is not usually satisfactory and we have found that morphia or hyoscine compound "A" or "B" give much greater relief. It has become much safer to use these stronger

drugs since the advent of "Lethidrone" which contains N-allyl normorphine as its active principle. This latter substance helps to counteract the depressant effect morphia and its derivatives have on foetal respiration.

Care must be taken that the patient has adequate fluids and nourishment, but should vomiting occur, as it often does, or should acetone appear in the urine, then it is wiser to set up an intravenous dextrose water drip. Recently we have been using intravenous drips of 10 per cent. invert sugar as this has higher calorific value. Close watch must be kept on maternal temperature and pulse-rate, since a rising temperature and a persistent pulse-rate over 100 beats per minute indicate true maternal distress.

The foetal heart rate should be recorded at regular intervals, and it must be remembered that it is in these cases that foetal distress is most likely to supervene. The membranes should be kept intact as long as possible, and certainly they should not be ruptured artificially as in cases of hypotonic inertia, since this procedure in no way helps the abnormal hypertonic activity of the uterus and it further jeopardises the foetus. Stimulants, such as pitocin, have no place here, as the abnormal uterine pattern is further aggravated by them. Should the membranes already be ruptured, then close watch must be kept on the liquor, since meconium staining often precedes changes in the foetal heart rate, indicating foetal distress. Should foetal distress occur in the first stage, Caesarean section should be resorted to forthwith. There are many to-day who advocate abdominal delivery before the onset of foetal distress, especially in those cases where no advance appears to be taking place as judged by the dilatation of the cervix and descent of the presenting part. Certainly the circumstances of the particular case must also be taken into account, as in an elderly primipara, to help decide whether a section should be done or whether one is justified in waiting for a vaginal delivery. Once the cervix is fully dilated, delivery should be effected by forceps if the advance is not rapid and smooth.

We have had only two cases of *constriction ring*, during the five-year period under consideration. Both were diagnosed in the second stage of labour. Neither responded to the usual relaxants such as amyl nitrite and deep anaesthesia, and both were delivered successfully of live infants by means of Caesarean section, a vertical incision being used to cut through the ring.

The treatment of *cervical dystocia* depends on whether the cause is organic or functional. If it is organic, then delivery by Caesarean section would seem to be indicated in most cases, unless some simple vaginal procedure, such as cutting a band of scar tissue, is all that is required. With the functional type the decision is more difficult. There can be no doubt that in a proportion of these cases the presenting part eventually tears through the thin undilated cervix. More rarely, it causes complete annular detachment of the cervix. If conditions are favourable, that is, if the foetal head is very well down and fits tightly against a very thinned out cervix, one can anticipate this spontaneous trauma by performing Dührssen's incisions and applying forceps. If there is foetal distress, or if the head is not well engaged, delivery by Caesarean section may have to be resorted to.

QUEEN VICTORIA HOSPITAL CASES

As previously mentioned, over a five-year period encompassing 16,750 hospital deliveries, there were 720 patients who had a labour lasting over 24 hours.

The duration that the membranes were ruptured before delivery took place is represented as follows:

Less than 12 hours .....	54%
Between 12 and 24 hours .....	10%
Over 24 hours .....	20%
Unknown .....	16%

There were nine pairs of twins, bringing the total number of infants born to 729. These were delivered as follows:

Spontaneous delivery .....	558 (76.5%)
Forceps delivery .....	120 (16.5%)
Caesarean section .....	38 (5.2%)
Breech extraction .....	5
Internal version and breech extraction .....	6 (Second twin)
Craniotomy .....	2

The reasons for the 38 Caesarean section operations were the following:

Disproportion .....	22 cases
Foetal distress in first stage .....	12 cases
Maternal distress .....	1 case
Brow presentation .....	1 case
Previous L.U.S. section .....	1 case
Elderly primip .....	1 case

The 120 forceps deliveries were done for the reasons stated below:

No steady advance in second stage .....	59 cases
Early foetal distress in second stage .....	48 cases
Maternal distress .....	8 cases
Previous L. U. S. Caesarean section .....	2 cases

Pulmonary Tuberculosis .....	1 case
Diabetic mother .....	1 case
Severe pre-eclampsia .....	1 case

Of the patients who were delivered vaginally 141 suffered blood loss of 20 or more ounces in the third stage of labour, giving the alarmingly high P.P.H. rate of 20.6 per cent.

RESULTS

There were no maternal deaths in this series of 720 cases of prolonged labour.

The maternal morbidity rate was 6.8 per cent.—almost three times the average for the hospital. The 49 patients who had puerperal morbidity, suffered from the following conditions:

Uterine Sepsis .....	20 cases
Pyelitis .....	8 cases
Post-anaesthetic pneumonia	6 cases
Abscess in the arm following on leakage from intra- venous drip .....	3 cases
Acute Mastitis .....	3 cases
Post-Caesarean temperature	3 cases
Perineal Sepsis .....	2 cases
Gastro-enteritis .....	2 cases
Acute Pharyngitis .....	1 case
Broad ligament haematoma	1 case

The birth weights of the 729 infants were as follows:

Less than 5 pounds .....	4%
Between 5 and 7 pounds .....	36%
Between 7 and 9 pounds .....	53%
Over 9 pounds .....	7%

There were 715 infants born alive, and 14 stillbirths—a stillbirth rate of 1.9 per cent. Eleven of these 14 were fresh stillbirths and three were macerated stillbirths.

The causes were as follows:

Asphyxia in labour .....	5 cases
Cause unknown .....	4 cases
Severe pre-eclampsia .....	3 cases
Anencephaly .....	1 case
Hydrocephaly .....	1 case

There were eight neonatal deaths—a neonatal death rate of 1.1 per cent. These were as below:

Cerebral haemorrhage .....	2 cases
Subdural haemorrhage .....	1 case
Hyaline membrane syndrome	2 cases
Broncho-pneumonia .....	1 case
Hydrocephalus .....	1 case
Congenital absence of trachea	1 case

Thus, 22 infants of the total of 729 were lost—a total foetal wastage of 3 per cent.

Of the 720 patients under consideration, 108 had a labour which lasted over 48 hours, (i.e., an incidence of 0.65 per cent. over the five-year period.) A very brief summary of the main features of this group is as follows:

Ninety of the 108 patients were primiparae (83%). There was a degree of disproportion in 15 patients (14%).

Occipito-posterior positions of the vertex existed in 28 cases (26%).

Eight Caesarean sections were done (7.4%).

Forceps deliveries were done in 27 patients (25%).

There were no maternal deaths.

The puerperal morbidity rate was 7.4%.

There were five stillbirths (4.46%).

There was one neonatal death (0.97%).

From the above it is clear that the longer the labour lasts the greater is the need for interference, the higher is the morbidity rate, and the greater is the stillbirth rate. On these grounds, it would seem not illogical to give especial attention at an earlier stage, and it is for this reason that we have adopted the practice of considering every labour over 24 hours as a prolonged labour.

Prognosis for future labours is generally good, except for special cases such as the dystrophia dystocia syndrome, since the uterus nearly always behaves better in the second labour than the first. Jeffcoate<sup>6</sup>, however, has pointed out that about one-third of all these patients avoid future pregnancies deliberately because of the psychological trauma they have suffered.

In conclusion, it is clear that though our results have improved since the days of Sir James Y. Simpson, the improvements are largely due to general advances in treatment and not to our greater knowledge of uterine action. We are beginning to organise our thoughts on uterine action and have begun to recognise the broad types of abnormal pattern, but we do not yet know the underlying factors concerned. This understanding can only come through increasing our knowledge of the normal physiology in labour. It is astounding how such an apparently simple anatomical organ as the uterus has evaded detailed study and enquiry into its secrets. Indeed, it is truly feminine!

REFERENCES

1. SIMPSON, SIR J. Y. (1871). "Selected obstetrical and gynaecological works." J. W. Black (Ed.). (Black, Edinburgh), 31-2.
2. MACRAE, D. J. (1949). *J. Obstet. Gynaec. Brit. Emp.*, 56, 785.
3. MALPAS, P. (1956). *J. Obstet. Gynaec. Brit. Emp.*, 63, 199.
4. CALDEYRO, R., ALVAREZ, H. and REYNOLDS, S. R. M. (1950). *Surg. Gynec. Obstet.*, 96, 641.
5. STURROCK, J. and BROWN, R. (1956). *J. Obstet. Gynaec., Brit. Emp.*, 63, 83.
6. JEFFCOATE, T. N. A. (1949). *Trans. Edinb. obstetr. Soc.*, 101, 23.