Thesis for the Degree of Doctor of Medicine

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Subject: Cases of Occipito-posterior position of the head.

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Cases of Occipito-posterior Positions of the Head.

I beg to submit to the Faculty of Medicine the following thesis, which has been entirely composed by myself.

A thorough knowledge of Occipito-posterior Positions of the head is of vast importance to every General Practitioner, because they are so frequently met with, and because difficulties often arise in their course. I am aware that they have been carefully studied by most able Obstetricians, and that much has been written about them, but nevertheless, they require further attention.

My own experience of cases of occipito-posterior position of the head is limited to about forty cases, but of these I have noted only thirty-one. Twenty-eight of these thirty-one cases were delivered in Glasgow Maternity Hospital when I held the post of House-Surgeon; the others, I have met with in private practice.

In all of the cases with which I have met, the occiput was directed to the right side of the pelvis, so I shall direct my remarks chiefly to right occipito-posterior position.

The head engages at the brim of the pelvis with
the occiput opposite the right sacro-iliac joint, the sagittal suture approximately, in the right oblique diameter of the pelvis, and the pineal directed to the left ilio-pectineal eminence.

It is true that some authorities hold that the head usually enters the brim of the pelvis with its antero-posterior diameter in the transverse axis of the inlet, and that it subsequently comes to lie in an oblique diameter. With these I cannot at present agree, for in all of the cases that I have examined very early in labour and in which there was no pelvic deformity, I have never found the long diameter of the head in any other than an oblique diameter of the pelvis. Certainly as labour goes on, the head may come to lie with its long diameter in the transverse diameter of the pelvis, and that before the first stage of labour is completed; but if the case had been examined early enough the long diameter of the head might have been found in one of the oblique diameters of the pelvis (See Case 29 below). Also, we know that the transverse diameter of the pelvis as the brim is considerably modified by soft parts, the psoas and iliacus muscles reducing it by half an inch; while the right oblique diameter is the least affected of all the diameters, and the left oblique is no more diminished
diminished than the right except by the large intestine, which, when distended, may lessen it considerably. These are some of my reasons for rejecting this view, and for holding that the head usually enters the pelvis with its long diameter in one of the oblique diameters of the pelvis.

The first movement, which occurs, is Descent. It goes on throughout labour along with the other movements, so that nothing further requires to be said about it, only it must be kept in mind obviously it is caused by the parturient forces.

Flexion is the next movement. The head rotates on a transverse axis, the occiput passing downwards, and the chin of the child being pressed against the sternum. This movement greatly facilitates labour, as it substitutes a smaller diameter for a larger one. But often when the head is in an occipito-posterior position, this movement is very slight, and sometimes entirely absent; in fact, extension may take place instead, and when this occurs it is apt to lead to some difficulty.

After flexion, internal rotation occurs. The head undergoes a movement of rotation, the occiput (in right occipito-posterior position) passing along the right side of the pelvis, and the sinciput along the left side. After the completion of this movement, the antero-posterior diameter of the head lies, usually approximately
approximately, seldom exactly, in the antero-posterior
mesial plane of the pelvis, the occiput being behind
the symphysis pubis, and the forehead in the hollow
of the sacrum. But sometimes the rotation occurs in
the opposite direction, the occiput passing into the
hollow of the sacrum, and the pinciput moving
forward to lie behind the symphysis pubis.

If the forward rotation of the occiput take place,
the head gets forced down, and extension occurs.
The occiput, or the base of the neck, gets fixed against
the lower part of the symphysis pubis; the anterior
part of the head passes downwards and distends
the perineum, and ultimately the forehead, and
then the face, sweeps over the perineum and is born.

But when the occiput has rotated backwards
into the hollow of the sacrum, a different mecha-
nism occurs. The forehead becomes fixed behind
the symphysis pubis, while the occiput descends
and distends the perineum; thus the head
undergoes a movement of flexion. Sometimes
the forehead passes slightly upwards; but
whether it passes upwards or remains fixed,
the occiput moves downwards and forwards,
and eventually is born. Then extension of the
head occurs; the base of the neck being fixed
against the perineum, the forehead passes
downwards and is born.

By whichever mechanism the head is born,

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external rotation is the next movement. The occiput usually turns to the right thigh of the mother (in case of right occipito-posterior position), though sometimes to the left. The head simply follows the movements of the body of the child. There is a rotation of the body of the child on its long axis. The shoulders undergo internal rotation exactly similar to the internal rotation of the head, the left shoulder usually moving to the front, causing the occiput to turn to the right thigh of the mother; but in some cases the right shoulder moves anteriorly, and then the occiput passes to the left thigh.

The anterior shoulder gets fixed behind the symphysis pubis, while the posterior one distends the perinaeum and is eventually born. The parturient powers then force the body downwards; the anterior buttock becomes somewhat fixed behind the symphysis pubis in the same manner as the anterior shoulder did, while the posterior one is born.

It is not my intention to enter into the causes of these different movements, as I have nothing to add to the well-known theories.

I shall now give a short account of each of the thirty-one cases, of which I have notes. They are arranged in the following manner:
I. Patients—Primi parae—
Cases 1 to 8—Labour—non-instrumental.
Cases 9 to 12—Labour—instrumental.
II. Patients—Multiparae—
Cases 13 to 23—Labour—non-instrumental.
Cases 24 to 31—Labour—instrumental.

Case 1.—Elizabeth M.U.—Admitted into Glasgow Maternity Hospital on 17th of January, 1885. Age 24. Primi para. General health, good. Delivered on 18th of January, 1885. The first stage lasted 6 hours. the second, 1½ hours; and the third, 20 minutes. Labour, normal. Head, R.O. Flexion was well marked. Occiput rotated to the front. No tear of perineum. The child was a male, alive, mature, weighed 8 lb. 2 oz., and measured 22 inches in length. Placenta weighed 1 lb. 2½ oz. Length of umbilical cord, 24 inches. Placenta and membranes were entire. The patient made an uninterrupted recovery, the lochia, pulse, and temperature being normal throughout the puerperium. Dismissed on ninth day, when, on pelvic examination, nothing abnormal was found. The child thrived well, and on the ninth day weighed 15 lb.

Case 2.—Harriet J.—Admitted into Glasgow Maternity Hospital on 3rd of February, 1885. Age 19. Primi para. General
General health, good. Urine contains albumen (\%).
Delivered on 3\textsuperscript{rd} of February, 1885. First stage lasted 4 hours, the second, 1 hour; the third, 10 minutes.
Head. R. O. P. Placenta was well marked. Occiput rotated to behind the symphysis pubis. The head lacerated the perinaeum very slightly, but the left (and posterior) hand being up by the side of the head, the perinaeum was further torn during the birth of the shoulders; in all, the anterior two-thirds were ruptured. The child was a male, alive, mature, weighed 6 4 lbs., and measured 22 inches in length. The placenta weighed 1 lb. 6 oz. The umbilical cord was 22 inches long. The placenta and membranes seemed entire. The perinaeum was stitched.
Puerperium. - The patient did well until the morning of the 4\textsuperscript{th} day, when the pulse was 100, and temperature 99\textdegree; F., but the lochia were normal. The evening temperature was 101\textdegree; F.; pulse 88; character of lochia, doubtful; no pain, nor tenderness.
5\textsuperscript{th} day. - Morning - Temperature normal; pulse, 100; lochia, foetid; no pain, nor tenderness. Evening - Temperature, pulse, and lochia, normal.
The further progress was very satisfactory, and the patient was dismissed on the 11\textsuperscript{th} day, when pelvic examination revealed nothing abnormal. The stitches were removed on the 9\textsuperscript{th} day; partial union. The child did well, and weighed 7 2 lbs.
Case 3. - Jessie P. - Admitted into Glasgow Maternity Hospital on 10th of January 1885. Age 21. Primipara. General health, good. Delivered on 5th of March 1885, of twins. The first and second stages together lasted 2½ hours; the beginning of the second stage was not determined. The third stage lasted 15 min.

First child - Head. 20. A.; female, alive, mature, weighed 3 lb. 12 oz., and measured 19 inches in length; length of umbilical cord 14½ inches.

Second child - Head. R. O. P., female, alive, mature, weighed 4 lb. 2 oz., and measured 19 inches in length; length of cord 17 inches. Flexion occurred, and the occiput rotated anteriorly. The second child was born a few minutes after the first. No tear of perineum. Weight of placenta 2 lb. 2 oz. The placenta were almost completely united, and there was free vascular communication between them. One chorio and two amnions, present. Placenta and membranes were entire.

The patient made an uninterrupted recovery, and was dismissed well on the tenth day. Pelvic examination revealed normal conditions.

The younger twin was very weakly, had several convulsions, and died on 6th day. The elder twin did well, and on tenth day weighed 4 lb. 12 oz.

Case 4. - Maggie M. - Admitted into Glasgow Maternity Hospital on 12th of May, 1885. Age 23. Primipara.
Primipara. General health, good. Delivered on 12th of May 1855. Age 23. First stage lasted 6 hr. 10 min.; the second, 2 hours; the third, 20 minutes. Head. R.O.P. Hecinon occurred. Occiput rotated to behind symphysis pubis. Anterior two-thirds of perinaeum ruptured. Perinaeum stitched. The child was a male, alive, mature, weighed 7 lb. 6 oz.; length, 19 inches. Placenta weighed 1 lb. 3 oz. Umbilical cord was 19 inches long. Placenta and membranes seemed entire.

Puerperium.—In the evening of the second day, with the onset of lactation, the temperature rose to 102.6° F., and the pulse to 108. During the two following days the temperature varied from 100.6° to 103°, and the pulse from 92 to 116. The patient was fretting a good deal. There were no pelvic symptoms, and the lochia were normal. On the 5th day the temperature fell, but on the evenings of the 6th, 7th, and 8th days, rose to 101.8°, 101.4°, and 103°, respectively; these were due to excitement and worry. Quinin with acroite, and bromide of potassium with tincture of hysopeanus were given. The lochia were normal throughout the puerperium. The stitches were removed on the 8th day, but no union had taken place. On the 11th day she was dismissed well; nothing abnormal was found on pelvic examination. The child did well, and on the 10th day weighed 7 lbs.
Case 5. Miss E. Admitted into Glasgow Maternity Hospital on 16th of May, 1885. Age 21.
Prenatal: General health, good. Urine contains albumen (2). Delivered on 16th of May, 1885. First stage lasted 7½ hours; the second, 30 minutes; the third, 10 minutes. Head R.O.P. Movement of fetus was well marked. Occiput rotated to behind the symphysia pubis. Anterior two-thirds of perineum ruptured. Stitched. The child was a male, alive, mature, weighed 7 ½ lb.; length, 22 inches. The placenta weighed 12 ¾ lb. Length of umbilical cord 24 inches. Placenta and membranes seemed entire. Peripartum. At 8 a.m. on the third morning the temperature was 99.6° F., and pulse 96. After this, the patient was exposed to cold while being washed, and at 9 a.m. had a rigor, the temperature rising to 103° F. There was no pain, and the lochia were normal. Ordered a powder consisting of ferr. sulph. (gr. 3), fetus antimonialis (gr. 1), and potas. nitrate (gr. 5), every two hours until sweating be fairly established. At 4 p.m. the temperature was 103.8°; no pain; lochia normal.
Ordered quinine (gr. 2) with tincture of aconite (Mq) every two hours between the times for giving the powders. At 6 p.m. temperature 105°; pulse 128.
At 10 p.m. temperature 105°; and as the pulse was weak, the powders and quinine and aconite were stopped. Patient had perspired only slightly.
The grains of quinine were given, and ordered 3 grs. to be given at 4 a.m. and at 8 a.m.

4th day - Morning - Temperature 101.8°, pulse 100, lochia abundant and sweet. The uterus was manipulated a little. 6 p.m. - Temperature 104°, pulse 112. At 9 p.m. the temperature was still 104°, and the lochia were normal. There was a cough, attended by bronchial croupus.

The following was ordered:

\[\text{Tinctura Hyoscyami } 3\text{ iij} \]
\[\text{Vini Siphei, } 3\text{ iij} \]
\[\text{Rosae, Nitritae } 3\text{ x} \]
\[\text{Liq. Ammon. Nitritae ad } 3\text{ iij} \]
\[\text{et } 4 \text{ iij.} \]

Sig.: Half an ounce every three hours.

5th day - 8 a.m. - Temperature 102.4°, pulse 100, lochia normal. At 12 noon, the temperature was 101°. The cough was less and softer. Given 7 gr. camphor, as the bowels had not moved since the third day. The cough mixture was stopped until the evening when the bowels moved, and then 3 iij, instead of 3 iij, to be given every three hours. At 6 p.m. temperature was 101.5°, pulse 108, lochia normal, no pelvic pain.

6th day - Morning temperature 101.4°, pulse 104, lochia normal. The cough mixture was causing sickness, and another was ordered containing carbonate of ammonia, spirits of chloroform and tincture of calumba. Turpentine plaster ordered to be applied across
across the back at the basis of the lungs for 10 minutes every 6 hours. Only one stupe was applied as the patient would not submit to them. The patient was with difficulty kept in order. At 6 p.m., the temperature was 104.2°, pulse 120, lochia normal.

7th day. During the night the patient refused to take any medicine, and, while the nurse was out of the ward, got up and walked about, in order to see, as she said, if she were strong enough to go home in the morning. At 8 a.m., the temperature was 102.8°, pulse 104, lochia normal. The patient refused to stay in hospital any longer. Perineum cut united. No pelvic examination was made. The child was well and weighed 7½ lbs. Patient was sent home in a cab, and ordered to stay in bed, but when called upon in the afternoon she was up. Further history not known.

Puerperium—On the morning of the 3rd day temperature rose to 100.4°, and in the evening to 101.4°, while the pulse in the morning was 96 and in the evening 102. Lochia were normal. No pelvic symptom.

4th day—Morning—Temperature 100°. Pulse 96.
Evening—Temperature 102.8°; pulse 110. Lochia normal.
Ulcers, normal in size and painless. Breast, hard and engorged. 10 p.m. Temperature 102.2°.

5th day—Morning—Temperature 99.4°; pulse 92; lochia foetid. No uterine pain. Ordered to be sponged three times a day, instead of twice, and the napkins to be changed frequently. 2 p.m. Some uterine pain. Turpentine suppository applied. 6 p.m. Temperature 103.4°; pulse, 126; lochia, foetid; no pain. 10 p.m. Temperature 102.6°.

6th day—Morning—Temperature 100.4°; pulse 96; lochia foetid; no pain. Ordered to introduce one eucalyptus pessary (each pessary containing 3 sp) twice a day.
6 p.m. Temperature 100.2°; pulse 90; lochia still foetid. 10 p.m. Temperature 101.4°.

7th day—Morning—Temperature 100.4°; pulse 96; lochia, slightly foetid. Evening—Temperature 100.6°; pulse 93; character of lochia, doubtful.

8th day—Lochia were still doubtful in character. In the morning the temperature was 99.8°, and pulse 88. In the evening, temperature 100.6°, pulse 104.

9th day—Morning—Temperature and pulse, normal; character of lochia, doubtful. Evening—Temperature, pulse, and lochia, normal.

After
After this the course was normal, and the patient was dismissed well on the 11th day, when, on pelvic examination, there was found to be no induration and no tenderness; the os was nearly closed. The child was well, and weighed 5 2/3 lbs.

Case 7.—Mary T. Admitted into Glasgow Maternity Hospital on 24th of May, 1885. Age 19. Primipara. General health good. Delivered on 24th of May, 1885. Duration of first stage, 11 hours; second, 1/2 hour; third, 10 minutes. Head: R.O.P. Flexion occurred. The occiput rotated to the front. Towards the end of the second stage the uterus acted very feebly; 3/4 of liquid extract of ergot (B.P.) was given. No tear of perineum. After delivery of the placenta, there was slight haemorrhage, which was stopped by a hot water injection. Child: female, alive, mature, weighed 8 lbs; length 21 inches. Placenta weighed 1 1/5 lbs. Length of umbilical cord, 25 inches. Placenta and membranes seemed entire.

Puerperium.—1st and 2nd days. Uterus was rather relaxed, but no haemorrhage occurred. Ergotin was given, and the uterus manipulated. At 4 p.m. on the 2nd day the temperature was found to be 103.8° and the pulse 116; the lochia were normal. There was no apparent cause. 6 p.m. Temperature 102.2°. There was no pelvic pain, and the uterus was not tender when manipulated. 3rd day.—Morning.—Temperature 99.6°; pulse 76; lochia normal. 12 noon.—Temperature 103°; pulse 124. Gave quinine
quinine (5 gr) with hæmatogallin (15 gr); and repeat in two hours time. 6 p.m. Temperature 102.6°; pulse 115.
10 p.m. Temperature 99.2°.
4th day. Lochia were normal. Morning. Temperature and pulse, normal. 6 p.m. Temperature 102.6°; pulse 118.
10 p.m. Temperature 101.8°.
5th day. Lochia were normal. Morning. Temperature and pulse, normal. Evening. Temperature 101.6°; pulse 114.
The uterus was not well contracted, and was manipulated several times during the day.
6th day. Lochia were normal. Morning. Temperature and pulse, normal. Evening. Temperature 100°; pulse 107.
7th day. During the night the patient was exposed to cold. Morning. Temperature 103°; pulse 104; lochia, normal; no pain. Given a powder consisting of rhubarb (10 gr), bicarbonate of soda (10 gr), and calomel (5 gr).
6 p.m. Temperature 101.8°; pulse 100. 10 p.m. Temperature 101°.
8th day. Lochia normal. Morning. Temperature 99.6°; pulse 92. Evening. Temperature 101.2°; pulse 100.
9th day. Lochia normal. Morning. Temperature and pulse, normal. The patient is manifestly fretting and worrying. Evening. Temperature 101.8°; pulse 98.
10th day. Lochia normal. Morning. Temperature 100.4°; pulse 92. 6 p.m. Temperature 104.3°; pulse 118; lochia, normal; no pain; worrying very much.
10 p.m. Temperature 103.6°. Given tannate of potassium (30 gr) with hæmatogallin (3 gr).
11th day. Morning. Temperature 101°; pulse 104; lochia
lochia, normal. She was dismissed in the middle of the day. On pelvic examination, there was found to be a fulness in the whole of the pelvis, but no induration nor tenderness. The lochia had been normal throughout. The child was well and weighed 7 lb. 10 oz.

Child - male, alive, mature, weight 7 lb. 8 oz., length 21 inches. Placenta weighed 1 lb. 14 oz. Umbilical cord was 18 inches long. A piece of membrane was adherent near the 50 intestines, and was detached by means of the finger, and it was thought that all had been removed. The placenta seemed entire. After the child was born, the patient had a severe rigor.
Puerperium. - It would be tedious to enter into details as the patient had a severe attack of septicemia. She was delivered at 12.45 a.m., and in the afternoon of the same day the uterus became tender, though its height was normal; she had a rigor, and the temperature rose to 104.2°. On the second
second day, while the vagina was being syringed, a shed of membrane came away; it was not foetal. Local peritonitis and pelvic cellulitis set in. She was dismissed on the 20th day of purperium. The lochia throughout were normal in quantity and quality. The secretion of milk was at first very scanty, but on and after 4th day increased. The temperature during the first nine days ranged between 100.6° and 103.6°; and from the 9th day until dismissal it varied from 98.2° to 100.8°, except on two occasions, namely:—on the evening of the 14th day it rose to 102°, and on the evening of the 19th day to 101.6°. The pulse never rose higher than 106. On the 6th day, Dr Sloan, the Visiting Physician, made an examination per vaginam, and found that the roof of the pelvis was, with the exception of the anterior part, a fixed mass, but more induration on the right side than on the left. On the same day the buttocks had a railroaded look; this condition got worse, and on the 11th day there was considerable swelling on the right side of the sacrum, but it gradually disappeared under treatment. On the 16th day Dr Sloan made another examination per vaginam, and found that the induration and fixation were both much diminished, though still considerable on the left side. On the 17th day inflammation with oedema of the forehead, eyelids and cheeks began
began, and advanced considerably during the day, but on the following day improvement set in.

On the 20th day, she was dismissed. The temperature was 101°, and pulse 72. Examination per vagina. Uterus is very nearly mobile; only a little adhesion on the left side. The child was well.

After leaving the Maternity Hospital, the patient was admitted into Royal Infirmary, Glasgow, under the care of Mr. MacEwan. She had a succession of superficial abscesses at different parts of the body.

When the patient was delivered there was a case of septicaemia in the hospital, and perhaps this was the source from which this patient got it, though every precaution was taken to prevent such an occurrence. I may here mention one factor which had much to do with the recovery of this patient; it was her cheerful disposition. Though very ill, she was always smiling.

Case 9. - Rebecca J. - Admitted into Glasgow Maternity Hospital on 30th of January, 1885. Age 19, Primipara. Her general health had been good, except that she had suffered on several occasions from tonsilitis.

Delivered on 31st of January, 1885. Duration of first stage 14½ hours; second, 1½ hours; third, 20 minutes. Head, R.O.P.,. During the first stage the uterine acted very feebly. At the beginning of the second stage, the uterine contractions were stronger.
stronger, and the head entered the pelvic cavity. Flexion was slight. The pains soon became very feeble, and the head came to lie transversely. I applied Sir James Simpson's double curved forceps, and slowly delivered. The occiput rotated forward. The perineum was very slightly torn, and was not stitched. Child—female, alive, mature, weight 8 lb., length 20 inches. Placenta weighed 1 lb. Length of umbilical cord 16 inches. Placenta and membranes were entire.

The patient made an uninterrupted recovery, and was dismissed on the 15th day. The child also did well, and on 15th day weighed 9 lb. 10 oz.

Case 10.—Christina M. L.—Admitted into Glasgow Maternity Hospital on 22nd March, 1885. Age 21. Primipara. General health fairly good. Delivered on 22nd March, 1885. Duration of first stage 9 hours; second, 2½ hours; third, 15 minutes. Head, R.O.P. The uterine contractions were very strong throughout labour. Flexion was well marked. Occiput rotated anteriorly. Forceps was applied after internal rotation had occurred. The outlet seemed narrowed. No tear of perineum. Child—female, alive, mature, weight 5 lb. 14 oz. Placenta and membranes were entire. The patient made a good recovery, and was dismissed well on 15th day. The child had a very severe attack of ophthalmia, but on leaving was very much better; the cornea was unaffected.
Case 11: Marion Hill. Admitted into Dargaville Maternity Hospital on 16th of April 1885, Age 21. Primipara.
General health, good. Urine contained albumin (½).
Delivered on 16th of April, 1885. Duration of first stage 9 hours; second 3½ hours; third, 15 minutes.
Head, R.O.F. Flexion occurred. The uterus acted very freely during the whole of the second stage.
Occiput rotated anteriorly. Forceps was applied after internal rotation had occurred. Anterior two-thirds of perinaeum ruptured. Perinaeum stitched.
Child - male, alive, mature, weight 8 lb, length 20 inches. Placenta weighed 1 lb 12½ oz. Length of umbilical cord, 27 inches. Placenta and membranes seemed entire.
Puerperium. - On the evening of the third day the temperature rose to 100°, and from that time until the morning of the tenth day there was always a little elevation. The highest temperature were those on the evenings of the 5th (101.2°) and 6th (101.4°) days. The pulse did not rise correspondingly. The lochia were absolutely normal throughout the puerperium. There was never any pain nor tenderness. On the 9th day the stitches were removed; union throughout.
She was dismissed well on the 14th day when on examination per vaginam, slight fixation of the uterus was found. The child was well, and weighed 8½ lbs.

Duration of first stage 20 hours; second, 30 minutes; third, 30 minutes.

On admission at 7:40 a.m., the os was the size of a florin. The pains had been regular since 2 a.m. Head, R.O.P; anterior fontanelle could not be felt. At 10:30 a.m. the os was the size of half-a-crown; head, R.O.P, slightly extended. At 2 p.m. the os was found to be a little larger; the pains had been very continuous; given morphia suppository (3/4) and put to bed. The patient was considerably relieved, but did not sleep. At 6 p.m. the os was about two-thirds dilated. the membranes just the os well on the stretch during a pain. Abdominal friction and pressure were used.

At 7:15 p.m. though the pains had been strong, the os was no more dilated. The membranes were now ruptured artificially. The head descended and just the os upon the stretch. At 8:30 p.m. the os was no more dilated. Dr Sloan dilated the os a little with his fingers, and ordered abdominal friction and pressure to be used. This was done, but when Dr Sloan returned at 10 p.m., he found the os just about the same size, and determined to apply forceps. The head at this time was still lying in the right occipito-posterior position, and the anterior fontanelle was easily felt. Straight forceps was applied.
applied, but the blades did not lock satisfactorily; nevertheless Dr. Sloan used gentle traction and tried to rotate the head; however, he failed, and accordingly took off the forceps. He then applied Dr. James Simpson's double-curved forceps, the blades of which locked easily. On careful traction, the os gradually dilated, the head flexed, and the occiput rotated to the front, although no attempt was made to rotate the head, traction only being used. After internal rotation the forceps was taken off and re-applied, and delivery effected at 10.40 p.m. The forceps was on for about forty minutes. No tear of perineum. The pulse at the end of the second stage was 88 per minute. The placenta was partially adherent, and had to be stripped off. When the hand was being introduced to remove the placenta, the cervix was found to be torn on the right side. At the end of the third stage the pulse was 128 per minute, and the uterus remained flabby although ergot had been given at the end of the second stage. Very little haemorrhage occurred. At 1 a.m., pulse was 95, and the uterus fairly well contracted.

Child - female, alive, mature, weight 6 lb., length 19 inches. Placenta weighed 1 lb. Length of umbilical cord 19 inches. The placenta and membranes seemed to be entire.

Peripariment. - 1st day, morning. Temperature, pulse, and lochia were normal. No pain. Patient seemed
to be very well. Evening. Temperature 99.6°; pulse 111; lochia, normal. No pain nor tenderness.

2nd day. - Morning. Temperature 101°; pulse 104; lochia normal. No pain nor tenderness. Give 10g. calomel.

2 p.m. Some vomiting. 4 p.m. Tenderness on pressure over the uterine and sides of pelvis. Temperature stupes applied. 6 p.m. Temperature 102.4°; pulse 123; lochia, normal. 8 p.m. Temperature 102°. No pain nor tenderness. Bowels had moved freely. Ordered quinine (1gr) with tincture of acarite (1/2gr) every hour.

3rd day. - Morning. Temperature 100.8°; pulse 100; lochia, normal. Ulus fairly contracted. No tenderness. Quinine and acarite stopped. Ordered 10 p.m. pulse 102° with 1gr. sod. bicarb. 4 p.m. Rigor. Temperature 105°.

6 p.m. Temperature 104.2°; pulse 130; lochia, normal. Bowels had moved three times during the day. Give 5gr. quinine with 1/2gr tincture of acarite. 7 p.m. Sloan examined for vagina, and found some inflammatory exudation in both lateral fornices. Ordered cornflower, arrowroot, and soup. Apply Emsley. Buchard's (9 x 3) across hypogastrum. Give a powder containing 4 1/2 gr calomel and 1/4 gr. fuli. Opia every three hours.

10 p.m. Temperature 104.6°. Prepuse perspiration.

4th day. - Morning. Temperature 100.4°; pulse 108; lochia, normal. Patient seems better. Blister rose well. No pain.

There is slight swelling of the abdomen. Ordered a paste of equal parts of linseed meal and mustard across hypogastrum for half an hour. Cream of Tartar drink.
Stop powders. A piece of membrane was passed; not foetid. 6 p.m.-Temperature 102.6°; pulse 126; lochia, normal. Mammary secretion abundant. Ordered a powder consisting of 1 gr. quinine, 1 gr. lactose, and 5 gr. sulphate of bismuth to be given every four hours before nourishment. 10 p.m.-Temperature 103.6°.

5th day—Morning—Temperature 101.2°; pulse 112; lochia, normal. She had both slept and taken nourishment well. The abdomen has fallen greatly. The complaints of pain in the left side above the ilium and extending over to the umbilicus. Ice-blisters (9x) applied across abdomen just below the umbilicus. 6 p.m.-Temperature 100.2°; pulse 114; lochia, normal. 10 p.m.-Temperature 102.1°.

6th day—8 a.m.-Temperature 102.8°. 10 a.m.-Temperature 100.8°; pulse 108; lochia, normal. 1 p.m.-Temperature 100.2°. Stop powders. Give 5 gr. quinine with 7% dilute sulphuric acid every three hours. 6 p.m.-Temperature 101°; pulse 111; lochia, normal.

7th—9th day—Patient improved. The temperature kept below 100.1°, and the highest pulse was 92; lochia were normal. On 7th day a bladder formed. The quinine and acid were given less frequently.

10th—13th day—The temperature and pulse rose slightly. Lochia were still normal. The patient improved generally.

15th day—Dismissed. Examination for vagina—Uterus, though partially fixed, is fairly movable; there seems to be a little tenderness, although the patient says that there is none. The child had an abscess over the right
right ankle joint; it was opened. Another is forming in the upper and outer part of the right leg.

After dismissal the patient was seen several times. She improved greatly, and soon was well.

Case 13.—Mrs S.—Admitted into Glasgow Maternity Hospital on 1st of January, 1885. 3-para. General health, good. First child was delivered with forceps. Second labour was easy.

Delivered on 1st of January, 1885. Duration of first stage 6½ hours; second, 15 minutes; third, 15 minutes. Head. R.O.P. Flesion did not occur. Occiput rotated backwards into the hollow of the sacrum. No tear of perineum. Child—female, alive, anature, weight 8 lb. 3 oz., length 20 inches. Placenta weighed 1 lb. 4 oz. Length of umbilical cord, 18 inches. Placenta and membranes were entire.

The patient made an uninterrupted recovery, and was dismissed on 10th day. The child also did well, and on 10th day weighed 8 lbs.

Case 14.—Mrs S.—Admitted into Glasgow Maternity Hospital on 27th of June 1885. Age 25. 4-para. The patient stated that her general health had always been good. During the last five years she had suffered occasionally from headaches. A distinct history of syphilis could not be obtained. First child—premature (7th month), lived two days. Second child—deadborn.
(6th month). Third child born during 7th month, lived one week. The patient could give no cause to account for these premature births. The patient stated that she conceived last term time in August, and that she first felt movement about the middle of April. Urine contained no albumen. Delivered on 28th June 1885. Duration of first stage 13 hours; second 30 minutes; third, 10 minutes. Head: R.O.P. Flexion did not occur, but the head was not extended. Occiput rotated backwards into the hollow of the sacrum. The tear of perineum.

Child: female, alive, premature (8th month), weight 4½ lb., length 17 inches. Placenta, which was slightly fatty, weighed 1½ lb. Length of umbilical cord 22½ inches. The child lived peacefully two hours, was probably syphilitic; no post mortem was allowed.

The patient made an uninterrupted recovery.

Case 15.- M. M. Private practice. 1 para. First labour was natural. Delivered on 24th November 1885. On my arrival, the patient was in the second stage of labour; head in pelvic cavity, sagittal suture in oblique diameter of pelvis; posterior fontanelle felt at right side of pelvis and posteriorly, anterior fontanelle felt lying to left and anterior, the pains were good. Occiput rotated backwards into the hollow of the sacrum, and was easily delivered by pressing up the forehead during a pain. No tear of perineum. The child was small, about
6 lb. in weight; mature and alive. Third stage was normal. The patient made an uninterrupted recovery, and the child did well.

Case 16.- Mrs. M.M. Admitted into Glasgow Maternity Hospital on 14th of January, 1885. Age 23. 2 para. In her first labour, two years previously, she was delivered with forceps, General health good. Urine contained a trace of albumen. Delivered on 14th of January, 1885. There was a slight degree of hydramnios. Head. R.O.P. Flexion occurred, and the occiput rotated forward to behind the symphysis pubis. No tear of perineum.

Duration of first stage 2½ hours; second 1 hour; third 15 minutes. Child—femal, alive, mature, weighed 8½ lbs., length 21 inches. Placenta weighed 1 lb. 3½ oz. Length of umbilical cord, 21 inches. Placenta and membranes were entire.

The patient made an excellent recovery, and was dismissed on the 9th day. The child also did well, and on leaving weighed 9½ lbs.

Case 17.- Mary M. Admitted into Glasgow Maternity Hospital on 3rd of February, 1886. Age 26. 2 para. She was delivered of her first child with forceps in this Hospital in April 1881, when the head presented in R.O.P. position. General health good. Delivered on 4th of February, 1886. Normal labour. Head. R.O.P. Flexion occurred, and the occiput rotated to behind the symphysis pubis.
No tear of perineum. Duration of first stage, 7 hours; second, 45 minutes; third, 20 minutes.—Child—female, alive, mature, weight 7½ lb.; length, 19 inches. The placenta weight 1 lb. Length of umbilical cord, 16 inches. The placenta and membranes were entire.

The patient made an uninterrupted recovery, and was dismissed on 10th day. The child also did well, and weighed 8½ lb. on 10th day.

Case 18. Mr. W. M. L.—Admitted into Glasgow Maternity Hospital on 16th of February, 1886. Age 21. 3-para. First pregnancy went to full time; labour was quick. The second pregnancy ended at 6th month, owing to a fall. General health good. Delivered on 16th of February, 1886. Normal labour. Head: R.O.P. Flexion took place, and the occiput rotated anteriorly. No tear of perineum. Duration of first stage 8½ hours; second, 6 minutes; third, 15 minutes.—Child—female, alive, mature, weight 7½ lb.; length, 20 inches. Placenta weight 1½ lb. Length of umbilical cord, 20 inches. Placenta and membranes were entire.

The patient made a good recovery, and was dismissed on 9th day. The child also did well.

Case 19. Mr. W. L.—Admitted into Glasgow Maternity Hospital on 10th of May, 1886, at 10 a.m. Age 30. 3-para. Her previous labours were easy, and at full term. General health, good. The menstrualist last in the last
last week of October, 1884. Delivered on 11th of May, 1885.

On admission (10 p.m.) the os was the size of a shilling; no presentation could be felt; several blood clots lay in the vagina and within the os externum. The patient was rather pale, and the pulse was feeble. At 11.15 p.m., the os was the size of a florin; the membranes bulged considerably; the edge of the placenta was distinctly felt to the front and right side; the head was felt high up, but its position could not be made out. Very little bleeding had taken place since admission.

At 12 midnight, the os was the size of a five-shilling piece; the membranes were ruptured artificially. The head descended immediately; P.D.P.; dilatation went on quickly, and the second stage began at 12.25 a.m. 3 fl. brandy was now given. Head quickly descended; flexion took place; occiput rotated to behind the symphysis pubis, and the child was soon delivered. No tear of perineum. Third stage was normal. Duration of first stage 7½ hours; second, 15 minutes; third, 10 minutes. Child—male, dead, 6½ months; weight 4 lb 2 oz, length 16 inches. Placenta weighed 1 lb 2 oz; length of umbilical cord 20 inches. Placenta and membranes were entire.

The patient made an uninterrupted recovery, and was dismissed on 10th day.

Case 20.—Mrs. G.—Admitted into Glasgow Maternity Hospital on 3rd of June, 1885. Age 28. 2-pers. Forceps was used.
Case 21. - Catherine A. - Admitted into Glasgow Maternity Hospital on 14th June, 1885. Age 26. 2 Jews. First labour was easy. Her general health has been good, but at present her system is low owing to insufficient diet. - Delivered on 14th June 1885. Duration of first stage 6 hours; second 45 minutes; third, 10 minutes. Twins - 1st Head L.O.A., 2nd Head R.O.P. Flexion occurred, and the occiput rotated forward. Second child was born 20 minutes after the birth of the first. No tear of perineum.

First child - male, alive, mature, weight 5½ lb, length 19 inches.
Second child—female, alive, mature, weight 5 lb. 1 oz., length 19.25 in. Placenta weighed 2 lb. 2 oz. Length of umbilical cord of first child, 22 inches, second, 21 inches. Two amnions and two chorions were present. Placenta and membranes were entire.

The patient made a good recovery and was dismissed on 10th day. The children did well, and when dismissed weighed, first 5 lb. 2 oz., the second 5 lb. 14 oz.

CASE 22.—Ellen M. D.—Admitted into Glasgow Maternity Hospital on 8th of June, 1885. Age 20. 2-pars. First labour was natural. General health good. Urine contained albumen (4%). Delivered on 8th of June, 1885. Duration of first stage, 9 hours; second 1 hour 25 minutes; third, 20 minutes. Head, R. O. P. Placenta took place, and the occiput rotated to behind the symphysis pubis. No tear of perineum. Child—female, alive, mature, weight 6 lb. 1 oz.; length, 20 inches. Placenta weighed 1 lb. Length of umbilical cord, 23 inches. Placenta and membranes were entire.

The patient was troubled a little with sore nipples. She made a good recovery, and was dismissed well on the 10th day. The child also did well, and on 10th day weighed 6 lb. 6 oz.

CASE 23.—Mary M. D.—Admitted into Glasgow Maternity Hospital on 18th of June, 1885. Age 30. 2-pars.
First labour was easy. General health good.
Delivered on 19th of June, 1885. Natural labour. Duration of first stage 12 1/2 minutes; second, 15 minutes; third, 10 minutes. Head: R.O.P. Flexion occurred, and the occiput rotated to the front. No tear of perineum.

Child: male, alive, mature, weight 7 lb., length 20 in.
Placenta weighed 14 oz. Length of umbilical cord, 28 inches. The placenta and membranes were entire.

Puerperium: 4th day. Patient had a rigor after being exposed to cold. Temperature 103.2°F. There was neither pain nor tenderness, and the lochia were normal. Given 5 gm. quinin with 1/20 tincture of aconite.

5th day. Morning. During the night the patient had complained of pain, and a temperature of 101.8°F. Fultur 92; lochia normal. Given 10 gm. calomel.

6th day. Temperature 101.4°F; fuder 96; lochia normal.

6th day. 8 am. Temperature, pulse, and lochia were normal, but whilst being washed the patient got cold, and had a rigor as mid-day, the temperature rising to 103.8°F, and the pulse to 110; lochia normal, no pain. Ordered 5 gm. quinin with 1/20 tincture of aconite every three hours.

7th day. Temperature 101.4°F; fuder 83; lochia normal. Quinin and aconite stopped.

During the next four days the temperature kept about 100°F, but the pulse and lochia were normal.

13th day. Dismissed. Examination per vaginam: Interv
is perfectly mobile; no induration. The child did well, and when leaving weighed 6½ lbs.

Case 24.- Mrs. J. Admitted into Glasgow Maternity Hospital on 24th of January, 1885. Age 35. 6-pars. First pregnancy ended at 7th month, owing to mental agitation from hearing bad news. Second labour was at full term; delivered with forceps. Third labour was at full term and natural. In the 6th month of fourth pregnancy haemorrhage occurred, and recurred a few times; delivered one month after first haemorrhage. Fifth labour occurred at full term and was natural. Patient is not in very good health; she has been suffering from rheumatic pains. Her house was very damp. Delivered on 25th of January, 1885.

Duration of first stage 1¾ hours; second, 1½ hour; third, 15 minutes. Head, R.O.P. Flexion took place and the occiput rotated to behind the symphysis pubis; the pains were strong, but the head made no progress; forceps applied, and delivery easily effected. No tear of perineum. Child—male, alive, mature, weight 7½ lbs.; length, 21 inches. Placenta weighed 1 lb. 2 oz. Length of umbilical cord 21 inches. Placenta and membranes seemed to be entire. After the placenta was expelled there was slight haemorrhage, which was easily checked by manipulating the uterus.

Puerperium.—1st day. Morning. Temperature, pulse, and
and lochia are normal. There is evidently distress on moving. Patient complains of pain on pressure on the abdomen; this pain is diminished by continuous pressure. Uterus remains larger than normal, and is pushed to the right side. Infusentia stipe applied, and ordered a mixture containing small doses of solution of morphia, tincture of code vomica, and liquid extract of ergot.

**Evening.** Temperature, pulse, and lochia are normal, and the patient feels much better.

**2nd day.** Throughout the day, the temperature, pulse and lochia remained normal. Uterus smaller and firmer. Patient feels much better.

**3rd day.** Normal conditions.

**4th day.** Morning - Normal conditions. Evening. Temperature 101.8°F ; pulse 80 ; lochia normal. Uterus very tender. Infusentia stipe applied. Given 5g morphia suppository.

**5th day.** Morning - Temperature 99.6°; pulse, 96; lochia normal. No tenderness. In the afternoon she was removed to another ward, and her temperature at 6 pm. was found to be 104°, and pulse 100; the lochia remained normal. Shortly afterwards the temperature fell to 102.2°, and she complained of headache. This rise of temperature was probably caused by worry and bad temper. There was no abdominal tenderness.

**6th day.** Morning - Temperature 104°; pulse 128; lochia
Lochia, normal. External examination gives negative results, except that the tongue is coated with a yellowish fur. Given 10 p.m. calomel. 6 p.m. Temperature 102°; pulse 104; lochia, normal. Bowels have moved freely.
9 p.m. Temperature 100.8°.
7th day. Morning. Temperature 101.4°; pulse 104; lochia, normal. No pelvic symptom. There is slight tympanic distension of the abdomen. Ordered quinine, aromatic powder and sublimate of bismuth (5 gr each) every four hours during the day. Evening. Temperature 103.2°; pulse 100; lochia, normal.
8th day. Morning. Temperature 101.4°; pulse 100; lochia, normal. Uterus is rather large, but can be freely dealt with; it is made smaller by manipulation. Manipulate uterus twice today. Give one ergotin pill (5 gr); also 10 p.m. quinine. Apply turpentine plaster.
Evening. Temperature 103°; pulse 90; lochia, normal. After this the temperature fell, the patient improved, and was dismissed on 12th day, when it was found that both broad ligaments were a little thickened. She was ordered to stay in bed for a week. On the second day the child had convulsions and died.

Case 25. M. W. D. Admitted into Agnes Maternity Hospital on 13th of February, 1885. Age 21. 2-para. First pregnancy ended in abortion at 3rd month. Patient had smallpox when five years old, and has suffered from ophthalmia nasali ever since. She has had
had no other illness. Her general condition is in a low state, as she has been very destitute. She had leucorrhoea before labour. Urine contained albumen (§). Delivered on 13th February, 1855. Instrumental labour. Duration of first stage, 5 hours; second, 1½ hours; third, 20 minutes. Head R.O.P. Position took place, and the occiput rotated anteriorly. The pains continued to be strong, but the head made no progress. Forceps applied. No tear of perineum.

Child: Male, alive, mature, weight 6½ lbs; length 19½ in.

Placenta weighed 1½. Length of umbilical cord 17½ in.

Placenta and membranes were entire.

Puerperium - On the morning of the second day, the lochia were doubtful in character, and from then until the morning of the eighth day, were foetid; but after the 8th day they were normal. The pulse was normal throughout the puerperium, except on the morning of the 4th day, when it was 120. The temperature was normal, except on the evening of the third day (99.8°), on the morning (101.4°) and evening (100.4°) of the fourth day, and on the evening of the fifth day (99.6°). The mammary secretion was always abundant. In the morning of the 4th day, when pressure was made over the uterus and right iliac fossa, there was slight tenderness, which disappeared after a terepentine sitze had been applied.

Patient was dismissed well on the 10th day. Nothing abnormal was found on examination per vaginam. The child did
did well, and on the 10th day weighed 7 lb. 6 oz.

Case 26.—Kate D. Admitted into Glasgow Maternity Hospital on 6th of March, 1885. Age 22. 2-para. In her previous labour she was delivered with forceps, she says, she has never been strong, though she has not suffered from any special illness. Neurotic constitution. Delivered on 6th of March, 1885. Instrumental labour. Duration of first stage 6 hr.; second, 5 hr.; third, 15 minutes. In this case there was an excess of liquor amnii. Head, R.O.P. Just before the second stage, the os, though almost fully dilated, was lying quite loose, and the head would not engage or the brim. The membranes were ruptured artificially, but still the uterus acted very feebly, and the head did not advance. After the second stage had lasted 3½ hours, 3 fl. of liquid extract of ergot (B.P) was given, with the result that the pains became stronger, but, after waiting an hour, the head was still above the brim, and so I applied forceps, and with a slight amount of traction brought the head down to the perineum. The head flexed, and the occiput rotated forward. The forceps was taken off, and the head delivered by pressing on the forehead in the absence of uterine contraction. No tear of perineum.

Child—female, alive, mature, weight 8 lb. 6 oz.; length 21 in. Placenta weighed 2½ lbs. Length of umbilical cord;
26 inches. Placenta and membranes were entire.

Puerperium.- On the evening of the third day, with
the onset of lactation, the temperature rose to 100.6°,
and the pulse to 116; otherwise the puerperium was
uneventful, and the patient was dismissed well
on the 11th day. The child also did well, and on the
11th day weighed 8 lb. 4½ oz.

Case 27. - Mrs. J. - Admitted into Glasgow Maternity
Hospital on 28th of March 1885. Age 40. 6 para. The two
pregnancies preceding the present one ended in
abortion (3rd month). The other three pregnancies reached
full term, and all the labours were tedious, but forceps
was not applied in any of them. General health good.
Delivered on 28th of March, 1885. Instrumental labour.
Duration of first stage 12½ hours; second, 1½ hours;
third, 15 minutes. Head, R.O.P. Flexion took place, and
the occiput rotated forward to behind the symphysis
pubis. Forceps was applied after internal rotation for
slight inertia and large head; little traction required.
Child—male, alive, mature, weight 8 lb. 15½ oz., length 21 inches.
Placenta weighed 1 lb. 12½ oz. Length of umbilical cord, 21 in.
The placenta and membranes were entire.

The patient made an uninterrupted recovery,
and was dismissed on 10th day. The child also did
well, and on the 10th day weighed 9 lb. 2½ oz.
Hospital on 6th of April, 1883. Age 26. 3-para. Previous labours were easy. General health good. Delivered on 7th of April, 1883. Instrumental labour. Duration of first stage 3½ hours; second, 1 hour; third, 15 minutes. Head. D.O.P. Absence of flexion; the head descended, the occiput rotating slightly forward, but the head stuck transversely; inertia uteri set in; forceps was applied, and the occiput rotated to behind the symphysis pubis; delivery was easily effected. No tear of perinaeum. Child—male, alive, nature, weight 5 lb., length, 21½ in. Placenta weighed 1 lb. Length of umbilical cord, 24 inches. The placenta and membranes were entire.

The patient made a good recovery, and was dismissed on 10th day. The child well, and, on 10th day, weighed 6½ lb.

Case 29.—Mrs. M. Admitted into Glasgow Maternity Hospital on 16th of May, 1883. Age 33. 7-para. Forceps was applied in three of her previous labours; in the other three, natural efforts were sufficient. All the children were born alive and were large. The patient suffers from varicose veins, marked & about the vulva. During the present pregnancy, she was in Glasgow Royal Infirmary, suffering from down-bearing pains and the varicose condition of the veins. Since the birth of her last child she had been in Edinburgh Royal Infirmary, where it was said (according to the patient) that she had inflammatory thickening around the neck of the
the womb; and when there, she says, she underwent an operation for torn cervix.—She has always required to take tonics. There is a trace of albumin in the urine.

Delivered on 16th May, 1885, at 12.15 p.m., instrumental labour. Head, R. O.P. Duration of first stage 10 hours; second, 5 minutes; third, 10 minutes.

On admission at 4 a.m., the os was the size of half a crown. Labour probably began about 2 a.m. At 7.10 a.m., the os was slightly more than two-thirds dilated. At 8.15 a.m., the membranes ruptured. At 9 a.m., the os was no more dilated than it was at 7.10 a.m.; the head presented, lying in right occipito-posterior position with the anterior fontanelle low down. At 10.45 a.m., Dr. Sloan examined, and found that the head had not cleared the brim, but that it was sufficiently low to put the os on the stretch during a pain; the head was lying apparently transversely, the anterior fontanelle being felt to the left side, the sagittal suture nearer to the symphysis pubis than to the promontory of the sacrum. He ordered the patient to get up and to drink hot gruel. At 11.45 a.m., the head had not yet cleared the brim, so Dr. Sloan applied Sir James Simpson's forceps. The head now was not lying transversely, but between that position and the right occipito-anterior position. The os was not yet fully dilated. The blades of the forceps were easily passed and locked. By careful traction the os dilated and the head was soon brought through the
the brim. Not much rotation occurred, so that the
forceps did not require to be taken off. Its tear of perineum
a few minutes after delivery, the child's respiration was
fully established. The forceps was applied in the first
stage of labour; the second stage lasted only 5 minutes.
Child—male, alive, mature, weight 9 lb 6 oz; length 21 inches.
Placenta weighed 1 lb 6 oz. Length of umbilical cord 26 in.
The placenta was entire, and the membranes probably p.
Puerperium—1st day. Temperature, pulse, and lochia
were normal. Tenderness over uterus and promontory
of sacrum. Timpentine patch was applied.
2nd day. Temperature, pulse, and lochia normal. No tenderness.
8th day. Morning. Temperature, pulse and lochia
were normal. 5 pm. Rigor. Temperature 103°. Bottle; hot drinks; 10 gr. quinine. 6 pm. Temperature
103.2°; pulse, 130. lochia, normal. 8 pm. Tenderness
returned. Timpentine patch applied. 5 gr. morphia
suppository given; hot drinks. For thirst to sip aromatic
sulphuric acid (3f in 30T). 10 pm. Temperature 103.6°F.
Given 10 gr. quinine.
4th day. Morning. Temperature 103.2°; pulse 125; lochia
normal. Tenderness still present. Ordered calomel (4 gr)
with pulv. opii (4 gr) every three hours. 6 pm. Temperature
102.6°; pulse 103; lochia normal. slight improvement.
5th day. Morning. Temperature 102.8°; pulse 104; lochia
normal. Tenderness less. calomel and opium to be given
every four hours. 6 pm. Temperature 101.8°; pulse 100;
lochia normal. No change since morning.

6th day.
6th day. Morning. Temperature 101.5°; pulse 100; lochia, normal. Slight improvement. Give the calomel and opium every six hours. Evening. Temperature 101.2°; pulse 98; lochia, normal.

After this there was no tenderness, the temperature and pulse gradually fell, and on and after the ninth day, remained normal.

12th day. Dismissed well. Examination in vagina — There is a cicatrix in the upper part of the vagina to each side of the cervix, but so firm as to make it obviously not recent. The uterus is free from pain and freely movable, whilst the os, though somewhat irregular, has evidently not been torn. — The child did well, and, on 12th day, weighed 8 lb. 14 oz.

Case 30. Mrs. E. — Private Practice. Multipara. At her previous labour she was delivered with forceps. The doctor that attended her informed me that the head presented in the right occipito-posterior position; he applied short forceps, and had to use a great amount of traction.

Recent labour — 30th of November 1885. Head, R.O.P. The first stage lasted about 7 hours. After the second stage began, the head soon descended into the pelvic cavity. There was very slight flexion, if any. The pains continued pretty strong, but the head did not move. After the second stage had lasted for 2 hours, I applied forceps, at which time the long diameter of the head was lying in right oblique diameter of the pelvic cavity.
the occiput being at the right side of the pelvis and posteriorly, and the anterior fontanelle was easily felt. A fair amount of traction was required. No flexion was observed to occur, but the occiput rotated forward to behind the symphysis pubis. No tear of perineum. Child - male, alive, mature, weight probably about 7 lbs. Placenta and membranes, intact. The patient made an uninterrupted recovery, and the child did well.

Case 31. - M. G. - Private Practice. On 22nd of September 1886, a note came to me from a doctor asking me to come and assist him to deliver this patient, as he had failed to do so with forceps. I arrived at about 8.30 p.m. In her previous labour, the doctor had delivered her with forceps; the child had a very large head, which presented in the right occipito posterior position. Present labour. The pains had been strong throughout. The second stage began at 12 noon. On examination, I found that there was a considerable amount of oedema of the vulva, slight recent laceration of perineum, vagina was hot; there was some bleeding going on; the head of the child was in the pelvic cavity, not pressing on the perineum; the posterior fontanelle was felt towards the right side of the pelvis and posteriorly, about two inches from the middle line of the sacrum; the anterior fontanelle was lying to the front and left side, but covered by a large caput.
caput succedaneum; the head was not flexed, the
posterior fontanelle being on a slightly higher level
than the anterior. On auscultation the child was found
to be alive. The doctor had a pair of Dr James Simpson's
double curved forceps, with which he had failed to
deliver. I applied them. The blades were easily passed
and locked well; but when traction was used, the
forceps seemed to slip a little, and while I was
pulling we heard a "crack." On examining, no injury
to the mother was found. I took off the forceps, and
applied my own pair (Dr Angus Macdonald's). The
blades locked perfectly, and I was sure that I had
an excellent grasp of the head. While using a fair
amount of traction, the head was felt gradually
to advance, but the occiput, instead of rotating
forward, turned backward, though not sufficiently
in order to place the antero-posterior axis of the head
exactly in the antero-posterior mesial plane of pelvis.
In a few minutes the head was easily delivered,
the perineum tearing very slightly. The rest of the
child was easily delivered without further injury
to the perineum. The child, a female, was living,
and respiration was soon efficiently established.
Third stage presented no difficulty. Placenta and
membranes were entire. A few minutes after the
completion of the third stage, the pulse was 80 and
regular. - The child was large, probably over 9 1/2 lbs.
The upper blade of the forceps was over the left cheek and


temple
temple, and the left blade over the right ear. The forehead of the child was flattened, by being pressed against the pubis; the caput succedaneum extended from the upper part of the forehead almost to the posterior fontanelle. On the right side of the child's head, in the region of the ear, there was a large area of cuticle peeled off, and immediately behind the lobe of the right ear there was an oval tear, about the size of a pea, through the entire skin, and from this slight haemorrhage was taking place. There was also seen to be bleeding from the external auditory meatus of the same side. Perhaps there was a fracture, and if so, it probably occurred when we heard the crack. The scarification, if produced by one, was not due to roughness. I cannot say what caused the oval tear.

I can say nothing further about this case except that she recovered.

Causes of occipito-posterior positions of the head.

The fact that the head often assumes an occipito-posterior position in two or more consecutive labours of the same patient, has been established by clinical observation. Of the above 31 patients, 19 were multiparae, and in the previous labour of 3 of these 19 (cases 17, 30, and 31) the head presented in an occipito-posterior position. It may have been the case in others also, but I had no means of finding out. Surely the cause must be a permanent one, and, if so, probably maternal.
material. At the beginning of this thesis I gave some of my reasons for believing that the head usually engages at the brim with its long diameter in one of the oblique diameters, and not in the transverse diameter of the pelvis. And it is an established fact that in a very large majority of vertex presentations, the head lies with its long diameter in the right oblique diameter of the inlet of the pelvis. Why should it choose the right? Both the right and left oblique diameters are diminished by faeces, but the left is further reduced by the large intestine, which is frequently distended with faeces; thus the right oblique diameter is the one in which the long diameter of the head can rest most easily. But the occiput is usually found at its anterior end, while the forehead lies opposite the right sacro-iliac joint. There are many theories afloat to account for this. It is not my intention to enter into these, but I may state that, in my opinion, the theory advanced by Barnes seems to exercise much influence and to account for the dorso-anterior position of the child. At the same time I believe that there are other factors, which aid in bringing about the same result. Barnes writes (Obstetric Medicine and Surgery, by Robert Barnes M.D., and Tancourt Barnes, M.D. Vol. II. page 145) as follows:—

"The lumbar spine forms an inclined plane with a moderate curve, upon which the uterus and the contained foetus are moulded. The uterus forms a concavity..."
concavity in its posterior wall to fit the convexity of the lumbar spine; and the contained fetus fitting itself to the containing uterus also forms a corresponding concavity in that aspect which looks to the mother's spine. Indeed, we contend that it is this necessary accommodation of the uterus and fetus to the mother's spine which determines the ordinary dorso-anterior attitude of the fetus. The mechanism is obvious. The lumbar spine forms an unyielding projecting rounded surface; the child's spine is also the most unyielding part of its body; it forms a prominent curve in length and in width. Now when two such curves come into contact, the movable body must be deflected, that is, the child's spine is turned aside, and the continuous pressure of the abdominal walls upon the uterus, aided perhaps by the movements of the uterus itself, help to bring the child's back more forwards. Other theories may be more or less true, but the above theory of Barnes is sufficient to account for the dorso-anterior position of the child. But how is it that the head often assumes an occipito-posterior position? This is the original question. The convexity of the lumbar spine should hinder the head from lying in an occipito-posterior position. No doubt it does so in the majority of cases, but the convexity must vary in degree in different individuals; and thus, it is evident that when this convexity is slight, the head may assume an
an occipito-posterior position, and at the same time
this lessened convexity will not interfere with the head
lying in an occipito-anterior position. This would also
explain the tendency to recurrence of occipito-posterior
positions in the labours of the same patient.

What is the relative frequency of right and left
occipito-posterior positions? All obstetricians are agreed
as to the much greater frequency of right occipito-
posterior positions, but the exact proportions given by
different observers vary. In all of the cases of occipito-
posterior position of the head with which I have met, the
occiput was at the right side of the pelvis.

Cases of occipito-posterior positions of the head
may be divided into the two following classes—
(a) those in which, by the movement of internal rotation,
the occiput is brought to lie behind the symphysis
pubis, and (b) those in which that movement causes
the occiput to pass backward towards the hollow
of the sacrum. In 27 of the above 31 cases the occiput
rotated forward, 12 of the patients being primiparae
and 15 multiparae. In the other 4 cases the occiput
passed backwards, and the four patients were multiparae.

From this it is seen that the occiput usually rotates
to the front. But how is it that it sometimes moves
backward into the hollow of the sacrum? Various
theories have been advanced to account for these
movements, but I shall not enter into them fully,
but only mention one or two. It is generally stated
that
that when the head is well flexed the occiput passes forward, but that when flexion is very slight or absent or when the head is slightly extended, then the occiput is very apt to rotate backwards into the hollow of the sacrum. It will be seen, by looking over the above cases, that any experience is in accordance with these statements. In the first twelve cases flexion occurred, and in all of them the occiput rotated forward to behind the symphysis pubis. In Case 9, however, the flexion was slight, and forceps was applied when the head lay transversely. In Case 12, at the early part of the first stage, the anterior fontanelle could not be felt; in other words, the head was flexed, but this flexion was simply that of attitude; the movement of flexion had not occurred. Later on in the first stage, the head became slightly extended and remained so until forceps was applied, when on traction the head flexed and the occiput rotated forward. In Cases 13 and 14, flexion did not take place, and in both of them the occiput rotated backward into the hollow of the sacrum. In Case 15, I was not present at the early part of labour, but on arrival the non-flexed head was in the pelvic cavity with its long diameter in the right oblique pelvic diameter; in this case the occiput rotated backwards. In Case 28 there was absence of flexion, but the occiput rotated slightly forward, and the head struck with its long diameter transversely, but on traction with forceps the
the occiput passed forwards to behind the symphysis pubis. In Case 29, flexion was absent, and the head was slightly extended, but, before the completion of the first stage, the occiput rotated along the right side of the pelvis towards the front, and when forceps was applied, the head was not lying exactly transversely, but between that position and the right occipito-anterior position. In Case 30, there was very slight flexion, if any, but on traction with forceps, the occiput rotated anteriorly, though no flexion was observed to occur while the traction was being made. In Case 31, a forceps case, there was no flexion, but extension; the child's head was very large, and the occiput rotated backwards. In all of the other cases flexion occurred, and the occiput rotated forwards to behind the symphysis pubis. From the above it will be seen that flexion of the head is of much importance. But, how is it that flexion occurs in some cases and not in others? By what is flexion favoured, and by what hindered? When the head lies in an occipito-anterior position, flexion occurs when the head meets with distinct resistance from either resistant soft canals or narrow hard canals, and often takes place to an extreme degree. But, in my opinion, the very opposite holds good when the head occupies an occipito-posterior position, for then, when the head meets with much resistance flexion is hindered and extension may occur instead. I believe that it may be stated as
as a fact that that part of the head which lies at the posterior end of an oblique diameter of the pelvis is hindered from descending when the head meets with distinct resistance, while that part of the head lying at the anterior end of the oblique diameter descends. I believe that in occipito-anterior cases the elastic tissue on the posterior pelvic wall hinders the descent of the forehead and even causes its ascent, and that in occipito-posterior cases the descent of the occiput is prevented by the same elastic tissue. The part of the head opposite the smooth anterior pelvic wall meets with much less resistance, because there the elastic tissue is small in amount. If my opinions, expressed above, be correct, then it will be evident that, provided a normally sized pelvis, flexion is likely to be absent when the head of the child is large. Flexion is also often absent when the head of the child is small, (see Cases 14 and 15) that is, in those cases in which the head meets with little or no resistance. At the same time I believe that a certain amount of resistance is necessary in order that flexion may take place. But, when the resistance is marked, that part of the head lying at the posterior end of the oblique diameter of the pelvis is hindered from descending. It is a matter of degree. If there be little or no resistance, flexion does not occur. If there be moderate resistance, flexion does take place. But, when the resistance is great, flexion is hindered. When the head, both
in Case 12 and Case 29, meet with resistance it did not become flexed, but extended. In other cases also I have observed the same.

But, undoubtedly, flexion of the head is not the only factor that influences the forward rotation of the occiput. The following experiment of Dubois throws some light upon the subject: "In a woman who had died a short time previous to childbirth, the uterus, which had remained placèd and of large size, was opened to the cervical orifice, and held by aids in a suitable position above the superior strait; the foetus of the woman was then placed in the soft and dilated uterine orifice in the right occipito-posterior position. Several pueril-avidiwine, pushing the foetus from above, readily caused it to enter the cavity of the pelvis; much greater effort was needed to make the head travel over the perineum and clear the vulva, but it was not without astonishment that we saw, in three successive attempts, that when the head had traversed the external genital organs, the occiput had turned to the right anterior position, while the face had turned to the left and to the rear; in a word, rotation had taken place as in natural labour. We repeated the experiment a fourth time, but as the head cleared the vulva the occiput remained posterior. Then we took a dead born foetus of the previous night, but of much larger size than the preceding; we placed it in the same conditions as the first, and twice in succession witnessed
"the head clear the ischial after having executed the movement of rotation. Upon the third and following essays, delivery was accomplished without the occurrence of rotation; thus the movement only ceased after the perineum and on the had lost the resistance which had made it necessary, or, at least, had been the provoking cause of its accomplishment." (Quoted from "The Science and Art of Midwifery", by W.T. Lush, M.D., Third Edition, page 187). This experiment shows us that the perineum and vulva play an important part, and it has this much support from any cases, that all the cases of persistent occipito-posterior position occurred in multiparae, whose perinei are not so resistant as the perinei of primiparae. It is evident that this resistance of the perineum and vulva will exert greater power on a well-flexed head than on a non-flexed or extended one; for, in the case of a well-flexed head, the occiput is the first part of the head to meet this resistance, and thus is the first part to be affected by it, and consequently it will be forced forward; and, when we bear in mind that a well-flexed head engages with a smaller diameter than a non-flexed head does, we can understand how it will be easier for the resistant perineum to turn the occiput forward when the head is flexed. But, in the case of a non-flexed or an extended head, the occiput is no longer the lowest point, but rather and, owing to this and to the larger engaging diameter, the perineum will experience greater...
greater difficulty in effecting anterior rotation of the occiput than when the head is well flexed.

Dr. Angus Macdonald, in a Paper which he read before the Obstetrical Society of Edinburgh, 8th July, 1874, stated his belief that, though relative narrowing of the transverse diameter of the pelvis is no doubt a chief cause of those difficult occipito-posterior positions, several large size of the head is a most important factor; and that in consequence of this large size of the head the forehead gets so wedged into the pelvis anteriorly that its tendency to pluck up and rotate forward does not come into play.” (Edin. Medical Journal, October 1874).

I think that Macdonald’s view is certainly true at a certain stage. But, what favours this wedging of the large head in the pelvic cavity, apart from narrowing of the transverse diameter? Extension undoubtedly.

I believe that a large head is much more likely to become extended than an ordinarily-sized one. It will meet with greater resistance at the pelvic brim, and the occiput will be hindered by the elastic tissue of the posterior wall from descending in order that the movement of flexion may take place; thus, the head descends, extended, and engages with a larger diameter than it would have done had it been flexed; consequently, the head is more apt to become wedged in the pelvic cavity. But this wedging of the head is not only favoured by the head being extended and thus engaging with a larger diameter, but
but also by the fact that the occiput has not much tendency to pass forward, owing to the resistant perineum acting at a disadvantage, and consequently the parturient forces just tend to increase the tightness of the wedging. Now, Macdonald's view explains the difficulty that the occiput has in rotating forward. 

I think, supports these statements.

**Effects of Occipito-posterior positions of the head on the duration of labour.** It is generally stated that the first stage of labour is delayed and often tedious, and the cause of this is a certain degree of extension of the head that is frequently found when the vertex presents in an occipito-posterior position. The averages given below, and compared with 50 cases in which the head presented in the left occipito-anterior position, show any experience. The 50 left occipito-anterior cases have not been selected, they were all under my care in Glasgow Maternity Hospital.

<table>
<thead>
<tr>
<th></th>
<th>Occipito-posterior Cases</th>
<th>L.O.A. Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>8 hours 36 min.</td>
<td>7 hours 56 min.</td>
</tr>
<tr>
<td>— in primipara</td>
<td>9 &quot; 37 &quot;</td>
<td>9 &quot; 25 &quot;</td>
</tr>
<tr>
<td>— in multipara</td>
<td>8 &quot; 36 &quot;</td>
<td>6 &quot; 27 &quot;</td>
</tr>
</tbody>
</table>

Longest
<table>
<thead>
<tr>
<th></th>
<th>Occipito-posterior Cases</th>
<th>L.O.A. Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>— in primipara</td>
<td>20 &quot; —</td>
<td>32 &quot; —</td>
</tr>
<tr>
<td>— in multipara</td>
<td>13 &quot; 30 &quot;</td>
<td>13 &quot; —</td>
</tr>
</tbody>
</table>

Shortest
<table>
<thead>
<tr>
<th></th>
<th>Occipito-posterior Cases</th>
<th>L.O.A. Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>— in primipara</td>
<td>4 &quot; —</td>
<td>2 &quot; 45 &quot;</td>
</tr>
<tr>
<td>— in multipara</td>
<td>2 &quot; 45 &quot;</td>
<td>2 &quot; 30 &quot;</td>
</tr>
</tbody>
</table>
Taking only the cases in which flexion did not occur, the following results, which are of little value as they only refer to nine cases (Cases 9, 12, 13, 14, 28, 29), are obtained:

Average ........................................ 12 hours
  - in primiparae (2 cases) ........ 17 hours 15 min.
  - in multiparae ................. 9 " 23 "

Longest
  - in primiparae .......... 20 "
  - in multiparae .......... 13 "

Shortest
  - in primiparae ...... 14 " 30 "
  - in multiparae ...... 6 " 50 "

The second stage of labour, in cases of occipito-posterior positions of the head, is said to be delayed, owing to the distance the occiput has to rotate to lie behind the symphysis pubis, and because the head often gets wedged between the lateral walls of the pelvis. The following statistics show my experience:

<table>
<thead>
<tr>
<th></th>
<th>O. Postero Cases</th>
<th>50 L.O.A. Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1 hour 15 min.</td>
<td>1 hour 3 min.</td>
</tr>
<tr>
<td></td>
<td>in primiparae</td>
<td>in multiparae</td>
</tr>
<tr>
<td></td>
<td>1 &quot; 29 &quot;</td>
<td>1 &quot; 21 &quot;</td>
</tr>
<tr>
<td></td>
<td>1 &quot; 5 &quot;</td>
<td>- 44 &quot;</td>
</tr>
<tr>
<td>Longest</td>
<td>3 &quot; 45 &quot;</td>
<td>4 &quot; 30 &quot;</td>
</tr>
<tr>
<td></td>
<td>5 &quot;</td>
<td>2 &quot; 30 &quot;</td>
</tr>
<tr>
<td>Shortest</td>
<td>80 &quot;</td>
<td>80 &quot;</td>
</tr>
<tr>
<td></td>
<td>5 &quot;</td>
<td>5 &quot;</td>
</tr>
</tbody>
</table>

In this duration of the third stage of labour, occipito-posterior positions of the head have an especial influence.
Management. - Before considering the management of cases of occipito-posterior positions of the head, it may be well, notwithstanding restatement, to make a few remarks upon the above cases in respect to their management.

In the management of the first eight cases nothing special was done. In each of them the movement of flexion occurred, and the occiput rotated forward to behind the symphysis pubis. The next four cases were delivered with forceps. In Case 9, the uterine contractions were feeble. At the commencement of the second stage of labour, however, they increased in strength, and as a result, the head entered the pelvic cavity. The movement of flexion occurred in a slight degree only, and the occiput moved forwards until the head was placed with its long diameter in the transverse diameter of the pelvic cavity. Inertia uteri now set in, so I applied forceps and delivered; the occiput rotated forward to behind the symphysis pubis.

In Case 10, the uterine contractions were strong, and everything went on favourably until after the occiput had rotated forwards to behind the symphysis pubis, when, in spite of the strong uterine contractions, the head made no more progress. The outlet seemed narrowed. I applied forceps and effected delivery.

In Case 11, I applied forceps for inertia uteri after the occiput had rotated forward.

case
Case 12. - The first stage was long (20 hours), due in all probability to the head becoming extended. Forceps was applied when the os was a little more than two-thirds dilated, and the head lying with its long diameter in the right oblique diameter of the pelvis. Dr. Sloan, at first, applied straight forceps, the blades of which did not lock well, and used slight traction while, at the same time, he tried to rotate the head so as to bring the occiput forward, but in this he failed. He then took off the straight forceps, and applied Sir James Y. Simpson's double-curved ones, the blades of which locked easily when passed. By careful traction, the os dilated, the movement of flexion occurred, and then the occiput rotated along the right side of the pelvis to behind the symphysis pubis, although no attempt was made to rotate the head forcibly, traction only being used. The forceps was then taken off, and re-applied, and delivery effected.

The above patients were primiparae; now, we come to consider the multiparae.

Case 13. - No flexion occurred, and the occiput rotated backwards into the hollow of the sacrum. The case required no special management. The second stage lasted 15 minutes only, and the child weighed 8 lb.

Case 14. - Premature labour (8th month). No flexion occurred, and the occiput rotated backwards into the hollow of the sacrum. The second stage lasted 30 minutes.
No special management was required.

Case 15.- On my arrival, I found that the head was in the pelvic cavity, with its long diameter in the right oblique diameter of the pelvis and the occiput to the right side and posteriorly. The pains were good; the occiput rotated backwards; and then, during a pain I pressed the forehead up behind the symphysis pubis in order to assist flexion, and the occiput passed over the perineum and was born. The head was small.

In each of the next 8 cases, flexion occurred and the occiput rotated forwards to behind the symphysis pubis. No special management was required for any of them, except Case 19, in which there was marginal placenta praevia.

Cases 25 and 26.- In each of these flexion occurred and the occiput rotated forwards to behind the symphysis pubis; the pains continued good, but the head made no progress, and delivery was effected with forceps.

Case 26.- There was hydramnios. There was inertia uteri. After the second stage had lasted 3½ hours, syntocinon was given. The pains then became stronger, but the head would not engage at the brim, so forceps was applied and only slight traction was required. The head flexed and the occiput rotated anteriorly.

Case 27.- Flexion took place, and the occiput rotated forward to behind the symphysis pubis; forceps was adopted.
now applied for slight inertia and large head. Case 28. The flexion took place; the head descended, and after the occiput had rotated slightly forward, the head struck transversely; inertia uteri now occurred; as forceps was applied; the occiput moved forward to behind the symphysis pubis, on traction. Case 29. The patient was admitted at 4 a.m., two hours after the commencement of labour, by the night nurse, who examined her, but did not make out the position of the head. When I first examined her (9 a.m.), seven hours after the commencement of labour, the membranes were found ruptured, the 0 two-third, dilated; the head presenting in the right occipito-posterior position with the anterior fontanelle low down. One hour and three-quarters after this, the head was found lying transversely, and an hour later still, was lying between the transverse position and the right occipito-anterior position. Forceps was now applied, and, on traction, the 0 dilated, the head was soon brought through the brim, the occiput rotated to the front. The child weighed 9 lb. 3 oz. Case 30. After the second stage began, the head soon descended into the pelvic cavity, but there was very little flexion if any. The pains continued strong, but the head did not move. After the second stage had lasted for 2 hours, forceps was applied, the head lying with its long diameter in the right oblique diameter of the pelvic cavity with the anterior fontanelle within.
within easy reach. A fair amount of traction was required. The occiput rotated forward to behind the symphysis pubis.

Case 81. - When forceps was applied the head was in the cavity of the pelvis, the occiput had rotated slightly backwards; and the anterior fontanelle was on a lower level than the posterior. On traction, the occiput rotated further backwards. The child was very large.

In occipito-posterior cases we wish the occiput to rotate forward to behind the symphysis pubis and the case to terminate as an occipito-anterior one. When considering the causes that produce forward rotation of the occiput, I endeavoured to show that the movement of flexion was of vast importance, and that when it occurred in the above cases, the occiput rotated forward. Now then, can we produce flexion in those cases in which it does not occur naturally? It must be kept in mind that the movement of flexion occurs early in labour, and therefore we should not delay our attempts, for if we do, failure will probably be our reward. Certainly, if we wait until the unflexed head becomes wedged between the lateral walls of the pelvis, the chances of success are greatly diminished. I have said before that the occiput is hindered from descending by the elastic tissues lining the posterior wall of the pelvis, and
and the forehead descends because it meets with less resistance. These statements indicate to us what we should attempt to do. Clearly, we should either increase the resistance offered to the descent of the forehead, or apply greater force to the occiput in order to make it descend. We may do the former by upward pressure on the forehead during the pains; and, the latter by applying traction on the occiput by means of a fillet or vectis. If an unflexed head be in the pelvic cavity, and if we fail to produce flexion, then, we may assist anterior rotation of the occiput by applying pressure on the anterior side of the forehead during the pains. An early and fair trial should be given to these means, but they should not be persisted in too long nor too vigorously. Of course, it may be said that the occiput often rotates forwards at the very last moment, even after we have given up all hopes of its doing so. But, we cannot foretell such an event, and, I think, should not rely upon the fact. If the head be flexed, then we may wait for it, but I am at present speaking only of cases in which the head is not flexed.

In my opinion, forcible rotation with forceps is dangerous, unnecessary, and unjustifiable. In Case 12, Dr. Sloan attempted to effect rotation forcibly with straight forceps, but failed. But, when he applied double-curved forceps and used traction only, the head flexed and the occiput rotated forward to behind the
the symphysis pubis. Traction is all that is necessary.
I believe that traction only with a good pair of forceps properly used is the most efficient means we have for procuring anterior rotation of the occiput, and further, that we should not delay too long in applying forceps. Forceps should certainly be used before the head gets firmly wedged into the pelvic cavity. We should never wait until the forehead gets so wedged into the pelvic anteriorly that its tendency to slacken and rotate forward does not come into play. Such, in writing about forceps in occipito-posterior position, says, "So long as the occiput looks to the rear, it is the rule in midwifery practice to refrain from the use of forceps, which of necessity, prevents forward rotation from taking place." (Science and Art of Midwifery, by W. J. Duck, M.D., Third Edition; page 371). In my opinion, Cases 7, 12, 26, 28, and 30 show that forceps do not prevent forward rotation. If we wait until the head gets firmly wedged into the pelvic cavity, then, when we apply forceps, the occiput will probably not rotate forward. I think forceps, if applied soon, favours forward rotation.

When the head is well-flexed no special management is required.

In persistent occipito-posterior cases, the application of forceps is often required. If the head be not large, pressing the forehead upwards behind the symphysis pubis may suffice; this assist flexion, which should occur, and by which a smaller diameter may be obtained. Injuries
Injuries to Soft Parts.—1. Ruptured Perineum—is the injury most commonly met with and the one we try most of all to avoid. It is generally stated that the perineum is much more likely to be lacerated when the occiput rotates into the hollow of the sacrum. There were four persistent occipito-posterior cases in the above 31 cases, and all of the patients were multiparous. In three of the four cases (Cases 13, 14, 15) there was no tear; but in Case 14 the child was premature, and in Case 15 small. In the fourth case (Case 31) the tear was very slight though the child's head was very large, and I think that there would not have been any laceration if the perineum had been intact when I applied the forceps. Of the 27 cases in which the occiput rotated forwards, 15 of the patients were multiparous, and in none of them did laceration occur. In 5 of the 12 primiparous (Cases 2, 4, 5, 9, 11) there was a tear. In Case 2, the head ruptured the perineum very slightly, but the left (and posterior) hand being up by the side of the head the perineum was further torn during the birth of the shoulders; in all, two-thirds were ruptured; it was stitched, but only partial union obtained. In Cases 4 and 5, the anterior two-thirds were ruptured; they were both stitched, but in both no union occurred. In Case 9, a very slight tear was produced when the head was being delivered with forceps; it was not stitched. In Case 11, also a forceps case, the
antier two-thirds were ruptured; the perineum was, stitched, and complete union obtained.

2. The late Dr. Angus Macdonald, in the paper previously referred to, drew attention to abrasions and lacerations of the vagina. I have not met with these in any case.

3. Dr. Halliday Croom, in a paper read before the Edinburgh Obstetrical Society, 13th April 1881, described a laceration of the vagina over the right ischiatic spine, with which he had met. This complication was not present in any of the above 31 cases, but I remember meeting with it in one case, of which I have no notes, and in which the occiput rotated forward, and delivery was effected by natural forces.

4. Tears of the Cervix Utter. Beyond very slight lacerations, which are very frequently met with, Case 12 was the only one of the above cases in which the cervix was torn.

Puerperium. All of the 31 cases recovered, except perhaps Case 5. The multiparae made much better recoveries than the primiparae. All of the multiparae made very good recoveries, except Cases 23, 24, 25, 29, and perhaps 31. But Cases 23, 25, and 29 were dismissed very well, and examination per vaginam revealed no inflammatory deposit, when Case 24 was dismissed, both broad ligaments were a little thickened. The primiparae did not recover so well. Cases 1, 3, 9, and 10 did very well. Cases 2, 4, 6 and 7 were
were dismissed well, and on pelvic examination nothing abnormal was found. The history of Case 5, after leaving the Hospital, is unknown to me; there were no new pelvic symptoms, but chest symptoms developed; the lochia were normal throughout, but it is possible that she was suffering from septicaemia; the patient was so unmanageable that it was difficult to form a correct estimate of her condition. Case 8 had a severe attack of septicaemia, but ultimately recovered. Case 11 was dismissed well, but there was slight fixation of the uterus. Case 12 was also dismissed well, on the 15th day, with partially fixed uterus; she died well after dismissed.

Children. - All of the children were born alive, except one, which was premature (6 months; Case 13). Three died subsequently (Cases 3, 14, 24). Case 3. The child was a twin, had convulsions and died on the 6th day. Case 14. The child was premature (8 months), and scarcely lived two hours. It was probably syphilis, but no post-mortem examination was allowed. Case 24. The child had convulsions and died on the 2nd day. Two children (Cases 10 and 20) suffered from ophthalmia, but were almost well when dismissed. Case 12. An abscess formed on the right ankle joint, and, when the child was dismissed, another was forming in the upper and outer part of the right leg.
All the others did well, except perhaps Case 21, of which I know nothing.