AN ENQUIRY INTO THE VALUE

of ANTE-NATAL CARE.

by

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C O N T E N T S.

F O R E W O R D.

A widespread desire is abroad to lower the maternal mortality rate and to ensure that every woman will emerge from her confinement unimpaired in health and able to carry on her vitally important duties of motherhood.

When it is considered that in a small country like New Zealand out of 27,200 births in 1928 there were 134 deaths [1]. - that is an average of one death every two or three days during the year - the need for further improvement in the care of the pregnant woman becomes obvious. Of these 134 deaths, 38 were due to albuminuria and convulsions, 9 to phlegmasia, embolism and sudden deaths, 11 to accidents of pregnancy, 15 to puerperal haemorrhages, 4 to accidents of labour, 1 to Puerperal Mania and 56 to Puerperal Septicaemia. It is thus seen that the majority of these deaths come into the category of what we now regard as preventable diseases.

Nevertheless, the necessity for ante-natal care is unfortunately not always realised either by the doctor or by the patient, hence the hindrance to the march of progress in this side of preventive medicine.
The medical profession, and through them, the public, are being slowly persuaded to the realisation of the importance of careful ante-natal supervision in preventing most of the difficulties and dangers of pregnancy and labour.

This thesis purports to be a critical enquiry into the value of ante-natal care in general and is based on seventy-five cases investigated at St.Helen's Ante-Natal Clinic and twenty-five representative emergency case records extracted from the case books of the St.Helen's Maternity Hospital and the Auckland District Hospital.

REFERENCE.- [1]. "Private communication from the Medical Officer of Health,Auckland."

I N T R O D U C T I O N.

The maternal mortality rate for New Zealand as gauged on the returns for the period 1924-1928 is 4.75[1.] - a figure much too high.

In England for the period 1923-1927 it is 4 and in Scotland it is higher still, namely 6.25[2.] for the period 1923-1927.

The report issued in 1929 by the Chief Medical Officer of the Department of Health for Scotland contains some interesting and disquieting information. At a public meeting[3.] in Edinburgh, this Medical Officer said that Scotland was the worst country in the world as regards mortality rate, for every year, roughly, 7 mothers died out of every 1000 who gave birth to children and for every 1000 who died, 14,000 developed serious impairment of health. Death was due in one-third of the cases to septic infection contracted at the time of birth; in another third to toxaemias, and in the remaining third to haemorrhages connected with confinement, most of which were really septic in origin and to injuries connected with difficult birth.

In a paper[4.] he read at Manchester in 1929 at the Annual Meeting of the British Medical Association, he gave a summary of the conclusions arrived at from the special investigation in 1928 into a total of 252 maternal deaths occurring in Aberdeen during the ten years 1918-1927, and among his thirteen points, special interest attaches to the following :

(a) Statistical evidence has been obtained of the reduction in maternal mortality which accrues from the provision of ante-natal services.

(b) The evidence goes to show that an expansion and improvement of ante-natal services will result in an important reduction in maternal mortality.

(c) The evidence supports the view that the development of a new midwifery organization in which midwives conduct all normal deliveries, and in which doctors provide the

ante-natal services and deal with obstetrical complications, will result in a significant reduction in puerperal mortality. These three points serve to stress the importance of adequate ante-natal supervision.

REFERENCES-

1 & 2. "Memorandum from Medical Officer of Health, Auckland."

3. Kinloch Parlane J., "An address to the Edinburgh Women Citizens' Association." 11.12.29.

4 Kinloch Parlane J., "The opening paper in the Section of Public Health at the Annual Meeting of the B.M.A., Manchester 1929.

ST. HELEN'S ANTE-NATAL CLINIC.

The Ante-Natal Clinic in connection with St.Helen's Hospital, Auckland, has been in operation for four years and since its inception there has been a steady increase in the attendances.

The Hospital and the Ante-Natal Clinic cater for the poorer classes of the community, that is, those with an income below £250 a year. They are not poor in the same degree as the people of the hospital class in the Homeland, for the women attending the Clinic are for the most part well and suitably clothed and can, by careful management, obtain all they want in the way of adequate food supplies containing proper vitamin content, etc. The air of well-being is indeed in striking contrast to the poor people who are admitted to the Home city Obstetric hospitals.

The main Hospital has thirty beds with a few extra beds - usually about two - always held in reserve for those patients requiring special ante-natal treatment in a Hospital. The majority of patients do not attend the Ante-Natal Clinic until they come to register for their confinement in the Hospital immediately adjoining the Clinic rooms. Then each patient is counselled to attend regularly at the Clinic, the rule being attendance once monthly till the seventh month and thereafter once a fortnight.

Haultain and Fahmy[1.] state that one should strive to induce patients to report for ante-natal supervision as soon as the menstrual period has been missed.

Of course should there be anything of a suspicious nature in the history or should anything untoward develop during the course of the pregnancy, the patients are advised to attend more frequently, perhaps several times a week. At. St.Helen' Ante-Natal Clinic, the majority of the patients report at the Clinic about the fifth month of pregnancy.

This routine attendance is perhaps not the ideal one, but the Clinic is still doing more or less pioneer work and its

benefit or necessity is not altogether accepted by the lay public as a body. However, the urge to put themselves under ante-natal supervision is evidently slowly growing as the statistics show with regard to the attendances at the Clinic. In the first year the attendances were 2766, but by the second year they were 3429 and coincident with the increasing numbers has been the gratifying feature of attendance earlier in the pregnancies.

The booking at the main Hospital is becoming so heavy,and all available accommodation bespoken for,that word will ultimately go round that attendance must begin early at the Clinic in order to secure a bed at the Hospital.

Thus the present lack of sufficient hospital accommodation will bring about the desired result of earlier and regular attendances at the Clinic.

Some of the women report early, especially if they have had previous unfortunate confinements, or if they have some physical ill.

Case 6. reported at the end of the second month of pregnancy, giving a bad obstetric history of a breech presentation in 1920, a macerated foetus in 1923, and an asphyxiated baby in 1927.

Case 3 reported at the third month giving a history of a haemorrhage at eighth month of first pregnancy, necessitating her remaining in bed one week.

Case 5. had had a thyroidectomy done and was still showing signs of exophthalmic goitre and she reported at the third month.

But as a rule the first attendance at the Clinic synchronises with the day of booking for a bed at the Main Hospital, and that day according to the rules must not be later than the beginning of the sixth month.

Only emergency cases are admitted to the Hospital without previous registering, and such cases must be urgently requiring Hospital treatment.

The Auckland District Hospital being only a short distance away, many emergency maternity cases, including abnormal cases and those requiring Caesarean Section, are admitted there. Auckland has a population of 185,000, and the Hospitals serve the suburban population too, which brings the number up to 210,000.

As the average attendance at the Clinic each week is only 65, the authorities have as yet not thought it expedient to appoint a whole-time medical officer to be in attendance at the Clinic. The visiting obstetrician of St. Helen's Hospital sees any cases likely to prove difficult and all primiparae once at least in the last weeks of pregnancy, when a pelvic measurement is made to ascertain whether the Diagonal Conjugate and by deduction of $\frac{1}{2}$" - $\frac{3}{4}$" the True Conjugate is the correct measurement and whether the foetal head is entering the brim of the pelvis. Each patient attending the Clinic for the first time is examined thoroughly and the history is charted carefully. Should there be anything of outstanding importance in the report or in any of the succeeding reports, a red star is used for marking the departure from normal.

2.

A little booklet issued by the Department of Health, is presented to each patient and gives her guiding rules with regard to hygiene, ventilation, diet, exercises, clothing,etc. An abundance of water, vegetables, salads, fruit and cereals with little meat - only once a day in the latter months - is roughly the suggested diet. In cases of constipation whole-meal bread is advocated and porridge made of bran and oatmeal - 1 part of bran to 4 parts of oatmeal - and an abundance of vegetables, and fruit, fresh, stewed or dried. The booklet details Danger Signals for which patients are advised to seek immediate medical attention. These are :-

I. Persistent constipation.

II. Swelling of the hands, feet or face.

III. Blurring of vision.

IV. Severe or constant headaches and prolonged vomiting.

V. Abdominal pain or any loss of blood.

VI. A sudden or gradual diminution in the quantity of urine passed.

This series of ante-natal cases, seventy-five in all, is representative of the patients attending St. Helen's Ante-Natal Clinic throughout the year. As soon as each patient reported, and at each subsequent visit, she was put under my personal observation so that I became familiar in detail with any irregularity in her obstetrical history.

The representative emergency cases of which there are twenty-five, are noted culled from the records of St. Helen's Hospital and from the Auckland District Hospital and are compiled for the most part to show by contrast the value of careful ante-natal care, as, so far as is known, these emergency cases had not had adequate ante-natal supervision. At anyrate, although of the Hospital class, they had not attended at St. Helen's or any of the other Ante-Natal Clinics in the city.

At the Auckland Hospital the midwifery cases come under the control of the surgical staff who are naturally biassed in favour of surgical procedures such as Caesarean Section in preference to other obstetrical manoeuvres.

REFERENCES.- 1. Haultain and Fahmy "Ante-Natal Care." P.17.

2. "Suggestions to Expectant Mothers." Department of Health, New Zealand.

THE PRINCIPLES OF THE ANTE-NATAL CLINIC.

The Ministry of Health has issued a Memorandum[1.] on Ante-Natal Clinics which begins by laying down six principles on which ante-natal care should be based, and these are shortly :-

I. The prevention of forseeable difficulties in labour.

II. The early detection and treatment of toxaemia.

III. Measures for increasing resistance to infection and for the detection and treatment of septic foci.

IV. The diagnosis and treatment of venereal diseases.

V. Co-operation between those responsible for the care of the child-bearing woman.

VI. Educational efforts.

These principles will now be considered in more detail.

REFERENCE.- [1.] Ministry of Health."Memorandum on Ante-Natal Clinics: Their Conduct and Scope.1929."

I.

THE PREVENTION OF FORSEEABLE DIFFICULTIES IN LABOUR.

Chief of these forseeable difficulties of labour is the dystocia, due to a contracted or an abnormal pelvis and this dystocia can certainly be more successfully managed than by the all too frequent prolonged trial labour, entailing many pelvic examinations or many unsuccessful efforts atforceps extraction with the consequant risk of sepsis, permanent injury to maternal and foetal tissues and rupture of the uterus.

At the first visit to the Clinic, a number of pelvic measurements are taken, particularly the Interspinous (I.S.) and the Intercristal (I.C.) diameters and the External Conjugate. In the early months of pregnancy, these three measurements are usually considered sufficient. The normal measurements according to Balfour Marshall[1.] are Intercristal (I.C.) 11" ; Interspinous (I.S.) 10¼"; External Conjugate 8", but wide variations are found without anything alarming happening during the labour in the way of malpresentations or prolongation of the labour.

A number of these cases with rather small Intercristal (I.C.) and Interspinous (I.S.) diameters and occasional smallish External Conjugates were watched throughout their labours with negative results.

The records essential to this enquiry are here inserted in abbreviated rorm. First the case number, and the Interspinous (I.S.) measurement, then the Intercristal (I.C.), occasionally the External Conjugate when it happens to be below 8", and lastly the hours of the first stage of labour with any pertinent remarks:-

Cases.	Inter-spinous	Inter-cristal	External Conjugate.	Remarks.
12	$9\frac{1}{4}$"	$10\frac{1}{2}$"	$7\frac{1}{2}$"	Easy Labour.
13	$9\frac{1}{2}$"	$10\frac{1}{2}$"		1st.stage 2 hours.
17	9"	$10\frac{1}{2}$"		1st.stage 1 $\frac{45}{60}$ hours.
22	$9\frac{1}{2}$"	$10\frac{1}{2}$"		1st.stage 10 $\frac{45}{60}$ hours.
38	$9\frac{1}{2}$"	$10\frac{1}{4}$"	$7\frac{3}{4}$"	1st.stage 6 hours.
46	$9\frac{1}{2}$"	$10\frac{3}{4}$"	$7\frac{1}{2}$"	1st.stage 4 $\frac{20}{60}$ hours.
70	9"	10"	$7\frac{1}{2}$"	1st.stage 2 $\frac{20}{60}$ hours.

and there were others too - Cases 7, 11, 17, 25, 26, 33, 34, 35, 37 47, 72 and 73.

These Interspinous (I.S.) and Intercristal (I.C.) diameters and the External Conjugate need to be very much smaller, therefore to excite a suspicion of contracted pelvis, for example Interspinous (I.S.) $7\frac{1}{2}$" - 8", and Intercristal (I.C.) $8\frac{1}{2}$" - 9", and External Conjugate 7" - $7\frac{1}{4}$".

There should be a difference of at least $\frac{3}{4}$" (some authorities say 1") between the Interspinous (I.S.) and the Intercristal (I.C.) diameters, and if these measurements approximate, one must suspect the presence of rickets in childhood with one of the concomitant sequelae - contracted pelvis.

Small Interspinous (I.S.) and Intercristal (I.C.) measurements denote a generally contracted pelvis and small Interspinous (I.S.) and Intercristal (I.C.) diameters with measurements approximating, denote rickets and a contracted pelvis.

Should the External Conjugate only be altered, a flat pelvis is suspected.

The External Conjugate measures normally 8" and by subtraction of 4" the True Conjugate of the brim is estimated but it is not accurate or reliable. Still, if it is less than $6\frac{1}{2}$" the pelvis is flat.

A measurement of the first importance is the Diagonal Conjugate which is the distance from the middle of the sacral promontory to the under border of the symphysis pubis and is normally 5"

Jellett[2] recommends that the Diagonal Conjugate measurement should be taken about the sixth month when the uterus is well out of the pelvis and clear of the promontory. Then if a minor degree of pelvic contraction is found, he advocates considering a prophylactic pubiotomy. At this Clinic the Diagonal Conjugate is not taken till the thirty-sixth week, as it is found that by waiting until the latter weeks of pregnancy, the vagina and the muscles surrounding it have become softer with consequent decreased straining against the examiner.
To estimate the Conjugata Vera. (C.V.). deduct from $\frac{1}{2}$" - $\frac{3}{4}$" from the Diagonal Conjugate.

A suspicion of deformed pelvis may be aroused by a history of tedious or instrumental labours, by the waddling gait or deformity of hips and spine, the pendulous abdomen, by the patient being undersized and narrow across the hips, and by the foetal head being kept above the pelvic brim.
In addition to the pelvic measurements, one has to take into consideration the size of the foetal head, which varies very much.
After the pelvis is carefully measured, the relative size of the head and pelvis should be tested.(Munro Kerr).[3] Barbour concisely stated that "the foetal head is the best pelvimeter." By this method - a bimanual one - the external hand pushes the foetal head downwards and backwards into the pelvis, while the internal fingers of the other hand estimate the relative size of pelvis and head, the thumb of the external hand being used to estimate the degree of overlapping.
It becomes clear to one that the pelvic measurement of the greatest importance is the Diagonal Conjugate and furthermore, that Munro Kerr's method of estimating foetal disproportion is an excellent routine measure.
The inter tuber-ischial and posterior sagittal diameters measure the outlet of the pelvis, but owing to the varying amount of fat in patients and the different breadth of the

tubera ischii, they are difficult to take and are inaccurate. The distance between the tubera ischii is normally $4\frac{1}{4}$" and this measures the transverse of the outlet where contraction is most commonly found when the outlet is contracted.
If this diameter is under $2\frac{1}{2}$" Caesarean Section is definitely indicated (Haultain & Fahmy [4].)
Usually during the routine examination for the Diagonal Conjugate, notice is taken of the room at the outlet and should any abnormality be suspected, then accurate and repeated measurements are taken.
Contractions of the outlet alone are rare.
In the minor degrees of pelvic deformity with a True Conjugate not below $3\frac{1}{2}$" in a flat pelvis or $3\frac{2}{3}$ in a generally contracted pelvis, ample time should be allowed for the foetal head to mould and for the woman to deliver herself if possible.(Balfour Marshall [5].). Interference by the use of forceps is only necessary when evidences of maternal or foetal distress show themselves.
In major degrees of pelvic deformity, the following operations may be required according to the indications necessitating one or other of them.

Forceps or Version with a Conjugata Vera (C.V.) not below - $3\frac{1}{4}$" - $3\frac{1}{2}$"

Induction of Premature Labour with a Conjugata Vera (C.V.) not below - $3\frac{1}{4}$" - $3\frac{1}{8}$"

Pubiotomy with a Conjugata Vera (C.V.) between 3" - $3\frac{1}{2}$"

Craniotomy with a Conjugata Vera (C.V.) between $2\frac{1}{4}$" - 3"

Caesarean Section. Absolute Indication.
- a Conjugata Vera (C.V.)below 3"

Caesarean Section. Relative indication. -
a Conjugata Vera (C.V.)between 3" - $3\frac{1}{4}$"

In a contracted pelvis when the foetal head is just beginning to overlap, Induction of Premature Labour should be carried out, but this should not be done before the thirty-sixth week, as the chances of a living child before that date are not good. The day of choice for the beginning of the induction is the day when the head can no longer be made to engage in the

pelvic brim.

The simplest method of inducing labour is undoubtedly that of giving definite doses of Quinine bichloride or sulphate, Ol. Ricini, hypodermic injections of Pituitary Extract, and a warm enema, at fixed intervals.

This treatment is successful in about 80% of cases, especially in multiparae after the thirty-eighth week, but the further the patient is from her expected date of delivery, the less likely is the treatment to succeed.

The most reliable method is by the insertion of gum elastic bougies (Krause's method) - usually about 4 of them - between the membrane and uterine wall for 7" - 8". In the majority of cases the onset of labour occurs in an average time of 48 hours, but it may be delayed for ten days or more.

There are other methods of inducing labour, such as Rupture of the Membranes, which is successful only in 85% of cases and has the disadvantage of producing a dry labour; the Hydrostatic Bag method where a rubber bag is introduced till it lies in the lower uterine segment, and the Animal Bladder method which depends for its action on the exosmosis of its contents, viz. glycerine.

6.

In practice, the drug method is at first tried, and if it fails it has at anyrate probably made the uterus more irritable and more likely to respond to Krause's bougie method.

A number of patients in this series exhibited gross faulty measurements and they were watched to see if and when the foetal head settled in the pelvic brim. In several cases the head remained floating until the last week of pregnancy.

ANTE-NATAL CASES.

Case 32. was a primipara of stunted growth exhibiting marked lordosis. Her Conjugata Vera (C.V.) was $3\frac{1}{4}$" - $\frac{1}{2}$" or $\frac{3}{4}$" = $2\frac{3}{4}$" or $2\frac{1}{2}$" and the Interspinous (I.S.) was 9"; the Intercristal (I.C.) 10" and the External Conjugate 7". She was a clear case for Caesarean Section, which was duly performed on her at full term. As there were no vaginal examinations

necessary at the time of labour, she had a normal puerperium and her babe was in good condition, as it had not been subjected to undue pressure or to a prolonged trial labour.

Case 74. was a multipara aged 38 years. This was her second labour, she having had Caesarean Section performed in 1923. This woman had a Conjugata Vera of $3\frac{1}{4}$" - $\frac{1}{2}$" or $\frac{3}{4}$" = $2\frac{3}{4}$" or $2\frac{1}{2}$". and her Interspinous (I.S.) $10\frac{1}{4}$" and Intercristal (I.C.) $10\frac{3}{4}$" measurements approximated by $\frac{1}{2}$", so that she came into the category of those requiring definite Caesarean Section. Unfortunately this patient did not proceed in convalescence as we desired, for on the fourth day she developed a pulmonary embolism which seriously affected her. She was feverish and in much pain for six days and was not in a satisfactory condition till twelve days after the operation.

She recovered slowly, being discharged on the thirty-fifth day. This untoward happening must be looked upon as one of the risks of general surgery.

Case 17. was a primipara, aged 19 years, in whom the foetal head remained floating till the thirty-eighth week, although there was no evident disproportion in the pelvic measurements. Fortunately, in the last week of pregnancy, the foetal head engaged in the pelvis and further steps were unnecessary.

Case 4. was a similar case where the foetal head remained floating till the last days of pregnancy.

Case 64. was a primipara in whom the foetal head did not engage until 4 days before labour.

EMERGENCY CASES.

Among the emergency cases there were a number who required Caesarean Section. Unfortunately the pelvic measurements were not always available,but evidently there was some disproportion of the foetal head to the brim of the pelvis.

Case 2. had a congenital deformity of the left hip-joint - a condition which is prone to cause an obliquely contracted pelvis. The head had not engaged after a prolonged labour and there was a well-marked Bandl's ring present on admission.

Caesarean Section was performed about half an hour after her admission. On the second day of the puerperium, she had a Pulmonary Embolism and during the mid-puerperium her temperature was febrile - 100°F. and her pulse rate quick - 110.
She had a healthy male child. Discharged on the twenty-first day.

Case 7. was that of a primipara admitted to the Auckland hospital after being in labour 86 hours. The membranes had ruptured three days previously - early rupture of membranes being a feature of deformed pelvis - and the pains were becoming intermittent. The Interspinous (I.S.) was 25 cm. and the Intercristal (I.C.) 27 cm . . . . . .
Caesarean Section was performed and a live child extracted.
The puerperium was distinctly febrile, the temperature varying from 100°F. - 104°F. and the pulae rate ranging from 104-120 for the first nine days and patient was fairly ill. She and her babe were finally discharged well on the twenty-first day.

Case 10. was that of a patient aged twenty-four years who had the following pelvic measurements - Interspinous (I.S.) 22 cm. Intercristal (I.C.) 26 cm. and External Conjugate 20 cm.

The foetal head was relatively large and unfixed in the pelvic brim. After twenty-seven and one-half hours in labour the patient began to get very tired, and her pulse rate rose to 120 and the pains began to be continuous. At one stage pubiotomy was considered, but owing to patient's weak condition, a Caesarean Section was performed. Patient was very weak during the first part of the puerperium, but ultimately she and her babe were discharged well after a prolonged convalescence.

Case 14. This patient was an elderly multipara who had been 50 hours in labour and was showing signs of marked exhaustion. She had a funnel-shaped, contracted pelvis. A Caesarean Section was performed and a live child extracted. The patient was very ill and exhausted throughout the first part of the puerperium and she was in a critical condition. The condition of

the baby was unsatisfactory for the first few days. In this woman's case an alternative plan would have been to induce labour the day the head just fitted into the brim, and later to have completed delivery with forceps. Still, having regard to her age and to the fact that she had lost a baby with instrumental delivery, Caesarean Section offered the best chance of a living mother and babe. In some of the slighter degrees of pelvic deformity, forceps were used to complete delivery.

Case 3. Admitted to St. Helen's hospital on account of obstructed labour, the pelvic measurements not being available. Forceps had been applied before admission and the vagina was lacerated and oedematous and a Bandl's ring was present. A general anaesthetic was given by an assistant and delivery completed by forceps - evidently a minor degree of pelvic contraction. She developed Puerperal Septicaemia on the fourth day of puerperium and was sent to the Auckland Hospital where she received treatment for approximately six weeks for Sepsis and Thrombosis of the veins of both legs.

This patient might have been a suitable one for induction of labour any time after the thirty-sixth week.

Among other forseeable difficulties are malpresentations, chief of which are the Occipito-Posterior presentations.

Although only a small proportion remain persistently posterior throughout labour - roughly about 5% - they may cause considerable difficulty.

Occipito-posterior positions can often be turned into occipito-anterior positions, by the method of using a tight binder to keep in position two abdominal pads as recommended by Buist. According to the statistics of the Ante-Natal Department of the Simpson Memorial Hospital, Edinburgh, in the last two hundred consecutive cases, rotation forward of the occiput took place in over 75% of cases after this manoeuvre (Haultain & Fahmy)[7]. The pad is presumed to press down on the child's back and thus induce it to rotate to the front. Recurrence of the Occipito-posterior position is more frequent in a multipara than in a

primipara, owing to the foetal head not becoming fixed so early and so securely in the pelvis.

Munro Kerr[8.] estimates that in 7 % of persistent Occipito positions, the progress of the labour becomes completely arrested or uterine inertia becomes established.

This simple method of Buist's then is always worthy of a trial, although it is not spoken of with favour in the "Queen Charlotte Practice of Obstetrics."[9.] There it is stated that these manoeuvres are doomed to failure and only cause needless discomfort, and furthermore, raise apprehensions in the mind of the patient which are unnecessary.

In my series, this manoeuvre of Buist's was not adopted, although several cases were considered.

Case 54, a primipara aged thirty-three years was supposed to enter hospital for treatment of anaemia and there an opportunity would have occurred to try the method.

Case 41, a primipara aged 22 years was very fat and sluggish and her abdominal wall so lax that pressure could not be maintained.

Case 21. did not report a week after Right Occipito Posterior definite as desired and she went into labour without again coming to the Clinic and had her baby in the Right Occipito Posterior position, no difficulty arising and the first stage lasting only 6 $\frac{41}{60}$ hours.

Breech cases may be turned into vertex positions and the best time to do this is about the thirty-seventh week. The foetal mortality in breech cases is approximately 10% and the maternal tissues are more likely to be damaged, so that it is worth trying the manoeuvre of external version. A general anaesthetic is administered usually, in fact always to a primipara and the patient put in the Trendelenburg position. The breech is then pushed out of the pelvis and one hand pushes the head in one direction downward, the other hand pushes the breech in another direction upwards. When the version is successfully

accomplished, the new position is maintained by applying pads to each side of the uterus and a binder to keep them in position. In about 65% of cases, external version is successful in primiparae. It is only in rare instances that this manoeuvre has any untoward result.

At one of our Obstetrical Society meetings, two cases were reported where the foetus had died in utero shortly after the performance of external version. Such an occurrence might be due to separation of the placenta, rupture of the membranes, strangling or knotting of a long umbilical cord.

Case 16. was a successful case of external version, the baby being born in the vertex position.

Case 12. was a primipara aged 20 years who lived ten miles out in the country. She failed to report as desired a fortnight after breech presentation definite and she was confined with the breech in a Right Sacro Anterior position and had an easy labour.

Another malpresentation capable of rectification is that of the transverse where the foetus lies obliquely in utero; the head occupying an iliac fossa and the breech being on the opposite side but at a higher level.

An anaesthetic should be administered if the abdominal muscles are unduly rigid and the head of the baby pushedover the pelvic brim and kept in place by an abdominal binder.

Case 4. was a multipara, aged 26 years on whom this manoeuvre was performed successfully.

Case 1. (Emergency). was that of a multipara who was found at labour to have a Right Shoulder presentation. She was transferred to St. Helen's Hospital where a podalic version was performed and a healthy child delivered. In this case there was a Post-partum haemorrhage which might have been contributed to by the multiple manipulations and the prolonged anaesthesia.

Occasionally tumours of the abdomen exist with a pregnancy and if large or causing much pain, require removal by operation.

Any tumour, e.g., an ovarian cyst, which is likely to obstruct labour, may be removed during the pregnancy, or later at the confinement, which is then quite likely to end in Caesarean Section.

Fibroids at times cause difficulty in labour, the large ones preventing the proper expulsive power of the uterus besides presenting an obstruction. During pregnancy they have a tendency to degenerate and cause much pain and toxaemia.

Case 5. was that of a primipara who at the fifth month, complained of severe pain in the right iliac fossa, where a hard mass, the size of a tangerine orange was palpable. This tumour was found to be a pedunculated fibroid, and it was successfully removed without interrupting the pregnancy.

Case 52. was an example of a pregnancy with large fibroids undergoing necrobiotic degeneration. In this patient the abdomen showed an asymmetrical large-sized tumour which was readily palpable. She complained of a certain amount of pain, but she was allowed to proceed to term when a Caesarean Section was performed, followed by sub-total hystereotomy.

Twins may cause dystocia. It is sometimes possible to diagnose them by the multiplicity of the foetal parts, the unusual size of the uterus, by auscultation of two hearts of different rates with their points of maximum intensity at different places, by the palpation of two heads and by the help of X-rays.

One cannot do anything with regard to twins to ensure an earlier delivery, but their recognition ante-natally would serve to explain any subsequent dystocia. As multiple pregnancies are more prone to "toxaemia in pregnancy", more careful watch would have to be kept on the urine, blood-pressure and general well-being of the patient.

The general physical condition has some bearing on the subsequent labour, for a woman in good health with muscles well exercised, will be able to exert considerable force.

When the woman is much debilitated, she should be spared any

undue prolongation of the labour by resort to induction of labour, or the use of forceps at the opportune time.

Heart disease in which compensation is breaking down, advanced Tuberculosis, exophthalmic goitre, chronic nephritis, etc., would entail a more careful watch on the patient in labour, so that by sedatives and instrumental help, she be spared over-taxing the affected organ.

Case 12. had a mitral systolic murmur at the apex, but otherwise her heart was normal; Case 45 had tachycardia but no other signs.

Case 56. had to be watched carefully as she had a slightly enlarged heart with a mitral systolic murmur conducted to the axilla - a sequela of Rheumatic Fever at the age of 14 years.

Case 53. had a history of repeated sore throats, "growing pains" and scarlet fever in her youth, and on examination she was found to have a mitral systolic murmur at the apex.

Case 62. had a history of Rheumatic Fever at the age of 14 years and again at 23 years. The heart was within normal limits with a faint mitral systolic murmur at the apex conducted into the axilla. She was subject to breathlessness and occasional fainting attacks.

In all five the compensation was maintained throughout pregnancy and labour.

Case 54. was a primipara aged 33 years who was notably anaemic, the haemoglobin being 40 % and the Colour Index 0.5 and the Red Blood Corpuscles 3,950,000 $c.mm$. Patient was helped by delivery with forceps after being $3\frac{1}{4}$ hours in the second stage.

Case 2 was a primipara aged 21 years who had a history of chronic pulmonary tuberculosis and of anaemia. She was given treatment ante-natally and her labour was normal.

Case 5 (Emergency). a primipara aged 21 years was an example of a weakly person in whom the strain of pregnancy becomes evident by increasing dyspnoea. She received treatment in hospital for three weeks and left with instructions to continue ante-natal supervision.

Placenta praevia now comes into the category of one of the forseeable difficulties of labour. It is due to a low implantation of the placenta on the lower uterine segment and is of three varieties. I. Central, where the placenta covers the internal os.

II. Marginal, where the edge of the placenta crosses the internal os.

III. Lateral, which is attached to the side of the lower uterine segment and does not reach the internal os.

Routine ante-natal examination often reveals malpresentation or failure of the head to engage, owing to the position of the placenta.

The Placenta praevia may lead to abortion in the early months but commonly, the symptoms do not arise till after the sixth month, usually in the last six or eight weeks of pregnancy when a spontaneous haemorrhage occurs. There is no pain unless labour has begun. The haemorrhage may be slight or great and may then cease, only to return at intervals of days or weeks before the onset of labour. The maternal mortality varies from 5 - 10 % as judged by hospital statistics and the foetal mortality may be anything from 40 - 80%.

The only definite sign of placenta praevia is feeling the placenta through the partially dilated os.

The danger from a sudden and excessive haemorrhage is great, so that once the condition is realised, treatment is necessary, but depends a good deal on the position of the placenta, the presentation and the size of the os. Treatment may consist in

I. Rupturing the Membranes, which is usually sufficient in the milder cases in which labour has begun and the head presents. If a breech presents, a foot should be brought down until the leg acts as a plug.

II. Plugging the Vagina, which is more effective if the membranes have been previously ruptured.

III. Version and bringing down a leg. An attempt may be made to do external version.

IV. Insertion of de Ribe's bag. It has the disadvantage that the presenting part may be dislodged and an oblique position result.
V. Caesarean Section which is performed chiefly in the interests of the child and practically always in elderly primiparae and in cases in which there is any mechanical obstruction to delivery, provided always that the foetal heart sounds are distinctly heard and are not greatly weakening.

Jellett[10] recommends Caesarean Section in those cases in which haemorrhage occurs after the child is viable and before serious bleeding has occurred, in order to save the mother from haemorrhage and the child from death. In some cases recognised before the child is viable, he believes in keeping the patient under supervision until the labour is nearer maturity.

If, at any time, the patient shows signs of shock from haemorrhage, immediate treatment should be instituted, consisting of blood transfusion, subcutaneous salines, rectal salines, injection of morphia, rest and warmth, plugging the vagina and applying a tight abdominal binder.

Dr. Bethel Solomon[11] claims that curettage two months after a placents praevia labour, would prevent the complication in future labours.

EMERGENCY CASES

Case 19. had a partial placenta praevia, part of which became adherent and had to be manually removed. From the 3rd. to the 6th. day there was some pyrexia which settled, and mother and child went home well on the fourteenth day.

Case 25. She had a history of haemorrhage three weeks before admission. She had a severe flooding prior to coming to Hospital and the vagina was filled with a big blood clot. Caesarean Section was done in this case, but unfortunately the child was born apnoeic, and although resuscitated, died ten hours later.

Perhaps some other treatment would have given equally good results - vaginal plugging, or bi polar version.

Case 8. Admitted to the Auckland Hospital suffering from albuminuria with oedema. Two days after admission she had a severe haemorrhage and on vaginal examination she was found to hava a placenta praevia. Labour commenced and was completed by the aid of forceps, a still-born child being born.

ANTE-NATAL CASES.

A number of these cases had haemorrhage at varying times throughout their pregnancies and they were carefully watched and advised to report immediately any recurrence. However, none of them aborted or showed further signs which would lead one to suspect placenta praevia and all proceeded to term having normal labours.

Case 10. in her fifth month woke up one morning with sharp pain in her abdomen and had a profuse haemorrhage which lasted twenty-four hours, and then cleared up, not returning again.

Case 63. had a fair amount of haemorrhage at the sixth and seventh months respectively and spent a few weeks in Hospital resting and under observation.

Cases 15, 65 and 72.had at times slight blood-stained discharge. Also case 66.

Case 6. at the third month had a bright vaginal discharge for one day.

Case 46. one day in her seventh month had pain in her back and haemorrhage which lasted thirty-six hours and then ceased for the remainder of the pregnancy.

Case 51. at the fourth month one day had a slight brownish discharge.

Case 4. had haemorrhage at weekly intervals, the blood coming away without any warning. This persisted until the fifth month.

Case 52 had frequent brownish-red discharge, but she had degenerating fibroids., on which account a Caesarean Section was performed at full term.

The patients were all advised to rest at the slightest sign of discoloration and not to lift heavy weights, to stretch the arms unduly, to jump from chairs, etc., or to strain themselves

in any way. In fact, to go quietly about their movements, especially at the times the periods would be due.

This would seem a suitable place for referring to other haemorrhages of pregnancy - Abortion, Tubal Pregnancy, Hydatidiform Mole etc. The diagnosis of these conditions can, by careful ante-natal examination, be excluded or confirmed. In the earlier months of pregnancy, haemorrhage may be due to abortion, irregular menstruation, cervical erosion, polypus, carcinoma of cervix, hydatidiform Mole or tubal pregnancy.

Abortion. - Most cases occur at the end of the second and third months at a date corresponding to a menstrual period. It is estimated that at least 20% of all pregnancies end in abortion.

The causes of abortion are numerous and difficult to classify, but a large proportion are due to diseased conditions of the decidua interfering with the nutrition and further development of the ovum. These conditions are due to both local and general causes and among the common causes are any acute disease causing fever, syphilis, however slight, in either parent; chronic diseases like nephritis, cardiac and lung diseases, and drugs.

Pelvic conditions. - ovarian tumours, displacements - retroflexion and prolapse - and endometritis, perhaps cause most abortions.

In some women the uterus seems to have developed an irritability, and the slightest upset, physical or mental, brings on an abortion.

When abortion occurs, search should be made for a definite cause. A retroflexion should be corrected either by operation or by replacement and support with a pessary. If endometritis exists, the uterus should be curetted. A badly lacerated cervix requires repair. If abortion is repeated, syphilis is suspected, and a Wassermann should be taken of both parents, and if necessary, ante-syphilitic treatment

instituted.

Endocrine therapy, particularly the administration of thyroid extract, appears to be beneficial in preventing abortion.

Case 22. (Emergency). was that of a typical case of abortion occurring at the second month, due to retroversion of the uterus and possibly contributed to by a chronically inflamed appendix.

The abortion being inevitable, the uterus was curetted and then the appendix removed, and the uterus fixed in position.

Tubal Pregnancy. The majority of cases 70-80% end during the first two months by intra-capsular rupture into the lumen of the tube, so called tubal abortion. The symptons only arise as a rule when haemorrhage takes place into the tube lumen. The two chief symptoms are pain in the lower abdomen and uterine haemorrhage. By bimanual examination, the uterus is felt enlarged and soft and is displaced by a tubal swelling if the haemorrhage is large.

In case of a haematocele forming, a mass becomes palpable in the Pouch of Douglas.

Occasionally symptoms are urgent and patient may die in six to eight hours from intra-abdominal haemorrhage. The symptoms are then weak, rapid pulse, increasing pallor of lips and mucous membranes, subnormal temperature, dimness of vision, ringing in ears and thirst. Any patient exhibiting irregular vaginal loss of dark coloured blood with continuous or recurrent pain, should be suspected of having an ectopic gestation.

Case 4. (Emergency). was a case that ended in rupture of a tubal pregnancy at the end of the first month.

An abdominal operation was performed and the ectopic mass removed.

Hydatidiform Mole. diagnosed by the rapid enlargement of the uterus, a three months' pregnancy reaching to the umbilicus, by a watery or blood-stained discharge or irregular haemorrhage.

Occasionally vesicles excape, making the diagnosis conclusive.
Sometimes there is excessive vomiting; in fact this may be so marked a feature as to suggest Hyperemesis Gravidarum.
The mole grows and the foetus dies and disappears so that there is no foetal heart sound audible, and no foetal parts to be felt.
The condition must not be confused with twin pregnancy or a pregnancy further advanced than patient suspects, or hydramnios.
As soon as the condition is definite, a vaginal or abdominal hysterotomy or induction of abortion, ought to be performed.
Cervical Erosion and Polypus can be made out only by inserting a speculum into the vagina. The polypus can be snipped off with scissors and the erosion treated by some silver preparation.
Menstruation occasionally occurs at regular period intervals throughout pregnancy, and adds to one's confusion until it is certain that it is not a miscarriage taking place.
Case 4. had a history of haemorrhage every month with her first pregnancy.
Carcinoma of the cervix is a rare cause of haemorrhage and the treatment thereof consists in total hyterectomy or the insertion of radium.
In the latter months of pregnancy haemorrhage may be due to Accidental Haemorrhage - bleeding from the placental site, when the placenta is situated in the upper uterine segment.
The haemorrhage occurs usually after the sixth month or during the first stage of labour.
It may be due to trauma, or undue exertion, but it is more commonly due to nephritis, placental infarction and decidual endometritis. Slight cases may have external haemorrhage as the only symptom and must be differentiated from placenta praevia.
Severe cases of External Accidental Haemorrhage show all the signs of profound shock and loss of blood.
This condition is treated by tightly plugging the vagina and applying an abdominal binder.
Rupture of the membranes will further induce the commencement of labour.
In the concealed variety of Accidental Haemorrhage, no

haemorrhage is seen. It is most serious, and the patient presents all the signs of internal haemorrhage and the uterus enlarges in size and becomes tender with the distension of blood. If labour has begun the haemorrhage will probably be checked. Otherwise a hysterectomy following on Caesarean Section should be performed, if there is no response to conservative measures. All cases require the routine treatment for shock and the administration of morphia. A recurrence of such a complication can be prevented by a search for the cause and its treatment.

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6. Gibberd G.F. The Results of Induction of Labour with Animal Bladders. B.M.J. 5.9.29 P.617
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II.

THE DETECTION AND TREATMENT OF TOXAEMIA.

The cause of toxaemia of pregnancy is not yet determined, although the evidence indicates that protein metabolic end-products play an important role in its etiology. These substances come presumably from three main sources.

(1). The foetus and placenta directly and from the metabolic changes brought about in the maternal organism by their presence.

(2). the endogenous protein metabolic waste products, and

(3). the exogenous protein metabolic waste products.

Limiting the production and promoting the excretion of the waste products, will prevent the development of serious symptoms in most instances.

There are three clinically distinct types of toxaemia of pregnancy, due to toxins circulating in the blood from the presence of the foetus and the placental mass.

They have the common initial symptom of albuminuria which may proceed to -

1. Eclampsia. 2. Pernicious Vomiting. 3. Acute Yellow Atrophy.

The urine should be examined at regular intervals - once every month until the seventh month and thereafter at fortnightly intervals or oftener should there be any suspicion of albuminuria.

At the same time the Blood Pressure is taken to give a further index of the toxaemia.

A rising Blood Pressure, oedema and albuminuria call for drastic action, as these symptoms herald the more dangerous affections of pregnancy. Headache, blurring of vision, and epigastric pain may occur too and serve to confirm the diagnosis of toxaemia.

Any patient exhibiting these symptoms at a Clinic requires Hospital treatment, which should be commenced immediately.

Until improvement is manifest, only fluids are allowed.

Alkaline diuretic mixtures are given, which consist usually

of large doses of Potassium Citrate and Sodium Citrate, the object being to alkalinize the urine; colonic lavage is carried out once daily with the idea of removing intestinal toxins. With decreasing albuminuria, a carbohydrate diet is permitted - bread, rice, tapioca,etc.

Protein.- at any rate meats - should be excluded from the diet for the remainder of the pregnancy.

If, in spite of treatment, the albuminuria persists or increases and the Blood Pressure rises with other signs of increasing toxaemia such as frequent headache, impaired vision, epigastric pains, twitching of face muscles, eclampsia threaten and the pregnancy must be ended as speedily as possible.

Eclampsia has a maternal mortality rate varying from 8-18% and a foetal mortality rate of 50%.

It is generally considered one of the preventable diseases of pregnancy, entailing a careful watch on the general physical condition and in particular the urinary system.

When eclampsia has declared itself, the convulsions have to be checked by sedatives, such as morphia, bromides and chloral hydrate, or by the method of using a combination of morphia and chloral with a certain régime as advocated by Stroganoff.

Thyroid treatment is recommended by some authorities for its vaso- motor action on the kidneys, promoting diuresis.

Where the fits have begun before labour has commenced, labour may be induced by simply rupturing the membranes or by introducing a rubber bag into the lower uterine segment.

Where labour has already begun,its termination may be expedited by the application of forceps at the opportune time.

Caesarean Section has or ought to have a limited field in Eclampsia, or in fact in any of the toxaemias of pregnancy and is a matter of choice perhaps in elderly primiparae with closed and rigid cervix, the foetus being still viable as determined by palpation of the foetal parts and auscultation of the foetal heart.

There were no cases of Eclampsia among those attending the

Clinic in my series. nor in any of the patients attending St. Helen's Clinic since its inception.

Case 23. (Emergency). was sent to the Auckland Hospital after having two eclamptic fits. The urine contained a great deal of albumin and she had marked oedema in the lumbar region and her breath was noticeably uraemic.

She did not respond to treatment, and her Blood Pressure rose to 200 - 100, so labour was induced by inserting four bougies into the uterus. A still-born child was delivered and thereafter patient slowly improved.

ANTE-NATAL CASES.

A number of cases showed evidence of Toxaemia and received treatment at the Clinic and the Hospital.

Case 26. was that of a woman 21 years old who in her last month of pregnancy developed generalised swelling of the body without putting on pressure, and a high Blood Pressure $\frac{162}{100}$ with high pulse pressure.

The urine was consistently clear of albumin until after her admission for ante-natal treatment in the Hospital where a catheter specimen showed a trace of albumin. Active treatment was commenced, and for the first day she was allowed fluids only and given Sodium Citrate gr.XXX. four hourly. She responded well to treatment and two days after labour the urine and Blood Pressure were normal.

This woman would probably have soon reached a pre-eclamptic stage if she had not had adequate ante-natal care.

Case 5 had on two occasions a high Blood Pressure and swelling of ankles, but no other symptoms of toxaemia. She responded to treatment.

Case 8 had slight albuminuria in her eighth month.

Case 9 was a multipara, aged 43 years, weighing 11 st one. She had a high Blood Pressure throughout her attendances at the Clinic $\frac{170}{125}$ - $\frac{155}{125}$, and on two occasions the urine contained a slight cloud of albumin. Other symptoms of toxaemia were carefully excluded and she was put on a strict regime which prevented her from getting worse.

Case 41, a primipars aged 22years, in her last week, showed a trace of albumin in the urine, and had marked oedema of the legs, hands and face with pitting on pressure. She was admitted to hospital where the usual ante-natal treatment was carried out, consisting in milk diet only and Sodium Citrate gr. XXX. four hourly. She improved considerably, and three days after labour urine was clear and there was no oedema.

Case 46 showed slight albuminuria once in her eighth month and complained of headache occasionally.

Case 49, a primipara, aged 22 years, in her eighth month, was found to have a trace of albuminuria which persisted in subsequent specimens, until sixteen days before delivery it was found to be loaded with albumin. She was then admitted to the Hospital for ante-natal treatment which consisted in fluids only for one day, and Sodium Citrate gr. XXX four hourly. The amount of albuminuria decreased under treatment from .9 Esbach's reading to .1 two days before her confinement.

Case 56 was a multipara aged 42 years with a Blood Pressure on the high side at times $\frac{156}{115}$ & $\frac{135}{65}$. She had a slight amount of albuminuria in her early attendance at Clinic, but no vomiting or oedema. She was advised to drink copiously of barley water and to delete proteins from the diet, and the Blood Pressure became more normal and the urine cleared in three weeks.

Case 58 had slight albuminuria in her eighth month but no other symptoms of toxaemia.

Case 10 had swelling of her feet at intervals, but no affection of the urine or alteration of Blood Pressure.

Case 18 showed albuminuria in the last month, but no vomiting and no oedema.

Case 22 had albuminuria once only.

Case 23 was a primipara who reported at the Ante-Natal Clinic in her sixth month, when the urine was found to contain much albumin. For her age - 21 years - she had too high a Blood Pressure, $\frac{150}{100}$.

At times she had generalised oedema and vomiting and headache.

As her condition did not improve, she was sent to the Auckland Hospital where she was successfully treated, the urine being clear of albumin on the day of discharge, three weeks after admission.

She was distinctly in a pre-eclamptic condition.

Case 24, a primipara, aged 23 years, had several times rather a high Blood Pressure, viz. $\frac{145}{120}$. $\frac{140}{120}$ and complained of blurred vision, headache and insomnia, although there were no urinary symptoms and no oedema. She was advised to drink abundance of fluids in between meals, and no further untoward symptoms developed.

Case 28, a primipara, aged 24 years, developed swelling of the feet about the eighth month and a high Blood Pressure. She was put on a strict diet and advised to take abundance of fluid in between meals, and Blood Pressure became normal.

There were other cases with slight departures from normal.

(b) Acute Yellow Atrophy is a rare complication, due to the toxins acting chiefly on the liver, which undergoes fatty degeneration, and on the kidney, which exhibits degenerative changes.

The urine becomes scanty and contains albumin or blood.

The patient has a rigor, becomes deeply jaundiced, and later, cyanosed, the condition ending fatally in six to eight days.

(c) Pernicious Vomiting . Throughout the first three months of pregnancy there is a certain amount of vomiting, more particularly in the early morning, and in some women this tends to become excessive, and vomiting ensues after every meal, and in the interval there is a constant feeling of nausea. This excessive vomiting may become very troublesome, leading to the condition known as Functional Hyperemesis Gravidarum, which if not checked, may proceed to a dangerous form of acidosis.

All cases exhibiting more than ordinary vomiting should be put under a careful régime immediately. So many cases are neurotic in origin that it is a good plan to isolate the patient from her friends and relatives and keep her quiet in a darkened room,

giving her only fluids for the first 24 hours. These cases should receive four-hourly rectal injections of saline with 5% glucose or injections of Sodium Bicarbonate 1 dr. to 1 pint, together with sedatives.

After 48 hours a carbohydrate diet is permitted, and should vomiting recur, a return is made to the above regime.

But there is a condition of True Hyperemesis Gravidarum caused by the toxins of pregnancy. Uncontrolled sickness is the chief symptom and the patient becomes very thin and toxic looking, maybe jaundiced, the pulse rate becomes very quick, 140 at times and the urine is found to contain albumin.

Toxaemic vomiting occurs more frequently in the latter months of pregnancy, and the combination of symptoms - albuminuria, jaundice and coffee-ground vomiting - indicates urgent treatment. Induction of abortion is too slow a method of getting rid of the foetus, as once the down grade sets in, it proceeds apace. Abdominal hysterotomy entails the least upset to the patient, and to lessen the intake of further bodies deleterious to the liver and the kidneys, spinal anaesthesia or gas and oxygen should be administered.

Several cases in this series exhibited vomiting which seldom became troublesome.

Case 30 was a multipara who exhibited albumin in urine on nearly every occasion at the Clinic. She had headache and occasional vomiting, but no oedema, and the condition was checked by treatment.

Case 14 always came complaining of vomiting and declared she "kept nothing down." The urine contained pus cells and the pyelitis may have been a contributing factor in keeping up the vomiting.

Occasional non-toxic vomiting was exhibited by Cases 36 and 28.

Case 31 continued vomiting occasionally right up to the end of pregnancy but as there was no oedema or albuminuria at any time the vomiting was not regarded as due to any toxaemia.

Cases 34 & 43 were similar cases.

Case 71 vomited fairly frequently in the seventh month.

Case 12 vomited occasionally in the eighth month and

Case 11 had slight vomiting at times.

Other patients in this series vomited occasionally after the third month but further investigation did not lead to a diagnosis of any toxaemia.

EMERGENCY CASES

Case 20, three months pregnant, a primipara, who began to vomit when six weeks pregnant and continued at intervals until she became very toxic and worn out, when she was admitted to the Auckland Hospital. She was put on treatment consisting of intravenous injections of saline solution with 5% glucose, rectal and subcutaneous injections of saline, sedatives, etc, but by the eighth day she was becoming more jaundiced and the urine contained albumin, so it was decided to empty the uterus. Accouchement force was performed and the foetus and placenta removed. She made a very slow recovery and was discharged thirty-eight days after admission - a type of True Hyperemesis Gravidarum.

Case 21 was a multipara aged 27 years, admitted to the Auckland Hospital with the history of six weeks' vomiting and loss of weight.

The urinary system showed negative findings.

After being in Hospital two days under a strict regime, she ceased vomiting. The first day she had boiled water only and the next days dry meals. By the eleventh day she was able to take ordinary food without vomiting or discomfort and she was therefore discharged two days later - A type of Functional Hyperemesis Gravidarum.

Chronic Nephritis. At times the albuminuria may be due to a former lesion of the kidney and herein does the history prove of use in giving an indication of the general health before the onset of pregnancy, with special stress on the incidence of such diseases as affect the kidneys. A history of Scarlet Fever or Rheumatic Fever or kidney trouble is considered worthy of marking especially on the patient's chart.

A patient with chronic nephritis is usually an unsatisfactory one from the beginning and early in pregnancy begins to show

signs of breakdown of the "kidney reserve."

Chronic nephritis through conducing to the condition of endometritis has an evil reputation for causing abortion, premature labour, placenta praevia, etc.

In an endeavour to carry on to full time, treatment should be carried out on general principles, by rest in bed, milk diet, large does of alkali mixtures, and by colonic lavage with saline solution.

Conservative treatment may be adopted as long as the condition is not progressing especially before the thirty-sixth week, but should symptoms become more grave in the onset of uraemic fits, pregnancy should be terminated by the induction of labour or by hysterotomy.

ANTE-NATAL CASES.

Case 22 had a history of Scarlet Fever in infancy, but except for one occasion the urine was free from albumin and patient felt well.

Case 41 had a history of Rheumatic Fever at the age of twelve years and in the ninth month of pregnancy she developed marked oedema of legs, hands and face with slight albuminuria, but she responded to treatment.

Cases 19 & 53 had Scarlet Fever in their youth, leaving no sequelae.

Case 44 gave a history of kidney trouble in infancy, leaving no ill effects.

Case 56 with a history of Rheumatic Fever exhibited Albuminuria on two occasions only.

In none of these cases was the kidney permanently damaged, leaving a "chronic nephritis."

EMERGENCY CASES.

Case 12 was admitted to St. Helen's Hospital where she was normally delivered of a premature baby weighing only 3 lbs. 4 ozs. Patient had oedema and albuminuria and in spite of treatment the urine continued to show a trace of albumin on the day of discharge

Case 16 is that of a multipara with symptoms of pyelitis and chronic nephritis who gave birth to premature twins weighing

each 2 lbs. 11 ozs.

Her condition improved after the confinement and she was able to return home fourteen days later.

Case 17 is that of a multipara aged 40 years with a bad history of previous "kidney trouble", dating from former pregnancies. Her symptoms came on early at rhe fourth month, and she was found to have much albumin in the urine. The urea concentration test varied from 1.2% - 1.8%.

An abdominal hysterotomy was performed and an opportunity taken to sterilise the patient, by dividing the Fallopian tubes.

In the treatment of toxaemias of pregnancy, it is interesting to note that in some new work on Liver Intoxications, Minot[1.] and his collaborators have shown that somewhat better results follow the administration of carbohydrates, for instance, glucose solution, with calcium. Their treatment was carried out with good response in some eclamptic and pre-eclamptic cases.

Many patients who at times showed unduly high blood pressure readings, responded quite well to the usual treatment of salt-free non-protein diet and the intake of abundance of fluids between meals.

The Blood Pressure was taken at each visit.

Some patients seemed to have a persistently high Blood Pressure, and this was noticed particularly in those of stout build. These patients were put on the usual strict régime, and while their Blood Pressure seldom rose any higher, there was not always response to treatment.

Case 9 was a multipara, aged 43 years who had a Blood Pressure varying from $\frac{170}{120}$ to $\frac{155}{128}$, and in her sixth month had very slight albuminuria on three occasions.

She was a heavy woman, weighing thirteen st one.

Cases 8,10,15, 23,24,25,26, 28,31,37,44,51,54,56,59. all had Blood Pressure too high at times, but as there were no other concomitant symptoms of toxaemia, dietary treatment only was enforced.

The pulse pressure - the difference between the systolic and diestolic pressures was observed in some cases and found as a rule to be within the normal limits of variation of 25 - 50. At anyrate, the pulse pressure did not remain so consistently abnormal as to suggest kidney involvement on the one hand or a failing heart on the other.

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Vide B.M.J. 19.9.29. P.717.

III. Measures for increasing resistance to infection and treatment of septic foci.

As Puerperal Sepsis is likely to ensue from any focus or infection in the body, ante-natal treatment should aim at eradicating any such source.

Routine examination of patients discloses teeth in varying stages of decay, sometimes with pyorrhoea. These should be removed or treated irrespective of the date of the pregnancy, despite the mistaken idea of the laity that dental extraction will end in miscarriage.

Other sources of infection may be discharging ears, skin affections, or septic tonsilitis should be treated and the septic focus reduced to a minimum.

A chronically infected lacerated cervix discharging muco-pus, that is, in a catarrhal condition, is a potential source of infection which should be removed by douching with antiseptic solutions or treated by applications of some antiseptic at regular intervals.

In my series the degree of lencorrhoea in these patients was seldom more than is common in pregnancy, and usually responded to treatment by douching and bathing twice daily, using antiseptic soap.

The streptococcus pyogenes has been isolated in many cases from apical abscesses, septic tonsils and from the genital tract, during pregnancy, without the patient developing puerperal sepsis.

But White and Armstrong's[1] investigations into the presence of streptococus pyogenes in the genital tract as the cause of Puerperal Sepsis, lead to the conclusion that the bacteria of the genital tract do not play any primary part in Puerperal Sepsis.

The Medical Officer[2] at St. Helen's Hospital and Clinic, investigated 20 cases, finding varying kinds of streptococci in the genital tract of 12 cases, none of whom subsequently developed Puerperal Sepsis.

The evidence so far accumulated goes to show that auto-infection is not generally responsible for puerperal sepsis, but that the condition most usually follows trauma, due to examinations and manipulations.

Cystitis and Pyelitisshould be treated during pregnancy by the administration of large doses of alkalis and urinary antiseptics. These two conditions cannot be held responsible for Puerperal Sepsis, although they are a frequent cause of Pyrexia and illness during pregnancy and the puerperium.

Dr. Averill[3] conducted an investigation into 22 normal and 66 septic cases and his opinion was that the urine as a source of puerperal infection could be disregarded.

The general health of the mother has a bearing on her resistance to infection, for it is a recognised fact that debilitated anaemic women are more susceptible to septic complications, especially where any interference has been found necessary, than are normal women.

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IV. The Diagnosis and Treatment of Venereal Diseases.

As the venereal diseases would cause so much harm to the mother and her offspring, bacteriological examination was always resorted to in cases of doubt.

Whenever there was more than the ordinary amount of discharge, a sterilised speculum was inserted into the vagina and a sterilised swab applied to the cervix. The swab was then sent to the Auckland Hospital for bacteriological examination for identification of the gonococcus. Should gonococci be found present in the swab, treatment was instituted by antiseptic swabbing of the cervix or by the insertion of medicinal pessaries.

Any patient who proved to have Venereal Disease was sent for treatment to the Out Patient Department of the Auckland Hospital.

In this country, once the presence of the disease has been proved, notification to Public Health Authorities and subsequent treatment are compulsory.

Case 59, a multipara, aged 41 years, had a history of giving birth to a macerated foetus and her Wassermann reaction was done with negative findings.

On this occasion she gave birth to a premature still-born child, so that it might be sound policy to put her on an anti-syphilitic régime for her next pregnancy, as it is a recognised fact that though the Wassermann reaction is returned as negative, in a small percentage of cases it is unreliable.

If any case is suspicious, for instance, the production of a swollen and dead foetus - blood can be obtained for a Wassermann reaction from blood from the umbilical cord, or a small piece of the placental tissue can be sent for pathological examination.

Weakened syphilitic infection is at times a contributing factor in the causation of toxaemis of pregnancy and in the production of congenital defects in the foetus. According to

statistics emanating from Glasgow and Edinburgh, positive Wassermann reactions are found in from - 3 - 7% of pregnancies.

Case 40 was suspected of having gonorrhoea and a cervical swab was sent to the Auckland Hospital for examination. The report returned was. "No gonococci found." Baby's eyes remained clear of infection throughout the puerperium.

EMERGENCY CASES.

Case 13 was admitted to the Auckland Hospital as a case of Puerperal Insanity. She had had a number of miscarriages and one still-born baby.

The vaginal swab revealed no gonococci on the film or in the culture.

The blood was examined for the Wassermann reaction and found to be positive.

This patient should be put on an anti-syphilitic régime until the Wassermann reaction is declared negative, when she would, in all probability, carry a child successfully to full term.

Case 9.

Admitted to St. Helen's Hospital where she had a normal delivery.

The baby progressed satisfactorily until the 9th. day when the conjunctivae became inflamed and discharged pus.

The gonococcus was suspected as the cause but could not be isolated.

The condition was treated as a gonorrhoeal conjunctivitis.

V. Co-operation between those responsible for the care of the child-bearing woman.

At this Ante-Natal Clinic in connection with St.Helen's Hospital, there is the closest co-operation, for when a woman goes into labour, her chart is immediately obtained and scrutinized and warning signs heeded.

There are always a large number of out-patients nursed by visiting nurses from St. Helen's Hospital. The ante-natal chart of each patient is taken to each case for the information of the doctor in charge of the case.

At other Clinics in the city - the Plunket Clinics - notice is sent to the doctor engaged for the case after the first visit, with particulars regarding pelvic measurements, result of urinary examination, etc. No further notice is then sent to the doctor unless some abnormality arises until the thirty-sixth week, when a full report is forwarded.

VI. EDUCATIONAL REPORTS.

As pregnancy can be a very trying time, especially to nervous women, an Ante-Natal Clinic where they feel every care is bestowed of them, becomes a very valuable institution.
Here their difficulties of pregnancy, minor and major, are discussed and appropriate treatment meted out.
They are taught to expect to be healthy, happy, human beings, instead of semi-invalids, and stress is laid on general hygiene with insistence on a wholesome diet and regular action of the bowels.
Harmful habits such as smoking and taking of alcohol in any form, are strictly forbidden, as are strenuous games and curtailment of sleep through late nights in vitiated atmospheres.
The woman is assured and taught to face the confinement with a confident outlook, and comes to regard the ills of pregnancy as curable or preventable. Undoubtedly the wholesome habits insisted on while in attendance at the Ante-Natal Clinic, will persist more or less to the general welfare of the mothers of the community.
Here at the Ante-Natal Clinic, stress is laid on the general cleanliness of the house and contents, and the importance of having a suitable room for the lying-in period, with adequate amount of clean linen for the labour, etc.
It is the practice at this Clinic and at most other Clinics in New Zealand, to supply a list of articles suitable for a Labour outfit, and instructions are given the patients in the manner of packing the outfit. Usually the outfit is brought to the Clinic for sterilization in a high-pressure boiler, but if that is impossible, instruction is given in a home method of boiling and subsequent baking of the outfit.
The mothers get a new concept of labour, learning by degrees that it ought not to be a haphazard affair with any unquali-

fied person in attendance, but a time when care and extreme cleanliness should be bestowed.

In subsequent pregnancies, even though the patients do not attend an Ante-Natal Clinic, they are more likely to report early to a doctor to have his or her advice and guidance throughout pregnancy.

MINOR DISABILITIES OF PREGNANCY.

Pain is a very common symptom during pregnancy, particularly after the sixth month. During the last month it increases and the situation varies for each patient.

Sometimes the pain is in the iliac fossa or across the lower abdomen, and then provided cystitis does not exist, more or less comfort is obtained by the wearing of an abdominal binder as support.

All patients are instructed in the way of making these binders.

Often patients complain of pain in the joints and it is a well known fact that the joints become relaxed in pregnancy sufficient to make walking difficult at times.

One patient - Case 2. was so handicapped that walking was very painful for her.

The relaxation of the joints has been so severe in some cases that the Symphysis pubis has been ruptured.[1].

It is difficult to treat these severe cases of joint pains other than by more rest.

Of course, a thorough investigation of teeth, tonsils, urine etc., should be made to exclude the possibility of sepsis causing a rheumatoid condition.

Pruritus is another condition which sometimes gives annoyance to the pregnant woman.

Although it is not due to a true glycosuria, deletion of sugars from diet often has a good effect, also the application of carbolic-lead lotions or alkaline lotions.

Case 58 derived benefit from the above treatment.

A number of patients, Cases 63,70. had had ventro-suspension performed, but in no instance was the progress of the labour jeopardised.

Ventro-fixation of which there was not a case in this series, at times causes dystocia from inability of the fundus uteri to rise naturally.

Anaemia of varying degree occurred in many of the patients -

Cases 3, 6, 33, 34, 35, 38, 40, 54, 56, 57 and 69, etc. They were advised to take liver tea or liver in some form, so long as the Blood Pressure did not contra-indicate the intake of protein, to take abundance of green vegetables, and in the more severe cases, Blaud 's Pills I. B.I. and to have any septic focu eradicated.

Those with a history of post-partum haemorrhage or haemorrhages throughout pregnancy were given courses of Calcium Lactate with the idea of increasing the coaguability of the blood. Cases 3, 4, 31, 46, 54, 62, 63, 69 and 72 had courses of Calciu Lactate therapy.

At times a skin affection occurs - may be an urticaria or an eczematous condition etc.

Case 7 had a papular eruption on arms which was treated with applications of soda solution and calamine lotion and the deletion of apples from the diet.

Case 19 had an itching eruption on the abdomen, across the breasts and on the flexor surfaces of the arms - cleared in a fortnight.

No patient had skin rashes suggestive of syphilitic disease.

Case 35 developed some patches of psoriasis on the back. The rash responded to treatment with 10 % Tar Ointment.

Bronzing and pigmentation occur, due to changes in the chromaffin tissue of the adrenal glands.

The pigmentation varies in degree, at times becoming very noticeable and giving rise to the description of "masque des femmes enceintes." It is sometimes widespread and associated with the less serious symptoms of Addison's disease - tiredness, low Blood Pressure, and bronzing.

Case 46 had definite "masque des femmes enceintes."

Case 36 had widespread pigmentation of the skin, a low Blood Pressure $\frac{90}{50}$, $\frac{100}{84}$, and was always very tired.

Goitre. Enlargement of the thyroid gland was present in varying degree in 45% of my cases - but it is to be remembered that the goitre incidence[2] is high in New Zealand - varying from

58% to 15% according to the locality.

With the object of providing a prophylactic dose against cretinism for the baby and of giving enough for the mother's needs Tinct. Iodii m.2 was advised twice daily. This dose, although it did not produce any noticeable signs or symptoms, was afterwards found to be much too large, and patients were advised to take iodized salt only.

Prof. Hercus wrote stating that 1.m. of Tinct. Iodin contained 2,729 m.g. of Iodine and the physiological need is only 50 m.g. a day and that by using iodized salt for all purposes both cooking and table, the iodine deficiency could be supplemented.

In some patients, as the uterus enlarges, pressure begins to be manifest in the development of such symptoms as haemorrhoids, varicose veins, oedema of the lower limbs, frequency of micturition and cramp. These conditions are all alleviated by wearing a support for the abdomen, and by resting with the legs up in mild cases, or in the prone position in the more severe cases.

Cases, 18, 19, 40, 42, 46, 47 and 55 and others, showed symptoms of pressure at varying times.

Hydrorrhoea Gravidarum - a watery discharge occurring during pregnancy, may be due to premature rupture of the foetal membranes or to a decidual endometritis. It must be distinguished from hydatidiform mole, and from the serum exuded from a concealed haemorrhage in the uterine cavity.

Case 39 had a profuse watery discharge, lasting two days, one month before the onset of labour.

Indigestion, chiefly as heartburn and flatulence can be a very troublesome symptom.

At times the indigestion was due to error of diet and was adjusted by the avoidance of fried and fatty foods.

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SU M M A R Y

The majority of women are well and in good health during pregnancy.

The minority suffer disabilities of one kind or another and need most careful supervision.

The aim of ante-natal clinics is to have cognisance of all disabilities so that the obstetrician is master of the situation, dealing with all difficulties in good time and not treating them as hopeless emergencies.

The amount of work done and advice given at Ante-Natal Clinics is considerable and causes one to realise the importance of their function.

Some Clinics, well-established and keen, have already accomplished a revolution in the practice of midwifery.

Guy's Hospital report for 1929 shows a reduction in the mortality rate from 4 to 0.56 and the East End Hospital for London has equally happy statistics, viz. 0.64.

It is not too much to hope, by more general observance of ante-natal care by medical students and practitioners, the above figures will be the maternal mortality rate for future generations.

Of course there will always be a residuum of cases in which surgical - and in that obstetrical is included - and medical skill fail from pure accidental happenings.

Jellett[3] attributes the comparatively low maternal mortality rate, viz., 2.53 in Holland and the Scandinavian countries in great part to the fact that in these countries ante-natal diagnosis and care have been fully developed. He maintains that if all deaths preventable by ante-natal diagnosis and care were prevented the maternal mortality rate would be reduced by nearly 2. per 1000, thus bringing our rate down to a rate comparable with that of Holland and the Scandinavian countries.

Therefore it is clear that the value of ante-natal care cannot be over estimated.

SUMMARY (Continued.)

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