Parturition and its difficulties : with clinical illustrations and statistics of 13,783 deliveries / by John Hall Davis.

PARTURITION

AND ITS DIFFICULTIES.

WITH

CLINICAL ILLUSTRATIONS AND STATISTICS

OF 13,783 DELIVERIES.

BY

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PREFACE.

THIS volume contains my personal experience in the Difficulties of Childbirth, and their consequences in the puerperal state. The former edition has been carefully revised throughout, and new chapters have been added.

The first section of the book gives an account of the causes and of the principles to be observed in the management of Powerless and Obstructed Labours.

The Mechanism of Parturition under natural and preternatural presentations is explained; and the management of labours under the various presentations, when a recourse to artificial interference is necessary, is also fully treated of.

The second part of the book comprises the history of one hundred and fifty-three labours, presenting various degrees and kinds of difficulty, in which I have been consulted in the above division of abnormal labours; and I might have added a much larger number.

The third part of this volume consists of the Statistics and Analysis of 13,783 deliveries attended

under my direction from 1842 to 1864, chiefly in the Royal Maternity Charity, comprising various forms of difficulty and complication; as those of Twin Labours, Floodings before and after the birth of the child, Convulsions before, during, and after labour, &c.

My best thanks are due to those professional friends who have at various times honoured me with their confidence by consulting me in their difficulties, and who have thus also afforded me valuable experience, and, moreover, the opportunity of practically illustrating my subject in the following pages.

To other friends, I must also acknowledge my obligations, and among these to my colleague Dr. Hicks, for the use my artist, Mr. Jennens, has made in his drawings, of the woodcuts in my friend's excellent paper on "Bimanual Version" in the "Obstetrical Transactions."

A second work is nearly ready on the causes and treatment of floodings, and other forms of complex labour, with illustrative cases.

11, Harley Street, Cavendish Square.
July 1, 1865.

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PART II.

INTRODUCTION.

The natural course of the function of Parturition may be disturbed in a variety of ways; but the sources of those departures from normal labour may be comprised under two primary divisions:—

I. Difficult Parturition, which may arise from—

1. Defective power in the agents of labour: Powerless Labours.

2. Inordinate resistance to those agents: Obstructed Labours.

II. Complications of labour by circumstances tending to endanger the life of the mother or her offspring, or the lives of both; as prolapse of the umbilical cord before the presenting part of the child, hæmorrhage, convulsions, &c.

Under these comprehensive heads I shall consider my subject, and shall not under them include those forms of so-called "preternatural labour," which terminate prosperously without interference; as favourable breech and footling cases, by some ranked as normal.

CHAPTER I.

POWERLESS LABOUR.

1. The powers of parturition may be enfeebled, or rendered irregular in their action, under various influences, which affect either the muscular energy of the uterus itself, or that of the accessory forces, which co-operate with the uterus in the second stage of labour; viz., the respiratory muscles, and their auxiliaries in the more forcible expulsive acts.

2. That the action of labour may be disturbed and weakened by impressions on the mind, as by depressing passions and mental shocks, &c., is familiar to all experienced practitioners.

3. Internal sources of irritation may retard labour by interrupting through the reflex function of the nervous system the due and regular supply of nervous influence to the muscles of parturition; as indigesta, intestinal accumulations, retentions of urine, &c.

4. Constitutional debility from a variety of causes, as frequent child-bearing, previous ill-health, &c., may also impair the efficiency of the forces of labour.

5. Diseases of the respiratory and circulating organs, abdominal tumours and enlargements, ascites, and extreme distention of the urinary bladder, will also impede the due action of the auxiliary powers of parturition.

6. The contractions of the uterus in particular may be weakened by over-distention, as by twins, or by an excessive quantity of liquor amnii, amounting to even several quarts, in place of the normal quantity at the full period of from eight to sixteen ounces. The child, in these cases of excess of liquor amnii, has usually been found diseased or dead, the subject of hydrocephalus or ascites, and frequently has been born prematurely. In many the placenta has undergone morbid changes. Dropsy of the amnion is recognized by the great tenseness and size of the abdomen, and the fluctuation being as distinct as in ascites. The projecting parts of the child and its movements cannot be made out. Ascites has been sometimes inferred to exist, and tapping has even been contemplated. The ballottement will be as distinct at the full term as it is usually at the fifth or sixth month; moreover, the neck of the uterus will be found greatly expanded, and fluctuation will be manifest to the finger applied to the cervix, while percussiug the abdomen over the fundus of the uterus. I once met with it in a patient at the sixth month of gestation, in whom the elevation of the fundus and development of the cervix corresponded to the full period.

7. *Treatment.—Mental impressions* must be guarded against by care to avoid, as much as lies in our power, all causes calculated to disturb the mind of the parturient, and to soothe, encourage, and reassure her in every way. Conversations calculated

to depress the patient should be strictly forbidden.

8. *Reflex disturbances* must be met by a removal of their cause. Thus when there are indigesta in the stomach, as where a patient has taken shortly before labour an excessive meal, or partaken of something which has obviously disagreed with her, a gentle emetic will be the appropriate remedy. In one instance in which I was consulted, an impending attack of convulsions was apparently prevented by such timely means. In another case of over-repletion before labour convulsions had ensued before that remedy could be given.

9. Should fæcal accumulation be the disturbing influence, or intestinal irritation in any part of the canal be suspected, an efficient enema will be the proper remedy; but due attention to the bowels before labour is to be preferred, although too frequently neglected by some patients.

10. When *retention of urine* is the cause of inefficient action, the timely use of the catheter will be indicated. The duty of carefully watching the state of the bladder during labour is one of great importance. To this point I shall return in the next chapter.

11. In *constitutional debility,* prophylactic treatment to remove or lessen that condition before labour will be indicated; as nourishing dietary, and a proper amount of stimulants, good air, with such exercise as can be borne without fatigue.

During labour, nourishment and stimulants, as wine or brandy, should be administered as indicated; but we must be careful to notice, that no other cause requiring removal is present in the case.

12. When the uterine efforts are sluggish without such general debility, when no absolute nor relative defect of space nor rigidities exist, ample dilatation of the soft parts is present, in short, nothing but action wanting to complete the labour, the ergot of rye may be administered in most cases with good effect. In *primiparous* labours, however, I do not recommend the ergot, as I believe gradual progress is the more necessary in them for the safe passage of the child.

13. In some cases where the patient's powers seemed exhausted from want of sleep, I have known a judicious opiate, by inducing refreshing sleep, lead to a return of the uterine efforts. In latter years I have often seen the same good effects from chloroform.

In certain instances, however, the application of the forceps will be the most expeditious, as well as the preferable treatment.

14. Lingering labours, dependent upon disease of the thoracic organs, upon abdominal tumours, and ascites, will require very careful and special management. Delivery by the forceps in substitution for the want of parturient power will usually be indicated in such cases.

15. Over-distention of the uterus, suspected to be due to twins, must be met by hastening the delivery

of the first child by the forceps, or by other means suited to the particular case.

16. Where the undue distention proceeds from an excessive quantity of liquor amnii, a cause, however, not too hastily to be inferred, the discharge of that fluid will then be the proper remedy.

17. Plethora, as a cause of powerless labour, may be inferred to exist, when the parturient presents the ordinary appearances of such condition, when she complains of headache, giddiness, or confusion of vision. The uterus, partaking in the general plethoric condition, is congested, but no sooner is a moderate abstraction of blood resorted to, than the head symptoms and the uterus are relieved, and active pains of labour setting in speedily, these cases, *cæteris paribus*, are brought to a satisfactory conclusion.

18. Such condition is rare, but when it does present itself, a prophylactic treatment before labour by laxatives, a restricted dietary, a due amount of exercise, would most probably suffice to prevent worse consequences in labour. Plethoric primiparæ, presenting the above symptoms, being more prone to puerperal convulsions than others, should receive our especial attention, with the view of preventing the accession of that severe complication in labour.

CHAPTER II.

OBSTRUCTED LABOURS.

19. UNDUE resistance to the actions of labour forms a second division of causes of difficulty, comprehending numerous subordinate varieties of great importance.

20. The obstruction may, *firstly*, be seated in the soft maternal tissues; *secondly*, it may be the result of disease in the pelvic bones, or of some defect in their development; *thirdly*, the obstacle may arise from the disproportionate size, or some other condition, of the child.

21. Rigidity of the os uteri is an occasional cause of difficulty under this head, in the first stage of labour; especially in unusually young primiparæ; and particularly in women who are advanced in years for a first confinement; but instances are not wanting of this rigidity occurring in subsequent labours, and that even when it may not have appeared in the first. The rigidity may arise from a too early discharge of the waters of the amnion. Such being the case, we should be especially careful to maintain, as long as possible, the entirety of the membranes of the ovum.

22. *Treatment.*—Rigidity of the os uteri may be

divided into the functional and organic. The former is often resolved in time by the actions of labour, although sometimes requiring the aid of relaxing remedies. The latter form of rigidity, the organic, is more rare, and is due to some structural change in the part, from inflammation, cicatrices from former lacerations or sloughings; from carcinoma. To avoid a rupture in these cases, incisions have sometimes been resorted to; but in most cases there is left a sufficiency of intervening healthy tissue to allow of the needful dilatation, without that extreme measure. In functional rigidity, time, and the natural vital actions of the part, will effect much; but so great is the suffering and the danger of laceration when the pains are violent, that treatment for the removal of such rigidity will be necessary.

23. The tartar emetic, the sixth or eighth of a grain, every half-hour for a few doses, will, I have often found, in an hour or two, bring about the desired relaxation, promoting an abundant flow of mucus.

24. Chloroform will also be found of great value in these rigidities, where the patient's health offers no contra-indication to its use; since, at the same time that it induces relaxation, it also greatly soothes, or removes entirely for the time, the sufferings of the patient. It should be given gently, and sometimes the extra precaution adopted in Mr. Clover's plan of administering it mixed with a definite quantity of air, will be found advisable. Or we may follow the recommendation of the Cholera Committee of the

Royal Medico-Chirurgical Society, and exhibit the vapour from mixture A—

Alcohol	... ...	1 part, sp. gr. 838
Ether	... ...	3 parts, sp. gr. 1497
Chloroform	...	2 parts, sp. gr. 735

(As first suggested by Dr. Harley.)

Or from mixture C—

Chloroform	1 part.
Ether	2 parts.

In all cases, however, care should be taken, when giving the vapour, to insure the patient's inhaling also an ample quantity of air. I have always myself employed pure chloroform saturated in a handkerchief, and held about two inches from the nostrils, not more than ten or twenty minims at a time: given thus cautiously, I have never met with any injurious effects on the patient.

25. I will only allude to one other treatment of a rigid os uteri, and that only to condemn it as officious and injurious; namely, that of scooping, or mechanical dilatation of it with the finger.

In œdematous conditions of the os uteri, usually affecting its anterior segment, relief will sometimes be afforded by making pressure upon the head backwards during a few pains, so as to liberate the swollen portion, and allow of its ascent above reach of pressure between the head and the pubic bones.

26. *Occlusion of the Os Uteri.*—Agglutination or complete occlusion of the os uteri may be the cause of

obstruction. It arises from adhesive inflammation, which has supervened upon conception. Sometimes not a trace is left of the former site of the orifice; in others a slight dimple is perceptible, or a spot where the tissue seems thinner than elsewhere. The inferior segment of the uterus in these cases forms a smooth globular elastic swelling in the vagina, tense, and forced downwards during the pain.

27. *Treatment.*—When after a long continuance of strong bearing action, no opening becomes apparent, we must restore it.

This may be effected, as in my case, by the strong pressure of the point of the index finger on the most prominent part of the swelling: this is to be done during the height of the pain. W. J. Schmitt and Nacgelé, Jun., also preferred the finger or a blunt instrument in this operation. Others have restored the aperture by an incision; but this has, in one recorded case at least, led to an inconvenient extension of the opening by rupture during the pains.

28. *Obstructive Conditions of the Vagina.*—A labour may be greatly retarded in its second stage by rigidity and dryness of the vagina, owing to a deficiency of the mucus of parturition. A too early discharge of the waters is a frequent cause.

29. *Treatment.*—The relaxing influence of antimony is very beneficial in these cases. In others, chloroform may be resorted to by preference, as it also allays the patient's sufferings. Hot fomentations, free lubrication of the vagina with cold cream or other unctuous

application, warm enemata, and warm unstimulating drinks will also be found of great service.

30. Fræna and cicatrices in the vagina will sometimes be met with; they are usually the results of sloughing after difficult labours, and may exist in various degrees.

31. *Treatment.*—The caoutchouc dilators will be found of great service in some of these cases, combined with the relaxing influence of chloroform. Large bloodlettings were formerly adopted, after the teaching of Dewees; but these are obviously open to great objection, and should not be resorted to without some more pressing occasion for them. It would be preferable, where the relaxants already advised have completely failed after a full trial, and laceration is imminent, to apply a bistouri to the edge of the obstructing membrane, at the points of greatest tension, during the height of pain, and where a complete ring of membrane is met with, very slight incisions should be made in four directions.

After delivery, oiled tents should be kept in application as long as required to prevent a recurrence of the contraction. These, of course, should be changed two or three times a day. Much may be done to enlarge the capacity of the vaginal tube in these cases of constricted vagina by the use for some days before labour of the India-rubber dilators above referred to.

32. *Unruptured Hymen.*—The hymen, in consequence of inordinate toughness, sometimes continues perfect up to labour, and offers an impediment to the

expulsion of the child. The pressure of the head against it has sometimes ruptured it; where not, or the pressure of the finger is not sufficient, a crucial incision is the simple and obvious remedy.

33. *Rigidity of the perinæum* is most frequently met with in primiparæ. But it may occur in multiparæ, and especially if any injury has been incurred in a former labour. This rigidity may be divided into mere functional and into organic rigidity.

34. The functional rigidity usually yields to time and the natural changes which accompany labour; but where it is unusually persistent, the influence of antimony, or better, of chloroform, when it can be borne, with warm fomentations, unctuous applications, and warm water enemata, will most usually be found efficient. In plethoric subjects with high pyrexia, depletion has occasionally been necessary.

35. In organic or structural rigidities due to hard cicatrices from former sloughings, sometimes depending upon plastic operations extended too far forwards to admit of the exit of the head, these means may fail.

36. In two cases last year under my care, such cicatrices were the obstacles, and not yielding to chloroform, in one a rent was inevitable, which however left an adequate perinæum behind. In the other case, rupture being expected every moment, I summoned the surgeon who had operated, and suggested his making a slight bilateral incision downwards and outwards, to the extent of a quarter of an inch.

This sufficed, and the child living immediately passed out, without any extension of the incisions, which had healed in two days after; thus the perinæum was saved.

37. The duty of *guarding the perinæum*, supporting it, as some will have it, has been much urged. In some few cases there is no doubt the perinæum requires our utmost care to preserve it from laceration, when it is unduly rigid; but the safest mode I have found to be is that which I have always practised and taught. The points of the fingers and thumb are to be applied in a circle upon the head as it offers itself at the vulva, the elbow resting on the bed for support. Counter-pressure upwards and backwards to the necessary extent, in diminution of the downward pressure, is then to be made. I do not advise direct pressure on the perinæum, since it chafes it, irritates it, excites stronger action, interferes with its uniform expansion, and so renders the rupture we are so anxious to avert more likely to happen.

38. *Varicose Swellings of the Labia and Nymphæ.*—I have met with several cases of a varicose condition of the nymphæ and labia majora, but only in two cases did any trouble arise. In one a rupture of the varicose vessels in the nymphæ occurred, and a smart hæmorrhage; but it was easily arrested by cold applications; in another an extravasation of blood took place into the areolar tissue of the labium, and subsequently burst out at its internal surface, when the labium had reached a considerable

size. The bleeding which followed was, however, readily subdued by the application of cold water.

39. *Treatment.*—When no rupture follows, it is usually best to leave the internal clot to the action of the absorbents, assisted by stimulant lotions,—a better practice than laying open to the air the cavity containing the clot. Where these extravasations are apprehended, cold applications should be made, and extraction of the child by the forceps at the proper opportunity will be serviceable. Much may be done, however, by the horizontal posture before labour, with regulation of the bowels, and by diet.

40. *Œdema of the Labia* does not usually offer any serious impediment; but in one case, where the two labia united equalled the size of the child's head at birth, I found it necessary, after the failure of purging and diuretics in reducing it, to puncture them with a needle. This was done a week before labour set in, and the oozing was then continuing freely. The labia being lessened to half their previous bulk, the labour was then completed without further interference, and the patient had a good recovery.

41. *Distended or Prolapsed Bladder.*—The urinary bladder when distended may prolapse below the presenting head, and obstruct the passage of the child. Here it has sometimes been mistaken for the amnion-bag of waters, and been unfortunately punctured, as in a case recorded by Dr. Merriman. Proper inquiry, however, will discover the orifice of the uterus with the presentation above and behind the distended

bladder. It has also been taken for the hydrocephalic head; but the history and due examination will decide the kind of case.

42. The duty of watching the state of the bladder during labour is one of the greatest moment, and its prolapse in a distended state can scarcely occur without some previous inattention.

As sad and fatal examples of neglect of the bladder, I might instance Chapman's fortieth case: the patient died with a distended bladder, undelivered. Two cases of melancholy interest are recorded by the late Dr. John Ramsbotham, eighty-ninth and ninetieth cases of his "Practical Observations in Midwifery," of rupture of the bladder from over-distention in labour. They were both in primiparæ, the pelvis was slightly deformed in one; the symptoms after the accident were in both similar,—a small rapid pulse, cold extremities, acute pain in the abdomen. The one patient died within two hours after delivery; the other lived to the second day, in great suffering, and had felt the organ give way. The autopsy in both discovered the lacerated aperture in the bladder, through which the urine had escaped into the cavity of the abdomen.

Where the case does not proceed to these extremities, inflammation of the mucous membrane of the bladder may occur. Sloughing at some point of its base may sometimes arise, leading to a urinary fistula, as happened in one case brought under my observation, the delivery having been spontaneous, and of a living

child. This patient was subsequently cured by plastic surgery.

43. The *treatment* obviously is the timely use of the catheter, which is somewhat more difficult to introduce where displacement of the bladder exists; however, by a little perseverance and humouring of the instrument, with an elastic catheter of sufficient size we shall succeed, pressure upwards and backwards upon the head being applied at the same time. We must not heed assurances of friends and nurses that the patient has regularly passed her water, but examine the abdomen and the pelvis, and use the catheter for our own satisfaction; for the bladder may yet be distended, and be felt either in the pelvis, where prolapsed, or otherwise above the pubes extending upwards in proportion to the amount of retention.

44. *A calculus* in the bladder may impede the advance of the child's head. If the case is seen sufficiently early, the stone may be pressed above the head before it engages; but if the head has descended into the pelvis, so as to prevent the reduction of the calculus above it, vaginal lithotomy should be performed in preference to craniotomy, and the stone removed. After delivery, the opening made can be readily healed by bringing the edges of the wound together, and maintaining the union with metallic wire sutures, after the plan now pursued in the treatment of vesical fistulæ.

45. *Fæcal accumulation in the rectum* is not an unfrequent cause of lingering and obstructed

labour. It is readily recognized by vaginal examination.

The remedy is a warm soap-and-water enema, and if the collection is in hardened masses, so as not to be thus dislodged, we must scoop it out in the best way we can. The poor are very apt to enter upon labour with the lower bowel fully charged with scybalæ, which should be prevented by suitable aperients beforehand.

46. *Ovarian tumours* sometimes encroach upon the pelvic space, and obstruct labour. When not fixed by adhesions in the recto-vaginal pouch, it has been possible, as in a case reported by Dr. Merriman, and in one recorded by Mr. Park, "Med. Chirurg. Transact.," vols. ii., x., to push the tumour above the brim before the entry of the head, and so the birth has followed easily. If not reducible, we must act as the case dictates, delivering by the forceps or by craniotomy. Sometimes the tumour has admitted of compression by the fœtal head. In some cases, ovariotomy, by giving the patient a chance of recovery, and enabling us to save the child, would be the preferable proceeding; but wherever the tumour obviously contains fluid, this may, as has frequently been done, be removed by a trocar and canula through the vagina; or through the rectum, if more prominent, by that outlet.

47. Abscesses in the vagina, from previous pelvic cellulitis, are sometimes obstacles in labour. These must also be discharged.

48. *Extra-vaginal tumours connected with the sacro-sciatic ligament.*—Dr. P. P. Drew met with two cases of fibrous tumours connected with the sacro-sciatic ligament: one patient died, and it then appeared that the tumour could have been easily removed. In the other instance it was extirpated through an incision in the perinæum. A living child was then extracted by the forceps. The tumour weighed upwards of two pounds, and measured fourteen inches in circumference. The mother did well.—(*Edinb. Med. Surg. Journal*, vol. i. pp. 20, 23.)

This would obviously be the best practice to pursue in any similar case, where such a tumour left no room for delivery by the forceps.

49. *Uterine and vaginal polypi.*—These do not necessarily impede labour. If they are small, the head may descend by their side, or will do so by the help of the forceps. In some other cases, where larger, the polypus has been forced out of the vagina by the pressure of the advancing head, and so has not interfered. Where, however, the birth is obstructed, the polypus must be removed, which may be done by ligature and excision, or by the écraseur.

50. *Displacements of the uterus* have been mentioned as causes of difficult labour.

The *lateral obliquities* which I have met with have never proved obstacles.

But *anterior obliquity* of the uterus, due to a pendulous condition of the abdomen, has, by directing the orifice of the uterus too far backwards, proved an

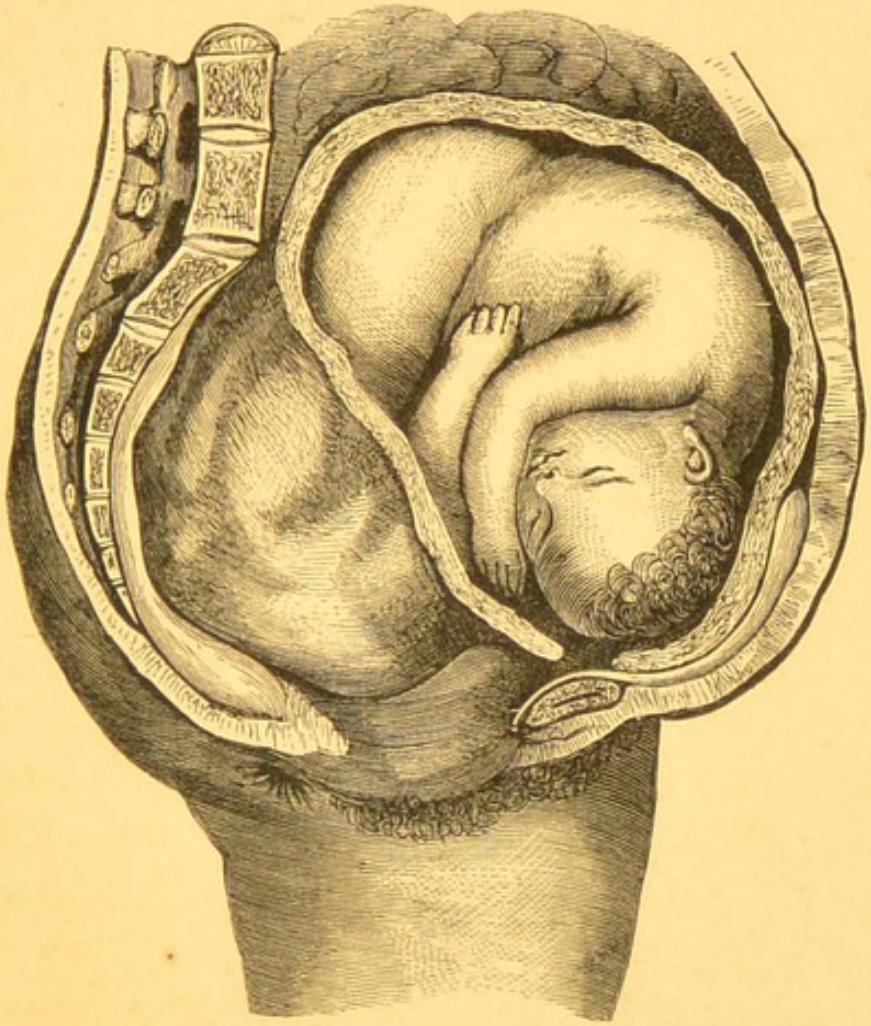
impediment. It is easily remedied, however, by a broad bandage firmly applied over the lower part of the abdomen, so as to press it upwards, and thus bring the orifice of the uterus forwards into the pelvic axis.

Attempts to replace the organ by pulling upon the mouth of the womb, sometimes recommended, should obviously never be made, as they do mischief, and no good.

51. *Retroversion and retroflexion of the uterus* is a displacement which may become a formidable obstacle in labour. A considerable part of the body of the uterus is here displaced downwards and backwards into the hollow of the sacrum, so as to occupy the recto-vaginal pouch, and bulge the posterior wall of the vagina forwards, as a firm globular mass filling up the posterior half or more of the pelvic space. The os uteri will be found tilted forwards and upwards, so as to be felt behind, sometimes above the pubes. The anterior wall of the vagina is at the same time dragged upwards and forwards by the neck of the uterus.

Retroversion usually occurs at between the third and the fifth month of gestation. The fundus of the uterus at this time has become larger and proportionally heavier, and therefore more liable to be affected by the superincumbent weight of the loaded intestines, as well as by the pressure of the abdominal muscles during various efforts, as those of carrying or lifting heavy weights, jumping, &c., or by the impulse communicated from falls and blows.

Fig. I.



RETROFLEXION OF GRAVID UTERUS AT FULL TERM.

A case which occurred to the Author.

Head presenting, Section removed from right of Uterus, to show position of child, and right half of Pelvis taken away to show the displacement.

Opposite p. 20.

52. *Causes of Retroversion.*—By some authorities distention of the bladder has been considered to be a principal cause of retroversion; and there is no doubt that it so acts in some instances, as when the patient, at the time of that distention, sustains a fall or engages in any effort producing a forcible contraction of the abdominal muscles. I have recently had a case brought under my cognizance by a professional friend, showing the influence of a distended bladder in producing the displacement. On the bladder being emptied by the catheter, the uterus immediately returned to its right position. The general experience, however, is that the distention of the bladder is the effect of the retroversion, being produced by the pressure of the cervix of the uterus upon the neck of the bladder. I have recorded two cases in which I was consulted. Two are reported by Merriman in his Synopsis, and one by Dr. Oldham in the Obstetrical Transactions of London. In one of my cases, which occurred before the days of chloroform, I treated the patient by antimony and henbane, which considerably reduced her previous sufferings; the orifice of the uterus was at length forced down by the tremendous action of the parturient muscles, and a still-born child at term was expelled under a breech presentation. In the other instance detailed among the cases, I had, after the failure of milder means, to perforate the head high up behind the pubes. Severe constitutional disturbance had arisen, and fears were entertained of an uterine rupture, or, at the least, of a fatal

exhaustion supervening; hence was the urgency for interference. This patient also had the complication of an ovarian cyst, but situated above the pelvic brim. It subsequently spontaneously burst, a few days after delivery, discharging its fluid contents per vaginam, and the patient did well.

Had that cyst any share in causing the displacement, or, the latter having occurred during or previously to pregnancy, in preventing spontaneous reduction? It is not improbable.

CHAPTER III.

SMALLNESS AND DEFORMITIES OF THE PELVIS.

53. The *standard* pelvis, it will be remembered, measures at the *Brim*, in the sacro-pubic diameter $4\frac{1}{4}$ inches; in the transverse $5\frac{1}{4}$ inches, and in the two oblique 5 inches each; at the *Outlet*, in the sacro-pubic diameter $5\frac{1}{2}$ inches; in the transverse, between the ischial tuberosities, about 4 inches.

The pelvis may be contracted in these dimensions and deformed by various diseases.

54. It may be proportionately diminished in all directions, the pelvis being here not misshapen or deformed; it is termed the *pelvis æqualiter justo minor;* it is simply a small pelvis. It resembles the pelvis of girlhood. There is no evidence of disease in it. The diminution of the diameters may each amount to a quarter of an inch, or even to one inch. The rest of the skeleton has not partaken of this dwarfish condition, most of the subjects having presented the standard stature. Fortunately, it is rare, for Busch, in his report of the Berlin Lying-in Hospital, gives three cases, and in these the children were delivered with difficulty, still-born, and two of the mothers died.

55. *Rickets of Childhood.*—Among the causes of a

small and deformed pelvis, the most prevalent is Rickets, a malady of childhood, depending upon defective nutrition, and various other influences operating injuriously in early years. In this disease the hard material of bone, consisting of the phosphate and other salts of lime and magnesia, is deficient, and too often, to the prejudice of childbirth, does this disease leave its deforming effects on the skeleton in after-life. It is a disease, however, unaccompanied by any suffering. The pelvis remaining soft at a later period than normal, the bones yield to the superincumbent weight of the body. In this way, the bones of the lower extremities become curved outwards, the promontory of the sacrum is forced downwards and forwards towards the symphysis pubis, the acetabula are pressed upwards and backwards by the heads of the thigh-bones. The result usually is an elliptic figure of the brim, the anterior posterior diameter being diminished, while the transverse is proportionately increased.

In extreme cases the sacral promontory is driven downwards into the cavity of the pelvis, the fifth, fourth, or even the third lumbar vertebra occupying its former position. The deformity is not always equal on the two sides, for the promontory of the sacrum sometimes deviates to one side of the pelvis.

In the bones of Rickets, Bostock found 80 of animal matter,
20 of inorganic matter

In 100 parts.

In the bones of Health, Berzelius found 33·30 of animal matter,
66·70 of inorganic matter

In 100 parts.

The inorganic matter in health consisting of—

Phosphate of Lime	51·04
Carbonate of Lime	11·30
Fluoride of Calcium	2·00
Magnesia, wholly or partially as Phosphates	1·16
Soda and Chloride of Sodium	1·20
	66·70

56. In more severe cases the pelvis, in rickets, from the effect of weight above and resistance from below, will acquire the angularity of figure of its brim characteristic of the disease next mentioned, viz., Mollities Ossium of adults, with a corresponding extreme deformity of the *outlet*. The attitude of the child and its employment will make a considerable difference in this respect. If confined for many consecutive hours daily in the sitting posture, the outlet, from pressure on the lower part of the sacrum and on the tuberosities of the ischium, will become contracted, as we observe it to be in Malacosteon. If the child is removed sufficiently early from the hurtful influences, before the deformity has proceeded to great extremes, and it is properly nourished and otherwise appropriately treated, the pelvis may completely recover itself. But if, in the adult, we still observe a curvature of the tibia, we may more than suspect that the pelvis is still deformed, and in a pregnant woman anticipate, at term, a difficult labour.

57. *Mollities Ossium of Adults.*—Another malady productive of pelvic distortion, from a similar defect in the hard material of the bone, fortunately more rare, because accompanied by so much suffering to its unhappy victims, is that distressing and eventually fatal disease, Mollities Ossium. This deformity progressively advances till it reaches, should the patient live sufficiently long, the degree, in the celebrated instance of Isabel Redman, who was delivered under the Cæsarean section, in 1794, by Dr. Hull. In that case, the space at the pelvic brim was less than one inch at any point. Or the distortion may equal that reported by Professor Naegelé, who found in one instance the antero-posterior diameter at the inlet of the pelvis reduced to two and a half lines.

58. A case of this disease, of about twelve years' duration, in a patient aged 36, came under my notice in October, 1846, with Mr. Stratford Eyre, who consulted me on account of her severe sufferings, the extreme deformity of her figure, and its bearings on a suspected pregnancy of five months.

For six years she had not been able to abduct the thighs, and could only go up and down stairs in the sitting posture; her height had been diminished eleven inches—viz., from five feet to four feet one inch. Her chest was greatly contracted, and she had long been asthmatic. She had given birth to six children, *the first three* living, at full term; the *fourth*, still-born, at full term, after a severe labour; the *fifth* was

delivered by craniotomy; the *sixth* labour was induced at five months, the fœtus passing with difficulty. There proved to be no pregnancy, and the patient died of pneumonia a few days after I saw her.

At the necropsy the frame was found greatly emaciated; the leg-bones were straight, which arose probably from the standing posture having long been impossible. The upper part of the fourth lumbar vertebra was depressed to a level with the symphysis pubis; the sacrum exceedingly bent, the pubic symphysis projected forwards, and the sides of the pubic arch were closely approximated. The measurements of the pelvis were *at the brim*—

The conjugate diameter from upper margin of fourth lumbar vertebra to symphysis pubis	$1\frac{3}{8}$	inch.
On the right side in the same direction	1	„
On the left side ditto	$\frac{3}{4}$	„
Right oblique diameter	3	inches.
Left oblique diameter	$3\frac{1}{4}$	„
Transverse	3	„

At the outlet—

Transverse between tubera of ischia	3	inches.
Sacro-pubic	3	„

The thickness of the pelvic bones was much diminished; they were dark-coloured, spongy, very oily; and were easily divided with a knife. Their microscopic structure was utterly destroyed in a considerable portion of the bones; numerous nucleated cells with oil-globules occupied the cancellous struc-

ture and some of the remaining Haversian canals. The proportions of the bony constituents, as ascertained by my friend Dr. Garrod, were—

Phosphate of Lime	16·40	21·28 earthy matter.	
Carbonate of Lime	4·88	(66·6 naturally.)	
Phosphate of Magnesia ...			
Fatty matters...	20·35	78·72 animal matter.	
Gelatine-yielding matter ...	58·37	(33·3 normally.)	
	100		

Had this patient proved five months pregnant, as was supposed, the induction of labour at once would have been the right treatment, since delivery at full term could only have been completed by the Cæsarean section.

59. The sufferings in Malacosteon are always most severe in degree. The pains, which resemble those of acute rheumatism or of cancer, are greatly aggravated at night; the patient is often feverish and flushed. The urine is found to abound in the earthy phosphates considerably in excess over the normal proportion, as shown by chemical analysis. They have nearly equalled the alkaline salts in quantity, or even exceeded them, whereas in healthy urine the alkaline phosphate usually amounts to from ten to fifteen times as much as the earthy phosphates.

60. I have already alluded to the far greater frequency of angularity in the distortion by malacosteon than in that by rickets. The projection forwards of the pubic bones, at and near their symphyses, in the

form of a beak, is very characteristic in Mollities Ossium.

61. *The Obliquely Distorted Pelvis.*—Another variety of pelvic deformity has been pointed out by Naegelé, the characters of which were described by him from no less than thirty-seven pelves affected by this malformation, and are as follows:—The pelvis appears awry, the symphysis pubis is pushed over to one side, the sacrum to the other; one side of the pelvis is flattened, the other bulging, hence one oblique diameter is shorter, the other longer than natural; and this applies not only to the brim, but to the cavity and outlet. In most cases the sacrum is anchylosed to the ilium on that side which is flattened, and to which the sacrum is inclined. In many instances that side of the sacrum is smaller than the other, as if it had been acted on by the absorbents during the progress of the anchylosis, or not properly developed. No proofs, however, were afforded to Naegelé in these cases of any disease in early life, or of any external violence having been applied. Anchylosis has been absent in some cases, and is so in a specimen in the Museum of the Middlesex Hospital. Professor Naegelé was aware of these exceptions to anchylosis, and looked upon such pelves as modifications of the same disease.

62. In consequence of the distance between the symphysis pubis and the promontory of the sacrum being ample, this deformity had been overlooked during life in the cases collected by Naegelé; the

contraction, which is so prejudicial to labour as to have been fatal in all the cases, affects one of the oblique diameters; and if the head offers in that diameter, craniotomy is inevitable. The opposite oblique diameter, on the contrary, is increased.

63. If in the obliquely distorted pelvis a plummet-line is allowed to fall from the symphysis pubis in front, and another from the spinous process of the last lumbar vertebra behind, the patient standing, these lines will not coincide, but be placed one to the right, the other to the left, and the anchylosis will exist on the opposite side to that to which the anterior line inclines.

Further, the following lines should be compared as to their length on opposite sides of the pelvis.

1. From the anterior superior spinous process of one side of the pelvis to the posterior superior spinous process of the opposite side.

2. From the symphysis pubis to the superior posterior spinous process of each ilium.

3. From the spinous process of the last lumbar vertebra to the anterior superior spinous process of each ilium.

4. From the tuberosity of the ischium on one side to the posterior superior spinous process of the ilium on the other side.

Now if there should be found any marked difference between these measurements of opposite sides, even to the extent only of half an inch, oblique distortion is evidently present.

64. *Exostosis and Enchondromatous growths* sometimes spring from the internal surface of the pelvis, and encroach more or less on the pelvic space.

The most remarkable pelvic exostosis on record is that reported by Dr. Haber, of Carlsruhe, in which instance the bony mass excrescent from the sacrum filled up the pelvic cavity so as to render the Cæsarean section unavoidable, but it proved fatal. It appeared to have resulted from a violent fall on the ice, when the woman was carrying a heavy load upon the head.—(*Library of Med.*, vol. vi. p. 194.)

Dr. Shekelton reports a case in which successive labours were obstructed by an enormous fibrous growth; the children were extracted with the greatest difficulty by craniotomy, and the final result was fatal. He was in favour of the Cæsarean section.

65. *Displacement of the lumbar vertebræ* from disease of their cartilages, which are so softened as to permit of the sinking of the vertebræ one upon the other into the pelvic cavity, thus causing great contraction at the brim, is another cause of obstruction, and was first described by Dr. H. F. Kilian.

66. *Dislocation* of the head of the thigh-bones, one or both, on the dorsum of the ilium, has occasionally by its pressure produced a contraction of the pelvic brim; similar pressure of the head of the femur on the exterior of the ischium has in other cases lessened the space at the outlet of the pelvis. Of the former I have met with one instance.

67. *Fractures of the Pelvis.*—Examples of labours rendered difficult by fractures of the pelvic bones are very rare. The excessive distortion of the pelvis of Jane Foster, of Blackwood, on whom Mr. Barlow performed the Cæsarean section successfully, was the result of fracture of both ossa innominata, occasioned by a loaded cart passing over her pelvis.

Some years ago the wife of a tradesman in Covent Garden fell from a second story window, and in her fall she struck upon a street post, her body at the moment being in the state of pronation. She sustained much contusion of the soft parts, and a fracture of the left ramus of the pubes. The patient was duly treated, recovered, but with lameness, and some months subsequently became pregnant. Her previous labours had been easy, but in this and her subsequent confinements she had to be delivered by craniotomy, in consequence of the fractured ends of the bones projecting inwards, and causing great contraction of the pelvic brim. My father delivered this patient in her third labour.

68. *Anchylosis of the coccyx to the sacrum* is an occasional cause of obstruction at the outlet. The usual hinge movement of the coccyx on the sacrum is, of course, impossible; hence the expulsion of the head is impeded. Dr. Merriman, in a letter to Dr. Lee, mentions a case produced by a fall down stairs when the patient was twelve or fourteen years old. In her confinement the child was born living, without instruments. In other cases, the anchylosed union has

suffered fracture; in one patient fracture was produced in three consecutive labours by the pressure of the head at birth, and healed without difficulty. Where the forceps have not availed in saving the child, it has been proposed to fracture the anchylosis designedly; but it would be preferable in such a case to induce labour at about the eighth, or seventh and a half month of pregnancy.

69. The *funnel-shaped deformity* of the pelvis in which the brim is normal and the pelvic tube is increasingly contracted, as the outlet is approached, is another form of obstruction.

70. *Treatment of Labour obstructed by Smallness of the Pelvis.*—The various degrees of contraction of the pelvis will require different modes of management in labour.

71. When deformity of the pelvis is known to exist, such as to be incompatible with a living birth at full term, but yet to admit of the ready passage of a child a few weeks short of maturity, it becomes our duty, for the preservation of the child, to perform the induction of premature labour.

72. But there may be contraction of the pelvic space to so great an extent, that a child, even in the seventh month, could not be born by the natural passages. Nay, at that time it might be necessary to deliver by the Cæsarean section, for embryotomy has its limits. Delivery through the pelvic canal by embryotomy cannot be adopted at full term, nor even at seven months, unless there is an antero-posterior diameter

at the brim of one and a half inch, or, at the least, without an available space in that direction of one inch and three-eighths, by three and a half inches in the transverse diameter. Some, indeed, have alleged, that even with a conjugate diameter of two inches, the Cæsarean section would be necessary; but to this I do not assent.

73. *Labours obstructed by large size, or malpresentation of the child.*—The pelvis may be of standard capacity, but an obstacle may arise from the large size of the child, undue ossification of the cranium, enlargement of the head from hydrocephalus, of the chest by hydro-thorax, of the abdomen by ascites, or by encysted dropsy of the kidney. Monstrosities of the child, attended by excess of bulk, are other occasional causes of difficult labour.

74. Sometimes, as I shall have to notice hereafter, an impediment arises in twin cases, through one child being arrested and impacted in the pelvis, some part of the other child presenting with it.

75. Certain complicated presentations in single births will sometimes be the causes of arrest, as where the hand or foot prolapses by the side of the head.

76. Some positions of the head are not quite so favourable as others, at least they require more time, or a more capacious pelvis; as so-called face to pubes cases.

77. *Face presentations,* although usually terminating favourably in the sequel, also occupy more time.

78. It has been found moreover—and this accords with my experience also—that with male children, from their greater size, the labours are also more protracted.

79. In all cases where, from the great size of the child's head, with its widely separated bones, enlarged fontanelles and fluctuation, we have clear evidence of hydrocephalus, it would be useless, nay dangerous, to keep the patient long in labour; therefore, so soon as the os uteri will allow of it, the bulk of the head should be lessened by perforation. I have quoted a case where peritonitis had arisen in such a labour from long-continued obstruction in the midst of strong pains. Death followed within twelve hours after delivery, as was anticipated. In the fourth volume of the "Medico-Chirurgical Transactions," Sir C. Bell relates a case of hydrocephalus, in which the uterus was ruptured by reason of the obstacle. Other fatal events from this difficulty may be found in various clinical reports.

80. Malpresentations, as where the child is placed at the brim transversely, must be treated as explained under such labours.

81. In other cases, where difficulty arises with a pelvis of apparently standard measurements, but where nothing positive can be ascertained as to the cause of the impediment, we must regulate our conduct as to interference by *time* and *symptoms*.

82. With regard to *time*, different limits to delay,

after full dilatation of the os uteri, and escape of the waters, with arrest or impaction of the head in the pelvic tube, have been advised. Periods varying from four to twenty-four hours of arrest of the head have been by different authorities recommended for our adoption; but I have known a lapse of less than twelve hours cause most serious mischief to the maternal tissues, and that, although delivery in the end was spontaneously effected.

In the year 1834 Dr. Ramsbotham delivered a patient under fatal depression, although *six* hours only had elapsed from the rupture of the membranes. Cold extremities and dark vomiting had supervened; no hæmorrhage nor laceration had taken place; fatigue from great exertion was the only apparent cause of the symptoms in this fatal case.

In my own practice I adopt as a rule, modified by the circumstances of each case, a limit of from four to six hours of arrest of the head in the second stage of labour, under strong pains, in one position, from which it neither advances nor retires. But the *symptoms* in each particular patient must be borne in mind, for should serious prostration, or ill effects of pressure on the parts, appear sooner, it would be necessary for the patient's safety to deliver even within either of those periods of time. On the other hand, in some few instances, if the patient is carefully watched, and any indications of treatment promptly met, we might extend our delay with safety, possibly with advantage, beyond even a period of eight

hours, in the hope that nature might yet be sufficient.

83. As regards *symptoms*, Osborn, when giving the symptoms justifying the use of the forceps, observes,—"All the powers of life are exhausted, all capacity for further exertion is at an end, the mind as much depressed as the body; they would at length both sink together under such continued but unavailing struggles, unless rescued by means of art."—(*Osborn's Essays on Midwifery.*)

Here I quite agree with the late Professor Burns, that if such a state be allowed to supervene, the exertions of art will prove as unavailing as the struggles of nature.

The symptoms which should urgently call for interference and excite our anxiety, are a feverish pulse and skin, loaded tongue, a dry, heated vaginal mucous membrane, a brown, often offensive discharge from the uterus, tenderness and swelling of the genital surfaces, and soreness of the abdomen. I do not, however, by any means, advise our waiting for such symptoms. But sometimes there are others of a still more serious kind,—a haggard countenance, dark vomiting, a cold clammy skin, a small irregular intermittent pulse, laboured respiration, a brown tongue, rigors, and delirium; a hopeless state in fact, the result of violent but fruitless exertions and suffering for many hours.

Having determined upon interference, we have to decide in a head presentation between delivery by the

forceps and delivery by the perforator. But sometimes, before resorting to the latter destructive operation, it will be right, where positive proof of the child's death is not present, to make a cautious trial of the forceps first.

CHAPTER IV.

Forceps Deliveries.

MECHANISM OF CRANIAL LABOURS.

84. Before having recourse to these instruments intended for the safety of the child, we should first have made ourselves conversant with the positions of the head in the pelvis, also with the mechanism of labour in natural cases, otherwise we might infer the existence of mal-position when such really does not exist.

A very brief outline of the advances which have taken place in our knowledge of the mechanism of parturition in cranial presentations will be a suitable introduction to this important subject.

85. Deventer, who published in 1704, believed that the head entered the pelvis, as it emerged from the outlet, with the face to the sacrum. Indeed, until the time of Oulde this view had been universal.

86. In 1741 Sir Fielding Oulde, of Dublin, taught that the head did not enter the pelvic brim with the face to the sacrum, but directed transversely to one side of the pelvis; this, we must admit, was a great advance in our knowledge. He believed, however, that the chin of the child was rotated to one side directly on one of the shoulders. This idea was cor-

rected by Smellie, who otherwise followed Oulde in accepting the *transverse position* of the head.

87. To Saxtorph, of Copenhagen, who published in 1772,* and to Solayrés de Renhac, of Montpellier, whose essay "Dissertatio de Partu viribus maternis absoluto" appeared in 1771, we are indebted for the first intimation that the head enters the pelvis, not in the transverse diameter, as Oulde and Smellie taught, but *obliquely*.

88. Baudelocque also adopted the doctrine of his distinguished master Solayrés, and by his influence spread it widely through the French and other schools of midwifery; but it will be remembered that in his classification he made some additions of his own, and so departed from the simplicity of his teacher. It should, however, not be forgotten that M. Capuron fully accepted, without modification, the views of Solayrés of the four oblique positions of the head in natural labour.

89. It was not, however, till Naegelé, in 1818, published his admirable "Essay on the Mechanism of Parturition," in which he systematized all the facts which had up to that date been ascertained, and gave us the result of his own patient and intelligent observations on the mechanism of cranial labours, that we could be said to have attained to a proper knowledge of this important subject.

We are informed by Naegelé that he kept his

* "Theoria de diverso partu ob diversam capitis ad pelvim relationem mutuam experientiâ fundata."

finger on the posterior fontanelle, from it tracing the sagittal suture, throughout the head's transit. In this way watching the progress of the case, and noting his observation, he deduced his accurate account of the mechanism, which succeeding inquiries have for the most part confirmed, even in the details.

90. It is now established beyond all doubt, that the head enters the pelvic brim with its long axis in the direction of one of the oblique diameters, as might indeed, *a priori*, have been predicted, and most frequently, as we shall see, in the *right oblique diameter*.

91. It is found, moreover, that an easy transit of the head is further secured by its being disposed in its descent in an oblique direction also, as respects both its occipito-frontal or longitudinal, and, according to Naegelé, as regards also its biparietal or transverse diameter.* Thus it is not the vertex proper in the

* Dr. Leishman, "Mechanism of Parturition," p. 62, is convinced, on the contrary, that in a pelvis of ordinary dimensions the *biparietal obliquity* does not occur; and that the head usually enters directly with its perpendicular axis, in the axis of the brim, with the sagittal suture equidistant from pubes and sacrum; that is to say, running in first and third positions exactly in the right oblique diameter, the biparietal in the left oblique. M. Cazeaux similarly expresses himself, and observes that the occipito-frontal circumference or plane is parallel to the superior strait. It is contended, therefore, that the biparietal obliquity is more apparent than real. Drs. Mathews, Duncan, Uvedale, West, and Paterson, take the same view. The disputed point certainly appears to me to deserve further consideration. It may be, that the lateral obliquity is not always required, as in a roomy pelvis, or where the head is under standard size.

line of the sagittal suture, a little anterior to the posterior fontanelle, which is the most depending part, but the posterior and superior quarter of the parietal bone; and this is the part mostly exhibiting the puffy swelling of scalp or caput succedaneum, with which the child is usually born.

92. Lastly, in the composition of the fœtal skull, of its constituent bones and connecting membranes, we have a beautiful provision, not only for the development and growth of the contained brain, but also, by its compressibility, one calculated to diminish greatly the dangers of parturition.

93. The normal positions of the head in labour are, as already implied, *four* in number.

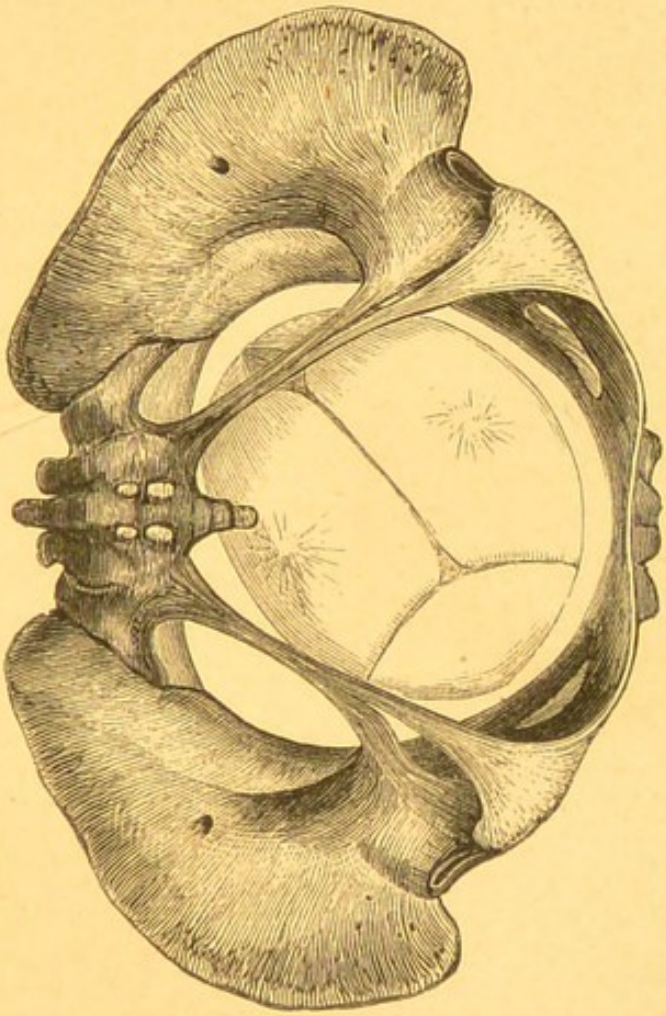
Some observers, as Naegelé and his son Hermann, reduced the normal positions to *two*,—the first and the third, since they considered the second and the fourth as abnormal.

Mechanism of the Second Stage of Cranial Labours.

I. *The First or Left Occipito-cotyloid Position.*

94. Here the small fontanelle is directed to the left acetabulum, the large fontanelle to the right sacro-iliac synchondrosis. The long axis of the head and the sagittal suture run in or parallel to the right oblique diameter of the pelvis. The right parietal bone, its posterior superior quarter, is the most anterior and depending part. But we must remember that the ante-

Fig. II.



First Cranial Position at Brim.

Occiput to Left Acetabulum. Large Fontanelle to Right Synchondrosis.

Opposite p. 42.

rior boundary of the pelvic brim is considerably below the sacral boundary, and, therefore, without lateral obliquity, the anterior parietal bone would be lower. If we see the case before the head has entered the brim, we shall sometimes be able to reach the two fontanelles at the same level, as regards the plane of the brim.

95. *Progress and changes.*—Under the powers of parturition exerted on the body of the child, and through it on the presenting part, the occiput is forced downwards into the pelvis till it meets with the resistance of the ischial plane; its course is then altered by the resistance made by that plane; constituting a reflected force. The occiput then moves on in the diagonal of the propellent force of the parturient muscles and the resistant force of the above plane; a rotation of the head on its perpendicular axis then ensues to the extent of the eighth of a circle, the occiput gliding forwards over the left obturator foramen and the ischio-pubic ramus, which is suitably bevilled off, and so finally into the opening of the pubic arch.

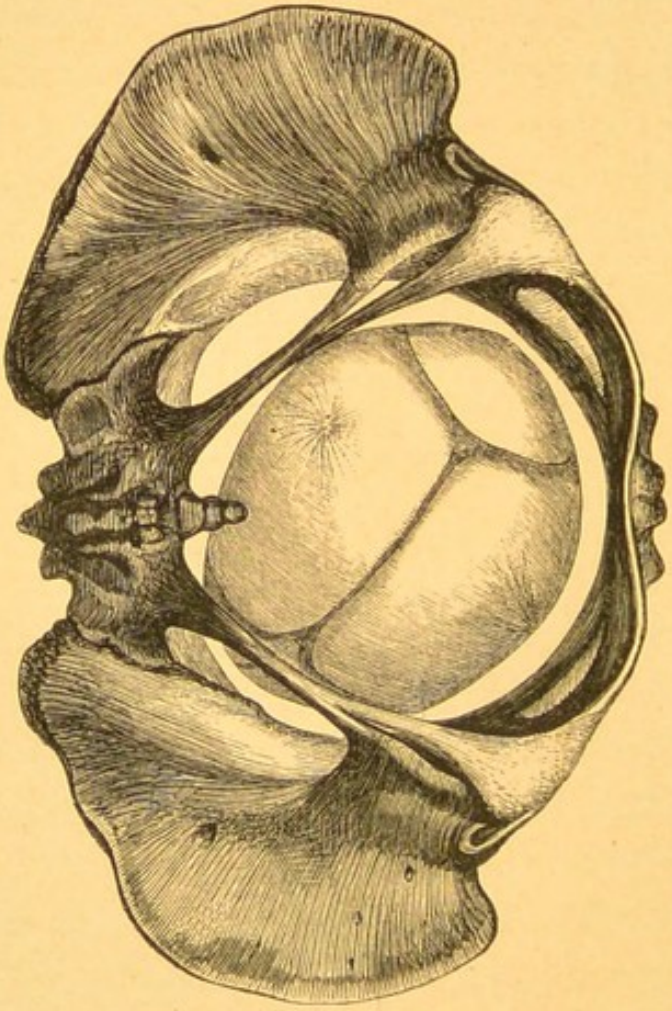
96. During this movement of the occiput, the face at the opposite side of the pelvis, prevented by the spine of the ischium from moving forward, glides downwards and from right to left, over the sacro-sciatic ligament, into the hollow of the sacrum. Indeed, the descent of the head is blended with a gentle spiral or *screwing-like* movement of rotation, as happily expressed by Naegelé, a retrograde similar movement of partial return to its starting-point taking place on the retirement of each pain.

97. In the next place, the *extension of the head* ensues, as follows: — The occiput becomes a fixed point against the pubic arch, but the parturient force continuing, it is expended on the forepart of the head. The chin, before applied to the sternum, now becomes separated from it; the forehead and face descend, describing an arc over the sacral coccygeal and perinæal plane; and when this rotation of the head on its biparietal axis is completed, and the greatest circumference of the head is now engaged in the soft outlet, one considerable pain succeeds, and the head is pushed out directly in one mass. On the expulsion of the head it undergoes a turn, so that the face looks to the upper and back part of the right thigh, the head, in fact, being restored to its original direction at the brim.

98. The obliquity of the head on its transverse axis is, according to Naegelé, preserved in its passage outwards, except where the outlet is more capacious than usual, or the head smaller than the standard size. Hence the middle line of the face is said to bisect the sacro-perinæal plane obliquely, instead of in the mesial lines, as it makes *its exit*. But I must affirm, that I have on close observation, met with several exceptions to the obliquity of the head at this point.

99. After the emergence of the head and its rotation to the right thigh, the left or posterior shoulder is the first to pass out over the edge of the perinæum, the right being fixed, for the time, internally against the

Fig. III.



SECOND CRANIAL POSITION AT BRIM.

Occiput to Right Acetabulum, or Foramen Ovale. Large Fontanelle to Left Sacro-iliac Joint.

Opposite p. 45.

pubic arch; while the left shoulder sweeps downwards and outwards over the sacro-perinæal plane, as the face had done before it.

II. *The Second or Right Occipito-cotyloid Position.*

100. Here the small fontanelle looks to the right acetabulum; the large fontanelle to the left sacro-iliac junction; the long axis of the head lies in or parallel to the left oblique diameter; the left parietal bone, its posterior superior district, is the most anterior and depending part.

101. *Its progress and changes.*—The head is propelled downwards, as before, by the powerful agents of parturition, till it meets with the plane of the left ischium, where, as in the first position, it meets with resisting force; the face then glides over this plane from left to right into the hollow of the sacrum, and advances, as in the former position, spirally, the occiput rotating from the right acetabulum to the pubic arch, before the final expulsion of the head. The passage out of the head is effected as in the first position, the head gradually extending from its previous flexed position. On the birth of the head, the face turns to the left thigh, its upper and posterior aspect.

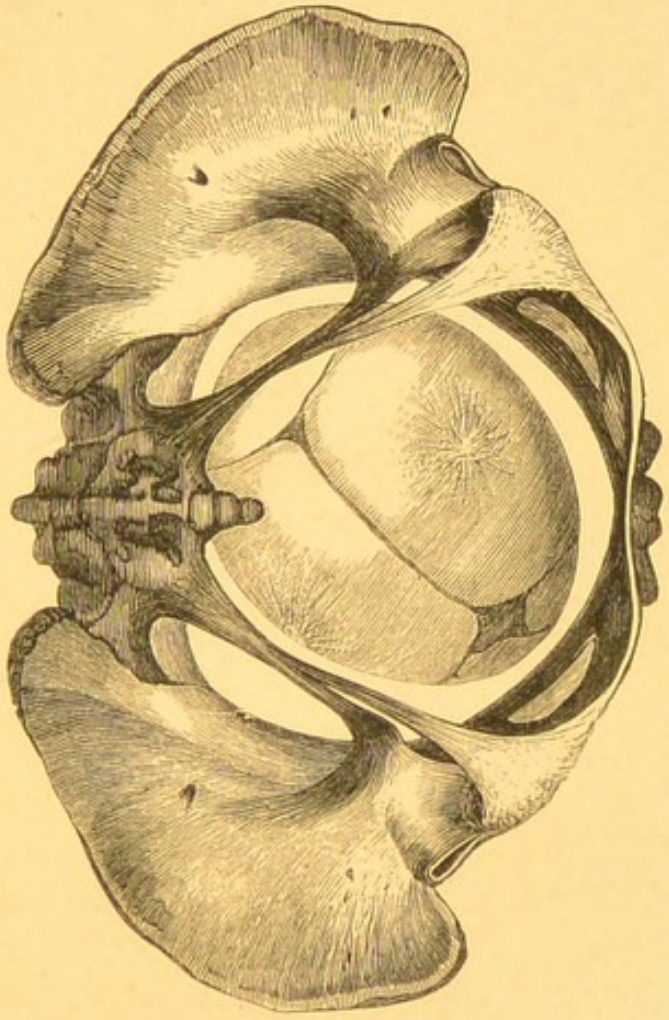
102. During the head's descent, the shoulders lie in the right oblique diameter, and the right or posterior shoulder passes out first, sweeping over the sacro-perinæal plane, while the left is, for the time, fixed behind the pubic arch, as the centre of the revolution.

III. *The Third or Left Fronto-cotyloid Position.*

103. The small fontanelle looks here to the right sacro-iliac joint of the pelvis; the large fontanelle to the left cotyloid region; the long axis of the head is parallel to the right oblique diameter, as in the first position; the left parietal bone, its tuber, and, subsequently, if postero-rotation of the face is accomplished, its posterior superior quarter, are the most anterior and depending parts.

104. *Its progress and changes.*—The head is urged downwards by the propellent powers of labour till its occiput, as before, the most dependent part, impinges on the right ischiadic plane, and there meets with a resistant force; the result is that the head undergoes the spiral rotation,—the occiput glides forwards to the right cotyloid region, at the same time the face is rotated round the left side of the pelvis. Thus the long axis of the head is moved from the right into the left oblique diameter, and thence onwards the head advances, *as in the second position*, passing out over the perinæum with the face obliquely backwards, and to the left, the small fontanelle and occiput being expelled last, and from behind the right pubic ramus. The shoulders here, during the head's passage out in the left oblique diameter, lie in the right oblique diameter of the brim, and the right shoulder subsequently moving into the hollow of the sacrum, glides over the perinæal curve describing an arc, while the

Fig. IV.

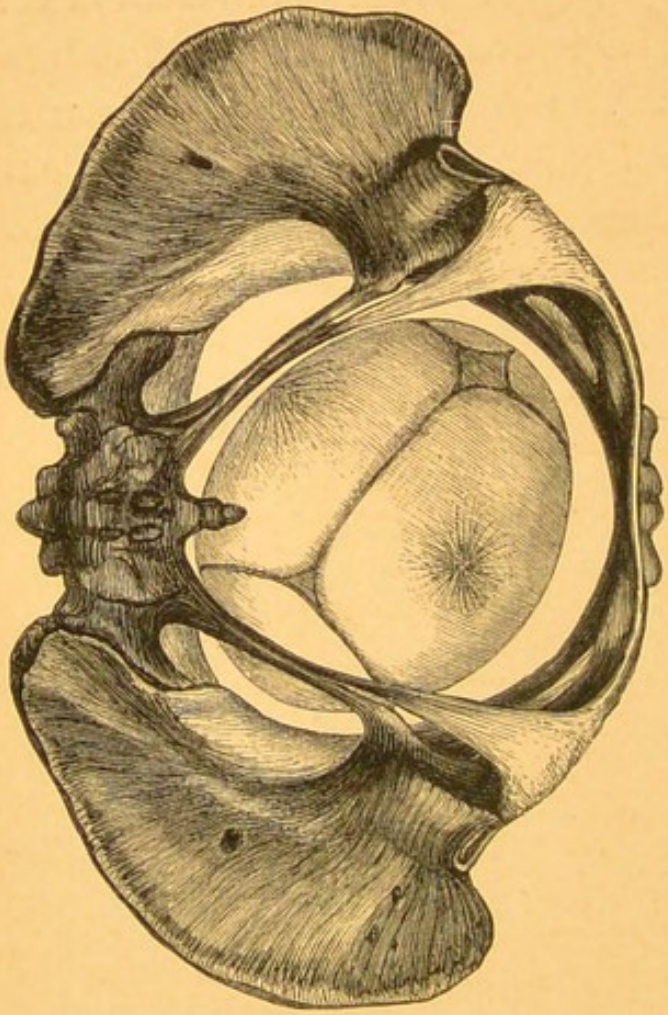


THIRD CRANIAL POSITION AT BRIM.

Occiput to Right Synchondrosis. Large Fontanelle to Left Foramen Ovale, or Cotyloid Region.

Opposite p 46.

Fig. V.



FOURTH CRANIAL POSITION AT BRIM.

Occiput to Left Synchondrosis. Large Fontanelle to Right Foramen Ovale.

Opposite p. 47.

left, during this revolution, is fixed behind the apex of the pubic arch.

IV. *The Fourth or Right Fronto-cotyloid Position.*

105. The small fontanelle here looks to the left sacro-iliac joint of the pelvis; the large fontanelle to the right acetabulum; the long axis of the head is parallel to the left oblique diameter; the right parietal bone, its tuber, and subsequently its posterior superior quarter, is the anterior and depending part.

106. *Its progress and changes.*—The head is propelled downwards as before, by the powerful agents of parturition, till its occiput meets with the resistance of the left ischial plane. The result of this force of resistance and of the propellent force of the uterus is, that the occiput passes forwards over the left ischial plane to the pubic arch, while the face is rotated round the right side of the pelvis to the sacro-iliac joint of that side. The long axis of the head, therefore, from originally lying in the left, now lies in the right oblique diameter. The termination of the case is that of an original first position.

107. In these *third* and *fourth* positions a variety in the changes sometimes takes place, viz., the face is occasionally rotated forwards from either acetabulum to the pubes; when this has been the case, in my experience the birth has usually been more protracted.

108. In former years this change of position was erroneously supposed to be the rule, and not the ex-

ception, which Naegelé senior was the first to point out.

These exceptional changes constitute *face to pubes* cases, as they are called, and I must say that I have found them rare.

109. *Exit of the Head with Face to Pubes.*—Here it is not the face, but the occiput, which descends over the sacral and coccy-perinæal planes. On reaching the tip of the sacrum, the occiput impinges upon it as upon a fulcrum, and becomes a fixed point, while the face at the pubes gradually revolves outwards, the parts successively emerging in the following order:—First, the forehead, usually much swollen and prominent, so moulded by the pressure of parturition as to fit accurately the pubic arch; then the eyes, nose, mouth, and chin; the occiput is lastly pushed out over the edge of the perinæum by one expulsive effort, at which time we should, if necessary, shield the perinæum from laceration, in the manner described under rigidity of that structure.

Relative Frequency of Cranial Positions.

110. It is universally agreed that the *first* position is by far the most frequent. Naegelé found it to occur in 69 per cent. M. Halmagrand found it in 74 per cent. Dr. Martin Barry met with it in 256 cases out of 335 cranial presentations. Naegelé found the *third* position to rank next in frequency to the first. He discovered it in 29 per cent. out of 1,210 cases.

Many authors still consider the above-named *second*

position as in reality second in its frequency. This, however, does not agree with my own experience, for I have found the *third*, after the first, the most frequent. I believe that the apparent discrepancy, which appears between the statements of different observers, as to the relative frequency of the second and third positions, may be explained as Naegelé indicated, namely, that the position of the head has not been noted sufficiently early in the labour. The first observation has been made after the head had rotated from the *third* into the *second* position.

111. Now, the above being the four normal positions, there are besides two transverse positions, which are abnormal. Here the face is directed to the left or right ilium. These, indeed, were formerly supposed to be very usual and natural positions of the head. They are extremely rarely original, being derived from the *third* or *fourth* (fronto-cotyloid) positions; the head being caught, as it were, in its transition state, arrested in the course of rotation of the face from either acetabulum to the synchondrosal joint, or sacrum. It is possible that, after a pause, the rotation change may yet be completed; but if not so, a little assistance by the forceps or tractor will alone be required.

The practitioner who is well acquainted with the above positions, and the mechanism of the head's advance in labour, will not be so ready to withhold his reliance on nature, as he would be, and as our forefathers were, without the advantage of that knowledge.

Labours requiring for their Completion a Recourse to the Forceps.

112. At different periods in the history of midwifery there has been, in regard to the use of the forceps, a tendency to the opposite extremes—of a rash employment of them, and of an ill-timed delay in their application, frequently till too late for any useful purpose. In the present day we have profited greatly by the experience of the past failures of those extremes of practice, and are thus better judges as to the proper time for interference.

I. *Indications for the Use of the Forceps.*

113. The general indications for their use are three :

1. Defective parturient power.
2. Deficient pelvic space.
3. Some dangerous complication of a labour, as flooding, convulsions, &c.

II. *Precautions in the Use of the Forceps.*

114. Before deciding on the employment of the forceps, *the following precautions must be observed:*—

1. The *head* must be the presenting part, and its position ascertained.
2. We should have evidence, positive, or at least presumptive, that the child is living; for otherwise we should not be justified in exposing the mother to

the risks of a forceps operation;* craniotomy being then the proper proceeding upon a dead child.

3. There must be room in the pelvis for their safe introduction at two opposite points of the circumference of the head. If the child is known to be at or near the full term, and appears to be of average size, there should, in my opinion, be at the brim of the pelvis in the conjugate diameter, and at the outlet in its transverse diameter, a clear space of three inches and a quarter to afford us any hope of success in a forceps operation. A labour in which the head is so completely locked or wedged in the pelvis that an ear cannot be reached, and where the examining finger cannot be passed between the head and the pelvic wall, at any point, is obviously one in which we could not have recourse to the forceps.

4. In all cases where the short forceps are used, the head must have entered pretty deeply into the cavity of the pelvis, if indeed it shall not have reached the outlet of that tube.

5. The os uteri should be fully dilated, or at least must be soft and dilatable; the vagina should also be of ample capacity throughout.

6. We should feel satisfied that there is risk to either the mother or child from a longer protracted pressure.

7. But on no account must we withhold our assistance till that extremity of prostration of the vital

* This has been objected to; but I adhere to it, believing it to be a proper precaution.

powers has supervened, in which little or no hope remains that art can avail us in rescuing either life.

115. The danger of injury lies in the pressure, exerted in labour, being violent and long-continued on the same tracts of tissue, the head immovably fixed in one position, so as to interrupt the free circulation in the parts pinched, so to speak, between it and the pelvic walls. But how long may that pressure be endured with safety?

116. The head may sometimes remain stationary in the pelvis, after full dilatation of the uterine orifice, for a longer period than even twelve hours, and no evil result follow. But for this to occur, there must be ample space, with the soft parts moist and relaxed, and little or no labour action present. In due time, often after a refreshing sleep, which it may be judicious to promote by artificial means, nature resumes and completes her work with safety. It is usually admitted that, so long as the head advances *pari passu* with the pains of parturition, so long there can be no necessity for interference, even though the above-stated limit of time may have been much exceeded. As a general principle this is undoubtedly a fact, but fatal exceptions to its universal truth have occurred. I will give two instances in point. Lady ——, who had had a previous difficult labour, in which she was delivered by the forceps, was some years later taken in her second labour, and gave birth, without instrumental interference, to a still-born child, after a severe labour of eighteen hours' duration, the waters

having escaped at first. The head had entered the cavity of the pelvis in the first position, but had made its transit through that tube in the midst of unnatural violence of parturient efforts, of which at no period was there a suspension. There was a constant progressiveness in the head's passage; but so great was the irritation and vascular excitement, that the patient became the subject of a severe rigor, the head then bearing strongly on the perinæum. The patient died on the tenth day after delivery, and the cause of death was found to have been a large abscess at the superior part and left side of the cavity of the pelvis, involving the left ovarium, which, probably much contused during labour, appeared to have been the nucleus of suppurative action.*

117. A somewhat similar instance, also following a spontaneous birth, came under my own observation in the autumn of 1853. Here the child was born living. It was a fifth labour; the placenta was thrown off naturally, shortly after the birth of the child. The pulse never fell below 100 after delivery; a tremendous shivering appeared on the third day, with great heat of surface and other febrile symptoms; the pulse quickly rose to 140; the respirations became hurried; delirium and a tympanitic abdomen quickly ensued. This patient died also on the tenth day, notwithstanding every possible effort to save life. A post-mortem examination could not be obtained, but the seat of

* "Operative Midwifery," by D. Davis, M.D., p. 149.

the patient's suffering was referred to the left pelvic region, and, on vaginal examination during life, a fulness was discovered to the left of the cervix uteri, extremely tender to the touch; the passage of the fæces caused much pain, and during the last two days no urine could be passed without the catheter.

In this case the transit of the head was difficult, yet steadily progressive; there was no swelling nor heat of the passage during labour, and the bladder acted regularly from first to last. These circumstances, with the history of the patient's previous deliveries, seemed to justify the attendant in non-interference; yet it is probable that a timely application of the forceps, by shortening the labour, might have averted the fatal inflammation.

118. As an aid to our decision in favour of interference, I may refer to a sign, which, for several years past, I have found useful as an intimation of approaching danger from protracted pressure in obstructed labours, namely, an olive-coloured, or brownish slimy discharge, a depraved secretion from the mucous membrane, the result of long-continued irritation. The child may often be saved after the occurrence of this discharge, which differs in character from that of meconium.

119. Should inflammatory fever with rigidities of the soft parts within the pelvis have supervened, the patient being of a robust habit, of previous good health, it will be right to resort to bloodletting ere employing the forceps. But the necessity for such treatment is

best avoided by treatment before labour, and by timely delivery before such conditions have appeared. In other subjects febrile complications and rigidities are best removed by milder measures, as antimony, &c.

120. Sometimes the above preparatory treatment has so altered the character of the labour by removing obstructive conditions of the soft parts, or improving action, that the use of the forceps has been superseded.

121. We must also bear in mind that the scalp of the child may become inflamed and slough from a too long-continued pressure, and that from the same pressure its life may fall a sacrifice where a timely application of the forceps might have saved it.

122. It is our duty on so important a subject as the prognosis, in regard to the use of the forceps, as indeed in the adoption of all operative proceedings, to communicate openly and freely with the husband, relatives, or friends of the patient. We should not, however, promise more than the circumstances of the case will strictly warrant; explaining that, as regards the mother, we are about to take means for her security, and at the same time to do our utmost to save the child; yet, after all, that the life of the child may not be spared.

123. The precaution of emptying the bladder and, if necessary, the rectum, must always be attended to before applying the forceps.

III. *Invention and Improvements of the Forceps.*

124. The forceps were invented by Dr. Chamberlen about the middle of the sevententh century, 1647. It was in the year 1670, during the political troubles which agitated England at the time, that Dr. Hugh Chamberlen, one of the sons, having to leave this country, visited Paris. While there he attempted the delivery, by his forceps, of a patient with a very deformed pelvis, whom Mauriceau had left to her fate, the only resource in his judgment being the Cæsarean section, and this he declined. Dr. Chamberlen was unsuccessful, and the patient died. In 1672 he translated Mauriceau's distinguished work on midwifery, and in the preface mentioned his possession of the forceps, but did not favour his brethren with the principles of their construction, or those which should guide their use.

125. This deficiency was nobly supplied by Chapman, in 1733; but it was not till 1818 that the profession were placed in possession of the original instruments of Chamberlen, by Mr. Carwardine, who received them from a lady occupying the house formerly inhabited by the Chamberlen family. She discovered them in a chest with letters and various trinkets, amongst some lumber secreted beneath a flooring over the entrance porch of Woodham Mortimer Hall, near Maldon, Essex. They were generously presented by Mr. Carwardine to the Medico-Chirurgical Society (*Med. Chir. Trans.*, vol. iii.), where they may be inspected.

126. They consist entirely of metal, are fenestrated, their handles like those of scissors with a hole in each shank, the union being completed by a tape passed through the holes and wound round. From the roughness of the instruments it has been supposed that Chamberlen was his own artificer.

127. Chapman appears to have added the English lock, which consists of two grooves, into which the shank of each blade mutually fits; so that the two blades, being adjusted at the lock, are fixed simply by compressing the handles. The *French* forceps, which are longer than ours, are united by a pivot lock, somewhat similar to what is seen in one of Chamberlen's earlier forceps in the above collection; but they are much more difficult of adjustment at the lock than the English. The *German* forceps, as seen in Professors Brünninghausen's and Naegelé's, and first adopted in this country by Rigby, present in the shank of one blade a semicircular indentation, into which a fixed pivot in the other shank slips at the moment of adjustment. This is preferable to the French, but not so separable and easy of adjustment as the English.

128. The wooden handles were added by Smellie; the steel handles, terminating in hooks, are still retained by the French.

IV. *Varieties of Modern Forceps.*

129. Very various forms of forceps have been adopted by different authorities. One common prin-

ciple of construction is found in all. They consist of a fenestrated blade, a lock, and the handle, and a head curve for adaptation to the head's convexity.

But forceps, of which there are two kinds, *long* and *short*, are divided—

130. (1.) Into those having simply the cranial curve, which are called the straight forceps, as in Smellie's, Denman's, and Haighton's short forceps.

131. (2.) Those having also the pelvic curve, first introduced by M. Levret, in 1751, and adopted also by Smellie in his long forceps; likewise in their forceps by Wallis Johnson, Osborn, Clarke, Hamilton, D. Davis, in Siebold's long forceps, and those of Brünninghausen, Naegelé, Ramsbotham, and Simpson.

132. Besides, there are long forceps of unequal length, as those of Dr. Radford and D. Davis, the long blade for application to the front part of the head, the short to the occipital region.

133. The shank to remove the locking further from the vulva, for greater safety, was first added by Dr. D. Davis to the short forceps.

134. The Dublin school prefer straight long forceps for application to the head at the brim of the pelvis.

135. The practitioners of the English, French, German, and American schools, who resort to long forceps at all, prefer their being constructed with the pelvic curve, believing that the soft parts incur greater risk of contusion and laceration when the traction is made with the straight forceps, while bringing the

head into the pelvic cavity; and I must say I entirely share in this opinion.

136. Some recommend a covering of leather, but it is objectionable, since it adds to the thickness of the instrument, and from its liability to absorb any infectious matters in the vaginal discharges. The bare metal, properly coated with lard or cold cream, is the cleanest and most easy in use.

137. In the present day many prefer the short straight forceps of Denman, for application to the head after it has entered the cavity of the pelvis.

But, on a comparison of Denman's forceps with those having the pelvic curve, I prefer the latter, since they cover more points of surface of the child's head and conform to the curved axis of the pelvis; and this is especially valuable where the head has not reached the pelvic outlet. They thus make a more secure and equable compression of the head than do the straight forceps, and a hold so sure as not to slip during our extractive efforts.

V. *Construction of the Forceps to be employed.*

138. The head curve of the forceps should not be too slight, which is the case in French and some English forms of the instrument; but such as closely to correspond with the surface to which it is intended to be applied.

139. The width between the opposite blades and of the fenestræ should be sufficient to guard against dangerous compression of the child's tender brain.

140. The blades should be of moderate thickness, so as not to encroach too much on the space in the pelvis, nor to press hurtfully on the maternal tissues.

141. Their internal surfaces not flat, but concave or convex, so as to guard the delicate skin of the infant from chance of abrasion by sharp edges.

With the above requisites, the English lock, which recommends itself above all others for its simplicity, ready separability, and adjustment, a shank long enough to remove the locking from the perinæum, hard tempered steel, smooth surfaces, round edges, the English handles of sufficient length for a firm purchase, we shall be in possession of a good instrument.

142. In the *third* and *fourth* positions (left and right fronto-cotyloid), and in the *two rarer transverse* positions, which we view as abnormal, where the face looks to either ilium, the natural rotation of the face backwards not having been completed, the fenestræ of the forceps, which I have just described, are not so well adapted. Here, Denman's forceps are considered by some as peculiarly suitable; but as respects the safety of the maternal tissues, the bladder especially, during the rotatory movement, which we have to execute, I must give the preference to the *oblique forceps*, which are applied fronto-laterally and occipito-laterally.

VI. *The Application of the Forceps.*

143. We must first prepare our patient by encouraging assurances, that we are about to give her

some needful assistance, with a view to her safety and release from suffering, and that, at the same time, we shall make every possible effort to preserve her child.

144. Having passed the catheter, if necessary emptied the rectum, and seen that everything required for the operation is in readiness, we then place our patient on her left side, across the bed, the breech at its edge, so that the pelvic outlet should be fully accessible. The lower extremities are to be flexed and drawn up to a convenient angle with the trunk. A trustworthy attendant must now be directed to raise the right knee from its fellow, and support it steadily at a distance of about twelve inches, a little upwards also towards the abdomen.

145. In some cases there is extreme restlessness, and our patient is perfectly uncontrollable, tossing herself about in all directions. Here, the risks of a forceps operation would be greatly increased, unless we adopted means to prevent such movements; we may, therefore, in these cases find it expedient to resort to the sedative influence of chloroform. I may observe in passing, that I do not often appeal to this agent in ordinary labour, and by no means in all obstetric operations; but it seems to me that this is one of the conditions in which this anæsthetic vapour may be usefully employed, no morbid state of the respiration nor of the circulation being present, to contra-indicate its use.

146. I will suppose, first, a case for the forceps where the *head is at or near the outlet* in the *first* or *second* position.

(1.) The blades and locks having been warmed and greased, the blade for the left side of the pelvis, its convex edge turned towards the sacrum, is first to be taken up with the left or right hand, at the choice of the operator. It must he held lightly, as we should hold a pen, that in its passage we may be able to appreciate the least resistance, and not thrust it onwards to the injury of the mother, as we might do, if the instrument were firmly grasped. When an obstacle offers, we must then at once withdraw the blade a little, and readjust it in a right course.

147. (2.) In passing this, the left-hand blade, the instrument is to be introduced over the left sacro-sciatic ligament, and in front of the left synchondrosis; at the same time the fingers of our disengaged hand are to be interposed between the outer surface of the blade and the mother's soft parts, till they reach the angle between the presenting head and vaginal wall; the point of the blade further is to be directed well away from the latter, the convexity of the head being our guide to the right course of the instrument. By these precautions will the mother be secured from injuries, which unskilfulness and rashness would occasion. The handle is first to be held forwards between the thighs, a little upwards also; then, as the point of the blade advances, the handle is to be depressed, and carried backwards into a line with the axis of the pelvic cavity. Finally, the blade itself, as it lies within the pelvis, is to be shifted

gently forwards, so as to be applied over the left lateral surface of the child's head.

148. (3.) The right-hand blade is now to be introduced, gently held between the fingers of the right hand, in the way that a violin bow is held, and passed in at the same point as the first blade; but on the opposite, or right side of the pelvis. The handle is here first to be held downwards and forwards, and in a line with the left hip-joint; then, as the curve of the blade gradually disappears within the pelvis, the handle is to be inclined a little backwards into parallelism with the first blade. In making the above movement, the blade at the same time is to be carefully shifted forwards to its destination, the right side of the child's head.

149. (4.) The locking of the instrument must now be made, and this should be perfectly easy. An imperfect locking implies that the blades are not parallel, and that the edge of one of the blades, therefore, must be abutting against the vaginal wall. If we attempt a forced locking, we cannot but inflict serious injury on the maternal tissues. To avoid so great an evil, the blade out of correct position must be cautiously withdrawn, and readjusted in the right direction.

150. (5.) Should an easy locking not be attainable, a short straight blade on the side of difficulty, in lieu of the ordinary blade, will sometimes fulfil our object. For such cases I use a short blade to correspond with either counterpart of my ordinary forceps. Should

even this plan not obtain an easy locking, the forceps must be withdrawn, and delivery accomplished by other means.

151. (6.) It is a wise rule which requires, that in a forceps operation we should co-operate only with the parturient effort, discontinue our traction in its absence, unlocking the instrument between whiles. If pains are absent altogether, we must then follow nature in her intervals of action and rest, by intermitting our efforts. We thus guard the mother from serious and unnecessary risk to her soft tissues.

152. For the safety of the child, also, it is important that we should separate the locking, as above described, as a continuous pressure on its tender brain would be fatal. The former common practice of tying the handles together, which defeats a principal object of the English lock, facility of separation for the above objects, as well as of adjustment, should be entirely abandoned.

153. In the use of the forceps we must be most gentle; no hasty nor violent manœuvres are admissible, either in the introduction of the blades, or in the traction which we employ. We must also be careful as to the *degree and duration* of extractive force which we exert; serious have been the results of inattention to this precaution. Most scrupulous must we be as to the safety of the mother in every way, knowing that in a moment, by one rash act, we may inflict upon her an irreparable—nay, a fatal injury.

154. We are also to observe, that at every stage of

the operation, we must draw upon the head in the direction of the axis of the pelvic tube.

We will suppose that we have now brought the head into full bearing on the perinæum, when, if that structure is imperfectly developed, we must carefully remove the blades, and as on all occasions of their removal, follow closely the curved line of the head; since by withdrawing them in a straight direction, we should at least bruise, if not lacerate, the parts with which they come into collision in their passage outwards. The head is then left to be slowly and safely expelled by the natural efforts.

155. But some urgent complication, as hæmorrhage or convulsions, may require a completion of the labour; when so, every possible care must be taken of the soft parts at the outlet.

156. In the *third* and *fourth* positions, in which the anterior fontanelle is applied to the left or right acetabulum, it has been shown that in the natural change, as the labour progresses, the face is moved round to the nearest sacro-iliac joint, viz., to the left joint in the *third*, to the right synchondrosis in the *fourth* position.

157. It is obvious, therefore, that we should, if possible, do our best to imitate nature by endeavouring to effect what she may have failed to accomplish, namely, the rotation of the face backwards. Should the face, however, as sometimes happens, have already moved somewhat forwards to the pubes, in that case it is equally clear that we should promote the rotation of the face forwards to the pubic arch.

158. In these two antero-oblique directions of the face, some advise, as I have already intimated, the use of Denman's forceps; but I prefer the longer blades of Smellie's, of which I have modernized a pair with shanks; they are, in these positions, respectively applied against the cotyloid and sacro-iliac synchondrosal regions of the pelvis, to which the opposite sides of the face are directed: in other words, in the opposite oblique diameter to that in which the long axis of the head is lying. Thus, in the left fronto-cotyloid or *third* position, one blade must correspond to the right acetabulum, the other to the left sacro-iliac junction; in the *fourth* right fronto-cotyloid, they will correspond respectively to the left acetabulum and right synchondrosis. The rotation is now made, in the *third* position, from left to right; in the *fourth* position, from right to left. Thus the face is moved round the left side of the pelvis in the *third* position; around the right side of the pelvis in the *fourth*, viz., by the shortest route to the sacrum.

159. Now, in accomplishing this change with the straight forceps the bladder is exposed to risk of contusion from the anterior blade during the rotation; on this account I prefer the oblique forceps, which are specially designed to obviate this objection.

160. The oblique forceps are to be applied as follows: the long blade behind the acetabulum at that side of the pelvis to which the face is inclined; the shorter blade in front of the synchondrosal joint at the opposite side of the pelvis, or that to which the occiput

is directed; so that, on the head of the child, the blades will be adjusted obliquely, *i.e.*, on the fronto-lateral and occipito-lateral regions. A firm and safe purchase is thus obtained, by which the rotation may be easily effected, as just described for the two positions. For each position there is a separate pair of oblique forceps, as they turn in opposite directions for the two positions; viz., the blades in both instances are made so that, when applied, they incline towards the front of the pelvis, in order that in the rotation of the face backwards, in each case, the movement may be more easily, and therefore, as regards maternal structures, more safely executed.

161. In the *transverse positions*, where the head has been arrested in its rotation, with the face looking to either ilium, the oblique forceps are equally well adapted, and similarly applied as regards the child's head. The long blade is passed behind the acetabulum of that side of the pelvis to which the face is turned, thus corresponding to a fronto-lateral part of the head. The short blade in front of the sacro-iliac junction of the side to which the occiput is apposed, so answering to the opposite occipito-lateral part of the child's head.

162. Thus where the face is to the left ilium, the long or fronto-lateral blade will be adjusted behind the left acetabulum; the short or occipito-lateral blade at the opposite synchondrosis.

163. Where the face looks to the right ilium, the long blade will be introduced, and applied behind the right

acetabulum; the short or occipital blade at the left synchondrosis.

The rotation is to be made as before, but to a less extent, seeing that the line to be traversed, in order to place the face obliquely backwards, is so much shorter.

164. Having then, in the above positions, rotated the face to the sacro-iliac joint, or to the corresponding half of the sacrum, we shall, where adequate pains are present, best consult the safety of the patient, if we leave the final expulsion of the head to nature; excepting, indeed, where some pressing complication, as hæmorrhage, should call for an immediate delivery.

VII. *Forceps Operations where the Head is arrested at the Pelvic Brim.*

165. The "*long forceps*" are very rarely indicated, since, on account of their application beyond reach of easy observation, they require still greater care and dexterity in their adjustment and use than do the short forceps. Indeed, so much injury has resulted from their employment, that certain authorities have, with some reasonable grounds for their opinion, considered them most dangerous instruments.

166. It may with truth be observed, that as a rule, when the head is arrested at the upper strait, the difficulty is of that degree to be overcome only by the safer operation of craniotomy.

167. Nevertheless, cases do, though very rarely, fall under our notice, justifying a cautious trial of the long forceps. In cases, for example, where the head has been at the brim of the pelvis for several hours under good pains, the child is known to be living, the soft passage well dilated throughout, apparent room for the forceps exists, and we have reason to apprehend that the patient may sink from exhaustion, or that the womb may suffer a laceration of its coats.

168. Again, the long forceps may be applied in some exceptional instances of hæmorrhage, convulsions, rupture of the uterus, provided the space at the brim is adequate for the purpose, the soft parts are also favourable for their application, and no proof is present of the child's death.

169. To ensure, however, the greatest possible safety in their application, the operator should have a full knowledge of their risks, and have had considerable experience in the use of the short forceps; and, as with them, the precaution of emptying the bladder, and if necessary the rectum, must be observed.

170. In most cases of arrest at the brim of the pelvis, the head lies transversely, the face being directed to the left or right ilium; positions, for the most part, caused by too great a projection of the sacral promontory. The head is sometimes, however, found in one of the four oblique positions.

171. In the *posterior oblique positions of the face*, the ordinary pelvic curved forceps, with a short blade

to correspond to either counterpart, in case of need, are applicable, as in the same positions within the cavity. Indeed, by a very little alteration in the blades, and elongating the shank, I designed a pair of forceps, in 1846, which I employ in these oblique positions, whether the head has gained the pelvic cavity or is arrested at the pelvic brim; thus superseding the necessity of a special pair of long forceps. There is also a short blade to lock with either of the other branches, where space in the pelvis does not admit of an ordinary blade, or where the umbilical cord may have prolapsed at the side of the head.

172. In the *antero-oblique positions of the face* (third and fourth), the blades are to be passed at the sides of the pelvis; the short blade on that side to which the occiput inclines. They will thus be applied diagonally on the child's head, *fronto-laterally*, and *occipito-laterally*. The instrument being now locked, traction is to be made at intervals, till the head has entered the cavity of the pelvis, when the rotation may be left to nature, or else, if the symptoms should demand it, delivery must be completed.

173. In the *two transverse positions*, where the face is directed to either ilium, *three modes* of applying the forceps have been followed, of which I prefer the *third*.

174. In the *first*, one blade is passed behind the pubes, the opposite branch in front of the sacrum; but as this method exposes the bladder on the one hand, and the rectum on the other, to risk of injury

from the pressure of the blades, it is very rarely resorted to by cautious practitioners.

175. In the *second* method, the blades are applied in the transverse diameter of the pelvis, over the forehead and upper part of the head and over the occiput respectively. By this purchase the head is brought into the pelvis, and the face is then inclined backwards; the instruments may then generally be removed, and the remainder of the case be intrusted to nature. This plan, first adopted by Deleurye, in 1779, I have pursued with success. Some authorities, however, have imagined that the child's brain will not, without increased risk, bear the requisite compression in this its antero-posterior diameter.

176. The *third* method.—The forceps are here applied in the oblique diameter of the pelvis, diagonally on the fœtal head, as in the like position within the cavity of the pelvis. One of the long or ordinary blades is to be applied behind the left acetabulum in the *third* (left fronto-cotyloid) position; behind the right acetabulum in the *fourth* (right fronto-cotyloid) position.

For the opposite, or occipital, blade in each case, I employ the shorter branch before alluded to. The forceps are thus in this third method introduced at that part of the pelvis where there is generally the most available space. On this account we have good reason for preferring this mode of application; but when, as sometimes happens, they cannot be easily passed in this direction, we have the alternative of the second mode.

177. Having brought the head by successive extractive efforts into the cavity of the pelvis, and directed the face obliquely backwards, we may now, in most cases, leave the completion of the labour to the natural efforts.

178. Should there be any complication, as hæmorrhage, convulsions, exhaustion, &c., or in the event of the pelvic outlet being also defective in its diameters, it will then be our duty to complete the delivery.

SUMMARY OF PRECEDING OBSERVATIONS ON THE FORCEPS.

179.—1. As some risk is inseparable from the use of the forceps, it behoves us to reflect well on all the data before us, ere we resort to their employment.

2. It being the fact that, under circumstances of *equal skill*, the forceps operation is more dangerous to the mother than that of craniotomy,* the former should never be resorted to for the delivery of dead children.

3. So long as the head advances with the pains, and recedes on their retirement, the patient is safe from dangerous pressure on her soft tissues. If, on

* A contrary view, I know, is entertained by many ; but I am convinced that any apparent greater mortality after craniotomy operations skilfully performed are rather due to the previous pressure, which has been permitted, in order to avoid so repugnant an operation, and sometimes to the long-continued but fruitless endeavours to deliver by the forceps, which have preceded it.

the contrary, the head has been *wedged in the pelvis in one position, under strong parturient action,* for five or six hours, we are bound, as a general rule, for the safety of the lives concerned, to extend our aid.

4. In some instances, untoward symptoms appearing, it may be necessary to act even within the above time. But, before resorting to the forceps, we must be sure that there is space for their safe application. Should that not be the case, the only security to the mother will be found in delivery by craniotomy.

5. Where much febrile disturbance exists, with extreme dryness and morbid heat of the genital passage, and the forceps yet hold out a chance of a happy issue, it will be necessary first to prepare the patient by remedies adapted to remove those conditions.

6. The introduction of the forceps must be undertaken only with a perfect knowledge of the form and direction of the pelvic canal, and of the mechanism of the second stage of a natural labour, under the different positions of the child's head.

7. For the safety of the mother and her child, our traction must cease, and the lock be loosened, between the pains. Moreover, the degree of extractive power which we exert must not be so great, nor its continuance of so long duration, as to endanger the integrity of the mother's parts. If, therefore, after well-directed efforts, no advance is made, the blades must be removed and other means of delivery had recourse to.

8. Operations with the *long forceps*, or those performed at the pelvic brim, are, by general experience, admitted to be far more dangerous than those performed in the cavity of the pelvis. They should not, therefore, be attempted unless in very favourable circumstances.

9. As the integrity of the perinæum should be an object of care, we must, where adequate pains exist, where the outlet of the pelvis is not contracted, and no urgent complication is present, remove the blades so soon as the head presses fully on the soft outlet, leaving the final expulsion of the child to nature.

The Vectis, or Tractor.

180. The tractor is another mechanical contrivance, which at various times has been resorted to in labours, with the view of promoting a living birth.

The vectis, as it was originally termed, was first employed as a lever of the first order; the pelvis with its lining structures formed the fulcrum, greatly to their injury, as might have been anticipated.

181. The only safe use of this instrument is as an extractor or tractor, as first suggested by Dease, in 1783.

182. Of the different forms, Lowder's is generally preferred. It is fenestrated, has the ordinary English handle, is curved towards the extremity more than other kinds. My own experience in regard to the

tractor is not extensive, because I have considered it of very limited application, believing that for the large majority of cases of arrest, the forceps is a much more efficient instrument; its compressing power and secure purchase giving the latter an immense advantage.

183. Where there is little or no disproportion between the pelvic tube and the size of the child's head, the tractor will sometimes be of service; but, before resorting to it, we must ascertain the position of the head; the catheter must always be first employed, and the rectum be emptied by a clyster, if required.

184. It may occasionally aid us in assisting the rotation of the head, in occipito-posterior positions, in shifting the occiput forwards to the nearest acetabulum; the blade being applied over the side of the occiput, while we make pressure with our fingers on the opposite side of the forehead.

185. In brow and face presentations the tractor may also, in the rare cases where nature fails in her object, sometimes be applied with advantage over the occiput; also in ear presentations, which, however, are of extremely unfrequent occurrence.

186. In the use of this instrument, the utmost gentleness must be observed, and especially must we abstain from using it as a lever, lest, the mother's structures being made the fulcrum, irreparable injuries should ensue. The friends of the patient, as often has been the case, must not be kept in ignorance

of our proceedings; a fair communication of our intention to use an instrument should be made.

187. The instrument is to be introduced along the hollow of the sacrum over the sacro-iliac joint, and then passed round to the point of the head, from which we intend to act, generally the occiput, sometimes the mastoid process, rarely the chin, which we must be very cautious not to injure.

188. The handle is to be grasped with the right hand, the shank firmly held with the left hand, and the curved extremity of the fenestra is to be pressed closely upon the head. Our traction is to be made with a succession of short, steady, not jerking, extractive efforts, and, as with the forceps, only during the pains. The tractor is of little or no service when there is no pain; in such circumstances the superiority of the forceps is very manifest.

CHAPTER V.

ON TURNING, AS A MEANS OF OBVIATING CRANIOTOMY, IN DEFORMITY OF THE BRIM OF THE PELVIS.

189. The practice of turning in head presentations and deformed pelvis pursued in bygone days had long become obsolete, when it was revived by Dr. Simpson, in 1847, and performed by him, the patient being under anæsthesia.

190. It is true that it had been practised by the cautious Denman, and in one case, at least, with success; but so little did he expect from its general adoption, that he expressed himself very prudently, as follows, with regard to it:—

"The success of such attempts to preserve the life of the child is very precarious, and the operation of turning a child, under the circumstances, is rather to be considered among those things of which an experienced man may sometimes avail himself in critical situations, than as submitting to the ordinary rules of practice."*

191. It is contended by Dr. Simpson,† in favour of

* Denman's "Introduction to the Practice of Midwifery," 1816, p. 382.

† "Obstetric Memoirs," vol. i. p. 506.

this operation, that the head will pass through a contracted brim by the help of traction, with the base of the skull foremost, when it will not pass by a vertex presentation. He affirms, in explanation, that when the head is strongly urged downwards by the forces of labour, and is resisted below by a contracted pelvic brim, there is a great tendency in the skull to spread out at its biparietal diameter, and hence an increasing obstacle to its advance in these cases.

The Professor, therefore, suggests the operation of turning in order to substitute the bimastoid diameter, the narrow end of the head-cone, for the larger biparietal diameter, or base of the said cone, as the most dependent part, with the additional aid of a convenient purchase.

192. Experience subsequently proved to him that he was right in his surmise. He found that the head would thus pass through the brim with the help of traction, when the previous efforts of parturition to push it through, the vertex first, even with the aid of the forceps, had entirely failed; that, in fact, the base of the cone, the biparietal diameter of the child's head, coming last, so readily underwent compression, during the extractive efforts of the accoucheur, as to allow of its passage through.

193. We cannot but admit that the introduction of anæsthesia into obstetric operations greatly lessens the objections which might otherwise be brought against this proceeding, and which formerly I fully entertained myself.

194. I first performed version in such a case in 1858, on a patient aged 27. It was her second labour. The forceps were adjusted, locked easily, but did not advance the head in the least. Hearing the fœtal pulsation on auscultation, I was unwilling to perforate; yet the patient's condition urged delivery. I gently passed up my hand in front of the head, which I found engaged in the brim transversely, secured a foot, and displaced the head upwards, and so gradually I delivered the child; it was asphyxiated, but fully restored by ordinary means, after perseverance for a quarter of an hour. The first labour had been completed, I was informed, by craniotomy. Examination of the pelvic brim after the birth discovered a diameter of less than three inches in the conjugate diameter. Chloroform was not necessary in this case.

195. I have since performed the operation on at least three occasions, where the long forceps had utterly failed. Interference was urgent in all, as the patients had been very long in labour. I found it necessary to give chloroform. One child was saved, the others nearly so—all the children were large. All the patients did well.

196. In the two last cases of turning in a small pelvic brim, I performed the version without introducing my hand into the uterine cavity, following the plan laid down by my friend and colleague Dr. Hicks, viz., through the "bimanual method."

197. In this mode, the *external use of the hand* over the abdomen to depress the breech, as suggested

by Wigand, Martin, Carl Esterle, and other continental obstetricians,* is combined with the *internal use of one or two fingers*† to push up the head. The breech is thus depressed to that side of the uterus to which it most inclines; while the head is raised in the opposite direction.

198. The operation of turning in a deformed pelvis may now, especially with the help of chloroform, be considered a legitimate and re-established proceeding where we have a promise of success, since it is satisfactorily proved to us, that but for it, in certain cases, craniotomy would be unavoidable.

199. Yet we must bear in mind that if not pretty easily accomplished, which I have found it to be where I have adopted it, we must for the greater safety of the mother relinquish it, and resort to craniotomy.

200. I do not think that, should we fail, after accomplishing version, in bringing the head through, the difficulty of craniotomy is so increased, as to justify our leaving the child to its fate, without that effort to save it, if it can be made without endangering the mother.

201. It should, of course, never be undertaken for the delivery of a child of the death of which we have certain proof.

* These authorities, indeed, are said to have often succeeded in turning the child by "external manipulation" alone.

† Dr. Lee records cases, where with a small os uteri he has turned with two fingers, when the knee has been near at hand, in placenta prævia.

CHAPTER VI.

INDUCTION OF PREMATURE LABOUR.

202. This operation may justly be considered the greatest improvement in obstetric practice since the invention of the forceps. It has been the means of saving the lives of many hundreds of children, to the extent of somewhat more than half the number born, and of preserving the mother in almost every instance.

203. We are indebted to Dr. Denman for the early history of this operation, which he received from Dr. C. Kelly, and communicated to the profession about 1795. It appears to have been first performed in England, and successfully, in 1756, by Dr. Macaulay, pursuant to a consultation of the most eminent practitioners in London at that time. Dr. Kelly subsequently resorted to it. The question was raised as to the morality, utility, and safety of the operation, and was decided in the affirmative. In France, however, where it was first proposed in 1779, its introduction was strenuously resisted by M. Baudelocque and his followers, as also by the Doctors of the Sorbonne. Foderé, on the other hand, advocated it; and Professor Stoltz was the first in France to practise it, in 1831. It has been supported also by P. Dubois, Ferniot, Dezeimeris, M. Cazeaux, M. Lacour, and

many others. The last-named authority collected, up to 1844, as many as 250 cases of this operation, in which more than half the infants survived, and only one mother died.

204. The original application of this operation was for contractions of the pelvis of moderate degree, where the space was too small to admit of a living birth at the full term, yet sufficient to admit of a child of seven or eight months' gestation.

205. In later years, the operation was extended to extreme deformities of the pelvis produced by fractures, mollities ossium, exostosis, or other morbid conditions in which embryotomy under great difficulty, or even the Cæsarean section, would have been the only resource. Here the induction of labour is performed at three, four, or five months, according to circumstances.

206. We have occasionally also to resort to this operation in anticipation of the death of the child, which from various morbid influences has uniformly taken place in some women a few weeks before full term. In these cases, the child, if sufficiently mature, may thus be saved.

207. Again, the premature induction is called for on account of certain dangerous complications of pregnancy; as severe hæmorrhage, occasionally in convulsions, in instances of harassing vomiting, where, no food being retained, the patient is rapidly progressing to a state of extreme exhaustion.

Not many years ago I was called to a patient, who

had from a fine young woman become greatly attenuated, and so much reduced in strength, that when labour came on, a very moderate hæmorrhage quickly proved fatal. She had been treated for ulcer of the stomach; but the *post-mortem* inquiry, as I anticipated, showed the stomach to be healthy, as well as every other organ of the body.

The fatal sickness was solely due to the sympathies of pregnancy.

208. Labour is occasionally required to be induced prematurely when a patient has had a succession of children still-born under difficult labour, in consequence of their disproportionate size; the pelvis in these cases having been of standard dimensions.

I have had under my care two such instances, in one of the patients twice; the children were each time saved, whereas, in previous labours, craniotomy, the forceps failing, had to be performed.

209. There are other cases in which the operation may be required, as where pregnancy is complicated by ascites, dropsy of the amnion, cancer, and some other affections of the uterus, diseases of the heart, lungs, liver, kidneys, bladder, where delivery at the full period might add to the patient's sufferings, or increase her danger.

The Different Methods of Induction.

They may be divided into two orders :—

210. I.—In the *first*, the object, and an important

one, is to retain the liquor amnii for the labour. This may be accomplished or attempted in various ways. Of these I will mention a few instances :—

1. By distending the vagina with a sponge plug,* or, better still, by an india-rubber bladder or dilator (Braun, Siebold, Ritgen, and others). This plan has more frequently been resorted to in floodings to arrest the flow, as well as to excite the action of labour; in the latter object, however, it is by no means invariably successful.

2. By dislodging the mucous plug, and separating the fœtal membranes from the cervix as high as the finger can reach; this plan was adopted by Dr. Sims and other eminent practitioners, including Professor Hamilton, of Edinburgh, but who accompanied it by the use of a bent brass wire: this plan very frequently fails.

3. It has been induced by the introduction of sponge tents within the uterine orifice. I have resorted to this in four instances, in two of which labour followed without further interference.

4. But a preferable mode of dilating the os uteri is that by india-rubber dilators, as first suggested and used by Dr. Keiler, of Edinburgh. Mr. Jardine Murray seems, however, to have been the first to publish† a case in which fluid pressure was thus used to expand the cervix uteri and accelerate labour; thus

* Brünninghausen, 1820; Scholler, 1841.

† "Medical Times and Gazette," June, 1859.

extending the principle which had some years previously been applied by Dr. James Arnott to dilatation of strictures of the urethra.

5. The injection of a strong stream of warm water into the vagina, directing it forcibly upon the os uteri, is another plan, which was suggested in 1846, by Professor Kiwisch, who employed for this purpose an elevated reservoir with a syphon tube.

6. The suggestion of intra-uterine injections of warm water seems to have been first made in 1825 by Schweighäuser; but Dr. Cohen of Hamburg was the first, in 1846, to carry it into effect; hence it is known in Germany as "Cohen's method." Cohen, however, employed kreasote in the water as a stimulant.

7. Three years later Ortwin Naegelé, followed by Harting, adopted with success warm water injections into the uterus. The mucous plug is thus removed, and the fœtal membranes separated to some extent from the uterus. This plan, which has been so frequently successful, has, however, in some other cases, been followed by shiverings. Germann observed shiverings in six out of nine cases in which he operated. In two patients, on whom I operated in this way, shiverings followed, and, although without any other ill effects, I was induced to adopt another method in subsequent cases. It has been surmised from fatal cases recorded, as following injections of water into the uterus in some few instances, that air may have found its way into the blood-vessels, or that the fluids injected may have passed through the Fallopian tubes

into the peritoneal cavity. If resorted to, the apparatus should be previously well warmed, in good order, with a long elastic tube attached; but it should not fill the os uteri, that the water injected may have free egress; and care should be taken that air is not injected at the same time. In my cases, labour supervened at various periods within thirty hours.

8. The hot and cold water douche applied alternately to the os uteri in a strong stream was adopted by Dr. Tyler Smith, and in a case which he reports labour followed on the fourth day.

9. The external douche of cold water to the surface of the abdomen has also been resorted to; but it is a somewhat harsh, and not very safe method.

10. *Galvanism* was first introduced on the Continent for this object in August, 1844, by Hæninger and Jacobi; and in this country in December of the same year by Dr. Radford, of Manchester, both to originate uterine action and re-excite it in various circumstances. The results have not been satisfactory in the hands of others; the balls of the conductors have been applied respectively sometimes to the mouth of the womb and upon the abdomen over the fundus of the uterus; or to opposite sides of the abdomen, so as to pass the current transversely through the uterus. The application has also been made on the one hand to the os uteri, and on the other to the upper part of the spinal column; thus the galvanic stream is directed longitudinally through the structure of the womb.

11. Suction applied to the nipples by india-rubber

exhausting cups was proposed by Scanzoni. It is, however, liable to produce sore nipples and inflamed breasts: that professor also, on the same principle, suggested sinapisms to the breasts.

12. The Ergot has also been recommended and employed; but the liability to its causing the death of the child, when used as a sole means, has led to its almost total discontinuance.

211. II.—The second order contains but one mode, namely, the original one adopted by Dr. Macaulay in 1756. In this method the liquor amnii is drawn off by puncturing the membranes. This may be done with a blunt-ended stilet, or a lancet-pointed instrument and canula, care being taken not to injure the uterus or the child. This plan is the one which I have often been obliged, through the failure of other modes, to resort to in the end. The child has always been born living, and in three out of every four of my cases the children have survived. The instrument employed, held in the right hand, is to be conducted to the os uteri upon the palmar surfaces of the index and middle finger of the left hand, and carefully guided within the os uteri, in the axis of the uterine cavity. The presentation is then to be tilted up with the finger, and the membranes punctured.

In the early part of my practice I adopted this method, by the stilet and discharging the waters, almost exclusively, first dislodging with the finger the mucous plug; but as the passages were frequently dry and heated afterwards, I subsequently prepared my

patient by gentle purgatives for a day or two, and on the moment of labour appearing I gave, in some cases where the patients were not feeble, two or three small dozes of tartrate of antimony, in order to relax the os uteri and vagina. This I found very beneficial in promoting a free secretion of mucus, and a speedy end to the labour.

Conclusions.

212. Of the different modes of inducing premature labour, I am disposed, upon the whole, where we have the choice, to recommend the use of the caoutchouc dilator, as a preferable plan to any other, using different sizes, when necessary, till, by their means, full dilatation of the mouth of the womb has been obtained.

Should the vagina be rigid and narrow, I widen it also by a separate dilator. It is far preferable to sponge tents for the purpose, which become exceedingly offensive.

The stilet may subsequently be resorted to, if pains do not supervene; but this will rarely be required.

CHAPTER VII.

DELIVERY BY CRANIOTOMY.

I. *On Delivery by Craniotomy.*

213. When the impediment to delivery is greater than can be overcome by the means already considered, it will be impossible to save both the mother and her offspring; both lives would inevitably be lost in the attempt. Under these circumstances, it becomes our imperative duty to rescue the more valuable life, which, for obvious reasons, is that of the mother.

This important object is fulfilled by craniotomy, in which operation we lessen the bulk of the presenting head by perforation, and the removal of its cerebral substance; sometimes of portions of bone also; and deliver by the crotchets.

In performing this destructive operation on the child, however, we are not necessarily sacrificing its life, for it is consolatory to know, that in most cases, ere we are compelled to resort to it, the child has already ceased to live, or at all events must very soon cease to live, under the violent compression to which its body is exposed. In truth, therefore, it can scarcely be considered a matter of choice.

II. *Indications for Craniotomy.*

214. This mode of delivery may be necessary, on account of deformities of the pelvis, as rickets, mollities ossium, fractures, equally small pelvis, oblique deformity of the pelvis, caries, exostosis, fibrous outgrowths, solid ovarian tumours, &c., inordinate ossification of the cranium, disproportionate size of the child, hydrocephalus.

215. Before using the perforator, especially where, by auscultation or otherwise, we find that the child is still living, we are sometimes induced, viz., where space for their application appears not entirely deficient, to give the forceps a cautious trial; when, if after their tentative employment, delivery by them should not be practicable, and turning is either contra-indicated, or has failed after a prudent trial, we shall, with less compunction, resort to perforation.

216. These trials, however, must not be made without due reflection; for ill-directed efforts with the forceps, in contracted pelves, can only diminish very greatly the chance of the patient's life being ultimately saved. For instance, in a pelvis distorted in the conjugate diameter to the extent of two inches and a half, a prior use of the forceps upon a child at or near full term would be most improper; on the contrary, upon grounds of humanity, we should save the patient as much suffering as possible by an early delivery through the only available mode—craniotomy.

In one case of contracted pelvis which came under my notice, a surgeon, now deceased, was too anxious

to save the child by the use of the forceps, and induced thereby inflammation of the vagina, which terminated in gangrene and a fatal result. In other cases, misapplications of the forceps have led to lacerations of the maternal structures. But by observance of correct principles, such evils need not occur.

217. Let us not, on the other hand, take for granted that because craniotomy has been the only alternative in one labour, it must of necessity be resorted to on a subsequent occasion. On account of swelling of the maternal tissues and fœtal scalp, of rigidities, of inordinate ossification of the head, or by reason of its being above average size, perforation may have been perfectly proper in the first confinement, and in a succeeding delivery a child of equal, or of not much smaller size, may pass living without obstruction.

218. Again, though much more rarely, a patient's first or second labour may be easy, and a following one difficult, requiring the forceps, or even craniotomy, on account of the like swelling in the soft tissues, undue hardness and thickness of the fœtal cranium, or from its head being larger than on previous occasions.

219. The difficulties due to swelling, or rigidity of the soft parts, may often be removed by one or other of the various remedies before mentioned, if timely had recourse to—as antimony, chloroform, and sometimes, where deemed otherwise advisable on account of a plethoric or inflammatory condition, by bloodletting. By this treatment, labours, which must otherwise have required the perforator, have, after the removal of these obstacle by such treatment, ad-

mitted of forceps delivery, or have terminated safely without any form of instrumental aid. Should even that not be the case, the patient's delivery will nevertheless be more safe, and her after progress more prosperous.

III. *Limits of Craniotomy.*

220. As regards the operation of craniotomy, unfortunately it has its limits of usefulness. The pelvis may be so confined in space as not to admit of delivery by the natural passage, even after mutilation of the body of the child. It is a point of great importance to decide where those limits lie, as beyond them, the only expedient left to us is a dangerous operation on the mother,—the Cæsarean section, which in the British isles at least has proved so extensively fatal.*

221. I have already observed, that with every attainable advantage from operative skill, and the best-adapted instruments, delivery by the natural passages cannot be effected, unless there is a space at the brim of one and a half inch in the antero-posterior direction; or of at least one and three-eighths of an inch in the conjugate, and three and a half inches from ilium to ilium.

* Dr. Radford, in his interesting pamphlet (1865) on the Cæsarean section, advocating its more frequent adoption, gives 77 operations and only 10 recoveries, not including one patient with mollities ossium, who survived 32 days 10 hours. These 77 cases occurred between the years 1738 and 1864, and out of this number 43 children were saved.

IV. *Details of the Operation of Craniotomy—The Instruments employed.*

222. The patient must be placed at the edge of and across the bed, on her left side, knees drawn up, as for a forceps operation, some judicious friend being seated at her head to give her confidence. Everything being in readiness, having prepared our instruments for the occasion, we now take our place at the bedside, at a convenient height for conducting the operation.

223. The instruments in use vary somewhat. They consist generally of a perforator, a pair of craniotomy forceps, a single crotchet, a small pair of bone forceps; sometimes the osteotomist is added. In France and Germany the cephalotribe, for crushing the cranium, has sometimes been employed.

224. *Smellie's scissors* are usually preferred for the perforator; with these, the opening being made, it is extended crucially by separating the handles first in one direction, then in the opposite.

225. Some operators, with the late Dr. Rigby, prefer Naegelé's perforator, the point of which, after it is introduced, being separated by closing the handles, which at other times are fixed in a state of divergence.

226. A few years ago I had constructed by Mr. Coxeter a *trocar perforator, with a canula,* to guard it to the head's surface. The entire length of the instrument is thirteen inches and a half, the handle measuring four. It is very convenient, since it makes the

opening more easily, in less than a quarter of the time occupied by the scissors, and more safely.

227. It will be necessary to use one of the ordinary perforators to extend the opening, and to break up the cerebral substance. For this purpose I generally prefer Smellie's scissors, as improved in the present day, although sometimes, as with a small os uteri, using a special pair without shoulders for greater safety.

228. The *simple crotchet* I have long discarded, after ample trial, as a most inefficient instrument in the more difficult cases. I have repeatedly been called to finish deliveries which had been commenced with the crotchet, and that in the hands of practitioners not otherwise undexterous. I have given among the cases two or three examples. The records of protracted operations with this instrument, by its advocates even, afford but little inducement to its use, especially in cases of much confinement of the pelvis.

229. The *craniotomy forceps*.—These, when of proper construction, meeting the demands of any difficulty, however trying, are therefore to be preferred. They are of various forms; some of these, such as a pair with alternate transverse ridges and grooves which I have tested, have this disadvantage, that they slip from their hold. Now, the slipping of the instrument from its purchase is attended with such additional risk of injury to the mother, that any contrivance which shall secure us against such an accident is greatly to be preferred.

Holmes's forceps, with rabbit-shaped teeth, would

have answered, probably, had they not been fitted with an inseparable joint. Till the last two years, I have for many years used the guarded craniotomy forceps, which were first made after my father's design, in 1825, consisting of three long teeth, received in corresponding holes in the opposite blade. Their security of purchase cannot be surpassed. The only objection which I feel to them is the length of the teeth, which, in withdrawing that blade from time to time, require anxious guarding. They have the English lock near the handles, and on that account their length of teeth was very necessary to ensure a good purchase.

230. In March, 1863, I had constructed by Mr. Coxeter a pair of craniotomy forceps, of the ordinary length, so as to obviate the objection of long teeth. The upper, or purchase part, consisted of a male and female blade, the male of a range of teeth forming a back serrated ridge, in the shape of an elongated horse-shoe, while the female blade presented a corresponding groove, answering to and capable of receiving the above ridge of teeth. The blades are fenestrated, to give greater grasping power. The lock is Brünninghausen's, or Naegelé's, as it is more generally termed; a secure lock, readily adjusted, easily separated, and so placed that the fulcrum of the leverage is near the purchase. This instrument, moreover, has at the lower end of the handles a simple and easy mechanism for compressing the handles, so as to save to the practitioner's hand that effort, added to his traction.

It consists of a piece of hard-tempered steel, hinged to the lower end of the handle of the female blade by a knife-spring hinge. This piece of steel has four teeth, ranged obliquely, which act after the manner of a rack, and catch upon a fixed point of steel at the lower end of the male blade. Thus, by closing the handles to the extent required, we can fix them at that degree of compression, and occupy ourselves alone with the necessary traction. (*Obstet. Transact.*, vol. vi. pp. 123-4.) I have tested these instruments, now, for nearly two years, and have never found them to slip.

231. By their aid I can also, by sudden lateral movements, easily separate large portions of bone, and bring them away. Thus, the bulk of the skull may be lessened, as far as needful, before extracting the child. Dr. Simpson claims a similar advantage also for his craniotomy forceps, which are differently constructed.

232. It is useful also to have ready for use, for the removal of any projecting spiculæ of bone, a pair of bone forceps of sufficient length.

233. *The Osteotomist.*—My father was in the habit of using an instrument, designed in 1825, which he called the osteotomist. It is adapted to remove long sections of bone, and I have often employed it with advantage; but I find the above mode so much more expeditious, that I rarely now employ that instrument. I have had figured the osteotomist, which he used in his latter years, which is longer in

its cutting part than that represented in various systems.*

234. The bladder having been emptied by the catheter, *Smellie's scissors*, or the *trocar perforator*, should be guided along the palmar surfaces of the left hand, and the index, middle, and ring fingers of the same to the centre of the presentation, where, and not at a suture or fontanelle, unless they should happen to form the central part, the opening is to be made by a semi-rotatory movement, bearing strongly upon the point at the same time.

235. After withdrawing the trocar, Smellie's scissors are to be passed into the opening, their points separated first in one direction, and then crucially. They are now to be advanced within the cranium, and used to cut up the tentorium, and other processes of the dura mater with the cerebral substance. Thus, a complete breaking up of the brain, its escape, and the subsequent collapse of the cranial bones, on traction being made by the crotchets, is ensured; and this is very important, since, if the reduction is not sufficient,

* I have since been informed by Mr. William Gayton, that he had (of which I had not been aware) previously designed a similar contrivance at the handles, for their compression, for the child's forceps, as exists in my craniotomy forceps; and I am glad to give that gentleman all the credit of his design, although I do not approve of any mode of compression of the handles of forceps intended to save the child's life, except by our own hands; since such a mechanism interferes with the peculiar superiority of the English lock,—ready separability.—*Medical Times and Gazette*, Aug. 29th, 1863.

before we apply our traction, contusion of the mother's tissues is likely to occur.

236. We must be careful to destroy the pons Varolii and medulla oblongata, as far as we can reach; for without this precaution, should the child be yet living, certain reflex movements may occur, even after a considerable loss of brain has taken place. The child has, under these circumstances even, breathed and cried, and performed other excito-motory movements, after its extraction.*

237. The next step is to apply the guarded crotchets. The armed blade is to be conducted along the palmar surface of our left hand and fingers, through the opening into the skull; its teeth placed against *the interior surface* of a part of the skull opposed to a sacro-iliac joint or side of the pelvis. The front of the pelvis should be avoided, as much as possible, on account of the bladder. The guard or perforated blade is to be passed up with the same precautions *on the outside* of the skull, taking especial care that any part of the os uteri yet undilated shall lie external to it. The two blades being parallel, therefore locking easily, we must now tie the handles together firmly, or close them by the contrivance in my forceps, and draw down during the pains, or, if they are absent, by steady, even movements at intervals, in the axis successively of the brim, the cavity, and the outlet of the pelvis, as the head is passing through those parts

* See a case in the "Med.-Chir. Transactions," vol. xii. p. 308.

of the genital tube. During traction with the right hand, two or three fingers of our left hand should cover externally the purchase, and the others grasp the instrument close to it.

238. As, during these proceedings, the skull is compressed between the walls of the pelvis, more and more cerebral pulp escapes. Sometimes portions of bone break away; if so, by carefully observing the above precautions, we shall feel when the separation is about to take place, and must protect the vagina from injury. At the same time, any sharp margin of the skull should be kept well covered with scalp. The bone-forceps may, from time to time, be useful in removing any projecting spiculæ of bone.

239. These rules and precautions are all that will be required in most cases of craniotomy.* But should the contraction of the pelvis be so great as not even now to permit of the head passing, portions of the cranium must be detached as far as needful, rather than subject the mother to increased risks and suffering from forcible attempts to bring through the pelvic tube a child insufficiently reduced in size.

240. After this I have sometimes found difficulty

* I have not recommended the *Cephalotribe*, an instrument with thick blades, which crush the cranium by the action of a screw, or that of a rack, at the handle; because, in cases of great deformity, it is too bulky for use, and in other cases more simple means are sufficient for our purpose. As specimens of this instrument I may instance M. Baudelocque's, long known to us; Professor Braun's, of Vienna; and M. Pajot's, of Paris.—*Obstet. Transact.*, vol. vi. p. 76, pl. ii.

for want of a purchase. Dr. Oldham's crotchet fixed on the margin of the foramen magnum will sometimes here avail us, but I have had on two or three occasions, in common with other operators, to complete the delivery by version, as in the cases attended with Mr. Cooke and Mr. J. C. Day.*

241. The dangers of craniotomy deliveries, as they are represented by some writers, are, I am convinced, greatly the result of inattention to this important point, of adequately lessening the bulk of the head before resorting to extractive efforts. The operations are thus too often prolonged over many hours, to the serious injury—from contusion or even laceration—of the soft parts within the pelvis.

It was the practice of Dr. Osborn, after opening the head, to postpone extraction until after the lapse of some thirty hours,† so that the child might become softened by putrefaction. But this is a course which I cannot recommend, because the patient would thereby be exposed to additional evils inseparable from long suspense and endurance, as well as to those more serious hazards arising from absorption of putrescent matters into her circulating system.

* See also "Obstet. Med. and Surgery," by Dr. Ramsbotham, 4th edit., p. 811.

† Osborn's "Essays on Midwifery."

CHAPTER VIII.

FACE PRESENTATIONS.

242. A LABOUR in which the face is the presenting part occurs once in about 300 cases.

243. The face has sometimes been mistaken for the breech; but is readily distinguished from it by its peculiar features,—the nose, the eyes, orbits, the chin, the mouth, with the palate, tongue, and gums.

244. Presentations of the face are not so favourable for the child as those of the vertex, and this might have been anticipated from their occupying so completely the pelvic space, and from the unnatural direction in which the neck is forced, which must interfere considerably with the free return of blood from the cerebral vessels. These, indeed, were found much gorged in the examinations by Professors Naegelé and Chaussier of children still-born after face presentations.

245. They, nevertheless, are less dangerous as regards the life of the child than footling or breech labours, for reasons hereafter to be mentioned.

246. In face presentations we have to remember, that the *fronto-mental* diameter of the child's head occupies in the pelvis the place of the occipito-frontal diameter in vertex presentations, while the *line of the*

bridge of the nose corresponds to the sagittal suture in ordinary cranial presentations.

Positions and Progress of Face Presentations.

247. Just as in the case of the vertex, there are also four oblique positions of the face :—

1. *Two, the usual positions;* 2. two others, much less frequent positions.

248. (1.)—*In the first position* of the face, or that most commonly met with, the chin is turned towards the right sacro-iliac synchondrosis, the crown of the head and the anterior fontanelle are directed to the left acetabulum, the bridge of the nose lies in the right oblique diameter, the right eye and cheek are anterior most dependent and accessible to our taxis. This is also the part exhibiting the livid swelling with which the child is born, analogous to the caput succedaneum on the posterior superior quarter of the parietal bone in vertex cases.

249. As the labour proceeds, we may, with our index finger placed upon the anterior fontanelle, trace its rotation downwards and backwards, round the left side of the pelvis over the ischial plane towards the left sacro-iliac synchondrosis; and we shall be able also, when the pain retires, to follow the retrograde movement of that fontanelle upwards and forwards some part of the distance previously traversed, analogous to those alternating progressive and receding movements which occur with the forehead in vertex positions.

250. At this time the chin, which occupies the position of the occiput in a vertex presentation, may be felt to be gliding forwards, over the right ischial plane, from the right sacro-iliac synchondrosis to the right pubic ramus, on its way to the pubic arch.

251. (2.) *The second position of the face.*—Here the chin is turned to the left sacro-iliac synchondrosis, the crown of the head and anterior fontanelle are directed to the right acetabulum, the left eye and cheek are placed next to the pubes, and most dependent.

252. As the face descends under the pressure of the pains, the forehead glides over the right ischial plane, backwards to the right sacro-iliac synchondrosis; while the chin moves forward over the left ischial plane, passing behind the left ramus of the pubes to the pubic arch.

253. The normal terminations of both the first and second positions are, we thus see, identically the same; the chin glides forward to the pubic arch, as the occiput does in first and second vertex positions.

254. In both also of these face positions the chin is first expelled, the neck and chest then become fixed behind the pubic bones, while the forces of parturition, now acting strongly on the occiput, propel this downwards and forwards, sweepingly along the curved surface of the sacrum and perinæum, the mouth, nose, eyes, forehead, anterior fontanelle emerging in succession, while the occiput is the last part born.

255. It will be seen, that in these face presentations

the occiput makes the sweep of the perinæum, instead of the face in vertex cases.

256. I have spoken of the livid swelling on the right or left side of the face, occupying the region of the eye and of the soft parts on the malar bone; this is produced by the resistance of the os externum to the advance of the presentation.

257. Not, unfrequently, however, as the case progresses, the swelling becomes extended to the lower part of the face, involving the lips and nose, more especially on one side, occasioning considerable disfigurement of the features, for which the friends should be prepared, and informed that it will disappear in two or three days. But, perhaps, more satisfaction will be given if a simple evaporating lotion is prescribed for local application.

258. Now I may inform you, that the *first* and *second* positions of the face are believed to have been derived in many cases from original first and second vertex positions.

259. Thus if, in the *first* vertex position, the head becomes prematurely rolled, so to speak, on its transverse axis—in other words, extended from its original state of flexion—with the chin on the breast, the case resolves itself into the first position of the face, viz., with the chin against the right sacro-iliac synchondrosis.

260. So also in the *second* position of the vertex, if the rotation of the head on its transverse axis, and consequently its extension occurs before its due time,

which, as in the first position also, should not be till the occiput has become fixed behind the pubes, we obtain a *second* position of the face. Thus is explained how the first and second positions of the face may be looked upon as analogous to the first and second vertex positions.

261. This transition may be made intelligible to the student if he will imitate it for himself with a fœtal skull and a female pelvis. Then it will be easily comprehended how, if the actions of labour come to be exerted more strongly on the fore part of the head, instead of on the occiput, the former will be depressed in place of the latter, and a face presentation will ensue.

262. In a brow presentation more especially, the powers of parturition have a great tendency to convert it into a face presentation.

263. The *third* and *fourth* positions of the face are rare.

1. In the third the anterior fontanelle is directed obliquely backwards to the right sacro-iliac synchondrosis, the chin obliquely forwards to left acetabulum.

2. In the *fourth* position of the face, the anterior fontanelle looks to the left synchondrosis, the chin to the right acetabulum. These two positions may be looked upon as analogues of fourth and third vertex positions.

264. Usual as it s for the chin to be directed at first to the right or left sacro-iliac joint, it is very uncommon for the chin to descend posteriorly sweeping over the perinæum ; but Smellie records two cases,

in both of which he delivered by the forceps. Professor Braun gives two cases, one of which was terminated by nature, the other by the forceps; and Dr. Lee gives a drawing of this position in his published Lectures; while Dr. Ramsbotham, among his 162 cases, did not meet with a single instance. Recently one has occurred among the patients under my superintendence at the Middlesex Hospital, in a primipara, aged twenty-seven. The labour was one of eighteen hours, the child of average size, at full term, but decomposed. One also has occurred to my colleague in the Royal Maternity Charity, Dr. Hicks, who, after he had attempted without success to bring the chin to the front, delivered by the forceps, the child living.*

Treatment of Face Labours.

265. Notwithstanding that face labours are not so easy as vertex labours, since they require more time and stronger parturient efforts for their completion, experience has long taught the profession that it is, as a general rule, more prudent not to interfere with them, but to follow the original suggestion of Paul Portal, who, in 1685, advised their being left to the natural efforts. Deleurye, in France, in 1770; Boer, of Vienna, 1793; Dr. William Hunter, 1774; and Naegelé, in the present century, were also strenuous advocates of the practice of *non-interference*.

* Report of Obstet. Society, March; *Lancet*, May 13, 1865.

266. While, on the other hand, our distinguished countryman Smellie (1752), and the no less eminent Baudelocque (1781), as also Osiander, took an opposite view, and advised artificial delivery. They considered these presentations, especially mento-posterior positions, as most unfavourable; whereas, we of the present day know that these are in fact by far the most frequent positions, and, in nearly all cases, terminate with the chin to the front. In truth, those who, like Smellie and Baudelocque, counselled interference in mento-posterior positions of the face, did not wait to see what nature would do with these cases.

267. Their plan of proceeding was to introduce the hand around the head behind the pubes, before the discharge of the waters, in the absence of pain, and then to grasp the head, and endeavour to drag down the occiput. They thus sought to rectify the face presentation into one of the vertex.

268. These efforts failing—and we may infer they seldom if ever succeeded, they had recourse to the operation of *turning*.

269. Even within the last thirty years, version, as a first measure, has been recommended for some cases of this form of labour.

270. In the present day, however, that practice is, for the most part, abandoned. Indeed, except there should be any evident disproportion between the capacity of the pelvis and the size of the head, to be judged of as in a vertex presentation, or the pains

should be weak, or some accidental complication should arise in the labour, we shall act more wisely if we rely on the resources of nature, which experience has amply proved is more successful in these cases than art; while footling cases, into which it was proposed to convert them, it is acknowledged are far less favourable.

271. If, however, any of those untoward circumstances to which I have referred, should present themselves, we must then not hesitate to avail ourselves of such means of relieving our patient, as obstetric science has placed within our reach, acting in the particular way which our judgment may deem best in the case before us. Now, probably after the tractor has failed to bring down the vertex, we shall find the operation of turning, and performed if necessary under chloroform, the best mode of delivery.

272. Turning in certain cases of vertex presentations has so often, within the last few years, succeeded in saving the child's life, when the forceps had failed, and craniotomy would have been the only alternative, that we should be very reluctant to withhold from the child this chance in face cases. In resorting to it, however, we must always, at the same time, be careful to act tenderly in regard to the tissues of the mother.

273. The mode of turning which I would here recommend, however, as preferable to that of Ambrose Paré, from not requiring the introduction of the hand into the cavity of the uterus, is that combination of

external and internal manipulation first suggested and practised by my friend and colleague Dr. Braxton Hicks.* I have now adopted it in several cases, and find it not only practicable, but easy of accomplishment in a relaxed uterus, especially if the waters have not escaped; but I have succeeded also with it after the liquor amnii had passed away some hours before, provided the uterus was tolerably relaxed. Sometimes, when this relaxation has not been present, I have obtained it by submitting my patient to the influence of chloroform.

274. The method, as I have pursued it, is simply this: The patient, lying in her ordinary labour position, I apply the palm of my right hand over the fundus of the uterus, and feel for the bulging of the breech; I then press this down, and at the same time apply the tip of my left index finger, sometimes the points of the fore and middle finger together, against the head. I then press this upwards to the side to which the occiput is inclined, following it above the pubes externally, and, at the same time, depress the breech in the opposite direction. The head thus yields upwards, while the feet approach the os uteri, and are easily seized and brought down into the vagina; the version, in fact, is complete. We should now leave the case to end slowly as a footling case, otherwise, the head being brought down before the parts are sufficiently dilated, arrest of the head must

* See Turning in a Deformed Pelvis, p. 77.

occur, and our object in saving the child will be frustrated by pressure on the cord.

275. When the above simple plan has not been feasible, I have then, of necessity, fallen back upon Paré's method of turning, which, as I shall hereafter explain fully, necessitates the introduction of the entire hand within the uterus.

276. There are, however, cases which will not admit of such treatment, as when the face has descended too low for version; in that case, the forceps may sometimes be used successfully. These failing, craniotomy becomes our only resource.

277. In brow presentations we may sometimes, if we watch our opportunity, render a useful service at the moment when the waters escape. Thus, if at this period we exert pressure on the side of the brow with our fore and middle fingers, we may succeed in carrying this part upwards, and to its own side of the pelvis, and fixing it during a few pains, so that the forces of parturition being now concentrated upon the occiput, this may descend, and the case, from a brow presentation, become one of the vertex.

278. Although, as I have stated, these labours terminate favourably in the large majority of cases as regards both mother and child, they occupy, of necessity, a considerable time, and the patient will therefore stand in need, from us, of every encouragement and assurance, while our principal professional duty will consist, when required, in guiding the chin forwards to the pubic arch.

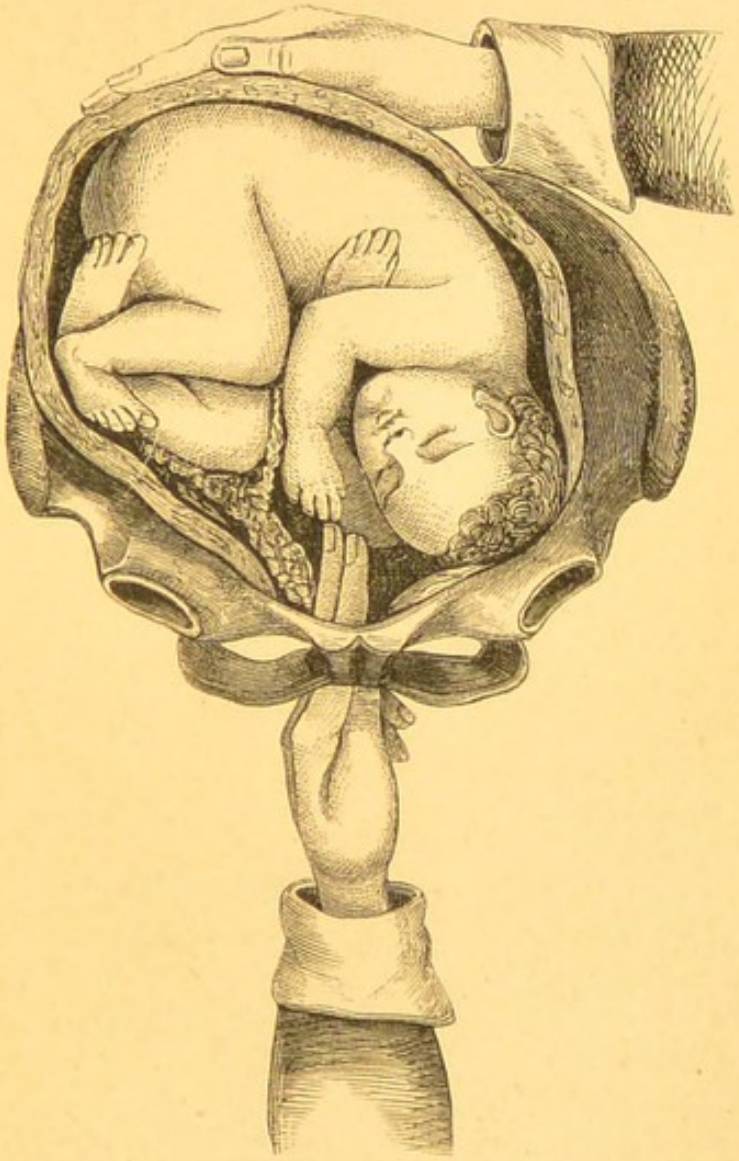
Fig. VI.

First Stage of "Bimanual Version."

(Obstet. Transact. p. 223.)

Opposite p. 110.

Fig. VII.



Second Stage of "Bimanual Version."

Opposite p. 110.

Fig. VIII.

THIRD STAGE OF "BIMANUAL VERSION."

Opposite p. 110.

279. *Ear presentations* are of very rare occurrence, and many obstetric authorities and published statistics omit all mention of them. Only one case occurred in the district of the Royal Maternity Charity under my care between 1842 and 1864, in 13,782 deliveries; and in the eighteen previous years, under my father and predecessor, only one case of this presentation was met with.

In ear presentations the head is inclined sideways against one shoulder, so that one ear looks upwards towards the uterine cavity, the other presents.

280. *Treatment.*—Turning has been recommended for these cases; but it should not be resorted to until every effort has been exhausted in attempting to bring down the vertex, by the application of a strongly curved tractor (vectis) over the occiput behind the superior ear. Should we succeed in this operation, nature may then be expected to complete the birth; if not, the forceps may be resorted to. The tractor or the forceps disappointing us, we may then, if practicable, resort to turning; but if not possible, the only treatment left will be craniotomy.

II. *Preternatural Presentations.*

281. This term is technically applied to all simple or uncomplicated presentations of the child, excepting that of the head.

They are divisible into two orders :—

282.—I. *Pelvic Presentations,* consisting of the

breech, feet, knees, which are born as they offer themselves at the orifice of the uterus, and with little or no assistance from art, except in difficult or complex labours.

283.—II. *Transverse* or *Cross Presentations,* in which the child lies across the brim of the pelvis. These, if the child has reached its full development, or nearly so, and the pelvis is of standard dimensions, cannot be delivered even under the most favourable circumstances attainable, except by the operation of "version" or "turning."

284. There are some general remarks applicable to all the varieties of preternatural labour, which first merit our attention.

1. Some women are liable to repeated, or even successive preternatural labours; and the liability has sometimes been hereditary.

2. In all the labours of this class the head is the last part born.

3. There is increased danger to the child from the last circumstance, arising from the unavoidable exposure of the vessels of the umbilical cord to more or less pressure between the head of the child and the walls of the pelvic canal during the birth.

285.—4. Hence, an important part of our duty will be directed to a diminution of this pressure on the vessels of the funis:—*Firstly,* by preserving the bag of waters uninjured as long as possible; *secondly,* by allowing the labour in pelvic presentations to proceed

up to a certain point as slowly as it will without interference, after the waters have escaped. Thus does the genital passage become more perfectly dilated and relaxed by the time of the head's descent; and so the probability of its being arrested, and causing fatal pressure on the cord, is greatly lessened.

286. The labours of the second order, comprehending cross births, are more dangerous to the child, by reason of greater pressure being made upon the cord.

287. They, moreover, involve the performance on the mother of an operation of much importance, requiring considerable skill and care—that of "version."

1. Breech Labours.

288. The breech presents once in about sixty labours. It is readily distinguished from the face—with which it has sometimes been confounded—by the genitals and the anus.

Positions of the Breech.

289. The breech presents in *four* different positions; but these may be ranged under two primary divisions:—

I. *Abdomino-posterior Positions.*

1. The abdominal surfaces of the child are turned backwards to the right sacro-iliac synchondrosis.
2. The abdomen of the child looks backwards to the left synchondrosis.

II. *Abdomino-anterior Positions.*

1. The abdominal surfaces of the child are turned forwards to the left acetabulum.
2. The child's abdomen is directed forwards to the right acetabulum.

290.—1. *First abdomino-posterior position: its details.*—The front surfaces of the child are here turned obliquely backwards to the right sacro-iliac synchondrosis, while the back of the child looks obliquely forwards to the left acetabulum. The transverse diameter of the child's pelvis lies in the left oblique diameter of the maternal pelvis; its left hip is felt behind the right acetabulum; its right hip is apposed to the left sacro-iliac synchondrosis. The cleft of the nates lies parallel to the right oblique diameter, usually bisecting the ring of the os uteri, somewhat behind that diameter; the left buttock, which is to the front and most dependent, is encircled by the os uteri till this aperture becomes fully obliterated; the left nates is, in fact, the presenting part, and exhibits a more or less considerable livid swelling, especially in cases of long detention.

291. *Progress.*—As the case proceeds, the left hip is still in advance, lowest in the pelvis, and continues directed obliquely forwards and to the right cotyloid district.

292. With the further descent of the presentation, however, it is believed by most obstetric authorities that a rotation takes place, as in head presentations;

viz., that the left hip glides round to the pubic arch, and when the shoulders, which enter the brim in the left oblique diameter, descend to the same point, the left shoulder also rotates to the pubic arch; and so the hips and the shoulders successively make their exit from the pelvis, with their long diameters in the direction of the sacro-pubic or long diameter of the pelvic outlet.

293. Naegelé and his followers deny this, and affirm that the exit takes place obliquely. For my own part, I may say that I have often seen these cases make their exit obliquely, as Naegelé maintains they do; but much more frequently, as we might have anticipated, I have seen them pass out with the long measurements of the hip and shoulders of the child and that of the pelvic outlet of the mother in correspondence.

294. Now, it should be noted that the hip in front, the left in this, the first position, before it passes out, becomes fixed under the pubic arch, while the child's spine is curved laterally, so as to be moulded into the line of the pelvic axis. The right hip then sweeps downwards and forwards along the curve of the sacrum and perinæum, while the pelvis of the child undergoes a rotation on its antero-posterior axis, as the head does on its transverse axis, when the face is rotating over the same surface.

295. When the breech has escaped, the child's abdomen looks to the inner and posterior part of the mother's right thigh. The legs then become gradually unfolded as the case advances. As the chest of the

child approaches the pelvic outlet, the shoulders pass through the inlet of the pelvis in its left oblique diameter.

296. Now if we have attended to the good rule of applying no traction up to this point, the arms will usually descend in close application with the front of the chest; but otherwise they will remain up, and require to be brought down at this point, as I shall presently explain.

297. The next step in the progress of the case is the passage of the head through the inlet of the pelvis. The long diameter of the head now lies in the right oblique diameter of the pelvic brim, or, more strictly, obliquely to it, from above downwards, while the face looks to the right sacro-iliac joint; the chin is depressed on the breast, that is to say, if we have abstained from traction, and the pains have exerted a proper force upon the fore part of the head. By this arrangement the shortest diameter of the head, which can be taken from before backwards—namely, from below the occipital protuberance to about the situation of the anterior fontanelle (sub-occipito bregmatic)—is opposed to the long diameter of the brim; thus is the transit easily accomplished.

298. Now when the head has descended below the sacral promontory, the face rotates into the hollow of the sacrum.

299. The shoulders emerge as follows:—The left shoulder is first engaged in the pelvic outlet, while the right shoulder sweeps over the perinæum.

300. The final change in the case now takes place, and consists of the rotation of the head on its transverse or bi-parietal axis; the occiput becomes fixed against the pubic arch, and the face from the chin upwards, then the arch of the cranium, sweep successively over the perinæum and emerge. Lastly, the occiput is directly pushed out by the elastic reaction of the vaginal walls, and the birth of the child is complete.

301.—2. *Second abdomino-posterior position: its details.*—Here the abdominal aspect of the child looks to the left sacro-iliac synchondrosis. The breech enters the brim with the right hip to left acetabulum.

302. *Progress.*—This hip, as the labour proceeds, is rotated to the pubic arch, while the left hip glides from the right synchondrosis into the hollow of the sacrum. Now, while the right hip is fixed behind the apex of the pubic arch, the left sweeps over the perinæum.

303. The transverse measurement of the shoulders at this time is passing in the right oblique diameter of the pelvic brim, and as they descend with the arms normally down by the side, the right shoulder comes to the front, becomes fixed behind the pubic arch, and the left shoulder sweeps the perinæum, as the left hip had done before it.

304. In the next place, the face is rotated from left synchondrosis into the hollow of the sacrum, the head having with its long diameter previously occupied the left oblique diameter of the pelvic brim.

305. Now commences and advances, with each succeeding pain, the rotation of the head on its transverse axis, the occiput, in the mean time, being fixed at the pubic arch, while the face followed by the arch of the cranium sweeps outwards over the perinæal curve, as in the first abdomino-posterior position.

306. In conclusion, the occiput is forced outwards by the elastic recoil of the vaginal wall and perinæum, previously put to their full stretch by the widest part of the head in its rotation outwards.

307.—3. *First abdomino-anterior position: its details.*—The abdomen of the child here looks to the right acetabulum, its back to the left sacro-iliac synchondrosis; the long, or transverse diameter of the child's pelvis, lies in the right oblique diameter of the mother's pelvis; the left hip is turned to the left acetabulum, the right hip to the right sacro-iliac junction. The left hip being anterior, is most dependent—in other words, presents.

308. *Progress.*—When the body of the child, as far as the shoulders, has cleared the vulva, the front surfaces of the child look to the right groin. The left shoulder is fixed behind the pubes, the right sweeps over the perinæum.

309. As the head descends, the face rotates from the right acetabulum to the right sacro-iliac joint, and is finally placed by the natural efforts in the hollow of the sacrum.

310. At the same time with this rotation of the head, the trunk, on its expulsion, undergoes a similar

rotation, so that its front surfaces look to the inner and back part of the right thigh.

311. The head passes out as in the *first* and *second*, or abdomino-posterior positions.

312.—4. *The second abdomino-anterior position : its details.*—The front surfaces of the child here look to the left acetabulum; the transverse diameter of the child's pelvis lies in the left oblique diameter of its mother's pelvis; the right hip is anterior, lowest, and presenting. The head, with its occipito-frontal diameter, lies in the right oblique diameter of the pelvis, the face obliquely forwards, and to the left acetabulum.

313. *Progress.*—The trunk of the child descends, and escapes at the outlet nearly in the same position as that in which it passed the brim of the pelvis. When the head is lodged in the cavity of the pelvis, the face is rotated backwards from left acetabulum to left sacro-iliac joint, and finally into the hollow of the sacrum; it then progresses, and makes its exit by rotation of the face over the perinæum, as I have described in the first and second abdomino-posterior positions.

314. Professor Naegelé describes two exceptional changes in these two abdomino-anterior positions, but he has only met with it in the case of a premature small child—as a twin, for instance. The front surfaces of the child are here suddenly, during a single pain, so completely rotated, that the abdomen from looking to the left acetabulum (fourth position), is

finally turned to the sacro-iliac joint of the right or opposite side of the pelvis, as in the first position; and in the third breech position, the abdomen, from looking to the right acetabulum, turns in this irregular course, similarly, to the left synchondrosal joint.

315. That professor also mentions another irregularity in breech presentations worthy of notice, viz., where the head descends in a state of extension, with the occiput applied to the back of the neck, instead of the chin being pressed upon the breast. In this case the vertex is rotated backwards into the hollow of the sacrum, the under surface of the lower jaw is brought into contact with the symphysis pubis, while the occiput sweeps over the perinæum, followed successively by the vault of the cranium, the forehead, and the face, which escapes last, instead of the occiput in the ordinary way.

316. Might not this irregular course be sometimes produced by premature traction, where the chin is to the front, by which it would be thrown up, and the vertex displaced into the sacral hollow.

Management of Breech Labours.

317. Breech births are very tedious, and it is an axiom in these labours, as in footling cases, next to be considered, not to hasten them, since by slow progress the parts become more satisfactorily dilated for the subsequent transit of the head, and so the child's life is less likely to be endangered by arrest of the head

and pressure on the cord, than with such interference. For the same reason, it is most important that the bag of waters should be left entire as long as possible, as being the most efficient dilator of the genital tube. It is a point in obstetric history, that Dr. William Hunter in the early part of his practice brought down the legs when the breech presented; but subsequent experience proved to him that it was unnecessary to do so—nay, injurious; he subsequently, therefore, as he informed the profession, abstained from this interference, and saved more children in consequence.

318. Should there be any undue delay in the advance to the pubic arch of the presenting nates as the breech descends, we may gently guide it there at the proper time.

319. It has been proposed, however, to assist these cases by the use of a steel blunt hook, when after some hours the breech does not advance; but better than this is the finger, or a length of ribbon, or a silk handkerchief insinuated round the flexure of the thigh at the groin. In this way the presenting nates may, without injury, be brought down in cases of inertia of the uterus, or where there exists some disproportion between the capacity of the pelvis and the size of the child.

320. If, excepting in cases of proved difficulty, after the lapse of many hours' labour, we apply any traction, we shall not only cause subsequent arrest of the head, as I have just explained, and so most probably sacri-

fice the child, but we shall occasion another evil, which will further help to delay the head's transit.

321. That difficulty is the ascent of the chin, so that it becomes separated from the child's breast; thus an interval of space is left, into which the arms glide; the consequence is, that they fail to descend with the trunk, as they properly should do, and slip up by the side of the head, adding to its bulk. The arrest of the head for a time at least becomes then certain, and the circulation in the cord is further endangered; avoid, therefore, this error.

322. It may be necessary, however, before this period to take steps for the safety of the vessels of the cord; thus, if when the navel appears externally we find the cord beating feebly, we should pull a loop down gently, to give it more room, then slip the cord into the hollow at the nearest sacro-iliac joint.

323. Then when the shoulders come, assist their rotation if necessary, bringing the more anterior one to the front, the more posterior shoulder to the perinæum; if the arms are down, we should remain passive; if elevated, we must bring them down, one by one, before the head engages; the perinæal arm first, but very gently, with the fore finger hooked over the shoulder from behind, and passed to the front of the elbow; we then lower them sweepingly over the face and front of the child's breast.

324. If, on the contrary, we bring them down abruptly and vertically, we shall be sure to fracture them—an injury which has occasionally happened.

325. When called on to interfere in this way, we must be very careful of the perinæum, in bringing down the posterior arm; it should be done, therefore, slowly and sweepingly, as I have explained. Want of attention to this, and hurrying out the passage of the shoulders without regard to the axis of the outlet, has been a cause of perinæal rupture.

326. Should the pains be unduly violent at this point, we should relieve the perniæum from tension, and so guard it from injury by pressing the shoulders upwards and forwards towards the pubes.

327. On no account also is the perinæum to be exposed to any pressure from without, so called "support" here, any more than in vertex presentations; and for the reason there given.

328. Our next duty will be to watch the descent of the head. Now, if traction has not been resorted to, the parturient pressure will have been exerted on the fore part of the child's head, and kept the chin in close apposition with the breast. In that case the head will descend in the most favourable position; namely, with its sub-occipito bregmatic diameter, or shortest antero-posterior measurement, in the long diameter of the pelvic brim.

329. But if, unfortunately, this normal course has been departed from, and the chin has consequently ascended, the head will then be attempting the passage most inconveniently, its longest diameter opposed to the brim of the pelvis, and greatly to the danger of the child.

330. The error may usually, however, be rectified as follows:—Let us place two fingers of our left hand upon the lower jaw, and depress it firmly, but not violently, on the breast; apply the palm of the same hand against the chest and abdomen, the remaining fingers on the shoulder; next apply the points of the index and middle fingers against the occiput, to press it upwards, while we press down the chin with the fingers of the left hand. The palm of the right hand is to be placed against the back, the fingers as yet at liberty in the armpit. In this way we have considerable power in lowering the head, which we must maintain in the oblique pelvic diameter till the sacral promontory is passed; next rotate the face into the hollow of the sacrum, when nature will usually, with or without a little judicious assistance, effect the desired rotation of the face outwards and forwards over the perinæum, which we must carefully guard.

331. It occasionally happens that this manual traction fails to bring the head through the pelvis, and we may be warned of the child's great danger by its convulsively twitching, which is, in fact, a spasmodic attempt at inspiration. Here we should lose no time in delivering immediately, manually if possible, with the above purchase on the head, or, if necessary, by the forceps. As in all preternatural labours, we should have a warm bath, and cold water also, in readiness, lest they should be wanted for the resuscitation of the child.

332. In abdomino-anterior positions, the front sur-

faces of the child are normally rotated towards the nearest sacro-iliac joint, as we have seen; but if not, we must guard against the child's descent with the face to the front, as a fatal arrest of the head is sure to result. When, therefore, the breech has escaped, give the trunk the required direction, so that the face shall look obliquely backwards in its descent, corresponding to the nearest synchondrosal joint. The danger to the child in breech cases is well shown in the large mortality of one in three due to pressure on the vessels of the umbilical cord.

2. Footling Presentations.

333. A *footling presentation* occurs once in about 108 labours, deduced from 71,578 deliveries; while *knee cases* are extremely rare.

334. The positions of the child in footling and knee presentations are the same as in breech presentations, the front surfaces either looking backwards to the right or left sacro-iliac synchondrosis, or forwards to right or left acetabulum; and the several parts of the child's body in a normal way undergo the same rotation, at least when not softened by decomposition.

335. The feet are distinguished from the hand at the os uteri by the short digits, and their being nearly even and by the presence of the heel. The great toe lies closely to the other toes; whereas the thumb is opposed to the other digits on the hand, which also is in the same line with the upper part of the limb, while the foot is

at right angles. The knee must be distinguished from the elbow, which sometimes presents. The knee offers a larger surface comparatively than the elbow; in the latter we feel the sharp points of the olecranon between the two condyles of the humerus. In the knee, on the contrary, we find a depression with a tuberosity on each side, and the foot may possibly be felt not far off.

336. *Treatment.*—It is still more necessary in footling cases to enforce the importance of slow progress in the early part of the second stage of these labours, since the feet are less favourable dilators of the genital tube than the breech. We must also be careful to keep the bag of waters entire in these labours, in which, by the bye, they assume a finger-like shape over the presentation. The feet have presented a very tempting handle to ignorant midwives, who have accordingly applied traction, thinking to hasten the end of the labour: the result has been the loss of the child by pressure on the vessels of the cord.

337. The *knees* require a special remark; viz., they are not to be unfolded, and for two reasons: firstly, they are better dilators than the feet, although not so advantageous as the breech; secondly, we shall incur the risk of fracturing the leg if we unfold the limb, and this injury is reported to have been actually produced on several occasions.

Obstructed Labours in Breech and Footling Presentations.

I have spoken of labours under cranial presentations requiring instrumental aid; and now let me speak of difficulties from different causes of obstruction in breech and footling labours.

338. As in head presentations, so here in pelvic presentations, labour may be obstructed by a contracted pelvis; or by rigidities of the os uteri, vagina, or perinæum; or by a large or hydrocephalic child, or where its head is unusually ossified, its chest or abdomen distended by gas, or by serous effusions.

339. *Treatment.*—In cases of rigidity the remedies before advised for such conditions are to be employed, as mentioned under head presentations; and here is it more especially important that the early descent of the child should take place very gradually.

The pelvis being small, or the head large or much ossified, we have then to perform craniotomy. The perforator in this form of the operation must be passed in behind the ear. If the head is enlarged by dropsical effusion, draining this off will suffice for the delivery, in nearly every case. If the head is otherwise large or much ossified, or the pelvis small, the escape of the cerebral matter must be promoted through an adequate opening. In two instances, the soft parts being swollen, and fearing to injure the mother, I found it necessary to bisect the neck. This I effected with Smellie's scissors, carefully surround-

ing the neck with my fingers; the process was thus shortened; and so I delivered the body, and subsequently extracted the head without difficulty.

The chest may require perforation, and also the abdomen; and sometimes I have been called to cases where the parts have been so large that a purchase on the trunk of the child, and its compression by a pair of embryotomy forceps, have been necessary.

340. In footling labours it is estimated that one-half of the children are still-born; but probably this is, for the most part, due to unnecessary interference.

3. Transverse Presentations.

341. In the two forms of labour hitherto considered, in which the head in the one case, and the pelvis in the other, presented, the uterus preserves pretty accurately its ovoid figure. In *transverse presentations* however, now to be described, where the child lies across the uterus and the pelvic brim, that ovoid outline of the uterus is no longer maintained; the organ, in fact, is extended somewhat transversely, and a corresponding shape is communicated to the abdomen, with a bulging on one side corresponding to the head, which is the more inferior, and one on the other side, answering to the breech, which is more elevated. If we should have the opportunity of making a vaginal examination, the absence of the head at the neck of the uterus will excite some suspicion, but only to the inference that the case is preternatural;

but then the above abdominal inquiry, supplemented by percussion and auscultation, will further enlighten us as to the kind of preternatural labour we shall have to deal with.

Supposed Causes of Cross Births.

342.—1. The form of the uterus, as in cases where, from want of tonicity or irregular contraction, it does not preserve its ovoid figure. It is well known that transverse presentations are very rare in primiparæ, in whom the tonicity of the uterus is in good condition; its contractions uniform.

2. Irregular contraction from severe spasmodic pain of the abdomen may have some influence, some parts of the uterus being contracted, others relaxed. Professor Naegelé gives a case in point. He attended a lady in her sixth pregnancy, who, in five previous confinements, had arm or shoulder presentations, and on each occasion before labour had severe cramp-like pain. He ordered her, in consequence, every night a starch enema, with twelve drops of laudanum, till the symptoms ceased to recur. The treatment succeeded, and he had the satisfaction of delivering her at full term of a living child, by a natural presentation.

3. A large quantity of liquor amnii may very obviously be a cause admitting of more free motion of the child.

4. Death and decomposition and prematurity of the fœtus.

5. Obliquity of the uterus, although believed in by some, may be doubted as a cause. A certain degree of obliquity of the uterus is a very usual position of the organ in the latter months of pregnancy; and yet how rarely, comparatively, do cross births occur.

6. A contracted pelvic brim is also enumerated as a cause, and it may sometimes operate; yet how seldom, in obstructed labours from a small pelvic brim, do we meet with other than a head presentation. And fortunately it is so, for the difficulty of a delivery under such circumstances would be greatly increased.

7. A twin labour has been supposed to favour a *cross presentation*. Here one child may present by the head or breech, the other by the arm. Sometimes, but more rarely, each fœtus has presented an arm.

Frequency and Varieties of Cross Births.

343. Transverse presentations, or cross births, occurred in my district of the Royal Maternity Charity, 1 in every 284 cases of labour. They include presentations of certain parts situated between the head and the breech; they embrace mainly the shoulder and the arm. Other varieties have been mentioned, as the side, breast, belly, back, the nape; but so rare are these as to be absent from tables containing many thousand deliveries. Dr. Merriman and his uncle, in 20,000 labours, never met with other than arm and

shoulder in cross presentations. I find, excepting one *back*, and one *side*, no other instance of cross birth than arm and shoulder in the records from my district of the Royal Maternity Charity, of 13,783 deliveries; nor in my private or consultation practice. Dr. Lee in his published Lectures records 71 cases of shoulder or arm, not one of the other varieties. Giffard, however, gave in his Collection (cases 77, 142, 192) three back presentations; while Dr. Ramsbotham records two cases of belly presentation.

344. *Arm and shoulder* presentations will now engage our sole attention, as the other varieties admit of similar treatment.

There are two general positions of the arm and the shoulder; the *first* with the child's back turned to the mother's abdomen; the *second* in which the child's abdomen looks to the front of the mother; the former being to the latter in frequency as two to one. In each of these two positions, however, we may meet with the head directed either to the right or left of the mother's pelvis.

345. These cases not relieved by art, but left to nature, will, in labours at full term, eventually result in the death of the mother. The fatal termination arises from contusion of the parts ending in gangrene and exhaustion, or after long and painful suffering from peritonitis. Rupture of the uterus is another mode of death in this form of obstructed labour, when not timely relieved.

346. There is, however, a natural mode of delivery

which happens in very rare cases; namely, that by spontaneous expulsion, so-called "spontaneous evolution," which occurs when the pelvis has been large or the child small. But so exceedingly unfrequent is this kind of birth, as never to be counted upon, nor waited for. I have, on two or three occasions, witnessed nature's proceeding in these cases; but here the patient had not been allowed to be very long in labour, and the delivery was going on easily in the way which I shall now explain, and so terminated safely to the mother. In each case, however, the child was dead, which accords with the experience of others; while the danger to the mother from inflammation, contusion, and great risk of an uterine rupture being produced, is very great, should delivery by art be too long postponed.

Spontaneous Evolution—Spontaneous Expulsion.

347. In these cases the arm is found protruded beyond the vulva before the process commences, and is generally more or less swollen and livid from previous impaction. The shoulder occupies the pubic arch; the acromion is directed towards the mons veneris.

348. The change which ensues is as follows: the side of the chest succeeded by the side of the abdomen is pushed downwards into the posterior chamber of the pelvis. Now, while the shoulder rests against the pubes, the chest and abdomen, followed by the nates, pass sweepingly over the sacrum and perinæum; the

arm and shoulder, the head and the rest of the child being then pushed out in one mass.

This was the explanation of Dr. Douglas in 1811, who termed the process "the spontaneous expulsion," and accords fully with what others have observed.

349. But Dr. Denman, in 1772, had given a different version; he gave the presentation similarly, but he described the arm and shoulder as receding into the uterus before the descent of the body and breech took place. He believed, in fact, that "an evolution," a rotation of the child on its short axis, actually occurred.

Dr. Douglas contended that Dr. Denman's view was incorrect, and that, in fact, the account which I have given above, in which the arm remains *in statu quo* instead of receding, as Denman described, is the only true one. Dr. Gooch and other authorities of that day confirmed the doctrine of Douglas.

350. It is not improbable, however, that both observers were correct in the description of their own respective cases, and this appears the more likely, since Boër, of Vienna, in his "Natürliche Geburtshülfe," and Mr. Barlow have each recorded cases very similar to those of Denman.

351. Now, although in this mal-presentation, this natural expulsion has in rare instances occurred, where otherwise embryotomy must have been performed, yet we are not by any means to regulate our conduct by such exceptional events. For we must remember that the child has always been destroyed

in spontaneous delivery, by the violence of the pressure to which its circulation has been exposed, and the danger and suffering to the mother is much too great to justify any delay.

Treatment of Transverse Presentations.

352. Cross births can, therefore, only be satisfactorily treated by the operation of *turning* and delivery by the feet resorted to in seasonable time.

353. It is important, that we should endeavour to undertake that operation before the escape of the waters of the ovum, so soon indeed as the os uteri will permit of the introduction of the hand, or fingers, as the necessity may be. If we make proper use of external and internal manipulation in the absence of pain, we may possibly succeed with the examining finger on the presentation in raising the shoulder and with it the head, while depressing the breech with the hand applied over the abdomen. The feet may then be brought to the orifice of the uterus, and into the vagina; while the child may be left, for greater safety, to come down slowly as an original footling.

354. This manœuvre failing, we must then adopt Paré's method, and introduce the entire hand into the uterus by the side of the arm or shoulder, and grasp the feet and draw them down, when the turning will be most easily accomplished, since the version is effected while the child is still surrounded by the amnion fluid.

Here also, as in the "bimanual method" of Dr.

Hicks, the external use of the hand to steady the uterus and depress the breech will very considerably aid our object.

355. But suppose the waters have already escaped, even then, if the uterus is yet passive and relaxed, we may nevertheless be able to turn the child with tolerable ease, by one or the other of the methods above described.

356. Let us instance, however, a case, where the waters have long escaped, and the uterus is strongly contracted on the body of the child, so as to wedge it firmly in the pelvic brim, even here by very slow and cautious manipulation, passing the hand up little by little by the side of the presentation, and grasping the feet by a flat-handed purchase, so as to avoid injuring the uterus by the knuckles, version has been possible.

357. Should we be foiled in our purpose, we may, as a last resource, endeavour *to relax the uterus* by various remedies. Formerly bleeding and opium were resorted to for this purpose, but in the present day a general preference is given to chloroform, where the patient's constitution admits of its exhibition,—since, while it relaxes the muscles, in most cases it also annuls the patient's suffering.

358. I have on more than one occasion been called to cross births, where the liquor amnii had escaped some hours, where repeated attempts had been made to turn, and embryotomy had been contemplated as unavoidable. I have resorted to chloroform; the

version has then proved easy, and the child has been saved.

359. Where the arm has descended, we take this as our guide into the uterus, and by the direction of the palm we at once know whether the abdomen and limbs of the child are to the back or front of the mother. In the former case, the patient lying on her left side, we shall find the *left* hand the most convenient; in the latter the *right* hand. It may, however, happen, as I have sometimes observed, that even chloroform fails altogether to relax the contracted uterus. In such case we must of necessity deliver by embryotomy, and without further loss of time, as otherwise the mother will be in danger of rupture of the uterus, of peritonitis, or of sinking from sheer exhaustion. But of this operation I shall have to treat hereafter.

CHAPTER IX.

THE CÆSAREAN OPERATION.

360. This operation consists in making a section through the abdominal wall, usually in the middle line and through the uterine parietes, and so, when the child is brought into view, removing it with the placenta, membranes, and blood-clots; then closing the wound with sutures and proper surgical appliances.

361. It appears to be in itself, as compared with some cases of ovariotomy, really a very simple operation; but, although simple, it has proved a very dangerous one.

The deaths are found to arise in different cases from shock, hæmorrhage, and inflammation, and at the lowest estimate, the mortality in this country, according to Dr. West's analysis, has been 83·6 per cent. *Fifty-five* cases died of inflammation between the second and twentieth day, and one after that time. The deaths from shock to the nervous system were *thirty-three* at various periods within six days after.

In the remaining forty-four cases the fatal result occurred from the combined effects of hæmorrhage, shock, and inflammation.

In a note on my concluding page on craniotomy, I

have referred to Dr. Radford's recent essay, in which he advocates the more frequent performance of the operation; but I cannot assent to all his suggestions on this point; nor do I think he will find any patient so willing to undergo this severe operation as he imagines, so long as there is any possibility of the delivery of her child through the genital canal.

362. There are some cases, I believe, in which we should doubtless be justified in resorting to the operation soon after the declaration of labour, when, for instance, the antero-posterior diameter does not exceed an inch or an inch and a quarter, and it would be more humane to the patient to perform it, and less hazardous than a craniotomy operation performed under such extreme circumstances; as also in all cases where, in consequence of the extreme pelvic contraction, we cannot, after repeated endeavours, reach the os uteri, much less the presenting part of the child.

363. The greater fatality of this operation in Great Britain as compared with the results on the Continent is probably due to the long endurance of suffering and local mischief, which has existed before the operation has been determined upon; whereas on the Continent they have performed it, before any constitutional disturbance has taken place.

364. When once we have satisfied ourselves by a proper examination of the pelvis, that no hope exists for the patient but in the Cæsarean operation, there can be no sense in delay; on the contrary, it should be had recourse to then in proper time to be of possible

service in saving the mother, as well as beneficial in rescuing the child.

365. I have more than once delivered a child by embryotomy through a pelvis of one and a half inch, and the patients had good recoveries. I should not, therefore, in such a pelvis, if I could reach the presentation and act upon it, for a moment hesitate between craniotomy and the Cæsarean section, but resort at once to the former.

366. Again, when a patient has died suddenly, or otherwise during the latter part of pregnancy, or during labour, there is no doubt that the Cæsarean operation should be performed, if we know or suspect the child to be living. In cases of ruptured uterus, where the orifice is closed, the above operation is indicated, as also in some cases of extra uterine fœtation, where the mother's life is threatened by irritative fever from the presence of the fœtus.

367. It has been found that patients operated on by the Cæsarean section in the country recover more frequently than those in large cities and towns. We should avail ourselves, therefore, of this knowledge, and secure, where we have the choice, as airy a situation as possible for our patient. Much the same precautions as to the temperature of the room, &c., must be observed as in ovariotomy. Chloroform, if tolerated, should be given to save shock and suffering. Every care should be observed not to injure the intestines. And the placental site, as made out by auscultation, should be

avoided, as that part of the uterus, if cut through, would bleed more copiously than other parts.

368. The length of the incision, which is usually in the linea alba, should be from eight to ten inches, and that in the uterus about the same extent, or a little less.

369. When the amnion membrane is opened, the waters should be carefully taken up by a syringe or a soft new sponge, so that it shall not enter the peritoneal cavity. The child is then to be removed, its cord tied and divided; and the placenta then carefully detached at once and brought away, and all blood cleared out of the uterus or peritoneal cavity by sponging. No suture should be applied to the uterus, its contractions being quite sufficient to close the wound, while sutures through its walls would be exceedingly hazardous.

370. Silver sutures should be used to close the wound in the abdominal wall, with the addition of wet lint and a many-tailed bandage.

371. After the operation, a tolerably full dose of opium should be given, with smaller doses repeated at intervals, as needful to keep the patient under its influence. Nutriment and stimulants must also be given as frequently as indicated, and the general treatment throughout adapted to the symptoms, and conducted on the general principles appertaining to good surgical after-treatment.

CHAPTER X.

ADMINISTRATION OF CHLOROFORM IN PARTURITION.

372. The introduction of chloroform into the practice of midwifery has constituted an important era in the progress of the obstetric art. But it was not to be expected that an agent which exerts so great a power over the vital functions, one requiring for its safe exhibition such especial care, should be accepted at once without considerable hesitation. Careful experience, however, has since fully proved that it may be given to most patients with perfect safety, under certain restrictions, and provided we exclude all cases where we have proof of such disease of the thoracic organ being present, as would render its exhibition in the least degree hazardous. We should administer it slowly, and with a due admixture of atmospheric air. Hence the apparatus, or the handkerchief, &c., upon which it is given, should be held not nearer than an inch and a half or two inches from the mouth of the patient.

373. In my own practice I have seen no fatal results from the exhibition of chloroform, nor have I seen any inconvenient effects from its employment, where it has been given for a short time only, as in opera-

tive deliveries, and for the removal of rigidities of the maternal tissues.

I have, on one or two occasions, substituted ether for chloroform; but it was by no means so efficient.

374. In cases where extraordinary care is required, we may resort to a combination which readily blends together, of—

Alcohol	... ...	1 part, sp. gr. 838
Ether	... ...	3 parts, sp. gr. 1497
Chloroform	...	2 parts, sp. gr. 735

proposed several years ago, and employed by Dr. George Harley.—*Med. Chir. Trans.*, vol. xlvii. p. 341.

375. But I have found Mr. Clover's plan of administering chloroform, combined with a known quantity of atmospheric air, a particularly safe one. That gentleman has kindly favoured me with the following written particulars (May 25, 1865) :—

"My inhaler consists of a bag, capable of holding 7,000 cubic inches of air, and a tube, one inch in diameter, leading from it to the face-piece, which has, in addition to the valves for preventing the respired air passing back into the bag, a sliding door, by regulating which the mixed atmosphere of chloroform and air in the bag is diluted to any extent.

The bag is charged by means of a bellows, which measures 1,000 cubic inches, and forces it through a vessel arranged for evaporating the chloroform into the tube.

Each time the bellows are worked with the *left hand*, 32½ minims of chloroform are measured with the right hand by means of a syringe, capable of containing only that quantity, and supplied to the evaporating vessel.

As soon as sufficient has passed into the bag, the tube is removed from the evaporator, and the face-piece applied.

The bellows, &c., should be left at a side-table, in case the operation should last more than half an hour, and the bag require to be supplied with one or two more bellows-full of the mixture.

The mixed atmosphere consists of an uniform mixture of 3¼ minims of chloroform = 3·73 cubic inches of chloroform vapour with each 100 cubic inches of air.

The patient is certain not to get a stronger dose than this; but the administrator may make it as weak as he pleases, by opening the regulator in the face-piece."

376. The primary effect of chloroform on the circulating and nervous systems is that of a stimulant. The pulse at first is accelerated and fuller; it subsequently becomes slower than natural, and less in volume; and if the dose of the vapour is carried beyond the proper limits for the particular patient, it becomes intermittent.

377. Where the patient has been feeble, I have sometimes given her beforehand a little sherry, brandy-and-water, or some aromatic spirit of ammonia. The respiration and the pulse must be continuously watched; and should any disturbance of these present themselves, the agent must be at once withdrawn, and a free current of air be admitted to the patient.

378. In natural labour a very small quantity of the vapour is required, just sufficient to soften the acuteness of the pain, to benumb the patient's sensations. When given beyond this, it tends inconveniently to diminish the force of parturient action, so far as even to retard the labour, and render forceps delivery necessary, as well as interfere with the due contraction of the

uterus afterwards, for the prevention of hæmorrhage. I have seen this effect so frequently that I have no doubt on the point. Indeed, it is on this very principle that anæsthesia, carried to the requisite extent, is so beneficial in those cases of "turning" which would otherwise be wholly beyond our power.

379. To correct the effect of the chloroform in unduly weakening the contractions of the uterus, when that enfeeblement of uterine action is not the object sought for, or, when that is desired, it is prolonged beyond the necessary time,—it was proposed by Dr. Beattie, of Dublin, to give ergot beforehand; and in those cases where turning was required, to administer that drug immediately afterwards, in order to ensure a better contraction of the womb, for the prevention of hæmorrhage. This precaution has been now adopted by many other practitioners with the best effects.

380. The *value of chloroform* is more especially marked in the relaxation of rigidities of the os uteri, vagina, and perinæum, for which in former days bleeding was not an unfrequent remedy resorted to. It is also most beneficial in securing the quiescence of otherwise restless patients in forceps and craniotomy deliveries, as well as in facilitating the operation of turning; nay, in rendering it possible, where otheerwise its performance would be wholly impracticable. I have repeatedly succeeded with chloroform in accomplishing version, and in some cases in saving the child thereby, when proper but fruitless attempts had been

already made, and embryotomy had, in consequence, been prepared for.

On the other hand, I know that chloroform will not always enable us to perform version, even after we have carried the anæsthesia to the fullest extent consistently with safety. Here I have still encountered violent spasmodic resistance, which has compelled me most reluctantly to deliver eventually by embryotomy. These exceptions, however, I am glad to say, have been very rare, and have, for the most part, occurred where many hours had elapsed from the escape of the waters.

In the operation of version under head presentation, in deformity of the pelvic brim, we shall, I can speak from experience, find this anæsthetic agent of the greatest service in rendering that operation easy and safe.

CONCLUSION.

In the foregoing pages I have endeavoured to place before the reader a concise outline of the mechanism of parturition, a knowledge of which is so essential to a right employment of the various remedial means indicated in different cases of difficult parturition. I have, moreover, explained the principles which are to guide us in the proper selection and timely application of those means. In a future volume, which will appear shortly, I will treat in a similar way of the complications of labour; and I will now proceed to give a clinical record of the more frequent difficulties which press upon the attention of the practitioner; and conclude this volume with a statistical summary of nearly 14,000 labours attended under my superintendence.

PART II.

CASES

OF

DIFFICULT LABOUR.

CHAPTER I.

DIFFICULT LABOURS TERMINATED WITHOUT OPERATIVE AID.

CASE I.—*Unusual suffering; too early discharge of liquor amnii; inordinate uterine action: Forceps contemplated, but a living birth ensued naturally.*

September, 1854, at 9½ a.m., I was requested by a professional friend to visit a patient, æt. 30, in her first labour.

She had been in pain all night, and the waters had escaped at four a.m. The head had been at the outlet six hours under violent action, and it was feared that a rupture of the uterus might be the consequence of non-interference.

Present state.—The head is pressing on the bony outlet, the face turned obliquely backwards; no impaction, no retention of urine, no pyrexia; ample mucous secretion; the os uteri not fully dilated.

I advised more time, believing that the natural efforts were sufficient; that as the os uteri was not obliterated, and the soft outlet had to be dilated, there was no alternative but to wait.

Two hours later, I was again hastily summoned, on account of recurring fears that the uterus would give way under the violence of its contractions, and that delivery by the forceps would be inevitable. I now found the os uteri fully dilated; no heat of parts; the head had advanced.

I therefore counselled further reliance on nature, to admit of full dilatation of the soft outlet. By request of

my friend, who could not divest himself of his fears, I remained, to share with him the responsibility of the case, and thus had the satisfaction of witnessing its safe termination in a living birth, without instrumental interference.

It is possible that chloroform would have accelerated this labour, by favouring dilatation; and it certainly would have annulled the patient's sufferings; but we had good reasons for not resorting to this agent in this case.

CASE II.—*Labour rendered difficult by a frænum surrounding the vagina. Bloodletting. Child born living, by natural efforts.*

May, 1842, at 3 a.m., I was called by a young surgeon to a second labour. The liquor amnii had escaped three hours, the os uteri two-thirds dilated. Half-way between the os uteri and the os externum, was a constriction of the vaginal mucous membrane, which was supposed to be the uterine orifice itself. The presentation, that of the head, had not been reached.

As there was no pyrexia, nor any other untoward symptoms, I simply advised patience.

At 2½ p.m. I was again sent for. The head had then passed into the cavity of the pelvis; the narrowed portion of the vagina formed a cap tightly embracing the presenting head; the skin had become hot and dry, also the mucous membrane; the patient was restless, the pulse hard. For these symptoms, sixteen ounces of blood were removed with partial benefit. A smaller quantity was taken a little later in the day; upon which, the constriction of the vagina yielded, and, at 5½ p.m., a living child was born without any further interference. The placenta came away spontaneously, and the patient had a perfectly good recovery.

CASE III.—*Labour retarded by mental depression.*

One morning, early in October, 1843, I was called to a patient of the Royal Maternity Charity at a full term, non-multiparous labour.

The liquor amnii had escaped twelve hours; labour lingering. The patient was anxious about herself; therefore I was requested to see her.

I found the head presenting, moveable; the parts moist and lax; the pains not bearing; orifice of uterus one-third dilated. The patient had had living children already, without difficulty. As I found no obstacle, I simply assured her that she would do well. At the same time, I left orders for ergot to be given should action not soon come on.

Within an hour, and without the ergot, a healthy living child was born; the midwife attributing the change in the case to my cheering assurances.

CASE IV.—*Labour retarded by mental depression.*

The patient, æt. 40, habit stout, health good, second labour; under the care of Mr. Woodthorpe, of Kingsland.

Previous history.—At her first labour, I had also been called to her by Mr. Woodthorpe, on account of impacted arm presentation. After all justifiable attempts to turn had failed, I delivered her, on that occasion, by embryotomy, and she recovered well.

She was seriously impressed by the experience of her former labour; also by the fact that her husband's first wife had died in difficult childbirth. She had made up her mind, that on this occasion she would not recover, and the labour had in consequence been very lingering.

I was previously prepared for her despondency, so, on entering the room, said everything to cheer her, and quickly

left, telling her I felt sure she would do well. The os uteri and vagina were relaxed, the head presented favourably; in fact, nothing but good action was wanted in the case.

Mr. Woodthorpe afterwards wrote to me as follows:—"The assurances you gave her had an immediate good effect, relieving her mind from anxiety; the pains, from being feeble, came on in good strength; and, after three hours, she was delivered of a fine living boy by the natural efforts. She had a perfectly good recovery."

CASE V.—*Lingering labour from inertia uteri; no obvious cause. Ergot of rye given with good effect.*

A sixth labour, patient æt. 26, previous births easy and living. Head presentation. The waters reported to have come away fifteen days before. However, my friend Mr. John Forbes, of Madras,* who had charge of this patient for *me*, reported that he found the bag of waters presenting, the os uteri half dilated and soft; the pains had lingered on feebly for forty-eight hours, and were now at half-hour intervals.

Four doses of ergot were given, one every half-hour from 1 a.m., and in two hours later a healthy living child was born.

CASE VI.—*Inertia of the uterus. Ergot. Living birth.*

November, 1843, at 6 p.m., I was called to a patient of the Royal Maternity Charity; her third labour; head presentation. The waters had escaped at 7 the same morning, the os uteri at the time fully dilated. The case then became lingering, and no progress occurred from 9 a.m. till my visit at 6 p.m.

* Then on leave of absence from that Presidency.

I found the large fontanelle against the right cotyloid region of the pelvis; the sagittal suture in left oblique diameter; the small fontanelle could not be reached. The pelvis ample; vagina moist and lax; in short, nothing wanting but uterine action to complete the birth. I ordered half-drachm doses of ergot in infusion; after the third dose, the child was born living and vigorous, with the face to the sacrum, having undergone the postero-rotation.

The placenta followed quickly.

CASE VII.—*Inertia of uterus. Ergot. Living birth.*

November, 1843, 1 a.m., I was called to a fourth labour. The three previous confinements had been easy. The pains on this occasion had been very lingering. The head had partly advanced into the pelvic cavity, with the face directed obliquely forwards. There appeared ample room; os uteri fully open; vagina soft and well dilated.

The ergot was given, and, after the third dose, the child was expelled with the face forwards to the pubic arch. The placenta came away quickly. No after pains followed this labour, though they had succeeded the two previous confinements.

CASE VIII.—*Lingering labour from previous want of nourishment. Stimulants. Living birth. Recovery.*

A primiparous labour. Patient æt. 23; previous health low, from scanty nourishment. She was thin and pallid, her hands cold. Her surgeon requested my opinion on the case, as her labour had been protracted over many hours.

I found the head presenting; pelvis of ample capacity; the waters had escaped some hours. I sanctioned the patient's taking a glass of beer, which she had craved for, and ordered it to be given spiced and hot. After this, a

warm moisture came over the skin, the patient was much revived, and a living birth followed, within an hour after, without any further interference.

The placenta soon followed, without hæmorrhage, and the patient had a good recovery.

CASE IX.—*A primiparous labour; head presentation; face to right ilium. Congestion of uterus and general plethora. V.S. Living birth, without further interference.*

April 25th, 1838, 3 a.m., Mrs. —, æt. 28, of previous robust health, in primiparous labour, was submitted for my opinion. The liquor amnii had come away twenty-four hours; pains had commenced ten hours before, but soon became feeble, and the os uteri rigid and swollen.

I find the head at pelvic brim; face to the right ilium; the orifice of the uterus two-thirds dilated; pulse full and labouring; general aspect of patient plethoric. Fœtal pulse heard on auscultation.

The inefficiency of the pains, and swelling of the os uteri appeared to result from an overcharged state of the blood-vessels of the uterus, with a general plethoric condition of the patient. My friend, therefore, on my suggestion, took some blood from the arm, after which the os uteri dilated fully, the pains became strongly propellent, and the case steadily advanced.

At 7 a.m. the os uteri was fully dilated, the head had descended a little, the forehead still to right ilium. At 8 a.m. the head had reached the perinæum, with face to right sacro-iliac joint; and at 9 a.m. the child was expelled, with face to sacrum.

The child required treatment, on account of lividity and dyspnœa. The appropriate means were employed, after which it did well. The mother had a good recovery.

CASE X.—*General plethora, with drowsiness and cephalalgia. Convulsions feared. V.S. Living birth. Recovery.*

July 22nd, 1844, æt. 23, previous health good, was taken in labour at 9 a.m. yesterday. The pains continued strongly bearing till 11 last night, when they ceased, and drowsiness, with a dry hot skin, hard full pulse, severe headache at intervals supervened. She had been bled at midnight, before my arrival, to twenty-eight ounces; upon which the skin became moist, the headache left, but the drowsiness persisted.

I was again called to the case at 2 a.m. I found the pupils very sluggish to light; pulse strong and full; a deep sopor, from which she could only be slightly roused by speaking loudly in her ear; the os uteri dilated to the size of a five-shilling piece; uterine action very feeble. I advised a second depletion. Twelve ounces were taken away rapidly, after which the pains became strongly propellent, and a healthy living child was born at 7 a.m.

The placenta was thrown off within three-quarters of an hour, and removed from the vagina. At my visit on the following day, the patient was doing well, and had no recollection of my having been consulted. Her recovery was perfect.

CASE XI.—*Feeble and irregular uterine action from over-repletion. Stimulant emetic. Living birth. Remarks.*

A patient of the R. M. Charity was taken in labour at full term. She was suffering from nausea, which did not appear to be merely sympathetic; for on inquiry, I found that the woman had eaten largely at supper of bacon and cabbage. I gave her a stimulant emetic; the abundant contents of the stomach were thus discharged; the labour,

which before was lingering, now became active, and speedily ended in a living birth.

Remarks.—Not long afterwards, I was consulted by a surgeon for a private patient, who had entered on her labour in puerperal convulsions, following soon upon a very large meal of goose. It was judged advisable, in her case, to adopt bloodletting, in addition to other necessary treatment. It is not improbable, that in the case above detailed a similar event would have followed, but for the timely removal of the indigesta from the stomach.

Case XII.—*Small collection of urine in the bladder, a cause of delay in labour, through reflex disturbance.*

April 24th, 1838, at 6 a.m., I was called to a third confinement. Labour had commenced at 1 p.m. the previous day, and the waters had escaped ten hours later.

I found the orifice of the uterus fully dilated; an ample pelvis; the head at outlet, face directed obliquely backwards to right sacro-iliac joint. Ergot of rye had been given to improve the pains, with but little effect.

On inquiry, I found the patient had not passed water for some time, and that she was uneasy on that account; no intumescence of a distended bladder was, however, to be felt above the pubes, nor per vaginam. I thought it best, nevertheless, to pass the catheter, and drew off rather less than half a pint of urine. Immediately upon this relief vigorous action set in, and a living child was expelled in less than ten minutes.

Remarks.—I might add many other instances, where an equally small collection of urine seemed to be the only cause of lingering labour, by acting as an irritant on the nervous system, and disturbing, in a reflex manner, the due exertion of the parturient efforts.

CASE XIII.—*Retention of urine of large amount retarding labour.*

In the year 1834, my assistance was requested by a student of University College, in a case of protracted labour. The pains had become irregular and feeble.

Placing my hand on the abdomen, I found a large fluctuating swelling upon the gravid uterus, reaching midway between the navel and the ensiform cartilage. The retention of urine had, however, been detected, but attempts to relieve the bladder had failed, owing to the pressure of the head on the neck of that organ.

By using a long elastic catheter, and making pressure on the head upwards and backwards, I succeeded in removing as much as a chamber-vessel full of urine, much to the relief of the patient, who had been greatly distressed, and to the joy of my young friend, who was, soon after, set at liberty by the birth of a living child.

CASE XIV.—*Retention of urine the cause of protracted labour.*

December, 1856, at 10 p.m., I was called to a patient, æt. 30, a primipara. Feeble labour pains had existed three days. I found the head half-way descended into the pelvis, the os uteri three-fourths dilated, mucous membrane not hot, but dry.

I was informed that the patient had passed sufficient urine; but always judging for myself on this point, I laid my hand on the abdomen, and found two considerable swellings, separated by a depression; an upper one, the hard gravid uterus, so far as it was not covered by the lower one, which was elastic, fluctuating; viz., the distended bladder.

I at once introduced the catheter, and removed four pints of urine. To relax the parts and promote mucous secretion,

I ordered, at intervals, small doses of tartar emetic. The pains quickly after improved, mucus was abundantly poured out, the parts became relaxed, and a fine living child was safely delivered in three hours later.

The patient recovered well.

CASE XV.—*Protracted labour from retention of urine; three quarts removed after delivery. Subsequent atony of bladder for five weeks. Remarks.*

A patient, about the year 1840, came under my care, with the following history. After a protracted labour, with retention of urine, which a constant dribbling of water had caused to be overlooked, she had been at length delivered by the natural efforts, the bladder unrelieved by the catheter.

I was called in on account of her suffering severe abdominal pains, which had harassed her both during and after the labour. I was informed that her water had dribbled away from her. Suspecting retention, I passed my hand over the abdomen, and found the bladder greatly distended, its fundus reaching above the navel. I passed the catheter, and removed three quarts of highly offensive urine, greatly to the ease of the patient.

So much was the tone of the organ impaired by the distention, that five weeks elapsed ere the entire use of the catheter could be dispensed with.

Remarks.—Had timely attention been paid to the bladder, a severe labour and much suffering would have been spared the patient. The case is instructive, as showing that we must place no reliance on the reports of others in this matter, but always ascertain the truth for ourselves by a satisfactory inquiry.

CASE XVI.—*Rigidity of os uteri; V.S. A living birth and good recovery.*

May 25th, 1844, a primipara, æt. 26, of robust habit. The liquor amnii escaped several hours; head presented in good position. The orifice of uterus of half-crown diameter, its boundary tissue rigid, closely encapping the head; pulse hard, full, 130. Venesection had been contemplated by the surgeon, I also suggested that treatment. Eighteen ounces of blood were withdrawn.

After this, an abundant secretion of mucus covered the genital surfaces, and all rigidity was removed. Delivery of a living child followed within an hour after.

CASE XVII.—*Rigidity of os uteri, removed by chloroform inhalation. A living birth and good recovery.*

In December, 1847, I was requested by Mr. McNab to meet him in a primiparous labour of 24 hours' duration, patient's age 34. The liquor amnii had come away six hours before my visit, and at the same time the head had engaged in the pelvic brim, in the first oblique position.

Present state.—Os uteri rigid, half dilated, anterior lip low down and swollen, vagina and skin hot and dry; pulse 90, not hard; the pains feeble.

It occurred to me that chloroform, which had but recently been introduced by Professor Simpson into midwifery practice, might be usefully selected as the remedy, to soften the os uteri and vagina, and to lull the patient's sufferings, which were very severe.

I administered it on a handkerchief, folded cup-shape, holding it near her mouth and nose. In less than a minute the patient was fully unconscious of pain, and apparently asleep. Three and a half drachms of chloroform were con-

sumed in the course of two hours, when I discontinued it, the object of its exhibition having been fully attained.

The os uteri was now soft and fully dilated, the genital canal abundantly supplied with mucus throughout, and of a natural temperature; the skin moist and not heated, the pains strongly propellent. Within an hour after, a fine living child was born. There was no hæmorrhage. The uterus contracted well, expelling the placenta. The patient had a good recovery.

CASE XVIII.—*Rigidity of os uteri removed by chloroform inhalation. Child premature and still-born. Good recovery.*

In December, 1855, I was consulted by Mr. Langley, of Albany-street, in a fourth labour. The pains were remarkably acute, the os uteri very rigid, and but little dilated; there was no pyrexia, but the patient was very excitable, and importunate for relief. She was much distressed in mind, her husband having deserted her.

I suggested the inhalation of chloroform. It was exhibited on a handkerchief, and quickly produced anæsthesia. The os uteri soon became relaxed, fully dilated, and the birth of a still-born premature child followed within an hour after.

The placenta was thrown off quickly, after which the uterus relaxed, and some hæmorrhage followed, which, however, was subdued with little difficulty, by pressure and cold, and the patient did well.

CASE XIX.—*Protracted labour from scybala in the rectum.*

March 18th, 1838, at 6 a.m., I was requested by Mr. Percival Price, then a student of University College, to visit a patient, æt. 32, in her fifth labour. Her previous

confinements had been natural and easy. The liquor amnii had escaped early, when the os uteri was little dilated. The head presented. The pains had continued frequent and strong for nearly six hours, but the head had not advanced.

The face directed to the right acetabulum. No morbid heat locally, nor generally. A considerable accumulation of hardened fæces was removed, and a living child was almost immediately afterwards expelled, with the occiput to the pubic arch.

Remarks.—As the pains had been frequent, and strongly bearing, I must conclude that the fæcal collection acted directly as an impediment in front of the presenting head. But in other instances, I have seen, as in small collections of urine in the bladder, the pains, through reflex influence, rendered irregular, and though exhausting the patient, of no avail in advancing the labour, because more of a spasmodic than of a properly parturient character.

Case XX.—*A globular protrusion of vaginal walling anteriorly, simulating somewhat a vesical hernia.*

A patient of R. M. Charity, æt. 26, in her third labour, was brought under my notice, on account of a globular protrusion occupying the front of the vaginal passage. Being somewhat elastic, it appeared at first like a hernia of the bladder. But finding that she had passed water readily, and that I could easily introduce the catheter, I decided it to be a fold of the vagina with its subjacent tissue and blood-vessels; its elastic character being due to a varicose state of the vessels, from pregnancy. The diameter of this protrusion was about four inches. The waters had escaped half an hour before.

The midwife feared it would cause difficulty in the labour. My opinion was that it would give way to the pressure of the head. Indeed, before I left the house, the head de-

scended much lower, was pressing on the flooring of the pelvis, and had entirely displaced outwards the swelling in question. The child was born shortly afterwards, without interference. The placenta followed quickly. Two days later, the swelling had disappeared.

CASE XXI.—*Protracted labour from congestion of the uterus. Puerperal convulsions feared. V. S. Child expelled by the natural efforts, semi-asphyxiated. Good recovery.*

September 22nd, 1840, at 8¼ p.m., I was called to a patient of previous good health, æt. 24, a primipara, by Mr. Bloomfield, one of my pupils.

The pains began on the morning of the 21st, slight in degree; towards evening they were stronger. At 8 p.m. the os uteri was fully dilated; the pains returned at short intervals, and so continued during the night. At 8 the following morning, two or three very expulsive pains caused a rupture of the membranes, and a little liquor amnii escaped. The head presented. The pains continued every ten minutes, without progress; so the case stood at my visit in the evening.

Present state.—Headache; a full, hard pulse, features congested. Head presents in the most usual position; os uteri fully dilated. Pains inefficient.

Treatment.—As a measure of precaution, the catheter was passed and some retained urine removed. Being apprehensive of puerperal convulsions, I advised bleeding. This was done in the sitting posture; about eighteen ounces came away in a full stream, without fainting, and then the orifice was closed.

The pains now became properly bearing; labour progressed steadily, and the delivery was completed at 10½ p.m.; the head was moulded into a conical shape, and the child

born in a state of asphyxia, from which, however, it was readily restored by appropriate means.

Remarks.—The sluggish action of the parturient powers was here the effect of a congested state of the muscles of parturition. This, and a condition denoting a tendency to puerperal convulsions, indicated the same treatment,—blood-letting.

We may conclude that, but for the timely depletion in this case, the child would have been detained much longer in the pelvis; considerable swelling of the scalp and maternal tissues would have ensued; and it is fair to presume that a still birth would have followed.

CASE XXII.—*Labour complicated by "cutting pains" in the pubic region. Uterine rupture apprehended.—Slow dilatation of os uteri. Tartar emetic and opium. Child living. Good recovery. Remarks.*

A primipara, æt. 28, a patient of the Royal Maternity Charity, had a severe "cutting pain" in the pubic region, accessional to the pains of parturition. Labour had commenced at 8 p.m. I saw her at 9½ the following morning, and found the os uteri dilated to the diameter of a shilling. The midwife feared a rupture of the uterus, so intense was the pain.

I found the parts moist, cool, not rigid; the skin not heated; micturition free, bowels open, pulse soft. I ordered, as in previous cases of slow dilatation of the os uteri, tartar emetic in quarter-grain doses, and, for the relief of pain, fifty drops of laudanum. It appeared that she had had more or less of this pain, probably neuralgic, ever since an attack of cholera two years ago; but it is now much aggravated.

At 4 p.m. the dilatation had gradually advanced, and the cutting pain was entirely gone; the liquor amnii then

escaped, and considerable pressure was being exerted on the head. The labour was satisfactorily terminated by the birth of a living child, at a quarter before 9.

The patient had a good recovery.

Remarks.—The tartar emetic had relaxed the tissues, and favoured dilatation. The opium soothed, and finally removed the pain, which had been so severe.

CASE XXIII.—*Retarded labour from congestion of uterus, consequent inertia, accompanied by a rigid and swollen condition of os tincæ.*

Saturday, May 25th, 1844, at 9½ p.m., I saw, with Mr. Charles Robinson, surgeon, of Dorset Place, Dorset Square, a patient in labour of her first child. The liquor amnii had escaped in the morning; the head presented at the brim; the orifice of the uterus had gradually dilated to the diameter of a half-crown; the boundary tissue of the opening had, in the afternoon, become swollen and rigid; and, at the same time, the pains were weak, the pulse full and hard, the skin hot and dry.

Eighteen ounces of blood were taken from the arm, after which the skin became moist and cool, the pains efficient, the os tincæ soft. Within an hour, a healthy living child was born. The placenta gave no trouble, and the patient's convalescence was speedy and complete.

CASE XXIV.—*Face presentation. Natural delivery. Child born living.*

March 23rd, 1846, I was requested by a medical friend to visit a patient in a third confinement. I found the orifice of the uterus fully dilated; the parts soft, moist, and cool;

the face presenting, with the chin in the neighbourhood of the pubes: the child living; the head had been in the pelvis about two hours.

After examination, my opinion was that the child would be born without operative aid or other treatment.

The case, as I was subsequently informed by my friend, terminated not long after in a living birth, under the natural efforts.

CASE XXV.—*Face presentation. Congestion of the uterus. V.S. Delivery completed naturally. Child still-born.*

November 29th, 1843, 5 a.m., I was requested by a professional friend to meet him in a face-labour. The patient, æt. 41, of firm fibre, and healthy, had had two children before, without difficulty. The liquor amnii had come away at 11 a.m. the previous day, but in very small quantity. The orifice of the uterus was fully dilated at 11 last night; no progress whatever had taken place for the last four hours, pains being weak.

I found the chin directed to the right side of the pelvis, one-half of it only accessible, with the corresponding right half of the face; the parts much heated, the pulse full and firm.

Some blood was taken; after which the presentation rapidly progressed under strongly bearing pains, and the child, still-born, was expelled in one hour afterwards, with the chin to the front.

Remarks.—Part of the difficulty, no doubt, was due to the face presentation, but the immediate change in the aspect of the case, upon the abstraction of blood, pointed to the existence of congestion, as a source of impediment to a due exertion of the parturient powers; and possibly, had the relief come earlier, the child would have been born living.

CASE XXVI.—*Brow presentation, converted by the natural efforts into one of the vertex. Child living. Good recovery.*

February, 1844.—A patient under my care, æt. 33, was taken in labour of her fourth child, at 5 p.m., when the waters also escaped. I was sent for immediately upon that event, and found the genital passage well dilated, the orifice of the uterus almost obliterated; the pains efficient. I could touch the brow, the left eye, and side of the bridge of the nose. As the labour advanced the brow ascended, and the child was expelled by a vertex presentation; face to the sacrum. The funis was once round the neck. The mother and child did well.

Remarks.—This is the only instance of the kind which I have met with; but Dr. Merriman, at p. 48 of his "Synopsis," observes that he has *twice* known the presentation of the face converted by the pains alone into a natural presentation.

CASE XXVII.—*Face presentation. Natural delivery. Child living.*

December 29th, 1853, at 9½ p.m., I was sent for by Mr. Langley, to a patient in labour of her tenth child. I found the face presenting, the chin to left side of pelvis; parts soft, moist, and cool; uterine action moderate. No impaction; the presentation rested on, but did not engage in, the pelvic brim; os uteri not fully dilated; the bladder had responded freely. Skin moist, cool; pulse normal; no headache. I advised further reliance on the natural powers.

Labour proceeded steadily through the night. At half-

past nine the following morning I was sent for again; but finding decided advance, I gave the opinion that the case would soon be over, without instrumental aid. In a quarter of an hour after, a living male child was born, chin to the front. Both mother and child did well.

This patient had had a face labour thirteen years before.

CASE XXVIII.—*A circular vaginal fold obstructing labour in a primipara. An ovarian cyst had emptied itself freely from the vagina and rectum before marriage, causing the subsidence of an abdominal tumour.*

Mrs. S., aged 36, in primiparous labour; a tight circular vaginal fold obstructed delivery. I gave chloroform during a short period; the fold then gradually relaxed and dilated, and the delivery of a living child soon followed.

The mother and child both did well. No trace of the former ovarian tumour could be discovered. The history of the ovarian tumour, a single cyst, we may presume; and of its spontaneously discharging itself abundantly per vaginam and per rectum, I received from my friend Dr. Quain.

CASE XXIX.—*The action of chloroform in furthering labour, and obviating mechanical means.*

In January, 1863, I was requested to attend the wife of a professional friend in labour; her age 36. She had had three children previously, born without great difficulty. The present labour lingered on in the first stage for three days without any prospect of delivery. She was getting exhausted by suspense and the fruitless pains, which were evidently of an irregular character. I suggested to my friend, that in all probability a more regular action would

set in, if she were placed moderately under the influence of chloroform. This practice was adopted with the expected effect; a good bearing was exerted on the os uteri, the boundaries of which became relaxed, the orifice opening quickly.

The child, a female, living, was delivered within three hours from the commencement of the inhalation, without other interference.

Case XXX.

October, 1863.—I was called in by a professional friend to a labour which had been protracted for many hours after the escape of the liquor amnii. I found the head engaged in the brim of the pelvis; the patient was evidently suffering greatly from her pains, which, nevertheless, did not exert any pressure upon the head; there was no pyrexia, local heat, nor swelling. I advised that it would be well to keep her under the moderate influence of chloroform, probably for two or three hours. This suggestion was carried out; efficient pains were instituted, and a happy delivery followed in three hours, without further aid.

CHAPTER II.

FORCEPS DELIVERIES.

CASE XXXI.—*Arrest of head at pelvic outlet in a primipara. Child delivered by forceps, living. Inflammatory fever during and following labour. Depletion, &c. Recovery.*

April 11th, 1844, at 6 p.m., I was requested by a surgeon to visit a patient in labour of her first child. Aged 34; previous health good.

The liquor amnii escaped soon after 2, the mouth of the womb being fully dilated. The head then gradually descended into the cavity of the pelvis, so that in an hour from the discharge of the waters, it occupied that space. The pains had been strongly propellent, every three minutes, from that time up to my visit.

I found the head near the perinæum, the right ear against the symphysis pubis, with some inclination to the left side; the head had progressed thus far between three and four hours before I saw the patient. In consequence of the violent pains, the extreme restlessness of his patient, a dry hot skin, and firm pulse, Mr. Pascall had bled his patient to eighteen ounces, and subsequently given a full dose of opium, with good effect; she had become calm, and I found her skin of natural temperature, and suffused with moisture. The pains were of moderate strength, recurring at intervals of two or three minutes. The bladder contained only a few drachms of urine. I suggested a further trial of the natural powers.

Two hours later, I called again by agreement, and finding no progress, the patient again restless, I applied the oblique forceps over the fronto-lateral and occipito-lateral regions of the child's head, directing the face, little by little, backwards to the sacrum. Applying traction, and resting at intervals, a fine living child was brought into the world, in about four minutes from the first locking of the blades. The placenta came away without difficulty.

April 12th.—Our patient had had a good night's rest; had passed urine in ample quantity without pain; pulse hard, skin dry. She was ordered one-sixth of a grain of tartar emetic in solution of acetate of ammonia every four hours. In the afternoon, skin moist, pulse soft; she had been purged, not nauseated.

April 13th.—Slight tenderness in uterine region, aggravated by coughing; pulse hard, skin dry and hot. My friend therefore bled her to sixteen ounces, and the diaphoretic mixture was continued. The blood was buffed and cupped. After this treatment the pain on coughing had ceased; the skin became moist, of natural temperature. Beyond the exhibition of two doses of castor oil, she required no further treatment.

Remarks.—The above case illustrates the expediency of watching a patient carefully, after an obstetric operation, and indeed during the labour itself. The hot and dry skin, hard pulse, and abdominal pain in the uterine region, were warnings which, unheeded, would probably have had a serious issue.

CASE XXXII.—*A primiparous labour. Arrest of the head at the pelvic outlet for six hours; liquor amnii escaped twelve hours. Child extracted living by the forceps. Good recovery.*

April 1st, 1846, 9 p.m., I was requested by a medical friend to come to his aid in a first confinement. The subject

of it, 33 years of age, had been in labour since 1 a.m. The liquor amnii had come away twelve hours before, in the midst of active pains. The orifice of the uterus became quickly after fully dilated; the head had been in the pelvic cavity six hours.

Present state.—The head in the pelvis; much tumour of scalp projecting at the os externum; an *olive-coloured* discharge. The patient restless, countenance anxious, skin hot yet moist; pulse sharp, 100, compressible; tongue coated with a whitish-brown fur; patient of a delicate habit of body. Face directed to right sacro-iliac synchondrosis.

The head being arrested, and interference strongly called for by the above symptoms, I determined to deliver without delay, and, if possible, by the forceps. The catheter, as usual, was first introduced, and some urine, previously felt distending the bladder above the pubes, was drawn off—ten ounces. The patient was properly adjusted at the edge of the bed, the upper thigh raised by an assistant, and the forceps with the pelvic curve and wide fenestræ were applied without difficulty. Three steady tractions during the pains brought the child, a fine girl, into the world in a state of asphyxia. It was fully restored by the ordinary means. The placenta was thrown off in twenty minutes, by good contraction of the uterus, into the vagina, and thence removed.

Next day, not a bad symptom; the bladder had responded; the lochial discharge good; child vigorous. The patient had a perfectly good recovery.

Remarks.—The forceps were called for in this case, on account of the fatigued condition of the patient. That slight reduction of the bulk of the head, which the forceps effects, was required to complete the birth. The head having been in the pelvis six hours, with adequate pains, and no progress, the constitutional disturbance thereupon induced, and the possibility of the child being yet living, were the circumstances which authorized that interference.

A further delay, it appeared to me, would have sacrificed the life of the child, and have exposed the mother to danger and fruitless suffering.

CASE XXXIII.—*A primiparous labour; head arrested in cavity of pelvis eight hours; retention of urine relieved by elastic catheter. Inflammatory fever, depletion, forceps delivery. Child living. Mother did well.*

On Monday, December 9th, 1845, at 6 p.m., I was requested by Mr. Jarvis, of Hart Street, Bloomsbury, to visit a patient, æt. 28, in labour of her first child.

Previous history.—My friend had been sent for on Sunday, at 5 in the morning. The liquor amnii had escaped the night before. The orifice of the uterus, on his first arrival, presented the diameter of a shilling; the action of the womb and dilatation of the os uteri proceeded slowly. About 6 this morning, the uterine orifice had become obliterated, the head had gradually entered the cavity of the pelvis, and had been there wedged, not receding as the pains retired, for at least eight hours.

On account of febrile disturbance, a hot, dry vaginal mucous membrane, twenty ounces of blood had been taken from the arm before I was consulted. For the relief of the distended bladder, very perceptible above the pubes, attempts to pass the catheter had been made, but, owing to the pressure of the head on the neck of that organ, without success. By firm pressure on the head, upwards and backwards, I managed to get a small-sized catheter into the bladder, and drew off a pint of urine; the above swelling then subsided.

Present state.—Fœtal pulsation distinctly audible over left side of the uterus, between navel and anterior superior spine of ilium. It had been feared, from the cessation of the child's movements, that it was no longer living. The

vaginal mucous membrane dry, and tightly embracing the presenting head.

Treatment.—I judged it imprudent, on account of the state of the vagina, to apply the forceps at present. I prescribed tartar emetic, at fifteen or twenty minutes' interval. Nausea and vomiting followed, and the vaginal mucous membrane now became relaxed and moist. Two hours later, delivery had not taken place, but the parts were in a favourable state; and the child I found on auscultation was still living; I resolved to apply the forceps. Having first, therefore, removed the urine which had collected since my last visit, I applied the blades of the instrument along the sides of the pelvis, and locked them easily. I then compressed the head, and made traction, unlocking the blades, resting between the pains, and thus safely accomplished, in twenty minutes, the delivery of a female child, in full vigour of life, face to sacrum. The placenta followed in five minutes, and no untoward symptom occurred after delivery.

Remarks.—At the above date the treatment pursued was that usually adopted at that time. The bleeding which had been resorted to did not avail in relaxing the vagina, but the antimony had the desired effect. It is probable that at the present time, such a case would have been equally satisfactorily treated by chloroform, previously to forceps delivery; but anæsthesia was not introduced into the practice of midwifery till later.

CASE XXXIV.—*A primiparous labour. Arrest of the head at the brim of the pelvis for ten hours; waters had escaped twelve hours; face to right ilium; long forceps applied, and head brought to outlet, there arrested; labour eventually completed by the short forceps. Child large, living. Inflammatory fever after delivery. Depletive treatment. Recovery.*

October 11th, 1843, at 2 p.m., I was requested by Mr. L'Estrange to meet him in a difficult primiparous labour. The patient, 21 years of age, of previous good health. The liquor amnii had escaped twelve hours. Pains of moderate strength and frequency for the first five hours; latterly weaker, and at longer intervals. Os uteri fully dilated soon after the discharge of the waters.

Present state.—A puffy protrusion of scalp; cranium itself has not descended in any degree into the pelvic cavity; the pains, though occasionally stronger, did not affect the presentation. The examining finger can be passed up by the side of the head with no great difficulty. I found the right ear behind the symphysis pubis. The patient is fatigued, but there is no pyrexia, no inordinate heat of the genitals. The case one of arrest, rather than of impaction of head.

Treatment.—Considering the difficulty in the case to depend, partly at least, upon the position of the head not being the most favourable, and possibly also upon some slight disproportion between the size of the head and the capacity of the brim of the pelvis, I determined on the use of the long forceps, as the preferable mode of treatment.

The bladder and rectum being empty, I carefully introduced the long pelvic curved forceps, with blades of unequal

length, along the sides of the pelvis, obliquely over the face and occiput respectively. Applying traction, and resting alternately, I gradually brought the head down past the point of difficulty, into the cavity of the pelvis, and directed the face to the right sacro-iliac joint. I now removed the instruments, that nature might effect the dilatation of the perinæum in her own safe time. The pains, however, were not sufficiently propellent, and eventually, the child proving large, I had to finish the delivery by the common forceps, which was safely effected at 6 in the evening.

The child weighed nine and a half pounds; was born in an apoplectic condition. A table-spoonful of blood was allowed to flow from the divided vessels of the cord before tying it; upon which the child was fully restored to active life. There was a firm hour-glass contraction of the uterus; the placenta was, however, removed without much difficulty. No hæmorrhage.

October 12th, 8 a.m.—Our patient had slept four or five hours, from a morphia draught. She had passed water without difficulty, was free from pain, but the skin was dry and hot; there were thirst, restlessness, a white furred tongue; pulse 90 and hard; scanty lochial discharge. We therefore agreed in the propriety of depletion. The patient was placed sitting, and bled from the arm; twenty ounces flowed in a full stream, without her fainting. The skin, however, having become moist, and less heated, the pulse soft, the arm was tied up. The bowels were opened by castor oil; a saline diaphoretic given, an antiphlogistic regimen enjoined.

October 13th.—The pulse soft, 80; the skin of natural temperature, and moist. The lochia had increased.

On the fourth day from delivery, Mr. L'Estrange, finding his patient again feverish, the pulse hard, above 90, a throbbing pain in the hypogastrium, a sense of heat in the vaginal passage, and a suddenly diminished lochial discharge, bled her again to faintishness at a loss of eighteen

ounces; upon which the pain left her; the skin became moist, of natural temperature; the pulse soft. The bowels were opened by castor oil.

From this time forward the recovery of the patient was uninterrupted, accomplished in the usual period, and she satisfactorily performed the duty of lactation.

Remarks.—The above difficulty depended partly on malposition of the head, but also upon *relative* deficiency of space at the pelvic brim and outlet, the dimensions of the pelvis not being absolutely small, but the child large. The mouth of the uterus being fully dilated before I saw the patient—no vascular disturbance, no heat nor rigidity of the genital passage existing—I was enabled at once, without preparation, to apply the forceps. I adopted that treatment, preferably to the use of ergot, believing that there existed some obstruction to the pains. They were abruptly terminated upon each occasion, as if by an obstacle, as I have frequently observed, where the pelvis has been relatively or absolutely of small dimensions, not throwing out their full action—a providential security, it seems to be, in such cases, against uterine rupture, or contusion of the soft parts.

The long forceps which I employed consist of a long and a short blade. I adjusted them, the long blade over the fore part of the head, the short blade over the occiput laterally.

Having brought the head down into the cavity of the pelvis, and changed the position, I removed the blades, hoping that nature would complete the birth, by a more gradual dilatation of the genital passage, and, therefore, more safely than art. Disappointed in this expectation, I finished delivery as stated.

The subsequent symptoms of a commencing pelvic inflammation having been judiciously and promptly treated by my friend, the patient was ensured a good recovery.

CASE XXXV.—*A primiparous labour; arrest of head at brim of pelvis for five hours; face to right ilium; forceps delivery; child, a male, living. Good recovery.*

February 11th, 1853, at 6 a.m., I was requested by Mr. Pascall to see Mrs. ——, æt. 28, in labour of her first child. The liquor amnii had come away at 9 o'clock over night, the uterine orifice being then fully dilated. Not till 1 o'clock this morning did the head engage in brim of pelvis. There had been strong pains at short intervals, but no progress since 1 this morning.

Present state.—Face to right ilium, head at pelvic brim, no pyrexia, no heat of vagina, nor swelling. I was desirous of anticipating these events, rather than of waiting for them as indications for interference; the head had been already in one position under strong pains for five hours.

I passed the right-hand blade of my forceps behind the right acetabulum, and the left-hand blade in front of the left sacro-iliac junction: they locked easily. I now grasped the handles and applied traction, separating the lock; thus taking off the compression from the child's head at intervals. After about eight applications of traction, the head was brought into the cavity of the pelvis, and into bearing upon the perinæum, with the face directed to the sacrum. I then removed the blades, that the development of the perinæum, and the expulsion of the child, might be accomplished, safely to that structure, by the natural efforts.

Mr. Pascall informed me that the child, a male, was born living, in one hour and three-quarters after I left; that the placenta followed in half an hour, and that the puerperal period passed without a single bad symptom.

The propriety, on account of the perinæum, of removing the blades as soon as the head was brought to bear upon it was obvious.

CASE XXXVI.—*A primiparous labour; arrest of head in pelvic cavity for eight hours; liquor amnii had escaped longer; retention of urine; delivery by the forceps, child living. Pelvic inflammation; depletion, recovery.*

Mrs. ——, æt. 24, in labour of *first* child, was seen by me, by request of her medical attendant, May 28th, 1853, 6 p.m. The liquor amnii had escaped the night before, the head had occupied the pelvic cavity eight hours.

Present state.—No pyrexia, no morbid heat of vagina, nor swelling. Head in pelvic cavity; face looks obliquely backwards to left synchondrosis. Above the pubes a considerable prominence of the abdomen, from a distended bladder. With the elastic catheter, I drew off a quart of urine; hoping this relief would suffice, I left with instructions, that if delivery should not have taken place in three hours later, I would see her again.

I was sent for at 8½ p.m. No advance, and fearing mischief might result from further delay, I applied the forceps, introducing the blades easily at the sides of the pelvis, and accomplished the delivery of a healthy living child without difficulty. The placenta was expelled half an hour later, without hæmorrhage.

All went on well till the *fourth* day, when her attendant was called up at 4 a.m., on account of pain referred to the vagina, vulva, sacral and hypogastric regions; there was also a sense of stiffness and throbbing in the pelvic organs, with pyrexia. I had forewarned my friend of the possibility of such symptoms arising. The patient was bled from the arm, leeched, and blistered, before she could be considered out of danger. The bowels were relieved by castor oil; she also took calomel, with Dover's powder, every four hours, for two or three days. The patient after this had a good recovery.

Remarks.—Would an earlier employment of the forceps have obviated the above inflammation? That is not improbable; yet I did not feel myself justified in their earlier application. On the other hand, it might reasonably be urged that the instruments, necessary as they were, and although employed with every caution, might have contributed, with the previous pressure of the head, to the result. It did not appear that the patient had been exposed to any exciting cause after her delivery, every care in that respect having been taken.

The prompt means adopted speedily placed the patient in a state of safety, where the previous symptoms had made us justly apprehensive.

CASE XXXVII.—*Arrest of head in cavity of pelvis for six hours before birth. Delivery by forceps, under chloroform, of a living child. Mother and child did well.*

March 2nd, 1854, 10 p.m., I visited Mrs. ——, æt. 30, with Mr. George Bird, of Welbeck Street, Cavendish Square. The patient had been in labour from the morning of previous day. The head had occupied the cavity of the pelvis without advance for five hours, notwithstanding strongly bearing-down pains.

Present state.—No pyrexia; the patient is fatigued with her efforts; the head in the pelvic cavity does not recede between the pains, which return at intervals of three or four minutes; the face is directed obliquely backwards to right synchondrosis. The catheter introduced; bladder found empty.

I now watched the case for an hour, but finding no advance, introduced the forceps at the sides of the pelvis, and after a few tractions delivered the patient of a living child. At her earnest request, she was first placed under chloroform, the vapour being inhaled from a handkerchief, and

administered by Mr. Bird. The placenta was thrown off by the natural efforts, in five minutes after the child's birth, and without hæmorrhage.

The child was born asphyxiated, but readily restored by ordinary means.

The patient's progress to recovery was most satisfactory.

Remarks.—This case may be favourably contrasted with the previous one, where the time permitted to elapse before interference was considerably longer, and depletion had been found necessary.

CASE XXXVIII.—*A primiparous labour. Head half-way descended into pelvic cavity, arrested for six hours. Forceps delivery. Child asphyxiated; restored by depletion of cord. Mother and child did well.*

October 5th, 1854.—I was called by Mr. Kirkwood to a primipara, æt. 22, who had been in active labour for *thirty-six* hours, and in the second stage of the process with perfect dilatation of the os uteri for upwards of *six* hours; but without any advance whatever, notwithstanding strong action. My friend was properly apprehensive of mischief, from the continued pressure of the head on the maternal structures; nor did he feel quite easy, on account of the violence of the pains, as to the safety of the uterus from laceration.

Present state.—No pyrexia; os uteri obliterated; vagina amply dilated; perinæum not rigid; head half-way descended into the cavity of the pelvis, with face to right sacro-iliac joint.

Having first relieved the bladder of a few ounces of urine, I introduced the forceps at the sides of the pelvis, locked them easily, and by repeated tractions during the pains, I brought the head on to the perinæum, when, for

the safety of that structure, I removed the blades, and left the rest to nature.

In less than ten minutes the child was expelled: it exhibited lividity of the features, and could not respire, evidently from congestion of the vital organs, the result of pressure. Half an ounce of blood was allowed to flow after dividing and before tying the cord; and the usual resuscitating means were had recourse to with success, though it was necessary to persevere in them for twenty minutes.

This case also presents a contrast with Case XXXVI., and others in which longer continued pressure had preceded delivery, the patient suffering no check whatever to a rapid convalescence.

CASE XXXIX.—*Brow presentation, left eye behind pubes; arrest of head at brim for seven hours. Forceps delivery. Child born living, face to pubes. Good recovery.*

Sunday, April 20th, 1856, at 11½ a.m., I was called to see Mrs. ——, æt. 40, pregnant of her third child. Liquor amnii escaped on Friday morning; at the same time she was taken in labour.

This morning, early, she first sent for Mr. Pascall, at whose request I saw the patient, as there had been no progress for four hours.

Present state.—No febrile disturbance; the os uteri fully dilated; vagina soft and well covered with mucus, not heated; good pains; left brow and eye behind the pubes; I could easily reach the adjacent side of the nose; no distension of the bladder. The patient has an umbilical hernia, which occasions no inconvenience. There is no impaction of the presentation.

I tried counter-pressure by my index and middle fingers,

on the outer side of the brow, applied in the absence of pains, to raise that part of the head, but without success. I then made pressure during the pains, in the hope that the vertex, now receiving the full force of the parturient efforts, might be pushed lower into the pelvis, but without avail.

As there was no pyrexia, and a favourable state of the genital tissues, no violent or spasmodic action, no urine in the bladder, I advised a further reliance on nature.

At a little before 3 I was again summoned; found much protrusion of scalp, but no advance of the cranium. The patient had struggled hard with her pains, and was exhausted. I now passed the catheter, relieved the bladder, and introduced the blades of my ordinary forceps along the sides of the pelvis, using for the occipito lateral region the short blade; locked them easily, made traction during each pain; at the same time I gave a rotatory movement to the head, so as to raise the brow and depress the vertex. In this object I succeeded; after which the child was speedily born, and emerged with the face to the pubes.

It was asphyxiated, but readily and perfectly restored to life, on exposure of its surface to the air, and removing the mucus from its nose and mouth. It exhibited for a short time a purple discoloration of the surface of the parts which had presented: this gradually disappeared, and the child did well. The patient required nothing more than the ordinary treatment after natural labour, except the reapplication of her hernia truss.

Remarks.—I decided in favour of the forceps in this case, rather than the tractor (vectis), thinking they would give me more control over the head; and my object of depressing the vertex and changing the presentation was by them fully attained. The compressing power of the forceps was of service in facilitating the required change.

In giving more time before instrumental assistance, I thought it possible that the case might terminate naturally by a face presentation; however, the patient having become

greatly fatigued with her severe but fruitless pains, and as serious consequences were to be feared from further delay, I finished the labour.

CASE XL.—*A fourth labour; contraction of pelvic arch; two of the previous labours had been instrumental, and the children lost; delivery by the forceps under chloroform; child, a male, living. Mother did well, excepting in having an attack of neuralgia, removed by tonics and country air.*

December 15th, 1856, at 5¼ a.m., I was requested to see Mrs. B ——, æt. 38, the wife of a professional friend, in labour with her fourth child. Health delicate. Pains had existed more or less for two days. The liquor amnii, however, did not escape till 4 this morning; the os uteri at that time fully dilated.

Present state.—The head at the outlet; face to right synchondrosis; contracted pubic arch; severe pains present; no swelling, nor heat of the genital passage. The patient very importunate for chloroform.

History of previous labours.—Her *first* labour, which I did not attend, was completed by craniotomy by another physician. The *second* child, smaller, was born without instrumental interference. The *third* labour I was summoned to, after the second stage had been protracted many hours. I delivered her by the forceps; but the child had, it appeared, been dead some little time, though not decomposed. It was believed by the husband, and I thought it probable also, that earlier aid would on that occasion have resulted in a living birth.

Treatment and result.—Under the above circumstances, I determined to deliver by the forceps. I first placed my patient under chloroform, to annul her sufferings, and re-

lieved the bladder. The forceps were introduced, and I succeeded in extracting a male child in full life. The patient had, for some weeks afterwards, an attack of pain in the leg and thigh, which appeared of a neuralgic character, unattended by fever, swelling, or redness, but accompanied by great debility. Except for this affection, which she had had before, and which yielded to tonics, suitable local applications, and country air, this patient did well.

Remarks.—But for the patient's debility, present sufferings, and the history of former labours, I should certainly not have applied the forceps till after the lapse of more time.

CASE XLI.—*A primiparous labour; arrest of head at outlet for eight hours; exhaustion; delivery by the forceps of a living child. Good recovery.*

In June, 1857, at 4 a.m., I was consulted by Mr. Samuel Gardner, of New Church Street, Edgware Road. The patient, æt. 24, first labour.

The liquor amnii had escaped several hours; the os uteri fully dilated; the head had been at the pelvic outlet, under strongly bearing pains, for eight hours. The bladder had been relieved by the catheter.

Present state.—Pulse 130, weak; patient greatly fatigued. Head at outlet, not wedged, face to right synchondrosis; no sign of child's death; evident disproportion between size of head and lower pelvic aperture.

Seeing no prospect of a living birth under natural efforts, the bladder was now again relieved of its contents by an elastic catheter, and delivery by the forceps of a living child was accomplished in a few minutes. The patient progressed so favourably, that she was able to sit up a little at the end of a week, and had a quick recovery.

Remarks.—Further delay would have rendered useless any application of the forceps, and would soon, in so weak a subject, have induced serious consequences.

CASE XLII.—*A primiparous labour; arrest of head at outlet for four hours; delivery by the forceps of a living child. Mother did well.*

June, 1847.—The patient's age 21; *first* labour; the head had been at outlet four hours, under violent parturient action, with fully dilated os uteri.

Present state.—No pyrexia; head at outlet; the face in the first or right posterior oblique position; os uteri obliterated; vagina of ample width and relaxed; perinæum not rigid; evident want of room at the outlet for the passage of the head.

Treatment.—After relieving the bladder, I passed the blades of the forceps at the sides of the pelvis, easily locked them, and thus delivered the patient of a large child, living.

Though there was no pyrexia nor heat of parts, I thought it better to resort to delivery now, when the prospect of a happy result was so good, than to delay till swelling, heat of the genital tissues, and inflammatory fever had declared themselves.

Mr. Pascall informed me that our patient recovered without a bad symptom.

CASE XLIII.—*A primiparous labour; arrest of head at outlet five hours; forceps delivery; child living. Mother did well.*

August, 1847.—Patient's age 24. First pregnancy. The liquor amnii had escaped twenty-four hours; the head

had been at the outlet, under violent bearing pains, five hours, producing much turgescence of the features.

Present state.—Head at outlet in second oblique position; face to left synchondrosis; vagina and perinæum well relaxed. The bladder was relieved of its contents; the fœtal pulsation distinct on auscultation.

To save the child, to relieve the patient from her sufferings, to guard against too long-continued pressure by the head on the maternal tissues, I determined on immediate delivery by the forceps. I introduced the blades along the sides of the pelvis, locked them easily, and with a few tractions brought the child into the world, living and healthy. The patient had an uninterruptedly quick recovery.

CASE XLIV.—*A second labour; arrest of head in transverse position four hours; delivery by forceps of a living child. Mother did well. First labour unavoidably completed by craniotomy.*

October 20th, 1856, at 1 a.m., I was called by Mr. Wilkinson, of the Caledonian Road, to a patient under 30 years of age, in labour of her second child.

In her first labour I was also consulted. There was then impaction of head, swelling and heat of parts, and I delivered her by craniotomy.

In the present case the waters had escaped at 9 last night (19th). The head had occupied its present position four hours, but labour had set in on the previous evening (18th).

Present state.—No pyrexia; os uteri obliterated; vagina and perinæum not rigid; the head descended half-way into pelvic cavity; no impaction; face to right ilium.

The bladder being first relieved by Mr. Wilkinson, before the operation, the patient was now placed in the proper

position, at the edge of the bed, across it. I now introduced the forceps, passed the upper or right pelvic blade behind the right cotyloid cavity, the lower blade in front of the left sacro-iliac joint, so as to apply them, as in all transverse positions is desirable, over the fronto-lateral and occipito-lateral regions of the child's head respectively.

They were passed easily, and locked without difficulty. Traction was made only during the pains, the locks loosened as usual during their absence; thus a continuous pressure on the child's head was avoided. After twenty minutes from the introduction of the instruments, the face having been rotated to the sacrum, the head was brought through. The perinæum received every care, and was not injured. The child's life was saved.

Shortly afterwards the placenta passed into the vagina, and was thence removed by my friend, who has since reported to me that the patient had a good recovery.

Remarks.—Second stage and arrest of the head had continued four hours. The transverse position being apparently the source of difficulty, there was no advantage to be expected from delay; on the contrary, swelling of the soft parts and impaction was to be anticipated therefrom. Beyond the use of the catheter, no preparatory treatment was required. The forceps were therefore at once applied, and the case having been relieved in ample time to prevent mischief from the head's pressure, the patient's progress after delivery was entirely satisfactory.

CASE XLV.—*A primiparous labour; arrest of head at outlet six hours; forceps delivery; a male child born living. Mother did well.*

February 11th, 1850.—A primipara, patient's age 29. The labour had lasted thirty-six hours; the os uteri had

been fully dilated *eight* hours; the head fixed in the pelvis fully *six* hours when I was called.

Present state.—Parts unduly heated, pyrexia, face to left synchondrosis. Such being the state of the case, I applied the forceps, after having removed some urine; a fine living male child was thus delivered. The placenta followed naturally, and the patient had a good recovery.

Remarks.—I apprehended that longer delay would result in swelling of the vagina and scalp, consequent impaction, and a necessity for craniotomy. The forceps were therefore applied without delay.

CASE XLVI.—*A ninth labour; arrest of head at outlet five hours and a half; forceps delivery; child still-born. Mother did well.*

October 11th, 1851, at 8 a.m., I was called by the late Mr. Jones, of Portland Town, to a patient, æt. 35, in her ninth labour. The liquor amnii had escaped seven hours, the os uteri was fully dilated at their discharge. The head had been in pelvic cavity five hours and a half, under strong pains.

Present state.—Os uteri obliterated; head in pelvic cavity, face obliquely backwards to right synchondrosis; good pains; fœtal pulsation distinct; vagina moist; no heat of skin nor of vagina; perinæum not rigid; considerable tumidity of scalp.

I watched the case for an hour; the patient then getting restless, and the pains weaker, I applied the forceps, and with three tractions, during three successive pains, I brought the child through the outlet, the funis without pulsation; attempts to resuscitate the child were of no avail: the placenta followed naturally, and the patient had a good recovery.

I may add, that this patient has had two living children

since at single births, of good size, without instrumental aid.

Remarks.—Would an earlier operation have saved the child's life? It is not improbable, but the result could not be anticipated. The death of the child could not be explained by the pressure of the forceps, which was of so short duration. This case may be contrasted with preceding ones, where the second stage under full action had continued longer,—in one case six, in another as long as eight hours, in another ten, and in a fourth case longer still, and yet the children had been extracted alive by the forceps, and the patients did well.

CASE XLVII.—*A primiparous labour; head arrested at outlet for ten hours; forceps delivery, child living. Mother recovered.*

In the spring of 1852, one Sunday morning early, between 12 and 1, I was called to a parochial patient in first labour, her age about 25.

The liquor amnii had escaped at the onset of labour, on Friday, at 6 a.m., the pains and dilatation of the os uteri subsequently proceeded slowly; the head had been in the pelvic cavity ten hours.

Present state.—No pyrexia; patient feeble from scanty food before admission; the head descended almost to outlet. Considerable swelling of the soft parts there situated; retention of urine. The pains did not influence the presentation in the least.

Fearing an increase of swelling of the maternal structures, and consequent impaction of the head, after emptying the bladder by the catheter, I delivered by the forceps, and the child was living and vigorous.

Remarks.—I did not think it necessary to adopt any previous constitutional treatment, as there was no febrile dis-

turbance; and had there been any, the patient's reduced strength from poor living would not have borne any depressing measures. With the aid of good sustenance, her recovery was completed in the period usual after the most natural labour. I judged it advisable to complete the delivery by the forceps, as the perinæum offered no impediment, and the patient was too feeble for further exertion. Increased swelling of the soft parts and more complete impaction of the head was to be feared from longer delay.

CASE XLVIII.—*A primiparous labour; arrest of head for ten hours at outlet. Forceps delivery. Living birth. Mother did well.*

November 23rd, 1852. I was called by my friend Mr. Davey to a primipara, æt. 29. The liquor amnii had escaped twelve hours before, the os uteri at that time fully dilated. The head then underwent gradual progress into the pelvic cavity during the next two hours; but during the *last ten* no advance had taken place, notwithstanding there had been a sufficient action.

Present state.—No febrile disturbance; head in pelvic cavity; face directed obliquely backwards to right half of sacrum; fœtal pulsation distinct; vagina and perinæum favourable for forceps delivery. As mischief was to be apprehended from continued pressure on the maternal structures without advance of the head, I delivered by the forceps. The child was asphyxiated at its birth, but was restored to vigorous life by the ordinary means. The placenta came away in ten minutes without assistance, and the patient did well.

Remarks.—In this exceptional case of arrest of the head in one position during ten hours without ill effects, we might have expected febrile disturbance and swelling of the

maternal tissues; we might have anticipated a still-birth more reasonably than in a former Case of five and a half hours of arrest. It affords an instance of nature's providential moderation in her efforts, when obstacles oppose. Such exceptional cases, however, cannot disturb the safe rule already laid down as to time.

CASE XLIX.—*A second labour; arrest of the head at brim for six hours and a half; transverse position; delivery by the forceps of a living child. Mother recovered.*

December 12th, 1857, at 9½ a.m., I was sent for by a professional friend to see Mrs. ——, æt. 24; previous health moderately good, not robust; she had given birth to a living child, without instrumental interference, between two and three years ago.

The patient had reached the full term of this her second pregnancy. Labour had begun, with the discharge of the waters, at 5 p.m., Dec. 11th. At 3 a.m. the os uteri became fully dilated, and the head engaged in the pelvic brim. The pains had been weak and spasmodic, which opium had relieved.

Present state.—I found the patient fatigued; pulse above 100; no morbid heat nor swelling of the skin, nor of the genitals; no distension of bladder above the pubes, nor in the vagina. The head high up, engaged in the brim; the right ear behind the pubes, its helix to left ilium; the face therefore to right acetabulum. The head has been arrested six hours and a half.

The catheter being first passed, and a little urine in the bladder drawn off, the patient was brought to the edge of the bed, and the blades of the forceps (the oblique) applied respectively behind the right acetabulum and in front of the left sacro-iliac joint.

The blades were easily locked, and I drew upon the head, resting at intervals, adopting the precautions specified in former cases. As the head advanced to the perinæum I inclined the face backwards, upon which a living girl of full size was born.

Remarks.—There seemed no prospect here of nature being equal to the difficulty, which arose from the postero rotation of the face not taking place. It will be observed that I here used the oblique forceps, which consist of a long blade for application behind the acetabulum of that side to which the face is directed, adjusted over the fronto-lateral part of the head; the opposite being a short blade introduced in front of the sacro-iliac joint, applied to the opposite occipito-lateral part of the head. There was not safe room for the ordinary forceps, and the oblique I found most efficient.

This patient, I am happy to add, recovered without any illness.

CASE L.—*A twin and third labour; arrest of head of first child at the brim four hours; delivery by forceps; second child born naturally. Mother recovered.*

November, 1857, I was consulted by a professional friend in a third labour; patient's age 33.

Previous history.—The patient had had two still-births after protracted labour; in the last I had been called in, and delivered her by craniotomy, the head having been impacted in the pelvic brim for several hours.

In the present labour the head had been arrested *four* hours, and, knowing what had happened before, my friend suspected a similar treatment might now be required. About fourteen ounces of blood had been taken from the arm, on account of much pyrexia and morbid heat, with dryness of vaginal mucous membrane, before I was consulted.

Present state.—The head had slightly entered the pelvic brim, with face to right sacro-iliac joint. Having removed what urine was in the bladder, only a small quantity, I applied the forceps along the sides of the pelvis, and delivered a female child living, nearly of the average size of a single birth.

Therefore I was surprised, on examining immediately afterwards, to find the head of a second child presenting, its amniotic bag unruptured. I thought it very probable that, the passage having just been dilated by the first child, the second would come spontaneously. After a short interval the membranes were broken by the finger, and a male child of full size for a single birth was born living fifteen minutes later, by the natural efforts.

The two placentæ were connected together by membrane, but not by any intercommunicating vessels.

The patient recovered as quickly as after a natural labour.

CASE LI.—*Difficult labour in a primipara, æt.* 33. *Head arrested five hours; pyrexia; dry heat of vagina. Depletion. Delivery by the forceps of a male child, living.*

December 28th, 1857, mid-day, I saw, with a professional friend, a patient, æt. 33, in labour of her first child at full term.

Previous history.—Health good; liquor amnii escaped between 11 and 12 last night. The os uteri was fully dilated at twenty minutes before 7 this morning. The head then had descended half-way into the pelvic cavity; no progress since, notwithstanding strong pains. In the course of the morning, the skin and mucous membrane of vagina having become hot and dry, the pulse hard, and injurious effects from pressure being apprehended, she had been bled to eighteen ounces.

Present state.—Mid-day.—An abundance of olive-brown coloured discharge from the genital surfaces; os uteri obliterated; vagina and soft outlet relaxed, not unduly heated; a puffy swelling on the head distant about two inches from the outlet. The head itself had not further descended at seven this morning. The small fontanelle now behind the right ramus of the pubes; the sagittal suture felt in the left oblique diameter.

The pains now strong, yet they did not affect the presentation in the least. Passing my finger along the sides of the pelvis, I found sufficient room for my ordinary forceps, and, as there was no proof of the child's death, I decided to apply them. The bladder was first emptied by the catheter; the patient being restless, so as to make the application of the forceps unsafe, she was placed under chloroform. After which, in fifteen minutes, a male child, living, was born. The forceps were removed when the head bore upon the perinæum, that that structure might escape laceration.

The placenta was removed in due time, from a firm attachment to the uterus, and the patient was left doing well, expressing her gratitude.

The following day—pulse 88; patient had had a perfect night's rest; urine had been passed in ample quantity, with ease, and not high-coloured.

The recovery was uninterruptedly good.

CASE LII. — *Head arrested in lower portion of pelvic tube; patient in strong labour seventeen hours; the waters escaped two days before labour. Delivery by the forceps of a fine male child, living.*

April 21st, 1855, 9 p.m., I was called to a patient in the Caledonian Road, in her ninth labour; her age 42.

The liquor amnii had escaped on the morning of the 19th. Pains set in at 4 this morning, and from that hour

till the present time, she has been in strong labour, and greatly fatigued.

The head had been in the pelvis four hours. On examining for the sagittal suture, I found it and the large fontanelle directed towards the right half of the sacrum; the head had not yet reached the perinæum, and the pains, though strong, did not influence the presentation at all. To prevent the evils of long delay, I determined, as there had been no progress for the above period, notwithstanding strong pains, to deliver by the forceps.

The catheter was first introduced; the patient in the ordinary labour position. She was placed at the edge of the bed; the left-hand blade of the forceps was now passed in in front of the left sacro-iliac joint, then shifted to the side of the pelvis; secondly, the opposite or right-hand blade was similarly adjusted on the right side of the pelvis, and the blades locked easily.

I now applied compression and traction, when one effort brought the child into the world.

This patient had a perfectly good recovery.

Case LIII.

December 28th, 1857, mid-day, a primipara, æt. 33, previous health good, had been married eleven years. Liquor amnii had escaped at 12 previous night. The os uteri fully dilated at 6.30 a.m., and the head had then descended half-way through the pelvic canal. The skin became hot and dry; the pulse hard, which induced Mr. Pascall to bleed the patient to eighteen ounces.

Present state.—Parts cool and moist; os uteri obliterated; the head distant from the vulva only an inch and a half. Small fontanelle behind the right ramus of the pubes; the sagittal suture directed in left oblique diameter; large fontanelle to left sacro-iliac synchondrosis. Strong pains

present, but the presentation is not influenced by them; a considerable tumidity of scalp.

I introduced the elastic catheter, and drew off six ounces of urine; and finding room at the sides of the pelvis, I passed in the blades of my forceps, first giving the patient chloroform, as she was restless.

As soon as the perinæum was bulged out by the head, I removed the forceps gently, and allowed the head, for the greater safety of the perinæum, as yet not sufficiently developed, to pass out under the natural efforts. After a short interval, a fine male child was born, living. The tumid scalp in this case was not situated chiefly on one side of the sagittal suture, and over the corresponding quarter of that parietal bone—the anterior of the two in the pelvis, as more usually is the case; but upon it, and equally on either side of it between the two fontanelles, its circumference that of a five-shilling piece. It was, therefore, not arrested obliquely as to its transverse diameter. The placenta gave no trouble.

The following day, pulse 88; had slept well; urine had passed naturally. Uninterrupted recovery.

Case LIV.—*Forceps delivery, in a primipara, of a female child, living.*

April 3rd, 1859, 4·30 p.m., I met a practitioner in the following case of a primipara, aged 30. The liquor amnii had escaped yesterday morning at 6, when labour commenced. The os uteri was fully dilated early this morning.

Present state.—Skin dry and hot; tongue dry. Head half-way descended into the pelvic canal; sagittal suture in left oblique diameter; small fontanelle opposed to right cotyloid region. The bony outlet a little contracted; the lower part of the sacrum and the coccyx seem to incline forwards abnormally. Bladder is distended above

the pubes. The pains do not affect the presentation in the least.

Treatment.—A pint and a half of urine was drawn off by elastic catheter. I then passed my forceps along the sides of the head and pelvis, the patient being previously in correct position—on left side at edge of bed. The head was grasped, traction made, and at the same time the face of the child was turned backwards to the sacrum. The head having partly emerged, I gently removed the blades, and allowed the natural pains to expel the child,—a female, living, of average size. The placenta was removed from the vagina at the end of fifteen minutes.

This patient "recovered without a single bad symptom." I believe that when, as some have alleged, the removal of the blade, before the birth of the head, occasions the perinæal rupture we are so anxious to prevent, it is because the precaution given elsewhere in this book is not observed; viz., to press the blade firmly on the head at every point of its inner surface, following with the curve of the blade that of the head most accurately, as the former is gradually withdrawn. If the instrument, on the contrary, is drawn out in a straight line, the head is hurried out, and the unwished-for rupture of the perinæum actually does take place.

Case LV.—*Forceps delivery of a male child, living.*

November 11th, 1859, 9 a.m., I was called by Mr. Sebastian Wilkinson to see a patient near the Caledonian Road. She had had five children and three miscarriages. The "waters" had escaped at 9 the previous evening; soon after which the head had descended half-way into the cavity of the pelvis, but had since that made no progress.

Present state.—Skin moist, and vaginal mucous membrane moist; a very varicose condition of nymphæ and labia

majora; occiput to left horizontal ramus of pubes. Urine drawn off by catheter, high-coloured.

Expecting that ere long, with continued pressure, and no advance, the soft parts would not long remain in their present favourable condition, I applied the forceps, and, with the usual intervals of rest between the tractions, separating the blades the while, a living male child was delivered in about a quarter of an hour.

Chloroform was given in small quantity during the operation. When the head had passed through the outlet, the forceps were observed to be in application with the right parietal and frontal, and with left parietal and occipital districts of the head.

The placenta was more firmly attached to the uterus than usual, and required removal. The patient recovered perfectly and quickly.

Case LVI.—*Forceps delivery of a male child, living.*

Dec., 1860.—Mrs. ——, æt. 26, primipara, at full term. Pains commenced yesterday morning early. The liquor amnii escaped at mid-day. At 8 last night the head had descended, so that the scalp touched the internal surface of the vulva. Denman's forceps were tentatively applied in the absence of my ordinary pelvic curve forceps; but they could not be adjusted so as to lock, the head not being yet sufficiently low down. About two hours later,—nature in the mean time having been again left to her own efforts without advance,—I decided on applying my pelvic curved forceps, which I had now obtained. The bladder was first emptied of a pint of urine, and the patient chloroformed. The blades were readily slipped in; first the left, then the right. They were locked easily; and, with the same precautions already so often referred to, a fine living boy was extracted at the end of an hour from the application of the blades. Uninterrupted recovery was the sequel of this case.

CASE LVII.—*Forceps delivery. Child born asphyxiated, but restored after employment of resuscitating means for twenty minutes.*

January 3rd, 1861, with the late Dr. Sawyer, of Guilford-street.

Patient aged 30; third pregnancy. Her two previous children had been delivered by forceps, but born dead.

I was called at 1 a.m.; and she had been in labour the whole of the previous day. The liquor had escaped many hours; the head had not advanced for *five* hours.

Present state.—The head has partly entered the pelvic cavity; it wedged at one side of the pelvis; considerable puffiness of scalp. The patient is much fatigued; tongue furred; pyrexia.

I delivered her by the forceps of a female child of large size, and living.

Remarks.—The swelling of the genitals, the long endurance of suffering, and other indications afforded by the tongue and pulse, persuaded me that delay would induce risks of puerperal inflammation; and leave, moreover, a *small* chance of rescuing the child; therefore, after applying the catheter, and drawing off the urine, I adjusted the forceps obliquely on the head fronto-laterally and occipito-laterally, as they took their position. Traction was then applied, and the head brought into full bearing on the perinæum. The forceps were now removed, and a few pains completed the delivery without injury to that structure.

The child was apparently lifeless; but, after persevering with the following means for twenty minutes, active life was fully restored.

Those means consisted of brisk friction along the cervical and dorsal spine; smart percussion with the palm of the hand on the nates; submitting the child alternately to the

hot bath and cold-water douche over the face and chest. On each cold douching the chest-wall was seen to contract; upon which the inspiratory act followed.

CASE LVIII.—*Forceps case. Child living. Good recovery.*

May 21st, 1861.—Mrs. G——, æt. 24. First pregnancy; full term apparently, although she thought she had brought on her labour prematurely, through a fright, while being driven in a phaeton on the previous day.

I was called at 4 a.m., the waters having escaped. My services were not yet necessary, pains occurring only at half-hour intervals; head presented. At 4 p.m. the pains were more frequent, the os uteri widening, and not rigid. At 8 p.m. the head descended to the flooring of the pelvis. At midnight the head had made no advance: I anticipated I should require the forceps. I had twice relieved the bladder, and given chloroform from time to time to soften a rigid os uteri. At 2 p.m. the patient complained of great exhaustion; and the pains, although strong, produced no effect on the head; the presenting scalp tumid.

Under these circumstances, I thought it wiser to interfere than wait till swelling of the maternal tissues and increased swelling of the fœtal scalp had supervened, when interference would be of no avail in saving the child's life.

I continued the chloroform, which had long ago fully softened and developed the os uteri and relaxed the vagina, as well as the perinæum. I now applied the forceps along the sides of the pelvis; and, with about twelve tractions, separated by rests, I brought the child, a female, into the world.

Immediately after the child, a large dark clot escaped, and the placenta, which followed in half an hour, without extraction, exhibited in its substance another dark blood-clot, both of which effusions probably occurred at the time of the fright.

May 22.—Pulse 120; a good night; lochial discharge normal; has passed water; no heat of skin; no abdominal pain; soreness on one side of vagina, near outlet. Fomentations ordered.

May 23.—Pulse 100; restless night; no abdominal pain; no heat of skin; "fidgets in the legs;" the soreness in vagina near outlet continues, but no redness or abrasion. Continue the fomentations. Dover's powder, 10 grains at night.

May 24.—Slept well; pulse 90. Blue pill, gr. iij., at bedtime; castor oil 2 drachms in the morning.

May 26.—Doing well.

May 27.—"Fidgets in the legs" recurred; sense of weight in the uterus and of pressure against the bladder. These did not persist, and the patient was able to leave for the country to gather strength,—in the usual period. I have attended her since in her second labour of a male child living, which was born naturally, and at term.

CASE LIX.—*Forceps delivery; head arrested in its rotation, with face to right ilium, in a primipara. Child living. Good recovery.*

October 14th, 1864.—Mrs. C——, aged 27, of florid complexion, medium stature, well formed, having been placed under my care, was taken in earnest labour at 6 in the evening, preceded by discharge of the "waters," foreboding a tedious labour. Head presented.

The os uteri was not fully dilated till about 6 in the morning; the pains had been very tedious, and the tissue of the os uteri slow to yield. Chloroform was contra-indicated in the case; therefore I substituted an anodyne antimonial draught; and after a time I resorted to the aid of caoutchouc dilators. Thus at the time stated above, the os uteri became obliterated. The pains of the second stage

now appeared in their usual force, but were abruptly arrested, as it were by an obstacle.

A puffy swelling of scalp formed gradually on the fœtal head, and some heat and swelling of the genitals was commencing. The patient's face and lips, especially on the left side on which she lay, had become much swollen and almost purple from congestion. I had had occasion to use the catheter twice in the day. I had also softened the perinæum by administering antimonial draughts, and applying fomentations to the perinæum, and with the desired effect.

But this, although very beneficial in itself, did not suffice to meet all the requirements of the case.

The head had not, at 5.30 p.m., fairly descended into the cavity of the pelvis, although the action had been strong many hours.

Having communicated to the husband that the child would be lost if instrumental aid were not given, and his wife's life endangered by further delay, I commenced and completed the delivery by the oblique forceps; placing the short blade behind the left acetabulum, *i.e.*, on the child's head, behind the right ear, and the long blade in front of the right sacro-iliac synchondrosis, *i.e.*, anterior to left ear fronts laterally.

I now drew down, rotating at same time. The face was thus lodged in the hollow of the sacrum, and the head slowly brought through the outlet without any detriment to the perinæum. The remaining parts were allowed to be expelled by the natural efforts, which, after a lull, completed the birth of a female child in full vigour of life.

The mother and child have done well, without a check, and the years of disappointed hopes of a family have thus ended satisfactorily.

CASE LX.—*Forceps delivery, face to left ilium, in a multipara, whose labours with male children had required instrumental aid. A male still birth.*

March 7th, 1865.—Patient of Royal Maternity Charity; her age 41.

The waters had escaped four hours; a considerable tumour of scalp has formed on the presenting part of the head.

I applied the oblique forceps first, but, owing to some peculiarity in the shape of the head, probably from the pelvic compression, they slipped. I therefore put on my modification of Smellie's forceps, which are longer in the fenestra than Denman's, and so far preferable.

With this purchase, which was firm, I drew down, and at the same time rotated the face into the hollow of the sacrum. The head emerged with mid-line of face to left side of median line of sacrum and perinæum; the child showed no signs of life, having been dead apparently more than an hour. It exhibited a large livid swelling on anterior superior quarter of left parietal bone extending over large fontanelle.

The head most probably presented at first in the third position of the vertex, and had been arrested, when it had only half completed the postero-rotation of the face.

A bandage previously put on was moderately tightened, and more so after the escape of the placenta, which was spontaneous. Good recovery.

CASE LXI.—*Forceps case in a primipara, aged* 21.

October 22nd, 1862.—A patient of Royal Maternity Charity. Labour commenced yesterday morning and the waters came away at 7 this morning.

Present state, 6 *p.m.*—Head half-way descended into cavity of pelvis, a puffy swelling upon it. Right ear behind cotyloid cavity. A little urine was removed by the catheter, and Smellie's forceps were applied in preference to Denman's, as being longer in the fenestræ. The extraction, with the alternate rests, was effected in about a quarter of an hour.

The child, at its birth lifeless, was resuscitated partially, but only gasped a few times and then expired. A much earlier application of the forceps would, I believe, have saved the child. The patient had a good recovery.

Case LXII.—*Forceps case in a primipara. Living birth.*

August 1st, 1863.—A primipara, aged 23. The head had been arrested half-way, descended into the pelvic cavity several hours. A first application of the forceps early in the day had been unsuccessful. Chloroform was given gently throughout the day with good effect in relaxing and inducing lubrication of the parts with mucus.

Late at night I repeated the forceps, which, after being in application three-quarters of an hour with alternating rest from traction, brought a male child of more than average size, and in full vigour of life.

The patient, in whose case my friend Mr. Rawlins consulted me, has done well, without any untoward symptoms.

Case LXIII.—*Forceps delivery.*

May 31st, 1861.—Patient aged 32. Fourth confinement. Royal Maternity Charity.

The liquor amnii had escaped at 12 last night; the os uteri at the time rigid and of a shilling diameter. At 3 a.m. the mouth of the womb was fully dilated, and the head imme-

diately descended to its present position, at about one inch from the outlet. Since that time there has been no progress. The patient's pains are feeble.

She had been badly fed in pregnancy. I had nourishment and stimulants administered, and delivered her by the forceps of a dead child.

The drains of the house were very foul, which had tended further to depress the vital powers. The patient recovered favourably without any check.

CASE LXIV.—*Forceps delivery. A primiparous labour. Patient's age* 34. *Forceps delivery of a still-born child.*

The labour commenced July 7th, 1861, at 11 p.m. The liquor amnii escaped spontaneously July 8th, at 2 p.m.

I was consulted by a medical friend at 3½ p.m., as the head was engaged in the pelvic brim and was not influenced by the pains; no bad symptoms; I counselled a further reliance on nature. At 9 p.m. I was called again. The head had now advanced half-way down the pelvic tube, a puffy tumour of scalp on the presenting part of the head,—the right parietal bone, posterior superior angle; face directed to right side of the pelvis.

I relieved the bladder and applied the pelvic curved forceps obliquely, made traction and rested, separating the blades alternately, as the pains were present or absent. In about a quarter of an hour the child was delivered still-born. The placenta followed fifteen minutes later.

CASE LXV.—*Forceps. A third labour at term. Rigid os uteri; its relaxation by chloroform. Forceps delivery of a male child living.*

Labour commenced September 30th, at 9½ a.m., and lingered on very slowly through the first stage, till October 2nd, 6½ a.m., when the waters escaped. A rigid condition of os uteri was relaxed by the exhibition of chloroform. The soothing agent was also indicated by reason of inordinate restlessness and suffering.

At 9½ a.m. the head had not advanced beyond the position it took immediately on the discharge of the liquor amnii, viz., half-way distended into the pelvic tube. So inefficient were the pains, that no promise appeared of a further descent. Moreover, the head lay with the anterior fontanelle against the left acetabulum; hence the postero-rotation of the face had yet to be made. Further I remembered, that this lady's two first children had been large, and although born living, were not expelled till after a protracted endurance of strong labour pains.

The above circumstances led me to anticipate that further delay would be followed by swelling of the scalp, of the maternal tissues pressed upon, and the necessity for craniotomy; whereas present interference would obviate these evils, and afford the hope of rescuing the child's life.

The forceps were applied obliquely, postero-rotation was combined with the traction, and delivery accomplished of a male child of large size and living.

This lady recovered favourably, excepting a temporary nervous shock, through a fright occasioned by a chimney on fire.

CASE LXVI. — *Forceps delivery in a third labour rendered lingering by chloroform; a male birth, living.*

October 1st, 1861.—Mid-day I was called to a lady, aged 28, whom I had attended in two previous labours, which had ended naturally.

Labour had commenced the day before at 9·30 a.m.; the waters escaped at 6·30 this morning.

October 2nd.—I had been attending upon her throughout the night, administering chloroform at her own urgent entreaty; that agent had a good effect in relaxing the os uteri and vagina, but had a weakening effect upon the pains. They became short and ineffectual altogether, in advancing the head, which had not rotated; the face still looking obliquely forward to left acetabulum. The patient had become, in the absence of anæsthesia, exceedingly restless and unmanageable, so I was constrained to continue the chloroform, and to complete the case, which I did with the pelvic curved forceps.

With these I first placed the face obliquely backwards, and then extracted the child, a male, living.

The placenta gave rise to no trouble, and no puerperal illness occurred.

CASE LXVII.—*Forceps delivery. Head arrested in fourth position; bladder distended; catheterism difficult; delivery by forceps of a large child asphyxiated; resuscitation by ordinary means, after a lapse of twenty minutes.*

April 16th, mid-day, 1862, I was called by a medical friend to a primipara, aged 20. She had been in labour three days. The waters had escaped twenty-four hours. The

head had been in present position upwards of four hours. Catheterism had been attempted without success.

Present state.—Head half-way descended into pelvic cavity, right ear *exactly* behind pubic symphysis; brown vaginal discharge; the bladder distended above the pubes.

Treatment.—The attempt to introduce the catheter in the ordinary labour position failed with me, as it had with my friend; the instrument passed in between four and five inches along the lengthened urethra, but did not reach the collection. I then placed the patient on her back, not withdrawing the instrument, when it passed on readily; upwards of a pint of high-coloured urine was drawn off, and the swelling subsided.

I then delivered with a pair of Smellie's forceps, not having the oblique at hand; and the pelvic curved ones could not be adjusted so as to lock. I applied the above forceps in the first place obliquely, but an accurate locking not being attainable, I next placed them anteriorly and posteriorly in the pelvis, contrary to my usual practice. They were then fitted to the opposite sides of the child's head, and locked easily; the delivery was then gradually effected without injury. The umbilical cord was already pulseless; the child was large; exhibited faint traces of vitality; however by persistence in brisk friction over the cervical and dorsal spine, submitting the child alternately to hot bath and cold douche, with smart slapping on the breech; alternately compressing the chest walls gently, and again allowing their elasticity to come into play, the child was after twenty minutes gradually restored to active life. The placenta occasioned no trouble, and there was, as my friend informed me, no puerperal illness.

CASE LXVIII.—*Forceps delivery. A primipara, aged* 23; *a long-protracted second stage; child, a male, living; delivered by the forceps.*

August 1st, 1863.—The labour had lasted many hours in the second stage. I watched the case with my friend for some hours. At length, seeing no prospect but increasing swelling of fœtal scalp and maternal tissues from delay, and ultimately craniotomy, I decided on forceps delivery. The bladder was first relieved of a few ounces of urine, and the pelvic curved forceps applied. After three-quarters of an hour's employment of them, with the alternate rests, a fine living boy was at length extracted.

The patient had a good recovery.

CASE LXIX.—*Forceps case.*

August 24th, 1863, 6½ a.m.—Mrs. ——, æt. 22, second child; some slight contraction of pelvic brim, which rendered forceps delivery necessary in the first labour.

I was called to her first early in the morning. The os uteri was then high up and small. She was suffering very greatly.

I gave her chloroform for two hours, three times in the day. This relaxed the os uteri to full dilatation, greatly abridged the patient's sufferings, relaxed and dilated the vagina and perinæum.

The head, however, did not descend to outlet, even by seven in the evening. The parts were not heated, yet fearing for the child I applied the forceps, and delivered a fine living boy.

The patient's recovery was uninterrupted.

CASE LXX.—*A primipara, aged* 23. *Forceps delivery of a male child, living, nature having fully failed.*

August 1st, 1863.—The patient had been in strong labour all day, after full dilatation of the os uteri, with no advance of the head. Reasonably fearing that swelling of the child's scalp and of the maternal tissues would cause impaction, if the case were longer left, I applied the forceps, and, by the earnest desire of the patient, while she was under the influence of chloroform.

After the forceps had been in application for about three-quarters of an hour, including the rests, I succeeded, after considerable exertion, in extracting a male child living. My friend, Mr. Rawlins, who consulted me in this difficult case, subsequently informed me that his patient had recovered without a drawback.

MIDDLESEX HOSPITAL CASES.

Forceps Delivery.

1.—June 7th, 1863, 9·45 p.m., I was requested by my obstetric assistant at the Middlesex Hospital, Mr. Charles Pyle, to see a patient about 24 years of age in her first labour.

Her pains had commenced at 2 a.m.; the waters came away at 7·30 p.m.

Present state.—Left ear behind left foramen ovale; pain feeble; head near outlet; pulse 76, weak; abundant parturient mucus; perinæum very thick. I ordered a cordial.

At 3 a.m., pains still feeble, and seldom. The forceps

were now applied, and the occiput brought forward to the right pubic ramus, when the instruments were removed, as the perinæum was not prepared for delivery.

At 6 a.m. I was again called to the case, as the head had not advanced. The parts had become heated, and the patient's strength and spirits were exhausted. I administered chloroform to relax the perinæum; then applied the forceps with pelvic curve, and, in a few minutes, extracted a female child, living.

This patient had a slight febrile attack, which yielded to salines and laxatives.

She returned her thanks at the hospital on August 11th, reporting herself and child quite well.

2.—Patient aged 33 (1865); married eleven years; had six children living. She was attended in the early part of her present labour by one of my pupils at the Middlesex Hospital.

After two hours' labour, one child was born naturally and living.

The discharge of the waters six hours after birth of first child, and the administration of ergot with the ordinary bandage applied immediately after the expulsion of the first child, failed to induce the second labour. There was no hæmorrhage to warrant hurried interference; but ten hours after the first birth, I found it best to finish the delivery, which I accomplished with the short forceps obliquely applied on the head, which was placed transversely. This second child was also born living. Mother and both children did well.

3.—Patient aged 36, has five children living. This case was first seen by my then obstetric assistant at the Middlesex Hospital, Mr. Freeman, now resident medical officer at the Bath Hospital.

The head of the child presented in the *third* or left fronto-

cotyloid position, at the pelvic brim. Labour had commenced seven hours previously. It was not judged advisable to interfere operatively. An opiate was given to promote sleep. After this, pains were frequent and strong.

Seven hours later, there being no progress, the long forceps were applied under chloroform, and with some advance; but the head could not be brought quite into the pelvic cavity, even now.

After a further trust to the natural powers without any advance, I applied my improved Smellie's forceps obliquely on the head, and rotated the face into the second position (left fronto-synchondrosal). The blades were then removed, and the child, a male, was expelled, naturally and living, in an hour after.

Both mother and child did well.

4.—A primipara case, aged 40, patient of the Middlesex Hospital. No progress for eight hours; waters came away at commencement of labour; head engaged in brim in second cranial position; powers seem exhausted. The forceps were applied; the head was brought down on to the perinæum, and, for the greater safety of the soft outlet, nature was now left to complete the birth. The child was soon after born, but asphyxiated, and was not satisfactorily resuscitated till after the Sylvester method had been persisted in for upwards of an hour.

Both mother and child (male) did well.

5.—Patient of Middlesex Hospital, aged 28, has had three children living. Head presents. Active labour has lasted fourteen hours; on account of uterine inertia having come on, the delivery was completed by the short forceps. Child still, and apparently of seven months' gestation. Favourable to mother.

6.—Patient of Middlesex Hospital, aged 30. First

child; head presentation; the sacral promontory projects unduly. Strong pains had been present for twenty-six hours, but they produced no impression on the head.

The long forceps were applied, and delivery was completed under chloroform. Favourable to mother and child.

7.—Patient of Middlesex Hospital, aged 26; first child. She had been in labour six hours. Head in pelvic cavity almost from the commencement of labour, indicating a capacious brim; but the outlet was evidently narrowed.

As the soft parts were not duly dilated, I had chloroform exhibited; and subsequently delivery was effected by the forceps, a slight rupture of the perinæum taking place, but not such as to require plastic operation.

8.—Patient of the Middlesex Hospital; primipara; her age 21. The head arrested at outlet, which is under the average diameters; delivered by short forceps; female child, living; good recovery.

9.—A patient of Middlesex Hospital, her age 23. Head presentation; delivery by short forceps; child a female, living. Mother and child did well.

10.—Twins, and a first labour; patient's age 25. The first child presented by the vertex; second by the feet. The first child was arrested in its advance with ear at symphysis pubis. Being engaged with another patient, I requested Mr. Ferguson, my then acting obstetric assistant, to attend, and he found it necessary to deliver by the short forceps. Child a male. The other child came footling. Both were still-born.

11.—Patient aged 19 (Middlesex Hospital); married at 14. Head arrested in brim. Labour had lasted forty-eight

hours. Head brought down to perinæum by long forceps, and then left to nature. Child, a male, survived.

12.—Patient of Middlesex Hospital, aged 29. Had been fourteen hours in her second labour. Vertex presented; but head had been arrested at one point five hours. Delivery by short forceps; child a male, living; good recovery.

13.—Patient (Middlesex Hospital) aged 20; first child. Eighteen hours in labour; vertex presentation; arrested in pelvis five hours. The patient was feeble from exhaustion. Delivery by short forceps; child, a male, living; patient did well.

14.—Patient aged 33 (Middlesex Hospital). Head impacted in the pelvis about six hours. Delivery by short forceps; child still, female; mother did well.

The above are the cases which were attended at the Middlesex Hospital by me and by my successive obstetric assistants, Mr. Langford, Mr. Charles Pyle, Mr. John Smith, and Mr. Vincent Noel, between March, 1863, and March, 1865, in 1,400 deliveries. These obstetric assistants are selected from the advanced students after a written and *vivâ voce* examination, and act under certain regulations one rule being, that they should possess one legal qualification.

CHAPTER III.

INDUCTION OF PREMATURE LABOUR.

CASE LXXI.—*Premature labour induced on account of a relatively small pelvis, the children having always been too large to be born living. The operation repeated at two subsequent deliveries.*

August 6th, 1840, Mrs. G., æt. 40, pregnant of her fourth child, was placed under my care by my late father, in consultation with whom it was determined that I should induce premature labour, as he had been compelled on the last two occasions, on account of the large size of the children, to deliver by embryotomy. Her first child was born without interference, being smaller. The patient is a healthy-looking woman, with a pelvis of standard dimensions, and has advanced to the seventh month.

Ten days later I perforated the membranes with the blunt-ended stilet, passing it up along the palmar surface of my left hand and along the groove between my index and middle fingers; thus the point was guided through the orifice of the uterus to the membranes.

She expressed great relief from the diminished tension after the discharge of the liquor amnii. The labour ensued sixteen hours after, and proceeded steadily; and on the 8th, at 5 a.m., a living child, of ordinary full-term size, was born. Hæmorrhage following upon the child's birth, rendered the removal of the placenta necessary, after which the uterus contracted well, and there was no more flooding. The patient had not a bad symptom afterwards, and the child, a

healthy boy, was living sixteen years after, and, I believe, is so still.

This patient came to me in two subsequent pregnancies, and the same operation, the stilet alone being used, was repeated by me each time, healthy living children being born on each occasion. Upon the first operation, as I have stated, the labour supervened in sixteen hours; on the second in twenty hours; on the *third* occasion I endeavoured to induce labour by the ergot of rye, aided by the removal of the mucus-plug by the finger. I gave half a drachm of a good specimen of the drug in powder in a little water every twenty minutes, till three drachms had been taken, but without effect. On the following day, therefore, I stiletted the membranes, and in twenty hours and a half the pains of parturition commenced, and a living birth followed.

Case LXXII.—*Induction of labour for deformity of the pelvis by rickets, in three labours.*

In the spring of the year 1834 I was requested by my father to take charge, in her next confinement, of a patient advanced in the ninth month of pregnancy. She was of small stature, and deformed by rickets. Her last two labours were terminated by the crotchets, in consequence of contraction at the brim of the pelvis, the one by my father, the other by my friend, Mr. William Bagster. She had been fully cautioned to apply in time for competent advice at the seventh month of any succeeding pregnancy, with a view to the induction of premature labour, but she had neglected to do so.

When she was taken in labour, the brim of the pelvis was found to exhibit a very short conjugate diameter, and it soon became apparent that delivery by embryulcia was the only course. I therefore adopted that treatment; con-

siderable reduction of the skull was required prior to extraction.

In a few months later, the above patient again conceived, and recollecting the admonition given her on the previous occasion, she called upon me at the seventh month, and at an appointed time I stiletted the membranes. Labour supervened on the seventh day, and the birth of a healthy living boy was the result. I saw this boy fourteen years later, when he was well grown and healthy.

In the year 1835 and 1836 I was on the continent, so a friend attended her for me, and delivered her of another child by premature labour, but the child did not survive.

In due time she was again pregnant, but unfortunately, through an error of a homœopathic practitioner, she was treated for dropsy, till labour set in, when he took his departure, and I was sent for; I was obliged, in this her last confinement, to deliver her by craniotomy. She did well, being up and about within the month.

Case LXXIII.

May 26th, 1850, Mrs. S., æt. 28, third pregnancy, advanced between seven and eight months, was seen by me pursuant to appointment, for the purpose of having labour induced. Her health good.

Previous history.—Twelve months before I had been requested to see this patient. The head having been impacted in the brim of the pelvis for several hours, the parts dry and heated, the patient exhausted, I was obliged to deliver her by craniotomy. At her first labour she was delivered by the forceps; but such was the prolonged pressure by the blades on the child's head, that it survived its birth only a few hours.

I find a nipply projection of the cervix uteri into the vagina, and the orifice, as occasionally happens, after pre-

vious pregnancies, readily admitted the finger into contact with the child's head. I calculated that she was six weeks short of the full term of her gestation.

I passed a piece of soft sponge of a globular form of about three inches diameter to the top of the vagina, insinuating a small piece of it into the cavity of the cervix; I then passed up another to support it, and ordered ergot of rye. At the end of two days there had been no labour pains, so I removed the sponge and stiletted the membranes, and left her with the liquor amnii dribbling away. One ounce of castor oil to be taken in the morning. On the following day, after a few doses of ergot, labour pains commenced, the ergot was then discontinued; in four hours after the os uteri had dilated to the diameter of a five-shilling piece, but was rigid; to remove that state tartar emetic was given in small doses. Nausea and vomiting followed, and after the lapse of two hours, the os uteri was softened. Labour now progressed, and a healthy living child was born in the evening. It was not strong enough to relieve its mother's breasts, till they had been drawn; but after that it took to the nipple vigorously, and did well.

This patient became twice subsequently pregnant; I advised non-interference on each occasion, and she has each time given birth to a living child.

Case LXXIV.—*Induction of premature labour by ergot for distortion of the pelvis.*

September, 1851, I was consulted by Mr. Stewart, surgeon, of St. John's Wood, about a patient advanced in pregnancy, having distortion of the limbs, and of the brim of the pelvis. She had previously been delivered by craniotomy.

I found a conjugate diameter of only $2\frac{3}{4}$ inches. I advised the induction of labour in a fortnight hence; her present

advancement in pregnancy is seven months. The process was induced at the period agreed upon, and ergot produced the desired expulsive action. The child was, however, still-born.

Case LXXV.—*Induction of labour by stilet.*

March 10th, 1852, I performed the operation for induction of premature labour for Mrs. ——, æt. 28, at seven and a half months, by stiletting the membranes, other measures having failed. During the previous week I had dislodged the mucus-plug, and separated the membranes for a short distance with my finger. Good powdered ergot was also given at first every four, afterwards every two hours, and a sponge plug was passed up; but trivial pains and slight increase of dilatation were the only results.

I discharged the waters at 10 a.m., an enema was exhibited, and to favour relaxation of the os uteri one-eighth of a grain of tartar emetic was given every hour.

At 1½ p.m. I found the head partly descended into the pelvic cavity, and the os uteri three-fourths dilated; mucus abundant.

In an hour later the os uteri was fully dilated, the case progressed favourably and ended in the birth of a living child at 3 a.m. The child thrived well for a few days on a good wet-nurse, but was then attacked by jaundice, which proved fatal.

The patient's first labour, which I also attended, was an exceedingly difficult and protracted one, and considerable reduction of the skull was required to effect delivery through the brim; therefore I had counselled the induction of premature birth in the subsequent confinement.

She became again pregnant not long after, and I was encouraged by the result of the last labour, to suggest her going to the full time. After anxious fears expressed, lest

the child should be again lost, as at the first labour, by allowing it to proceed to full term, my advice was reluctantly taken, and the result was such as the parents fondly wished. That child—an only one, and a female—is now living and healthy, about ten years old.

Case LXXVI.—*Successive inductions of labour in one patient by different methods.*

Jane Salter, æt. 24, a patient of St. George's and St. James's Dispensary, had rickets in childhood.

History of first and second labour.—The *first* child was delivered by the forceps, but lived only a few hours.

In the *second* pregnancy, the child, after a protracted and difficult labour, was delivered by me by craniotomy.

The *third* labour, in 1857, I induced by discharging the liquor amnii. It was somewhat too premature, through an error in reckoning, and did not survive more than five hours.

The *fourth* labour, in August, 1858, was induced by sponge-tent, and separation of the membranes at the cervix, followed by tartar emetic; subsequently by a brisk purgative, and then by ergot. The os uteri was fully dilated in nine and a half hours from the insertion of the sponge-tent, and the child, a male, was born living and vigorous at 11·15 p.m.

The *fifth* I induced by injection of blood-warm water into the uterus at 7½ months. The child, a female, was still-born the same day.

The *sixth* I brought on by warm-water injections as before; but the first operation being of no avail, it was repeated the next day with success, the child, male, living.

In the *seventh* labour she became a patient under me at the Middlesex Hospital. Labour induced January 8th, 1864, by warm-water injection; but action not having set

in, I stiletted the membranes on the following day, and the child, a male, was born, living, the day after, at 10 a.m. The head and hand presented. I reduced the hand, but it slipped down again. I then again reduced it, and suggested her lying on her right side. After this the hand remained up.

The patient applied at the Middlesex Hospital on account of her *eighth* pregnancy. This time I induced her labour by the fiddle-shaped caoutchouc dilators of Dr. Barnes. After full dilatation of the passages, I discharged the waters, as the pains were exceedingly feeble, not propellent in any degree. Unfortunately the cord descended, and this time the child was still-born.

CASE LXXVII.—*Three successive inductions of labour in the same patient, after a craniotomy delivery.*

Mrs. F., æt. 39, applied to me in her second pregnancy, having been advised that she should submit to induction of labour.

Her *first* confinement was attended at full term by Dr. Robert Lee, who, after a long protracted labour, delivered her by craniotomy with great difficulty.

After examination, and finding a small conjugate diameter about $3\frac{1}{2}$ inches, I agreed to take charge of her case, and in the propriety of inducing labour at $7\frac{1}{2}$ months.

I effected it by injection of blood-warm water. In thirteen hours later she was safely delivered of a female child, which has thrived exceedingly well on ass's milk, although at first it was very delicate.

This lady called on me in October, 1861, engaging me to attend her again. I did so, repeating the induction of labour by injection of warm water, as before. The operation was performed at mid-day, December 10th; delivery took place on the following evening, at six, of a boy, living,

and larger than the previous child. I had allowed her to go on to the eighth month on this last occasion.

This child is being brought up upon cow's milk with cream, milk and sugar of milk, and one-third water, a wet-nurse being declined as on the previous occasion; and ass's milk also objected to.

CASE LXXVIII.—*Induction of labour. A seventh labour; two first delivered by craniotomy; the third, fourth, fifth, and sixth by induction.*

March, 1861.—M. A. S., aged 31 (R. M. C.), seventh labour; the two first were delivered by craniotomy, the four succeeding children were born living, after the operation of induction, each time performed by *injection of warm water* into the uterus.

The *first* of the four children lived till it was four years old; the *second* till it was seven weeks, and then died of pneumonia; the *third*, delivered by my colleague, Dr. Barnes—she then living in his district of the Royal Maternity Charity—is now (1861) living, and five years old; the *fourth* I delivered, and is now two years old.

In the present labour, *fifth* by induction, I repeated the operation with the same good result; the child, a male, living, and according to calculation and appearance of seven and a half month's gestation.

This patient is a woman of dwarfish stature; deformed by rickets of childhood.

CASE LXXIX.—*Induction of labour by the stilet. Obstinate vomiting. Child vigorous.*

February 22nd, 1859.—B. C., aged 23, third pregnancy, in her eighth month. Obstinate sickness, which has not been

subdued by effervescing draughts, hydrocyanic, suction of ice, &c., &c.; aperients and purgative enemata produced no effects. The quantity of green bile vomited was profuse; the patient's countenance was anxious, tongue brown and dry, pulse small; her general condition, indeed, denoted extreme exhaustion. She complained of a sense of burning in the throat and at the epigastrium.

Treatment.—I induced labour by stiletting the membranes, as the most expeditious mode was strongly indicated. I thought also that, by lessening the bulk of the uterine contents, and thus inciting the uterus to contract to a smaller size, a source of irritation would be at least diminished, and the sickness would subside. The result was as I wished: the sickness greatly abated.

The waters being discharged at 4 in the afternoon, labour supervened at 10 at night; and the birth of a living and vigorous child followed.

Both mother and child did well.

[Cases of induction of labour on account of floodings will be given in a clinical record, under "Hæmorrhages," in a subsequent volume.]

CHAPTER IV.

TURNING IN CONTRACTION OF PELVIC BRIM; HEAD PRESENTED.

Case LXXX.

May 24th, 1865, 3·30 a.m., I was consulted by Mr. Weathers, of Camden Town, in a difficult labour.

The patient, a primipara, aged 29. I was informed that two sisters had been delivered by craniotomy in difficult labours. The patient's previous health had been good. I found a very small portion of the head engaged in the pelvic brim. The head was indented by the promontory of the sacrum. The distance of the head from the outlet, and portions of the lip of the os uteri remaining unobliterated, deterred me from attempting delivery by the long forceps.

In the evident want of space at the brim, proved by many hours having elapsed of fruitless propellent pains, the alternative occurred to me of delivery by turning; otherwise, craniotomy would have been the only resource.

Having placed the patient at the side and across the bed, I passed up my left hand, at the right side of the pelvis, to the head; endeavoured to press it upwards to one side, while depressing the breech to the opposite side by the right hand applied over the abdomen externally; but no rotation of the child followed. I next passed my internal hand higher up, and grasped and drew down a knee; at the same time, with my right hand, I pressed upwards the head, which I could feel above the pubes. The rotation of the child was then instantly accomplished.

While feeling the cord within the uterus, I found it beating feebly and slowly. This induced me to hasten the delivery; but, although no arrest took place in bringing the head through the pelvis, the child was still-born. However, I had the satisfaction of having done the utmost to obtain a living birth.

CASE LXXXI.—*A second labour; previous labour had been completed by craniotomy; child born asphyxiated, but restored to active life.*

June 13th, 1858, at 10½ p.m., I was called to a patient in difficult labour, with deformed pelvic brim. Her age 27; her second child.

History of previous labour.—Sixteen months ago she was delivered of her *first* child. Considerable reduction of the head was necessary, and much force of traction required even then; the perspiration, I was informed, pouring down the face of the operator during his exertions. Much blame was alleged against the two practitioners who then attended, but to me the proof of blame was not apparent. The truth of the matter was, that the disappointment at the loss of the child was great, and the relatives could not get rid of the idea that the child might have been saved.

Present state.—I find here the space at the brim of the pelvis much less than natural in the sacro-pubic diameter. The parts soft, unheated; no trace of any injury having been sustained in the previous delivery. The os uteri all but fully dilated, and what remains is relaxed. The head is engaged and wedged in the pelvic brim, the greater part still above it; it lies transversely, with the face to the left side. Fœtal pulse is distinctly heard on auscultation.

Treatment.—Having first drawn off by the catheter the small quantity of urine in the bladder, I applied the forceps where alone there was room for them—at the sides of the

pelvis. They locked easily, but no advance was obtained. After this I found the fœtal pulse still distinct, which made me unwilling to perforate.

I was anxious to save the child, not only because the parents were most desirous that it should be born living, but also because it was my duty, if there was a chance of securing a living birth, to adopt a course which promised even a remote prospect of success.

I, therefore, bethought myself of an operation, formerly not very unfrequently attempted, and recently revived by Dr. Simpson,—that of turning. This case appeared to me to present that rare assemblage of circumstances which would warrant the experiment. The uterus was acting feebly; the os uteri was soft, and all but fully dilated; the vagina ample and not rigid; the parts at outlet also favourable. Therefore, after well anointing my hand and arm, I passed them up, by the side of the head, into the uterine cavity; grasped a limb and brought it down. Getting a purchase upon it, external to the vulva, I applied upward pressure upon the head, and displaced it from the brim. The operation of turning was thus completed. I now extracted the trunk, drew down the arms carefully, and the head next engaged. The cord was pulseless, except close to the navel; the child's heart was perceived to be slowly beating. I now lost no time in extracting the child, which, by disposing my fingers alternately upon the cheek-bone and jaw, also on the occiput and shoulders, and so making traction, I effected after a short delay.

It was a quarter of an hour after the birth before any signs of active life showed themselves; but by persisting in the hot bath, aspersion of the surface with cold water, friction over the spine, and rotation of the child's body, after "the ready method," a gradual resuscitation was effected, and at length the child was restored.

It was a female, as was the first birth; it appeared to me to be a month short of full term, and was stated by the

attendants not to be so large as the first child. The patient's calculation indeed was, that she was only eight months advanced.

After the birth I made a particular examination of the conjugate diameter, and found it to measure a little under three inches. The weight of the child was also taken, and it was ascertained to amount to six pounds two ounces. The placenta was thrown off into the vagina immediately after the birth of the child, and it was thence removed.

I advised, that, in any further pregnancy, premature labour should be induced at seven months and a half.

I saw this patient on the following day; she had passed water freely, and had not a single bad symptom. The child was doing well, and had sucked vigorously. The patient's joy was expressed in most lively terms.

Case LXXXII.—*Turning in a deformed pelvis after failure of long forceps. A fourth labour.*

October 25th, 1863, 7 a.m., I was called to a patient, aged 32, of the Middlesex Hospital, by Mr. Pyle, obstetric assistant, and attended by Mr. Clements, then a member of the Clinical Midwifery Class.

Previous history.—It was her fourth labour. Her first child was delivered by the forceps, living, seven years ago. The two next children were born living, without instruments, but the labours were described as "hard labours." The waters escaped at 12 last night.

Present state.—Head high up and movable, yet violent pains present, although not at all of a bearing character; too transverse; no constitutional disturbance. I recommended chloroform, with a view of subduing any exclusively transverse or spasmodic action. At 12·15 I found no improvement. The head had not engaged in the pelvic

brim. I applied the long forceps, first relieving the bladder; but no advance was obtained. I therefore delivered by turning conjointly by external and internal manipulation. I first brought down one foot, but could not accomplish version till I brought down the other foot, when the delivery became easy. The child was still-born, but did not appear to have been long dead.

The patient had an attack of pelvic cellulitis after delivery. It readily yielded to six leeches, followed by hot stupes, Dover's powder, and due attention to the bowels.

Case LXXXIII.—*Turning in obstructed labour, head presenting. Child still.*

March 4th, 1865, 1 a.m.—The patient, aged about 44, had not conceived for seven years. Before that she had, in single births, five children born living. The waters had escaped five hours before my visit, ever since which there had been strong pains, without any advance whatever, and with an increasing swelling of the scalp or caput succedaneum. I observed the pains to be strongly propellent, causing a very excited pulse and much turgescence of the features, but no effect produced on the head. I first applied the long forceps over the head, but could not obtain a locking, as they did not antagonize.

I then placed the patient under chloroform, knowing that, without it, it was useless to attempt version, if not actually unsafe. Anæsthesia having been obtained by it, with the assistance of my friend Mr. Weathers, who had summoned me to the case, I proceeded to turn. The milder method failing, I was constrained to follow the old plan of Paré. The child was slowly brought through, as in the last case; but, although the cord was pulsating, yet not strongly at first, it ceased to beat before the head could be extracted, which was not difficult or delayed. Attempts at resuscita-

tion by Sylvester's method, &c., were made without avail; but at least every chance had been seized to save the child.

The patient made a good recovery.

Measurements of cranium:—

Occipito-mental	6 inches.
Occipito-frontal	5 ,,
Biparietal	4 ,,
Circumference	14 ,,
,, of shoulders	$5\frac{7}{8}$,,
,, of hips	5 ,,
Vertex to heel	20 ,,

The weight was not obtained, although we requested it; it was, however, a full-sized child, as large as in the next case.

CASE LXXXIV.—*Version in obstructed labour under head presentation. Child saved.*

March 1st, 1865, 9·30 a.m., I was called to a patient of the Royal Maternity Charity residing in the Paddington sub-district. The last child was born living four years ago, and all the eleven previous children were born living. She was an Irish-woman, in strong health. Labour commenced at 8 night before; waters coming away at same time.

I found os uteri soft, not fully dilated, but very extensible. I found an eminence jutting out slightly from posterior surface of pubes at and close to symphysis, and the promontory of the sacrum seemed to be too projecting. This would appear to have supervened since her last delivery. There had been no lack of parturient action. The head, in fact, was prevented from engaging in the pelvic brim. There was the choice between the forceps, turning, and craniotomy. I applied the forceps; but after such amount and duration of traction as appeared to me safe to venture on, no advance was made. I listened for the fœtal pulsa-

tion, and found the child still living. I was anxious, therefore, to give it another chance of life, so determined to try version, which had availed me in other cases, where otherwise I must have perforated.

I first tried Dr. Hicks's method of version without delay, but it was impracticable. So to relax the genital tube and the uterus as much as possible, I obtained, through the kindness of the resident medical officer at the Western Dispensary, a supply of chloroform. My patient was soon placed under its influence.

The head was now easily pressed upwards, and aside into the uterus, at the same time that I succeeded in pressing down the breech; a foot was easily reached with the fingers of the left hand, and held, while with my right hand upon the abdomen above the pubes, I continued upward pressure on the head; the cord was pulsating strongly, so I could afford to allow the child to come through the pelvis, slowly; the arms required bringing down before the head engaged; and the chin needed to be depressed on the sternum, as the head passed.

The child, a female, was asphyxiated on its birth, but speedily revived under the resuscitating means employed, viz., Sylvester's method, aspersion of cold water on the face and chest, with a sharp slap on the breech.

The placenta was firmly adherent; so I detached it, and completely emptied the uterus.

The patient had an uninterrupted recovery.

The measurements of the child were taken, and its weight.

From chin to vertex, longest measurement.. ..	$6\frac{5}{8}$ inches.
Frontal-occipital	$4\frac{1}{2}$,,
Biparietal	$3\frac{6}{8}$,,
Width at shoulders..	$5\frac{6}{8}$,,
,, ,, hips	$4\frac{1}{2}$,,
Weight	$8\frac{3}{4}$ lbs.

CHAPTER V.

DISPLACEMENTS OF THE UTERUS CAUSING DIFFICULT LABOUR; RETROVERSION AND RETROFLEXION OF GRAVID UTERUS.

CASE LXXXV.—*Retroversion and retroflexion of uterus at full term, obstructing parturition. After many hours' of severe labour pains, the cervix uteri descended from behind the pubes, and the child was expelled dead under breech presentation. Treatment: Tartar emetic with hyoscyamus. Good recovery. Living birth, without difficulty, in subsequent confinement.*

October 18th, 1844, 3½ p.m., I was called by the late Mr. Samuel Bacon to a primipara, æt. 35, of tall stature, spare habit, in labour at full term.

She had suffered much, during the latter part of gestation, from a sense of bearing down of the uterus; the bladder had not been disturbed.

Mr. Bacon found a hardish, smooth, immovable, rounded prominence, deeply depressed into the pelvic cavity, pressing strongly on the rectum, and occupying the pelvic space. No cervix uteri could be detected in, or anywhere about, the usual situation, nor by any ordinary examination towards the pubes.

Through the walling of the swelling, which proved to be the gravid uterus retroverted and retroflexed, my friend could trace the outline of the child's head. The urine had passed at due intervals. On account of sleeplessness and great irritability, Mr. Bacon had, with good effect, exhibited

acetate of morphia, three-quarters of a grain, the night before.

Present state.—I discovered the swelling, formed by the fundus and body of the gravid uterus, descended two-thirds into the pelvic cavity, and fully occupying the space. With some difficulty, extending my finger behind the pubes, I could just touch the posterior lip of the uterus, but not the orifice. The extreme sensitiveness of the surfaces, and impacted state of the parts, prevented my reaching the front aspect of that lip. No febrile action fortunately. The parts moist, of natural temperature.

Subsequent history.—It was determined, in the absence of pyrexia, to rely for the present on the natural efforts, in the hope that the bearing action of the auxiliary powers of parturition, not deficient, would press the cervix downwards.

At 8½ p.m. the posterior lip was descended a little, and with some difficulty I could reach beyond the anterior lip. As yet there was no dilatation of the mouth of the womb; the patient was restless, her sufferings severe; no heat of skin, nor of vagina. Headache. Pulse 120, regular, not hard.

Treatment.—Tinct. of henbane, one drachm; Ant. Pot. Tart., half a grain; in camphor julep, every four hours.

October 19th, 10 a.m.—The patient has had some refreshing sleep; the pains less intolerable, though fully propellent. Pulse 140, regular, sharp. Continue same medicine.

1½ p.m.—Posterior lip still behind pubes, anterior lip yet difficult to reach. The fundus and body of the uterus still occupy the hollow of the sacrum. The bladder responds naturally. Continue the medicine.

2½ p.m.—The cervix uteri is beginning to descend; its orifice is a little open.

3½ p.m.—The uterus has at length become reduced into its normal position. The breech now occupies the pelvic

cavity; and no part of the os uteri can be felt, excepting the posterior lip, which now protrudes at the os externum.

6 p.m.—The child, a full-grown male, is just born, and appears to have been dead about two days; its length measures twenty-three inches, its weight nine pounds.

The placenta was expelled without hæmorrhage; the uterus contracted well.

The patient subsequently had a mild attack of abdominal cellulitis, which readily yielded, and she had a good recovery.

By request of Mr. Bacon, who, on account of ill health, was relinquishing practice, and dreaded another anxious attendance, I took charge of this patient in her next confinement, in which there was no recurrence of the displacement. The child, of average size, was born living without difficulty, and the patient had an excellent recovery.

Remarks.—We might have well expected here an interference with the function of the bladder, as retention of urine is almost invariably the result of retroversion of the gravid uterus; but, fortunately for the patient, the urethra remaining pervious, her sufferings were not aggravated by that complication. Usually, there is much vascular disturbance, and great heat of parts. Had the patient been of a full, sanguineous habit, most probably inflammatory action would have been set up; whereas her health had been much lowered by frequent bilious vomiting, before as well as during her pregnancy.

The tartar emetic had a useful effect in furthering relaxation of the maternal tissues, probably also in preventing pyrexia.

The cause of the displacement we could not decide; the patient had had no fall, or other accident. The pelvis was above the standard dimensions, which is believed by some to be a predisposing cause. A distended bladder had not produced it, as appears in some instances to have been the case. The retroflexion probably preceded conception, of

which I have had instances since, but which have undergone spontaneous reduction as pregnancy advanced.

I may here also refer to another case of retroflexion of the uterus at full term, which probably had existed from quickening, and probably before, which I saw with my father, in the year 1833, at the dispensary then attached to University College. There was no interference with the bladder there either. The patient personally applied on account of distressing feelings, from pressure posteriorly. I regret to say that the patient, an Irish-woman, escaped our observation, and we never succeeded in tracing her.

CASE LXXXVI.—*Retroversion and retroflexion of uterus obstructing labour, accompanied by cystic disease of right ovary—Chloroform and other relaxants. Craniotomy. Two successive discharges of fluid from the cyst at three weeks, and later after delivery. Recovery.*

March 15th, 1863, at 8 p.m., I was called by Mr. Morgan, of Copenhagen Street, to a patient, aged 50, who had had children previously; her last child six years ago. She had enjoyed good health.

The waters had escaped the day before my visit; but the os uteri had not been reached, because it was greatly displaced. She had suffered severe bearing-down pains for many hours.

Present state.—A large rounded solid body, uniform and smooth on the surface, occupies the hollow of the sacrum. The os uteri is nowhere to be found in or near its ordinary situation; but high up behind the pubes I reach with some difficulty the posterior lip of the os uteri, and higher the orifice, which admits the tip of the index-finger.* A large coil of funis lies in the vagina, without pulsation; the

* *See* fig. 1, opposite p. 21.

head, hand, and cord present. A distinct hard prominence is felt on abdominal examination above the right pubic ramus, and recognised as the child's head. Above this the outline of the uterus is traceable upwards to midway between navel and xyphoid cartilage. The patient had been able to empty her bladder three hours previously. The catheter was introduced as a precaution, but only four ounces of high-coloured urine were obtained. The patient's sufferings are very great.

Treatment and progress.—I had chloroform given to allay her severe sufferings, as also to relax the parts, and so facilitate the reduction of the displacement. I made efforts from time to time with the patient on her knees; had her shoulders low to dislodge the part of the body of the uterus, which occupied the hollow of the sacrum, and obstructed the labour. I was unsuccessful in this.

However, I hoped by continuing the chloroform we should find that the uterus would eventually right itself. At the end of two hours we had the satisfaction of discovering that the os uteri had descended a little. I now substituted tartar emetic a quarter grain; tincture of henbane twenty minims, every half hour, for the chloroform. I was now soon able to perforate the head, and so make an outlet for the escape of the cerebral pulp, under parturient pressure. As yet there was not room for further operative interference, consistently with safety to our patient. I now left the case in the hands of my friend. After a time, as I hoped would be the case, the head gradually descended so that it could be embraced by a pair of common forceps, and was thus extracted. I saw her the next morning, and found her doing well. Examining the abdomen, I felt now for the first time an ovarian cyst in the right ovarian region. This burst in three weeks later, discharging a watery-looking fluid from the vagina, and a subsequent discharge to the same amount took place some weeks later. I saw this patient up and about, between the first and

second rupture of the cyst, when I was requested to see another patient in the house.

Remarks.—The good effects of remedies to relax the genital tissues and soothe the severity of suffering were very manifest here, as in the preceding case of similar displacement of the gravid uterus. As in that case, the bladder was not disturbed by pressure on its neck. This was probably due, as Dr. West suggests as an explanation in his work on Diseases of Women, to the uterus being retroflected in an oblique direction, so that the pressure of the neck of the uterus is situated to one side of the urethra.

Whether the ovarian cyst had any share in causing the displacement, I cannot assert; but it is not improbable.

The proof of the child's death being certain in the state of the cord, I resorted earlier to perforation than otherwise I might have done; and so, probably, an earlier reduction and delivery were brought about.

I may also point to two interesting cases of retroflexion of the uterus at full time, seen by the late Dr. Merriman;* one of them with Drs. Bland, Croft, Denman, Sequin Jackson, and Thynne. In one, the child, still-born, was expelled by the natural efforts; in the other, after bleeding for fever and delirium, craniotomy was resorted to. Both mothers did well.

See also another example by Dr. Oldham, in the Obstetrical Transactions of London. The child, presenting by the breech, was brought down by the finger passed into the rectum, by which a purchase was obtained on the interior of the child's pelvis. Bearing pressure upwards was then made on the pelvic swelling, which was formed by that part of the body of the uterus which contained the head of the child, while the breech was pulled down. The reduction was thus accomplished, and the child was soon delivered; but, as in all the reported cases, still-born.

* Merriman's "Synopsis of Difficult Parturition," p. 244.

Anterior Obliquity of the Gravid Uterus

Is a more frequent cause of difficulty, and due to a laxity of the abdominal walls. Several cases have come under my observation, but have been easily remedied by a broad, firm band, placed at the lower part of the abdomen, with long ends. These were drawn upon in such a way as to carry the fundus and body of the uterus upwards and backwards, that the os uteri might, to the same extent, be moved forwards with the axis of the pelvic brim. After the reduction the labours were speedily completed.

COMPLETE OCCLUSION OF OS UTERI.

Case LXXXVII.—*Obstructed labour from obliterated os uteri, the result of adhesive inflammation.*

Monday, July 12th, 1858, 6¼ p.m., I was requested by Mr. William E. Jefferys, of St. Augustine Road, Camden Square, to see a patient, æt. 25, in her first labour.

Previous history.—She had been married between eight and nine months, and was only seven months advanced in her gestation when taken in labour. When between four and five months pregnant, she was placed under Mr. Jefferys' care for syphilitic sores on the labia pudendi and on the throat. She was treated by iodide of potassium, Plummer's pill, and black wash was locally applied. Under this treatment the ulcerations got well.

On Friday, the 9th instant, the patient was taken with slight pains; she did not, however, request the aid of her medical attendant till Sunday; but the pains even then being so slight as to be deemed spurious, it was thought better not to disturb the patient by vaginal examination.

Monday, 9 a.m., Mr. Jefferys was again called; the pains were now stronger and regular.

Examination discovered no orifice of the uterus, but there was found bulging downwards into the vagina a large globular swelling, *i.e.*, the uterus exhibiting very much the form which it does in retroversion; but on extending the examining finger high up behind, and then also in front, no orifice was met with, the progress of the finger being in each direction arrested by the reflexion of the vaginal mucous membrane.

On applying the tip of the finger to the centre of the swelling, in the presence, and also in the absence of the labour pains, a part of the organ could be felt thinner than the rest, and more elastic and fluctuating, from the contained liquor amnii: this was the only indication afforded of the probable locality where the orifice should have been; the surface presenting not the slightest interruption to its continuity.

Having satisfied myself that there was no retention of urine, I concluded that this interesting case was the result of the orifice of the womb having become obliterated by a plastic exudation from previous inflammation; that this had brought about a gluing together of its sides, and that the os uteri had become subsequently attenuated. It had been hoped, that the bearing pains would eventually have caused this thinner portion of the uterus to give way, and so have allowed of the opening of the womb and the birth of the child; but this not taking place, I was requested by Mr. Jefferys, with whom was Mr. Hainworth, of Camden Town, to see the case, which I found as I have above described, and in accordance with the diagnosis of those gentlemen.

I decided to make the opening if possible by bearing strongly upon the thinner portion of the prominence with the finger; failing in that, I determined to use for the purpose a catheter or the end of a canula; and that not

sufficing, I should have made the required aperture with the trocar perforator before referred to. I succeeded in my object by the pressure of the finger, and thus obtained an orifice of the diameter of a florin. At the same time I necessarily discharged the liquor amnii, which was tinged green by meconium. The head was then found presenting.

The mouth of the womb thus laid open gradually widened with the advance of the pains, and the child was born dead by a cranial presentation at nine the same evening. The child appeared to have been dead some days; indeed, the patient had not felt it move for about ten days. The placenta caused no trouble, and Mr. Jefferys informed me that his patient had a good recovery.

Such cases are extremely rare; and I do not remember in the course of my experience to have met with a similar one.

I can only find two cases recorded of closed os uteri precisely similar to the above in presenting no cicatrix, nor other indication on the surface, of the former aperture. *One* of these is reported by Dr. Ashwell,* as occurring in a patient whom he saw with Mr. Tweedie and Mr. Roe, November, 1836; the *other* by Dr. Fogarty,† with Mr. Alridge, November, 1848.

In both of these examples the vaginal portion of the uterus formed a large, uniform, globular mass; and the womb was laid open by an incision made from before backwards, successively through the anterior and posterior boundary of the orifice produced. In Dr. Ashwell's patient, a rent, followed by collapse, took place after that operation, a little later in the labour. Both patients—one a primipara, their ages 23 and 25—recovered perfectly. The children were males, and survived.

For my own part I prefer perforation by the finger, or

* "Guy's Hospital Reports," No. IV. p. 258, April, 1857.

† Ranking's "Half-yearly Abstract," vol. xii., 1850, p. 178. *Lancet*, March 2nd, 1850, p. 264.

by a blunt instrument, to incision, as the aperture thus made more closely resembles the natural orifice than does one made by a bistouri; the latter, moreover, is very likely, it appears to me, to extend into a rent. The plan which I adopted is also recommended, I find, by M. Cazeaux* and Dr. Rigby,† in preference to incisions.

Since the above case I have communicated to the Obstetrical Society of London (Transactions, vol. iv.), a case of complete occlusion of the os uteri, which was the result of inflammation, produced by a protracted labour, terminated by long forceps delivery. In consequence of retained menstruation, I had to re-establish the opening by a trocar. The patient recovered, and has since menstruated regularly.

* "Traité de l'Art des Accouchements," p. 643.

† "Library of Medicine," vol. vi. p. 199.

CHAPTER VI.

CRANIOTOMY DELIVERIES.

CASE LXXXVIII.—*Contraction of pelvic brim by rickets. A twelfth labour, induced at eight months; nevertheless, after many hours' violent action, craniotomy became unavoidable. Recovery good.*

June 13th, 1839, 7 p.m., I attended, by request of Mr. Langley, a *twelfth* labour. The patient was of short stature, æt. 37, pelvis deformed by rickets. The previous children had been delivered by cephalotomy, or otherwise, with great difficulty, at periods a little short of full term.

This labour had been induced by the stilet at the *eighth* month, after advice given at her previous confinement.

Present state.—Face purple from congestion, through violent parturient efforts; skin hot, profusely perspiring; pulse 130, full, but soft; the orifice of the uterus nearly fully dilated; a small slip in front, and another behind the head, swollen; no protrusion of scalp nor overlapping of the cranial bones; head high up and fixed, even between the pains. This had been the case several hours.

Uterine rupture was dreaded, delivery therefore urgent, and as no other mode could be adopted, it was accomplished by craniotomy.

The patient's recovery was uninterrupted by a single unfavourable symptom. I suggested to her, that if again pregnant, labour must be induced at seven months.

CASE LXXXIX.—*Difficult labour from arrest of head, with face to left ilium; inflammatory action subdued by treatment; forceps tried; delivery by craniotomy; uterine inflammation; depletion. Perfect recovery.*

Friday, July 5th, 1839, at 7 p.m., I was requested by Mr. Nance, an intelligent student of University College, to visit M. M., æt. 26, in her first confinement. Labour pains set in at 12 preceding night; at 6 in the morning the os uteri of diameter of a shilling; at 10 the waters came away. The case steadily progressed up to mid-day, then the anterior lip became swollen, rigid, embracing the head. At 4 p.m. a protrusion of scalp took place. At a quarter-past 6 the anterior section of os uteri was still rigid, embracing the head, which seemed impacted. The parts also getting heated, the patient was bled, upon which the os uteri became relaxed and fully dilated.

Present state.—The pains recur every two or three minutes, the left ear behind symphysis pubis; the occiput to right acetabulum; much protrusion of scalp; scarcely any overlapping of cranial bones; the greater mass of head as yet above brim; no part of os uteri to be felt. The bladder empty, having been attended to.

Judging that space sufficient existed for them, I now applied the *oblique forceps* diagonally on the head; they locked easily. My object was, after compressing the head with them, to bring it lower down, and then to rotate the face to the sacrum. No advance was obtained by the forceps; I therefore did not persist in my endeavours, lest mischief should arise. I now determined, as the vascular system had been relieved, to give more time, hoping that the head might even yet be moulded into suitable dimensions for its passage through the pelvic canal.

At my visit two hours later, I found no progress; I

therefore, to prevent the mischiefs of further delay, delivered the patient by craniotomy. The perinæum required some caution. The placenta was expelled without difficulty.

July 6th.—The bladder had responded, lochia moderate; skin dry, not heated; slight pain in back and hypogastrium. At 7 p.m. the skin had become hot and dry, urine scanty and high coloured; the patient complained of shooting pain in the back, and tenderness over the uterine region; pulse 100, hard; lochia much diminished.

It was evident from these symptoms, that inflammation was commencing within the pelvis. Blood-letting was therefore adopted to faintness, upon which the skin became moist and of natural temperature. After this, as there was yet some pain, I had ten leeches applied to the neck of the uterus; thus a plentiful discharge of blood was obtained directly from the inflamed part. Calomel and morphia were given at bedtime; castor oil in the morning.

July 7th. — Some tenderness of hypogastrium; more leeches were applied above the pubes, and the pill was repeated at night, the oil in the morning.

July 8th.—Lochia abundant; firm pressure can now be borne at hypogastrium.

She now went on well for some days, when, from catching cold, an attack of cystitis appeared. This was readily reduced, and her recovery, though gradual, was perfect in every respect.

Remarks.—In the above case, I am disposed to the opinion, that had craniotomy been resorted to a few hours sooner; had there been less anxiety felt to save the child, the inflammatory action which ensued would not have happened, or, at least, would have been less severe. The maternal tissues, however, were saved from injury by watchfulness and appropriate treatment, and there was no reason to suppose, but that, if again pregnant, the patient's labour, with a good presentation, would have a favourable issue.

CASE XC.—*A difficult primiparous labour; head arrested nine hours, face to the left acetabulum; green bilious vomiting; delivery by the perforator and crotchets. Good recovery.*

November 6th, 1839, at midnight, I was called by Dr. H. B. C. Hillier to a patient about 30 years of age, of middle stature, delicate constitution; her first labour. She had vomited a large quantity of green bile in her labour. The pains set in twenty-four hours ago; the waters had been discharged *nine* hours. The head had been pressing strongly on the soft parts lining the pelvis, ever since that event, with no change, excepting increased tumidity of scalp.

The bulk of the head is still above the brim, left ear behind symphisis pubis, face to left acetabulum; a small portion of anterior lip of uterus undeveloped in front; the pulse hard and quick.

She was bled to ten ounces; the bladder relieved; and the forceps being contra-indicated by the complete impaction, I completed the delivery by craniotomy.

There was hour-glass contraction, but no great difficulty in removing the placenta.

The recovery was uninterrupted and perfect. The patient had often, before pregnancy, had similar vomiting, but not, I understood, in such large quantity.

CASE XCI.—*A second labour; head impacted; inflammatory fever; V.S.; delivery by perforation, &c. Good recovery. Remarks.*

Saturday, December 7th, 1839, at 1 p.m., I was requested to visit M. R——, æt. 23, in labour of her second child. Her first was still-born, without instrumental aid.

Previous history.—Very trifling pains had commenced on Thursday evening. She was first seen by her medical attendant, Friday, at 6 a.m.; the pains were then stronger and more frequent. At 6 in the evening, the membranes broke, head presenting; pains occurred at short intervals, and were strongly bearing during Friday night. This morning, at 6, the pains had abated; a considerable tumour of scalp projected near outlet; the os uteri anteriorly tightly encaps the head; skin hot, dry; thirst. Sixteen ounces of blood were taken from the arm; a temporary increase of pains followed, but the os uteri remained as before.

Present state.—Head impacted in the pelvic brim, much protrusion of scalp; anterior segment of os uteri tightly embraces the head; genitals hot and dry; pulse 110; great turgescence of the face; the bladder empty, having been relieved by catheter.

Venesection to eighteen ounces. Shortly after this the os uteri became obliterated; the patient felt cooler and more comfortable; the vaginal mucous membrane, as well as the skin, were now of natural temperature, soft and moist.

Half-past 3 p.m.—No progress; the impacted state of the head, which has existed now for twelve hours, is unaltered; the pains as feeble as before. Further delay being unsafe, the delivery was now completed by the perforator and guarded crotchets. The placenta was expelled naturally, and the uterus contracted well; the pulse, an hour after delivery, was 80. The child was above average size, and a male.

8th, 10 a.m.—No pain; the patient had slept well without an opiate; had passed water; pulse 78. Castor oil, six drachms, to-morrow morning. The ordinary management after a natural labour was alone required.

I told the patient that she would next time most probably have a living child; and here I may state that she has, in this respect, had her wish gratified.

Remarks.—The above case contains its own comment. The child was disproportionately large, and the treatment pursued secured the patient's tissues from injury during the protracted pressure to which they were exposed. There was no room for the application of forceps in this instance, much less for turning; so craniotomy was unavoidable.

CASE XCII.—*A primiparous labour; head arrested nine hours and a half; face to left ilium; delivery by craniotomy; a previous unsuccessful attempt to apply the forceps had been made; inflammatory action afterwards, subdued by depletion. Perfect recovery.*

Monday, October 11th, 1841, at 2 a.m., with Mr. Baker, then of Grosvenor Street, Grosvenor Square; Mrs. ——, æt. 33, a healthy primipara.

History.—The liquor amnii had escaped on Thursday. On Saturday evening there was no dilatation of os uteri, though there had been labour pains and good secretion of mucus; but very soon, this process commenced. The uterine orifice was obliterated at 6 last evening (Sunday). Latterly the pains had flagged. Ergot had been given with temporary increase of action, but with no other result. The forceps had also been applied by Mr. Baker before my visit, but as their locking could not be effected, they were withdrawn.

Present state.—The head half descended into the pelvic cavity; left ear with a hand beside it, felt behind the symphysis pubis, face to left ilium; uterine orifice fully dilated; mucus abundant; pulse 86, soft.

Attempts to replace the hand had failed; after a further delay of an hour and a half, in the hopes that nature might yet be able to complete the labour, a cautious trial of the forceps was made, but only one blade could be passed.

Therefore, after emptying the bladder, I delivered the

patient by embryotomy; the placenta followed without difficulty.

This patient had a threatening of pelvic inflammation after delivery, which was treated by venesection, calomel, and opium, &c. The patient henceforward progressed favourably, and had a perfectly good recovery.

CASE XCIII.—*Obstructed labour; child large, arrested eight hours; forceps tried; delivery by craniotomy; inflammation of vagina and uterus; V.S. Good recovery. Remarks.*

July 10th, 1843, at 2 p.m., I was called by a surgeon at the west end of town, to a difficult labour in a lady, æt. 30, of previous good health. Labour had set in the previous afternoon; the liquor amnii had escaped the night before, the os uteri being fully dilated.

Present state.—The head, with face obliquely backwards, has partially descended into the pelvic cavity, but has not advanced for *eight* hours; no pyrexia; pulse soft, 100; parts over-heated, yet moderately moist; no positive proof of the child's death.

Treatment.—I introduced the catheter, and then applied the forceps, the blades being passed over the head, at the sides of the pelvis; the locking was easy. After I had made cautious traction for as long a period as safe, but without effect, I removed the blades and had recourse to craniotomy. The child proved to be a male of large size. The placenta followed easily without hæmorrhage.

July 11th, half-past 10 a.m.—She had slept well during the night without an opiate; had passed water without inconvenience. No fever, nor pain.

12th, midday.—Throbbing in hypogastric region; severe pain in sacral region, which had prevented sleep; pulse 110, hard and full; skin hot and dry; tongue coated with a

whitish-brown fur; much frontal head-ache; some previous chilliness. The vagina and os tincæ tender and swollen, the parts much heated, the lochia scanty.

Treatment.—A vein was opened in the arm, and the patient, in the sitting posture, was bled to fainting. The pain was removed permanently; the skin became moist. The patient afterwards took tartar emetic one grain, ipecacuanha one scruple, as an emetic; this acted also with good effect, as a purgative.

13th.—She had had good sleep; pulse 85, soft; no return of pain. She was in fact convalescent. Due caution as to diet, &c., was judiciously observed by my friend, who afterwards informed me, that his patient had no relapse, and was able to leave her room at the usual period.

Remarks.—The difficulty in this case was due, not to want of parturient action, which was sufficient, but to resistance occasioned by a large child. Full time having been given to the natural efforts, a reasonable apprehension of what might result from prolonged pressure on the maternal tissues, determined me at once to interfere. In the absence of proof of the child's death, the forceps were tried, there appearing to be sufficient room for their use; but, proving of no avail, cephalotomy was adopted.

If we inquire whence arose the subsequent inflammation, we may assign a principal part to the pressure of the head; yet we must admit the possibility that the forceps, although applied upon clearly legitimate grounds, might, in a predisposed state of parts, have contributed a share.

CASE XCIV.—*Difficult labour from rickets. Delivery at full term by craniotomy. The patient had never had a living child at term; the last labour induced prematurely.*

May 9th, 1844, I was called to a patient of short stature, in labour at full term.

In consequence of deformity of the pelvis from rickets, she had been delivered in all her labours but the last, by craniotomy.

On that occasion I saved her child by the induction of premature labour, which was to have been repeated in future; but on this occasion believing herself not to be pregnant, but dropsical, she had been under a homœopathist, who treated her for ascites, till labour pains set in, when he took his leave.

I found the os uteri fully dilated, the vagina unduly heated; a conjugate diameter of barely two inches and three quarters. On account of this contraction of the pelvis, and the unusual ossification of the child's head, I had to use the osteotomist. I then completed the delivery easily by the craniotomy forceps. The placenta gave no trouble.

The patient's recovery was uninterruptedly good.

CASE XCV.—*A primipara, æt. 37. Contraction of pelvic brim; rigid os uteri. Child large, a male. Powers exhausted. Craniotomy. Good recovery.*

December 7th, 1844.—At midnight my assistance was requested by a surgeon in Camden Town. The patient, æt. 37, in labour at full term; *first* child.

Pains had commenced about 6 a.m. of the previous day, with discharge of the waters, and had continued strongly bearing until the last eight hours, during which they had much abated. I found the boundary of the uterine orifice thick and rigid. Much protrusion of scalp, and the head was impacted in the pelvic brim. Bladder uninterfered with. Pulse quick. The patient exhausted, restless; the discharge from the vagina brown and offensive.

The catheter was first passed, the operation of craniotomy then performed. The child, a male, proved large; pelvis below the normal measurements, so that reduction of the head by the osteotomist was indispensable. The perinæum was rigid, therefore required care, in bringing the child through.

The head being born, I allowed the unassisted efforts of the uterus to expel the shoulders and the rest of the child's body. The uterus was thus less likely to be left relaxed after the child's birth. It contracted efficiently, and the placenta was thrown off spontaneously, within ten minutes of the birth of the child, without hæmorrhage. The contraction of the organ was further secured by a broad bandage, which had been loosely applied before the birth, and gradually tightened as the parts of the child were expelled in succession. This practice I have before referred to as a useful safeguard against fainting and uterine inertia, after protracted labours.

The patient recovered without check in the usual period.

CASE XCVI.—*Contracted pelvic brim; forceps tried without success. Craniotomy. Good recovery.*

November 4th, 1845.—A primipara, æt. 29.

Present state.—Liquor amnii discharged several hours. Os uteri fully dilated ever since. Urine in bladder distending it perceptibly above the pubes. Head in first posi-

tion at brim, which is contracted in conjugate measurement. Parts heated.

Treatment.—A pint and a half of urine removed by the catheter. The heat of the parts then subsided. I next adjusted the forceps; they easily locked, but no advance was made. I now delivered by craniotomy, first applying a reserve bandage, which I tightened after the birth of the child, and again after the removal of the placenta. The patient appearing fatigued after her labour, and having a feeble pulse, I administered a cordial; she then rallied, and thanked us in strong terms.

The subsequent recovery passed without one bad symptom.

CASE XCVII.—*A protracted labour in a primipara, æt. 32; retention of urine; soft passage very narrow at first. Pelvis of normal dimensions; child large. V.S., antimony, craniotomy on fourth day of labour; head much ossified. Perfect recovery.*

Saturday, October 4th, 1845, at 11 p.m., I visited, at the request of my friend Mr. Drew, of Gower Street, a lady of previous good health, æt. about 33, in labour of her first child. The liquor amnii had escaped the night before.

Present state.—The os externum so contracted, as only to admit one finger, hence a severe labour was anticipated; the mouth of womb two-thirds dilated, not hot, nor swollen; mucus of parturition deficient. The head at pelvic brim, with a puffy swelling upon it; the child living, as I ascertained by auscultation; the pelvis of average dimensions; urine passed without difficulty; pains every ten minutes; no febrile disturbance; tongue clean. We agreed upon non-interference for the present.

October 5th.—At 3½ p.m. I was again sent for; the pains not so strong; the head had engaged in the pelvic brim;

no urine passed for several hours. The passage of a silver catheter attempted without success. The tumour of a distended bladder distinctly felt above the pubes. An elastic catheter was now introduced without difficulty, and thirty ounces of urine were withdrawn, much to the patient's relief. No pyrexia; os tincæ as at last visit. I ordered an enema; tartar emetic ¼ gr., tincture of henbane ℥xxv, every two hours.

Half-past 11 p.m.—No fever; considerable moisture of vagina; soft outlet now so far dilated, that two fingers can be readily introduced; the pains continue in tolerable strength; pulse soft, 90. The antimony to be continued.

October 6th, 10 a.m. — Symptoms justifying further anxiety appearing, I was again summoned. Sixteen ounces of urine were drawn off. The head no lower; face flushed; tongue dry, furred; thirst; parts hot and dry; pulse hard, 100; the pains strong; the presenting scalp more tumid. Blood was now taken by venesection; twenty-two ounces flowed without faintishness occurring; but the skin having become moist and cool, and the patient expressing great relief, the arm was tied up. After this she felt sleepy, the pains abated, and she was left with the room darkened and quiet, that she might if possible obtain rest.

Half-past 8 p.m.—Our patient had had some refreshing sleep; the pains had subsided, until within the last two hours, since which they have been strong again. The parts moist and cool. The head appears to have descended a little. The catheter was again passed, and sixteen ounces of urine drawn off. As yet no indication for instrumental aid.

On the 7th, at 5 a.m., an offensive brown discharge presented itself; the fœtal pulsation, which I had the day before distinguished, was no longer to be heard; the parts had again become heated, dry, and tender. Delivery was now urgent, and as the forceps were found inapplicable, it became necessary to resort to cephalotomy. The bladder was first emptied by the catheter. The soft outlet being

contracted by rigidity of the perinæum and labia, the child proving large, and its head much ossified, considerable time—about an hour—was spent on the delivery, to effect it safely. A firm and uniform pressure was kept up upon the abdomen, by my friend, during the birth of the child, and subsequently to the removal of the placenta, which was effected artificially, at the end of three-quarters of an hour. The child a male.

Our patient was left with the security of a bandage and pad, the uterus contracted well. A draught containing one drachm of laudanum was exhibited; and tartar emetic, one eighth of a grain, given at proper intervals, was ordered.

Visit midday.—Progressing favourably without pain; skin moist; pulse soft, 104. Has not passed water; does not feel distress from that circumstance. Has had a little sleep, free from restlessness. Lochia good; no nausea. Continue the diaphoretic mixture.

Visit at 8 p.m.—Patient has passed a comfortable day. Skin moist, and free from heat. Pulse 90, but soft. Twenty ounces of high-coloured urine were drawn off, after which the pulse sank to 84. Continue as before; no opiate; a senna draught in the morning.

8th, 10 a.m.—A tolerably quiet night's rest, without pain; a sense of stiffness about the arms, hips, and legs, from the action of the muscles during labour. No heat, nor swelling of the genitals; lochia free, of good quality; bowels opened sufficiently once; twenty-four ounces of urine, not so high coloured as before, drawn off by catheter. Pulse 100 and firm. Tongue nearly clean; no tenderness of abdomen; no headache. Continue the mixture. The urine to be drawn off at midday, if necessary.

8 p.m. — Same quantity of urine withdrawn; lochia healthy; pulse soft, 100; skin moist, not hot.

9th, 10 a.m.—Has slept well during the night. Pulse 100, but fell to 90 after use of catheter; lochial discharge good; no heat of vagina; the genital surfaces a little tender.

Half-past 8 p.m.—Urine drawn off; bowels openedduring the day by senna; pulse 85; the diaphoretic mixture to be continued.

10th, 10 a.m.—The catheter required thrice daily; pulse 90, and rather firm; lochial discharge good; skin inclined to dryness; tongue furred, but moist. We ordered at bed-time four grains of calomel, and a draught of compound infusion of senna in the morning. Free action of the bowels followed.

The bladder recovered its power on the sixth day after delivery; and from that time the improvement was steady and progressive. The breasts becoming painful, and filled with milk, were judiciously treated by Mr. Drew, without any unpleasant events.

On the tenth day after delivery, my daily attendance having, up to that time, been desired by my friend, I took my leave, our patient being then past all risk of pelvic or peritoneal inflammation—in fact, convalescent.

This lady's recovery was completed in the usual period after a natural labour. Her disappointment, and that of her husband, was very great at the loss of the child; but I have the pleasure of adding that this lady, three years later (1848), required Mr. Drew's services again; and gave birth without difficulty to a healthy female child. The young lady is now (1865) living, and in good health.

Remarks.—A part of the difficulty in this interesting case was attributable to the very narrow condition of the vagina. Had this been the only obstacle, I believe the delivery, though it might have been protracted, would have been accomplished without instrumental aid, probably without depletion. The relaxing influence of antimony on the tissues would most likely have sufficed.

But there was another difficulty; the child proved large, its head unduly ossified. The constitutional treatment, although of no avail in promoting delivery, did, it must be admitted, an essential good in averting pelvic or peritoneal

inflammation likely to have appeared in the course of, or to have supervened upon, so protracted and severe a labour.

CASE XCVIII.—*A first labour; patient æt. 42. Head impacted in brim of pelvis twelve hours; delivery by the craniotomy forceps. Rigidity of perinæum, and contraction of os externum, required the osteotomist. Pyrexia; atony of bladder for eight days. Good recovery.*

Thursday, December 18th, 1845, at 4 p.m., I was requested by a surgeon in Camden Town to visit a patient, aged 42, of stout habit, firm fibre, previous good health, in labour of her first child. True pains had set in at 3 on Wednesday morning; the membranes broke three hours later. At 2 p.m. same day, the os uteri was obliterated. The pains ceased at 1 p.m. on Thursday, having gradually lessened in force and frequency.

Present state.—Expression of countenance good; face congested from efforts; skin moist, hot; pulse 100, soft; the head impacted, the bones slightly overlapping. The sagittal suture extends from the left acetabulum backwards, obliquely to the right sacro-iliac joint, to which the large fontanelle is directed.

I was informed the bladder had responded regularly; but finding the tumour of a distended bladder above the pubes, I passed a male elastic catheter, and drew off a pint of urine, the patient expressing much relief. The rectum was empty. I then delivered by embryulcia.

Considering the pressure which the parts had already sustained, I was indisposed to add any risks by a trial of the forceps. Moreover, impaction of the head, rigid perinæum, and contracted os externum forbade their employment.

The centre of the presentation was perforated, the brain

freely evacuated; a purchase upon the head near the sacro-iliac junction was then made by the guarded crotchets. Traction was now made at intervals, no pains present; the head was thus gradually brought down upon the perinæum. The head, diminished as it was by the removal of the cerebral substance, could not be drawn through the contracted os externum, even now, without exposing the perinæum to risk of laceration; that structure being tensely on the stretch at each traction. A few sections were, therefore, removed from the cranium by the osteotomist. The extraction of a male child of large size was then easily and safely completed.

A broad bandage, previously applied round the abdomen, was gradually tightened, as the parts of the child passed out.

Within an hour after the birth, the placenta not being thrown off, and hæmorrhage occurring, the hand was passed into the uterus. The placenta was retained by hour-glass contraction, and only partially detached. It was removed carefully, the uterus contracted, and the hæmorrhage ceased. The bandage was readjusted with a compress, and the patient ordered not to be moved for four or five hours.

Friday, 1 p.m.—The patient had had some refreshing sleep during the night; slight tenderness of abdomen; lochial discharge scanty; pulse 110; face flushed; occasional chills; no urine passed, some was drawn off. These symptoms, and the patient's habit of body, led me to advise V.S., as a precaution against inflammation, which might fairly be anticipated from the pressure which the parts had sustained. A saline diaphoretic was ordered every four hours; and at night calomel 4 grains, Dover's powder 10 grains; a black draught in the morning.

I was afterwards informed that the patient had fainted, rather from the sight of blood than from the quantity obtained. Nevertheless, it had not been necessary to repeat the bleeding; the circulation had afterwards remained subdued; there had been no recurrence of heat or tenderness. The antimony had nauseated, the lochia had become free.

December 24th.—No pain; tongue slightly coated with a white fur; pulse soft, 85; urine drawn off daily. The subsequent progress was satisfactory. Beyond an occasional aperient and daily catheterism, up to the ninth day, no further attention was required.

On the 16th of January, my friend reported that his patient was rapidly recovering strength; had been able to pursue most of her duties for the last week.

Remarks.—The large size of the child was a cause of difficulty. The age of the patient for a first labour was unfavourable; hence a rigid perinæum with contraction of the os externum operated further as obstacles.

A previous trial of the forceps would, owing to the impaction, have been obviously injurious. The reply to my inquiry after the state of the bladder contrasted with the fact, shows the importance of always introducing the catheter before instrumental delivery.

The male elastic catheter is always to be preferred when the head is impacted; the longer instrument is required since the neck of the bladder and urethra are elongated, and the elastic catheter will pass when the silver instrument will not.

In consequence of the pressure of the head on the soft tissues lining the pelvis, the bladder did not resume its power till the ninth day.

CASE XCIX.—*A first labour; head arrested at pelvic outlet for twelve hours; retention of urine. Delivery by the perforator and crotchets. Recovery.*

Tuesday, December 23rd, 1845, at 9 p.m., I was called by a medical friend to a healthy young primipara, æt. 22, a native of Berkshire, recently arrived in London.

Previous History.—The pains of labour had commenced on the previous Sunday between 3 and 4 a.m., from which

time to that of my visit, the pains had occurred with varying intervals and strength. The liquor amnii had come away spontaneously at 6 p.m. the day before (Monday). The mouth of the womb was then completely dilated. The head then very gradually advanced into the pelvic cavity, and reached the outlet at nine this morning (Tuesday).

Present state.—The parts not heated; skin moist; the pulse quiet and soft; no headache; considerable protrusion of scalp; firm impaction of head. The sagittal suture extends obliquely backwards towards the left sacro-iliac junction; the small fontanelle is felt behind right foramen ovale. The pains frequent and strong the entire day. The patient had not been able to pass water for several hours, which, with the impaction of the head for ten hours, led to my being sent for. The bladder was considerably distended. My friend had tried with the ordinary silver female catheter to relieve his patient. Employing the male elastic catheter, which had never yet failed me, I was equally unsuccessful; the catheter passed in a certain distance, but owing to pressure of the head on the urethra, it was there stopped. An expedient in difficult cases, which I had always found succeed, viz., a bearing made upon the head by the fingers upwards and backwards, did not avail. The impaction of the head precluded any other mode of delivery than that by the crotchets, and the head being already at the outlet, I was able to relieve the patient with little delay. The head was lessened by a free evacuation of the contents of the cranium; the bones fully collapsed, and the delivery was easily accomplished. The catheter was then passed with facility, and the bladder emptied of two pints of urine of high colour and odour.

Had the head, after lessening, not come readily, or had there been the least difficulty in delivering the trunk of the child, I should have passed the catheter immediately after discharging the cerebral substance.

A band previously thrown loosely round the abdomen

was now tightened, and firm pressure made over the fundus of the uterus, but the placenta not being yet thrown off, and no hæmorrhage occurring, the patient was allowed to rest quiet for an hour. My friend then undertook the removal of the placenta, which he accomplished dexterously, under considerable difficulty, from extensive adhesion of the mass to the uterus, and hour-glass contraction of the latter. The wound contracted well afterwards. The patient was left comfortable, but was disposed to be talkative, through her excess of joy at her delivery. Quietness was enjoined; no opiate to be given unless restlessness should occur.

December 24th.—Our patient had had good sleep; no abdominal pain; lochial discharge ample and healthy; the bowels had acted from castor oil exhibited during labour. Pulse soft, 100; skin moist; tongue slightly furred; no headache; urine retained. The catheter introduced; a saline diaphoretic.

No symptom requiring active treatment occurred. Catheter was necessary until the sixth day. The patient's recovery was perfect.

Remarks.—This patient's age was favourable for a first parturition; her health was also in her favour. The difficulty was confined to the bony outlet of the pelvis; the perinæum, soft and lax, offered no obstacle. The head had been at outlet, and impacted for ten hours. It was surprising, under the circumstances, that no heat of parts nor fever had appeared. The free perspiration probably afforded to the patient the necessary safeguard against such a result and any ulterior consequences.

This instance of failure in the introduction of the catheter during parturition is the only one which has occurred to me in my experience in difficult labours, extending over a period of thirty years. I see in the report of 1845, of the Parochial Lying-in Charity of St. Giles's, that the physician-accoucheur, the late Dr. James Reid, met

with a similar impossibility of relieving the bladder prior to delivery. In the two cases there was this difference,*—that in the parochial case the head was simply arrested; there was room for the forceps, and by them was delivery accomplished. In the above instance the head had been *completely wedged* in the pelvic outlet during several hours; the head and scalp accurately filling up the space behind the pubes, and at apex of pubic arch. The atony of the bladder, after delivery, was sufficiently accounted for by the previous pressure and distension sustained by it. The sound rustic health of the patient probably led to an earlier restoration of the tone of the organ than might otherwise have been expected.

CASE C.—*Impaction of head; considerable œdema of labia; disproportionate size of child. Elastic catheter passed; delivery by craniotomy; the rigid state of perinæum, and contracted os externum, required the osteotomist. Good recovery.*

On Wednesday, March 25th, 1846, at 9 a.m., I was called by a midwife to an Irishwoman, æt. 34, patient of R. M. C., in labour of her first child. A surgeon of the charity had also seen the patient, and desired my aid.

Present state.—The labia majora much swollen by œdema. The scalp protruded, forming a puffy tumour at the vulva; the great bulk of the head, however, was impacted in the brim of the pelvis. The tip of my finger reached the ear with difficulty behind the pubes; the head, in all directions, was strongly wedged in its position. The patient had been able to pass water up to two hours before. The skin hot, but moist; pulse 90, soft; no headache.

Previous history.—Previous health good; the pregnancy

* My report of the above case was published in the *Lancet* the same year, and I then referred to Dr. Reid's interesting case, published in the *Medical Gazette* of that year.

had reached full term ; pains commenced on Saturday evening (21st), but the midwife was not called till 9 p.m. following Tuesday (March 24th). The os uteri was then fully dilated, the membranes protruded at outlet. The waters escaped a few minutes later. The head gradually descended into the pelvic brim, until it became wedged, and the puffy tumour of the scalp afterwards formed upon it during the night.

Treatment.—The case was obviously not one at the present time for the forceps ; I, therefore, delivered by craniotomy ; first introduced the catheter, and drew off the contents of the bladder. Having emptied the cranium, the head descended under traction by the guarded crotchets. Pressure was made upon the abdomen, as the parts of the child were brought through ; the uterus contracted well. The placenta was thrown off within half an hour from the delivery.

No inflammatory symptoms occurred afterwards. The labia quickly lessened to their natural bulk ; the bladder did not respond till the thirteenth day ; the catheter was therefore regularly introduced up to that period, and the patient's cure was completed by tonics.

Remarks.—The disproportionate size of the child was the chief obstacle in this case ; the age for a first labour was not favourable. The pelvis was ascertained, after delivery, to be of average dimensions, and would, therefore, doubtless, have given passage to a child of ordinary size. Considerable care was necessary in bringing the child through the vulva ; the perinæum had not had the opportunity of the requisite development. By gradual proceedings no injury was sustained. The atony of the bladder for thirteen days after delivery, and the œdema of the labia, resulted from the pressure which the parts had sustained from the head. The application of the long forceps some six hours earlier might possibly have given a better aspect to the case, as the swelling of the scalp and of the maternal tissues had not then taken place.

CASE CI.—*Contracted pelvic brim. Delivery by craniotomy.*

December 26th, 1846.—I was called by Mr. Bird, of Welbeck Street, to a patient of robust habit; her age about twenty; her first labour. The liquor amnii had escaped twelve hours. Pains had been strongly bearing for many hours.

Present state.—The upper aperture of the pelvis much contracted in the sacro-pubic diameter; head impacted in the brim; os uteri not fully dilated; the patient's face purple from her violent but fruitless efforts; tongue furred.

Treatment.—Introduction of the catheter, according to rule. Perforation and delivery by the crotchets. The only partially dilated os uteri, and rigid state of the perinæum, rendered slow proceedings necessary, in bringing the child safely through the genital passages.

CASE CII.—*Second labour; exhaustion, entire cessation of labour pains; the second stage had continued nine hours. Delivery by craniotomy. Ephemeral fever on the eighth day; subdued by an emetic, a purgative, followed by quinine. Good recovery.*

Monday, June 30th, 1846, at 3 p.m., I was called by a midwife to a patient in labour with her *second* child, since 11 a.m. the previous day.

The liquor amnii had escaped at 3 this morning, the os uteri then hard, thick, and very little dilated. At 7 the pains were stronger, severe sickness set in; later, pains occurred at longer intervals, and between 12 and 1 they ceased.

Present state, 3 p.m.—A small pulse; skin cold; a thick

whitish-brown fur on tongue; pains absent; os uteri rigid, two thirds dilated; countenance anxious. I perforated the head, and delivered by the crotchets, having first passed the catheter.

The next day the bladder had acted naturally, the patient felt easy.

On the third day the bowels acted gently from castor oil. The lochia scanty; no pain. Hot fomentations to hypogastrium and vulva, to increase the lochial discharge, with the desired effect.

On the fourth day abundant secretion of milk, which was kept under by a neighbour's child, and finally dispersed by aperient draughts.

On the eighth day there was headache, pain in loins, wakefulness at night, rigors, great febrile heat; pulse quick, 130; tongue white; thirst. Sometimes there was one paroxysm of these symptoms in the twenty-four hours, sometimes two. I recognised here an attack of puerperal ephemera, a disease apt to come on in languid convalescents after childbirth, and sometimes mistaken for inflammation. I adopted my usual treatment for this malady, an emetic of ipecacuanha with tartrate of potash and antimony, followed after a few hours by calomel and jalap. Quinine was commenced on the following day in two-grain doses, given thrice daily. Under this treatment the disease gradually declined, and at the end of three weeks the patient was convalescent.

CASE CIII.—*Arrest of head in pelvic cavity; vectis applied during three hours without advantage; forceps also without effect. Catheterism; V.S.; craniotomy; previous attempts to deliver by the single crotchet, and other ill-adapted instruments, having failed. Good recovery.*

In August, 1847, I was requested to meet a surgeon at Islington, in a case of difficult labour; the vectis had been in application then for three hours without effect.

Present state.—Pyrexia; vagina much heated; urine in bladder.

Treatment.—The bladder first relieved; the patient was then bled, to secure her, if possible, from injurious results of protracted pressure; a trial of the forceps was then made; they were cautiously applied, locked easily, but no advance followed. Craniotomy was therefore commenced by a practitioner consulted before my visit. He was not, however, successful; his instruments being ill adapted. I delivered her by the craniotomy forceps easily after reducing the head by the osteotomist.

This patient's subsequent progress was most satisfactory.

CASE CIV.—*Impaction of head in pelvic brim; two previous children delivered by craniotomy. Recovery good.*

January 14th, 1848, at 6½ a.m., I visited a patient of Mr. H. P. Davis, of Oakley Square, her age 39; in labour of her *third* child.

Previous history.—In her two previous labours she had been delivered by craniotomy; in the *first* by Dr. Heming, in the *second* by myself. On the last occasion I had ordered

her, if again pregnant, to have her labour brought on prematurely; but she had neglected doing so.

The liquor amnii escaped at 7 the previous morning; the head had been engaged in the brim, slowly pressing on the soft parts there, *seven hours and a half.*

Present state.—The head wedged in the brim of the pelvis, the parts heated; there is a lightish brown-coloured slimy discharge on genital surfaces, which I recollect appearing on the previous occasion, after the patient had been suffering for several hours. This, in protracted labours, is a sign of importance, as an indication for interference.

Treatment.—As the symptoms called for immediate delivery, I effected it by the only available mode, craniotomy, and, at the patient's entreaty, under chloroform.

The subsequent recovery took place without any drawbacks.

Remarks.—The patient's pelvis was much contracted in sacro-pubic diameter, but I believe space existed to allow of the birth of a seven or seven and a half months' child. Ample time had been given to the natural powers to mould and compress the head into suitable shape for its passage, but without success. The case being one of complete impaction the forceps were out of the question. The above discharge, with other points in the case, demanded delivery, and craniotomy was unavoidable. I gave the patient a strong admonition on the impropriety of her conduct, in allowing her pregnancy to go on to full term, although she had been advised to the contrary, and I cautioned her against a repetition.

CASE CV.—*Funnel-shaped contraction of pelvis; delivery by perforation, after impaction of head for several hours. Good recovery.*

One evening in November, 1848, at 8½, I was called to a primipara, æt. 20, in difficult labour.

Previous history.—Labour pains had commenced at 5 in the morning with discharge of the waters. The os uteri, although there had been no pains, had undergone two thirds of full dilatation. Before midday the mouth of the womb had become fully dilated; the head had descended half-way into the pelvic cavity. In the afternoon, considerable puffy swelling of scalp formed on the head; but no advance of the bony part of the presentation had taken place, notwithstanding strong parturient action.

Present state.—Head impacted and situated as above described; pelvic outlet considerably diminished in diameter; the tube is also contracted in the vicinity of the outlet. The pelvis affords an instance of the funnel-shaped deformity. The parts heated and tender. The patient much exhausted with her unavailing efforts.

Treatment.—The bladder was emptied by the catheter, and delivery accomplished by craniotomy. The placenta came away easily. Nothing untoward occurred in the puerperal state; convalescence took place in the ordinary period.

Remarks.—Considerable dilatation of the os uteri had taken place without pain; a circumstance which occasionally occurs in subsequent labours, very rarely in first confinements. The variety of pelvic contraction in the above case was an apt illustration of the funnel shaped deformity, apparently a congenital distortion, where the brim is well formed, the lower part of the pelvic tube contracted in its dimensions, and gradually more and more so as it ap-

proaches the outlet, where the greatest deficiency of space exists. Delivery by craniotomy not having been too long delayed, the patient was saved from injurious effects of pressure on the soft tissues within the pelvis.

I advised induction of premature labour at seven and a half months in any future pregnancy.

CASE CVI.—*A third craniotomy delivery; head wedged in pelvic brim six hours; retention of urine; cicatrices in vagina rendering delay and relaxing treatment necessary after perforation before delivery. Inflammatory fever followed. Treatment. Good recovery. Remarks.*

At midday, November 16th, 1848, I was called to a third labour.

Previous history.—The patient had been twice delivered by the crotchets, on account of pelvic deformity. The liquor amnii in this labour had escaped at 3 a.m. this day. At 6½ the os uteri was fully dilated; the head at the same time entered the pelvic brim, where it had been wedged *six* hours.

Present state.—I found the proof of a former solution of continuity in a considerable cicatrix, and contraction of the vagina therefrom; the evidence also that the perinæum had once been ruptured. The parts heated, head impacted in brim of pelvis; the swelling of a distended bladder above the pubes.

Tratment.—The catheter first introduced; the delivery then effected by the perforator and guarded crotchets. I found the constriction of the vagina a great impediment to delivery, so, after I had reduced the head, I determined, for the mother's safety, on a delay of two or three hours. In the mean time, to compose the patient, and somewhat to relax the parts, I ordered a drachm of tincture of opium, with a quarter of a grain of tartar emetic at short intervals, to produce nausea.

Visit at 4 p.m.—Parts more favourable; the patient much more composed. I now finished the delivery which even at the present time required, for its safe completion, the removal of several sections of bone. The child a male of average size. The placenta followed without difficulty; the uterus contracted well.

Visit next morning.—The patient is said to have had no sleep; slight pyrexia. The bladder has acted; lochia scanty; ordered bran poultices to abdomen; a pill at bed-time, of calomel 2 grains, muriate of morphia two thirds of a grain; an aperient of sulphate of magnesia, senna, and ginger, as castor oil is repugnant, to be taken in the morning.

November 18th.—Bowels not open; violent lancinating and throbbing abdominal pains, also through the pelvic region; skin hot and dry; pulse 110, hard; lochia suppressed; respiration painful; inability, from pain in the effort, to turn in bed.

Ordered V.S. to faintishness; twenty-four leeches to abdomen, calomel six grains, croton oil three-fourths of a minim; also calomel two grains every three hours.

Visit in afternoon.—The purgative pill, through neglect of the nurse, had not been taken, and the bowels had not acted. The bleeding had been carried to fainting, at a loss of sixteen ounces; the leeches subsequently did their duty. Breathing and pressure on the abdomen are not now painful. Slight return of lochial discharge. Ordered castor oil six drachms, croton oil three quarters of a minim, to be taken at once, and, if necessary, an anodyne at night after the bowels shall have acted.

November 19th.—The bowels acted freely soon after the purgative, and the morphia afterwards produced refreshing sleep. No pain. I withdrew the calomel, and the patient gave us no further anxiety.

Remarks.—The pelvic contraction arose here from the rickets of childhood. The extensive cicatrix in the vagina

and perinæum added to the difficulty of delivery. The tartar emetic had a good effect in lessening somewhat that impediment, and the opium soothed the nervous system. The inflammatory affections, hysteritis and peritonitis might have resulted from obstructed labour; but I had a strong suspicion, and my professional friend also, that spirituous liquors had been taken, though strictly forbidden.

The sparing lochial secretion, with pyrexia on the day after delivery, made me feel uneasy about the patient; but I hoped that the means then adopted would have sufficed. On the next day, depletive treatment was indispensable, and success followed it. The soothing of the nervous system after the bloodletting, so important sometimes in preventing relapses of inflammation, was here secured by the sedative.

CASE CVII.—*Disproportion at pelvic outlet; head there arrested six hours. Craniotomy. Good recovery.*

One morning early in December, 1849, I was consulted by my friend Dr. Powell, of Coram Street, Russell Square, in a primipara, æt. 25, who had been in labour the whole of the previous day. The bladder had been duly attended to by my friend, and the bowels had been properly relieved. The os uteri was fully dilated six hours before; at the same time the head descended low in the pelvis. The patient, being of a weak constitution, had become exhausted with violent and fruitless efforts. In consequence delivery could no longer be safely postponed.

The forceps were introduced, but, even with the substitution on one side of a short blade, it was not practicable to effect a locking. I therefore delivered the patient by craniotomy.

This patient had a good recovery.

CASE CVIII.—*A primipara, æt. 14½ years; genital passage small; retention of urine. Catheter. Tartar emetic. Delivery by cephalotomy after five hours of arrest. Good recovery.*

March 23rd, 1850.—A primipara, æt. 14½ years, of previous good health. She had been in hard labour for twenty-four hours; the liquor amnii had been discharged twelve hours; the head at outlet strongly pressing on the soft parts there for three hours. From want of adequate development, the outer opening of the genital passage was small. Auscultation discovered no fœtal pulsation. Intumescence of a distended bladder perceptible above the pubes.

Treatment.—I passed the catheter, and removed a pint and a half of urine. To relax the genital outlet, a quarter of a grain of tartar emetic was given every hour, with five drops of Battley's sedative solution.

Two hours later, finding positive evidence of the child's death, the soft parts at outlet well relaxed, I perforated, and delivered by the guarded crotchets. There was morbid adhesion of the placenta, which required artificial detachment.

The breasts required but little attention, and the only interruption to rapid convalescence was debility and an attack of puerperal ephemera, with its successive paroxysms of shivering, hot, and sweating stages, which yielded to quinine, &c.

At the end of the month the patient reported herself quite well.

CASE CIX.—*Difficult labour; disproportionate size of the child. Uterine rupture apprehended. Craniotomy after five hours' arrest, and great violence of action. Good recovery.*

June 12th, 1851, at 2 a.m., I was called by a professional friend to a patient, æt. 28, of weak constitution, in first labour. It had commenced at 2 a.m. the previous day, but did not require the attendant till 11 p.m. The exact period of the waters escaping was not remembered; but they had come away before my friend's visit. Since 11 last night the pains have been violent, "bursting," as the patient declares.

Present state.—Os uteri three-fourths dilated; tumidity of scalp; head at brim, face backwards. Urine in the bladder, as ascertained by the catheter. Parts moist, not overheated; no absolute want of pelvic space, though relatively there afterwards proved to be. No headache, nor thirst. Skin moist, not hot. Pulse quick, somewhat firm.

Treatment.—A full opiate, and at intervals small doses of tartar emetic.

Second visit, 4 a.m.—The pains had been very violent. The os uteri unaltered; head still at pelvic brim, appears large; patient tired out. She was delivered by craniotomy, the only treatment available in the circumstances.

The patient had a good recovery.

Remarks.—The obstacle here arose from the disproportionate size of the child's head. Could this have been positively ascertained, it would have been better to have perforated at once; the sense of "bursting" made me apprehensive of uterine rupture; had the patient's strength allowed, bloodletting with the opiate would have been proper. However, the opiate was given with antimony, and no improvement following, craniotomy was timely had recourse to.

CASE CX.—*Contracted pelvic brim; child large; violent pains for ten hours after escape of "waters." Craniotomy. Good recovery.*

August 26th, 1851, at 7 a.m., I visited a patient 30 years of age, in her third labour.

History of previous labours.—Her first pregnancy ended in a miscarriage, June, 1849. Her second labour, last April twelvemonth, was at full time, and was completed by craniotomy, on account of contracted pelvis.

The present labour is at full term. The liquor amnii came away at 9 last night; strong pains have continued ever since.

Present state.—Pains violent; head at brim of pelvis, and fixed; sacral promontory very projecting; genital mucous membrane hot, mordantly so, *i. e.*, leaving an impression of heat upon the finger. A portion of os uteri, in front of the presentation, swollen.

Treatment.—As there was obviously no other resource, I delivered by craniotomy a large male child. The placenta followed quickly.

The patient had a good recovery.

CASE CXI.—*Contracted pelvic brim; puerperal convulsions; head already perforated; ill-adapted instruments had slipped many times; delivery easily effected by internal guarded crotchets. Good delivery.*

In November, 1851, I visited a primipara, æt. 20.—There was obvious want of pelvic space; there had been several paroxysms of puerperal convulsions, for which the patient had been freely bled. The head had been opened with the perforator, by a surgeon not unskilful; and its extraction

attempted by a pair of craniotomy forceps, of modern construction, but badly designed for a purchase. The instrument, indeed, had slipped from its hold many times.

I applied the internal guarded crotchets, made traction, with rests between, to save the perinæum from risk. The child was safely delivered in five minutes from applying the instruments, much to the satisfaction of the practitioner, who had sought my assistance, and had been vexed by the failure of his attempts to deliver.

Her recovery was as after a natural labour, which was creditable to the caution observed by the gentleman who had operated in the first instance, under so great a disadvantage.

CASE CXII.—*A difficult primiparous labour; impaction of head in outlet twelve hours; pyrexia, with exhaustion; delivery by craniotomy. Good recovery.*

May 11th, 1853, Mrs. ——, æt. 18, first child. Labour commenced on the 8th inst. The liquor amnii had escaped twenty-four hours. The head had been impacted in outlet twelve hours.

Present state.—Head fixed in outlet; os uteri fully obliterated; skin dry and heated, mucous membrane also; pulse weak. Patient exhausted.

Treatment.—The indication for delivery was urgent; and as there was not room even for a single blade as a tractor, there was no alternative but craniotomy.

A free removal of cerebral substance and collapse of the bones being effected, the child was easily extracted.

This patient had not a bad symptom afterwards.

CASE CXIII.—*Difficult primiparous labour*; *impaction for many hours*; *exhaustion; craniotomy. Recovered well.*

May 21st, 1853.—Mrs. ——, æt. 19, in primiparous labour. The head had been impacted in a contracted pelvic brim for many hours. Symptoms of exhaustion had shown themselves in a brown tongue, a depraved discharge from the genital passage. On account of these conditions, Mr. J. H. Tucker, late of Berners Street, had consulted me.

The rule of first passing the catheter having been observed, delivery was effected by craniotomy.

I was informed (July 9th) that her recovery had been satisfactory, with the exception of a neuralgic pain of one of her legs, affecting the calf, foot, and toes, extending to the shin, without swelling or redness. For this I was requested to see her again, and prescribed quinine with iron, and change of air, with the desired result, as I was informed.

CASE CXIV.—*Impaction of head; delivery by craniotomy, under chloroform; exhaustion on the following day, removed by stimulants and nourishment. Recovery good.*

March 19th, 1854, at 10½ p.m., I was consulted by a professional friend, in a first labour. The liquor amnii had escaped two days.

Present state.—The os uteri nearly fully dilated, the head at brim; a puffy tumour of scalp. The bladder distended, forming a large fluctuating swelling above the pubes.

I removed five pints of urine with the elastic catheter, upon which the swelling completely subsided, and the patient expressed great relief, though she had not felt desire for micturition.

The patient had, up to my visit, inhaled, in divided quantities, half an ounce of chloroform in the course of the day, and it had probably blunted the sensibility of the bladder.

March 31st, 1½ p.m.—The patient, after a full trial of the natural powers, was still undelivered. A portion of the presenting head had descended to the outlet of the pelvis; the base of the skull, however, still above the brim.

The bladder was attended to; and, as the forceps could not be introduced, I delivered by craniotomy. During the operation, chloroform was administered by the patient's urgent entreaty.

Some exhaustion appeared on the following day, which my friend attributed to the chloroform of the preceding day; but it appears to me that the exhaustion, had it been due to that agent, should have occurred at an earlier period.

With the exception of the above check, which yielded to suitable treatment, the patient's recovery was uninterruptedly good.

CASE CXV.—*A difficult primiparous labour, patient's age* 32 *; head arrested at pelvic brim for several hours, subsequently arrested at a lower point; delivery by craniotomy under chloroform, osteotomist required; head much ossified. Good recovery.*

April 16th, 1854, I was called by Mr. Bird, of Welbeck Street, to a patient æt. 32, who, after waiting anxiously for seven years from marriage, was now in her *first* labour, at full term.

The liquor amnii had come away the previous afternoon; the head had been at the brim several hours, had then gradually descended half-way into the cavity of the pelvis, and there become arrested.

The soft parts being well dilated, and the bladder having been first relieved, I applied the forceps. They passed, and locked easily; but after a cautious trial of them, during the pains, for upwards of an hour, without success, I thought it unadvisable to continue the traction for fear of injury.

Two hours' more time were now given to the natural efforts; when, the bladder being first relieved, the forceps were again applied, but without effect. Chloroform was given on each occasion, at her own entreaty. I was now obliged, much to the disappointment of the patient, to deliver her by craniotomy. She was somewhat reassured when we told her that on the next occasion she would in all probability give birth to a living child.

The placenta gave no trouble. Not a single bad symptom followed. In all ʒiss of chloroform was used, from first to last, and carefully administered by Mr. Bird.

This patient has since had her wish realized by the birth of a healthy living child.

Remarks.—Inordinate ossification of the child's head was the cause of the difficulty, for which reduction by the osteotomist was required to facilitate extraction.

CASE CXVI.—*Obliquely distorted pelvis; rupture of uterus and vagina; delivery by turning and craniotomy; death; P.M. inquiry; measurement of pelvis.*

November 23rd, 1854, 3½ p.m., I was called by a surgeon to a patient æt. 40; who had sustained a rupture of the womb.

Previous history.—It was the patient's *sixth* labour.

Her *first* child was delivered by craniotomy; the *second* and *third* naturally, living; the *fourth* by the forceps, child dead; the *fifth* by the forceps—the child lived only a few hours.

The present labour began at 3 a.m., with the escape of

the waters. At 10 a.m. the os uteri was fully dilated. The pains were strong till 2½ p.m., when the patient complained of severe pain in the region of the pubes, shortly after, "of something having burst within her," and asked the attendant "if she did not hear the noise."

Present state.—Pulse scarcely perceptible; features haggard; skin cold and clammy; vomiting of a fluid resembling coffee-grounds in appearance. The parts of the child distinctly felt through the abdominal walls. Head presents loosely at the pelvic brim.

Treatment.—I passed my hand beside the head, and obtaining a purchase by a foot, as the child lay in the cavity of the abdomen, I readily performed the operation of turning; but it not being possible to bring the head through the contracted brim, I had to lessen it by perforation behind the ear, before the birth could be accomplished

On the birth of the child, the uterus contracted well; the placenta was found lying loose among the intestines, and easily removed. The serious nature of the case, and its probable result, had been communicated to the husband before my arrival. The patient bore the delivery well.

Ordered morphia gr. ½; turpentine stupe to the abdomen at night.

November 24th.—No pain, pulse very feeble; catheter required; hot linseed poultices to abdomen; beef tea; brandy. The patient gradually sank, and died early on Saturday morning, without any inflammatory symptoms.

P.M. inquiry.—The laceration was found to extend transversely between the bladder and uterus, leaving the womb, excepting a small segment of its anterior lip, uninjured. The uterus was found firmly contracted, and empty. There was a very small quantity of extravasated blood, and no trace of inflammatory effusions.

We found the *diameters of the brim of the pelvis* as follows:—

Sacro-pubic	$4\frac{1}{4}$ inches.	
Transverse	$3\frac{1}{2}$ „	instead of $4\frac{3}{4}$.
Right oblique, viz., from right sacro-iliac joint	$3\frac{5}{8}$ „	instead of 5.
Left oblique..	$4\frac{5}{8}$ „	

The pelvic contraction here, though not exhibiting the degree of deformity met with in some specimens of obliquely distorted pelvis, figured in Naegelé's plates, would seem to have contributed to the above laceration.

It is probable that the head offered in the shorter oblique diameter, and that it would have passed, had it fortunately presented in the longer one. There did not appear to be any morbid condition of the uterus to predispose to the rupture.

CASE CXVII.—*Pelvic outlet much contracted; head arrested five hours; parts hot, tender: delivery by craniotomy; hysteritis; leeches to cervix uteri. Good recovery.*

February 9th, 1855, I was requested by Mr. Pascall to visit a primipara, æt. 20; bony outlet and soft parts much contracted. Liquor amnii had escaped five hours; the head at the same time had half-way descended into the cavity of the pelvis.

Present state.—Considerable puffy swelling of scalp; parts very tender and heated, pulse quick.

A cautious trial, without advantage, having been first made with the forceps, I delivered by craniotomy.

February 11th.—The patient is feverish, with great tenderness at hypogastrium and on pressure upon os uteri. Ordered six leeches to the cervix uteri; these did their duty well, and the pain was removed. The patient thenceforward had a good recovery.

CASE CXVIII.—*A primiparous labour; head in pelvis twelve hours; vagina dry and hot; pulse weak. Forceps applied, but without advance. Craniotomy. Good recovery.*

A primipara, aged 25, with Mr. Wilkinson, of the Caledonian Road. The waters had escaped twenty-four hours. Head in pelvis *twelve* hours.

Present state.—Genital mucous membrane dry; the vagina closely embraces the head; no great heat of skin; pulse did not indicate depletive measures.

Treatment.—The catheter was first introduced by Mr. Wilkinson, and the bladder found empty. The forceps were applied, locked, and traction made, but no progress effected; craniotomy was then resorted to; the extraction being made as in previous cases.

Mr. Wilkinson, at the end of three weeks, informed me that the patient had had a good recovery.

CASE CXIX.—*Pelvic outlet much contracted; primiparous labour; head half-way descended into cavity of pelvis five hours; parts hot, tender; rigidity not removed by V.S., chloroform, nor by antimony. Delivery by craniotomy. Hysteritis; leeches to cervix uteri. Good recovery.*

July 15th, 1855.—A patient, æt. 22, with a professional friend, at 5½ p.m. The liquor amnii had come away at 3 p.m., the os uteri being then two-thirds dilated; but for many previous hours the patient had been in labour, with great rigidity of the os uteri. There had also been severe pain over the uterus, different from, and accessional to, the pains of parturition; on this account the surgeon had been

apprehensive of rupture of the uterus, and had therefore bled her; twelve ounces of blood taken away caused fainting, but no softening of the rigidity; the unusual pain was, however, lessened.

Present state.—Os uteri still rigid, and only one-third dilated; head high up. Slight distension of the bladder perceived above pubes. Fourteen ounces of urine removed by catheter. The pain before complained of still harasses the patient.

Treatment.—I could not recommend a repetition of bleeding, and suggested, in lieu of it, chloroform, to remove the rigidity and accompanying pain. It was given upon a handkerchief, and with such relief that the patient begged for its continuance. It was given from time to time, for three hours, during which three ounces were expended; the rigidity, however, at the end of that time was *undiminished.* Tartar emetic, two grains in divided doses, had no better effect. The forceps were contra-indicated by the condition of os uteri, and further delay holding out no promise of a natural delivery, I performed craniotomy. Considerable reduction of the skull was required to facilitate the extraction of the child. There was extensive morbid adhesion of the placenta, which required gradual detachment.

July 16th, 4 p.m.—Lochia free; pulse soft, 85; urine not passed; ordered spirits of nitric ether, after which, in the evening, the bladder acted properly.

July 17th.—My friend had been called to his patient at 3 this morning. Violent abdominal pain and tenderness had supervened. For this he bled her to fainting in the sitting posture, at a loss of seventeen ounces; calomel two grains, and opium half a grain, were given, and repeated before my arrival.

10 a.m.—The tenderness gone; I ordered hot linseed poultices to abdomen every two hours; the calomel and opium to be continued for the present; also a warm gruel

clyster, and the injection of warm water into the uterus, the lochia being offensive. Some retained offensive clots were thus washed out.

Nothing further was required, and the patient was convalescent in two days later.

Remarks.—The above case exemplified the failure of bleeding, chloroform, and tartar emetic, in resolving a rigidity of the os uteri, one, nevertheless, not of a permanent form, as after delivery it had entirely subsided. It was probably due to some impediment to free circulation through the vessels of the part, occasioned by the pressure of a large child.

The inflammation which followed, is one of the events which we may expect after difficult labours. Such cases cannot be too closely and anxiously watched, as a few hours of neglect in puerperal inflammations will turn the balance on the fatal side; while, on the other hand, prompt and efficient treatment will rescue the patient.

CASE CXX.—*Presenting head hydrocephalic, had been taken for a nates presentation. Labour had lasted four days from escape of the "waters." Peritoneal inflammation before delivery; anxious countenance; irregular pulse; laboured respiration; brown dry tongue; copious vomiting of bile. Craniotomy. Death twenty-four hours after delivery (as predicted). P.M. inquiry. Peritonitis, gangrene, and sloughing of mucous membrane of uterus.—Remarks.*

Friday, September 21st, 1855, at 1½ p.m., I was consulted by a surgeon, who had in his anxiety already sought the advice of a friend in his neighbourhood.

Patient æt. 24, her *third* labour; full term. Her former labours had been natural. The liquor amnii had come away on Monday morning; slight pains followed through Mon-

day, Tuesday, and the first half of Wednesday, on the afternoon of which they ceased, not to return.

Some doubt had been felt as to the presentation, and from its softness it was concluded to be the breech.

Present state.—I find a hydrocephalic head presenting, recognisable by its separated sutures, enlarged fontanelles, and fluctuating contents. The patient's countenance anxious; her eyes sunken, surrounded by a dusky ring; cheeks sallow and flushed; extreme exhaustion; laboured respiration; pulse irregular and weak, 140; acute abdominal tenderness, green bilious vomiting, and a brown tongue.

In another room I informed the attendant of my conviction of serious internal mischief having taken place, perhaps rupture of the peritoneal coat of the uterus, and at any rate hysteritis and peritoneal inflammation. By his request I then informed the relatives of my opinion that there was very great danger, and that no hope existed that delivery would save the patient's life.

Treatment.—I then undertook delivery. First tapping the skull, when a large quantity of straw-coloured serum escaped; then, with a good purchase by the guarded crotchets, I delivered the child in two or three minutes without difficulty.

A very putrid fluid now escaped from the uterus. The placenta came away after ten minutes entire. The patient expressed herself in strong terms of gratitude. The uterus was washed out with warm water; the patient was ordered beef tea, and hot linseed poultices applied to the abdomen.

My opinion, fully acquiesced in by the family attendant, was, that the patient would, in all probability, sink within forty-eight hours of her delivery.

She expired at a few minutes after 5 the following morning.

At a *post-mortem* inquiry the following were the appearances :—

Abundant proof of peritonitis; viz., great vascularity;

extensive and purulent effusion; the intestines widely adherent to one another, and partly to the uterus; the ovaries adherent by their naturally free surface to the uterus; the adhesions were recent and readily torn across. The internal surface of the uterus was found in a gangrenous and sloughing state. The spleen readily broke down. No rupture of uterus or vagina. The other organs of the body healthy.

Remarks.—The above peritoneal and uterine inflammation, which, with exhaustion from protracted suffering, was the cause of death, was the result of long-continued pressure on the genital surfaces by the child, rendered bulky as it was by hydrocephalic disease. The patient's previous health had been good. To have prevented the above mischief, her delivery should have been undertaken on the Wednesday morning instead of on the Friday afternoon. The unfortunate diagnosis led to the fatal delay.

CASE CXXI.—*Impaction of head in pelvic brim; small pelvis; soft parts much heated. Delivery by craniotomy as in her first labour, after failure of attempts to deliver by the single crotchet.*

February 21st, 1856, at 10 a.m., I visited, with a professional friend, a patient, æt. 25; her *second* labour. I had, on account of small pelvis, delivered her by craniotomy in her previous labour. The liquor amnii had escaped at 7 the previous evening. The patient had been in labour all night.

Present state.—The head impacted in the pelvic brim; the parts morbidly heated. After perforating and emptying the skull of its cerebral substance, I applied the guarded crotchets; but as no legitimate force of traction succeeded in bringing the child through, I removed three or four sections of bone by the osteotomist, when the head readily passed. My friend had perforated about an hour before

my arrival, but had not succeeded with the instruments in ordinary use in effecting delivery. The osteotomist and the use of the guarded crotchets made the operation safe, easy, and expeditious.

The contraction of the pelvic brim in this case was the result of rickets; it had existed at her first labour. She had neglected the advice then given, to have premature labour induced in her subsequent pregnancy. She was now again cautioned to apply to her medical attendant for the induction of premature labour in any future pregnancy.

CASE CXXII.—*Disproportionate size of the child, its head unduly ossified. Rigidity of os uteri removed by tartar emetic. Delivery by craniotomy. The impaction of the head prevented a previous employment of the forceps.*

May 25th, 1856, at 8 p.m., with a surgeon in my neighbourhood, I visited a patient, æt. 25, of corpulent habit, a primipara. The waters had escaped six hours; the patient had been in labour all night.

Present state.—Head presents, engaged in brim; the sagittal suture in right oblique diameter; large fontanelle to left acetabulum (third position); os uteri not fully dilated, remaining portion hard and thick; no pyrexia; bowels open.

Treatment.—Tartar emetic, in quarter-grain doses, at intervals, to relax the rigidity. Urine drawn off by catheter.

May 26th, at 1 a.m., I was again called. The os uteri was relaxed, nearly obliterated. I hoped now to deliver by the forceps, but finding complete impaction of the head in the brim of the pelvis, I was compelled to deliver by the perforator and crotchets, and had occasion to remove much of the cranium to save the necessity of strong extractive force. The placenta came away easily.

The patient's subsequent recovery was uninterruptedly good.

The cause of difficulty was a large child and its head unduly ossified.

CASE CXXIII.—*Difficult labour; advanced hip-joint disease. Delivery by the crotchets, after the patient had been long neglected. Hysteritis, vaginitis. Death. P.M. inquiry.*

January 3rd, 6 p.m., 1837, I was requested by Messrs. Knevett and Lankester, then students in University College, to assist them in a difficult labour in a primipara, æt. 22; a strumous subject.

Previous history and present state.—The patient had had hip-joint disease from five years of age, when, through an accident, the joint was dislocated.

The right or affected leg is much wasted. On the outer side of the thigh superiorly an ulcer with inverted edges, from which occasionally portions of bone escape. The right leg is much shortened; for years the use of a crutch has been necessary.

The labour commenced at 5 yesterday morning; the waters came away two hours later. The head is low down, impacted; a tumid portion of scalp projects between the labia majora, obscuring the sutures and fontanelles. This patient had been for hours under the mismanagement of an old midwife with double cataract, and I may add, mentally blind as well. By this incompetent attendant this poor woman had been kept in hard but fruitless labour from the morning of the previous day.

On seeing the case, the above gentlemen very properly declined its responsibility, and accordingly I saw the patient with them. I found her completely worn out by protracted sufferings.

After emptying the bladder, I forthwith delivered her by the perforator and guarded crotchet. By removing freely the cerebral substance, the child was extracted without difficulty. The child had been long dead.

As there was flooding, the placenta was immediately removed, upon which, with the employment of a bandage and the exhibition of a full draught of cold water, the uterus was left well contracted, and the hæmorrhage ceased.

Jan. 4th.—Slept well. A large quantity of urine removed by the catheter. Pulse 100, small, soft; tongue furred; skin natural; no headache. Castor oil to-morrow morning. Saline mixture, with ten drops of Battley's sedative, every four hours.

The patient went on doing apparently well, for a week, when pain of the abdomen appeared, with suppression of the lochia; a dry hot skin, and a full bounding pulse.

In my unavoidable absence, she was bled to fainting in the sitting posture, at a moderate loss, upon which the pain left her.

Visit next day.—No abdominal tenderness. Pulse quick, 130; blood strongly buffed and cupped.

On the third day from the attack the patient was worse, yet not complaining of pain. She became weaker and weaker, perspiring profusely, and died at the end of three weeks from delivery.

The *post-mortem* inquiry presented the following appearances:—

The right hip-joint diseased. Head of right femur extensively absorbed; acetabulum filled up. A little outside the former situation of the cotyloid cavity, on the ilium, was found a smooth articulating convex surface fitting to a concave synovial surface in the extremity of the neck of the femur. On cutting down on the site of the former cotyloid cavity, a quantity of cheesy cretaceous substance was found. The capacity of the pelvis had suffered a very obvious diminution, but as we were pressed for time, wishing to

secure the specimen for the University College Museum, the precise measurements of the pelvis, I regret to say, could not be taken. There were no adhesions nor other traces of peritonitis having existed. The internal surfaces of the uterus and vagina were in a gangrenous and sloughing state. The rest of the body was healthy.

Remarks.—The long-continued pressure of the child's head on the parts, under strong action for upwards of thirty hours, was obviously the immediate cause of the fatal disease, which doubtless was much predisposed to by the unhealthy state of the constitution. The morbid specimen having a surgical interest attached to it, was shown to Sir Astley Cooper, and subsequently placed in the above museum.

CASE CXXIV.—*Hip-joint disease, causing difficult labour; delivery by craniotomy. Good recovery. The importance of adequate reduction of the head in cephalotomy operations. Good recovery.*

On Sunday, October 14th, 1855, I was requested by Dr. Siodet to meet him in a *fourth* labour; the patient's age 42.

Previous history.—The last confinement occurred three years ago; the child was born living, without instruments, but with difficulty, as also were her two previous children. She had pain in the left hip joint, shortly before marriage, eight years ago. After marriage the pain increased. During her three previous labours, at each labour pain there was a cracking in the left hip joint, loud enough to be heard by her medical attendant. For some months past she has not been able to leave her home in consequence of lameness and pain in the joint in walking. Within the last two years, the pain has increased in the joint, from month to month. The muscles of the left leg are wasted; the knee

and toes everted; the hip joint apparently anchylosed; the left leg shorter than the right.

History.—Pains began on Friday, 8 p.m. As the patient slept, they went off. The waters escaped on Saturday at noon; head presenting. At half-past 6 p.m. the head had descended slightly; at 8 p.m. the pains were stronger, after giving ergot. As the head descended lower in consequence, that medicine was repeated.

Present state, at 1½ p.m.—Head in the right oblique diameter. No bad symptom; I therefore advised more time, hoping that the head might yet be moulded into proper shape for passing through the pelvic tube.

I was called again at 11 p.m., and then found that the head had become impacted, the parts hot and dry. The forceps could not be adjusted, therefore delivery was effected by craniotomy. Considerable reduction by the osteotomist was required before extraction could be safely accomplished.

The delivery, with the requisite care not to injure the mother's tissues, occupied an hour and a quarter. The patient recovered without a bad symptom.

November 13th.—This patient called upon me to report herself, as regards her confinement, quite well. I made an examination of the pelvis, and find at brim a normal sacro-pubic diameter; the right oblique diameter is less than natural by the projection inwards of the portion of the pelvis adjoining the left acetabulum. A small nodular projection of bone is distinguishable on the posterior surface of the left os pubis.

Had the head descended in the left oblique diameter, the child possibly might have been delivered by the forceps or even by the natural efforts.

An adequate reduction of the head is most necessary for the patient's safety, before extractive efforts are made in such cases. The dangers of craniotomy deliveries, as they are represented by some practical writers, are greatly the

results of inattention to that point, the operation being thereby prolonged over many hours, and attended by much contusion, sometimes by laceration of the soft parts within the pelvis.

CASE CXXV.—*Small pelvic brim. Unsuccessful attempt to turn under deep anæsthesia. Profuse hæmorrhage required rupture of membranes. Forceps applied without effect. Craniotomy.*

September 3rd, 1862, I was called by a medical friend to a patient who had in her latter labours experienced difficulty, and given birth to still-born children in consequence.

She was losing blood, without any placenta being to be felt at or near the os uteri. I ruptured the membranes to stop the flooding.

The os uteri was rigid, and not sufficiently dilated; the pelvic brim did not exceed three inches in the sacro-pubic diameter. I chloroformed the patient to remove the rigidity and allow of version. A strong spastic constriction of the neck of the uterus was not removed by anæsthesia, although deeply produced. Turning proved impossible, and forceps delivery was impracticable; craniotomy was then performed, and a male child of full size extracted.

The patient had an excellent recovery.

CASE CXXVI.—*Obstructed labour. The forceps inapplicable. Craniotomy. After relieving, a peculiar distension of the bladder.*

January 17th, 1859.—A second labour. The waters had escaped twelve hours.

Head half-way descended into the pelvic cavity. The forceps were incapable of application. Turning was out

of the question; besides the pulsation in the cord, which was prolapsed, was reported to have long ceased.

Craniotomy was thus the only course. Fruitless attempts to relieve the bladder had been made. With an elastic catheter I removed four ounces only of high-coloured urine, upon which a swelling felt above the pubes subsided. Dr. Andrew, who had consulted me upon the case, expressed his suspicions of there being yet more urine in the bladder, as none had been passed since the night before. On searching again, I found, that although no swelling nor fluctuation of a distended bladder could now be felt above the pubes, fluctuation could be perceived in the left iliac region.

I repassed the catheter, directing it towards the remaining collection, and so removed the retained portion, twelve ounces more. Delivery by the forceps was now attempted; but failing, craniotomy was performed.

This patient made a good recovery, and has since given birth to a son living.

I have never, in a large experience, met with the above form of retention; the collection separated in the bladder into two portions, which was probably due to the manner in which the head pressed in this case.

Case CXXVII.—*Craniotomy and delivery by short forceps. Hæmorrhage after delivery.*

May 24th, 1862, I was called by Mr. Pascall to a patient aged 25. The waters did not escape till late last evening. The head then immediately engaged in the pelvic brim, and the catheter had been required.

Present state.—At my visit at 3·15 a.m., I found the head wedged in the brim of the pelvis; os uteri not fully dilated, closely encapped the head. Urine in the bladder. Head in transverse position, face to left ilium. Clarke's forceps (pelvic curved) had been applied at the sides of

the pelvis, but could not be made to lock, because the blades were not applicable to the face and occiput. The child had not been felt to move since the day before, and consultation discovered neither fœtal pulsation nor uterine soufflet.

Treatment.—I delivered by craniotomy, and considerable reduction of the skull was necessary. This I effected by breaking the cranium up into fragments, and removing it from under the scalp with bone forceps. I then applied my modernized Smellie's forceps to compress the skull, and by these delivered the child.

The placenta, not being thrown off at the end of an hour, was then removed.

The uterus subsequently relaxed, and again and again relaxed, and poured forth blood; but persistence in pressure, administration of ice to suck, and ice passed into the vagina, restored permanent contraction, and the hæmorrhage ceased before any large loss had taken place.

CASE CXXVIII.—*Craniotomy delivery for impaction of a much ossified head. Good recovery.*

June 8th, 1863, at 9.30 p.m., I was called to a primiparous lying-in patient of the Middlesex Hospital by my then obstetric assistant, Mr. Charles Pyle.

Present state.—Head presentation; scalp tumid and puffy; anterior lip of os uteri swollen; frequent vomiting, but not that of constitutional prostration; vagina well sheathed with mucus. The finger passed with difficulty by the side of the head. The case not a favourable one for the forceps. The waters had escaped the day previously.

I suggested her lying on her opposite side for relief, and her taking saline effervescent draughts. The sickness was thus subdued. Subsequently I had chloroform given, to remove the swelling of the os uteri and the irregularity of the pains.

At 2 p.m. I was compelled to deliver by craniotomy, as no advance had taken place, and constitutional disturbance had shown itself; but I could not draw down the head till I had removed both parietal bones, and parts of the occipital and frontal bones. A broad bandage was adjusted as the child gradually passed out, and further equably tightened when the placenta passed, which it did spontaneously in a quarter of an hour.

This patient had an attack of abdominal cellulitis afterwards (June 10), which was treated by ipecacuanha and opium, with turpentine stupes, good nourishment, and attention to the bowels. It ended in resolution.

June 20.—She was reported convalescent.

At no period of this case were the long forceps or turning admissible. Had the long forceps been employed, the issue would most probably have been very different.

Case CXXIX.—*Pelvis much deformed and contracted by rickets. Delivery by Craniotomy.*

March 7th, 1862, 7 p.m., I was called to a patient of Royal Maternity Charity; her age 30; labour primiparous; stature short; legs curved by rickets from childhood upwards. From a child she had been in the occupation of a printer's folder, which involved much confinement indoors, in the sitting posture. The waters had escaped two days before my visit; strong labour had been present ever since.

Present state.—Os uteri nearly fully dilated. Promontory of sacrum distant from pubes only one inch and a half. More room on either side. The parts heated, tender, and dry. Pulse 130. Tongue furred. Countenance worn and anxious.

Treatment.—I relieved the bladder of some urine, and delivered the poor woman by craniotomy. I should have

done so sooner, had I been sent for earlier by the midwife. Her explanation was that she had been waiting for full dilatation of the os uteri. With the necessary care to be taken of the maternal tissues, against contusing them, I devoted an hour and a half to the operation, removing in the time the greater portion of the cranium, partly by separating the bones at their sutures.

The placenta came away without trouble. Ordered Dover's powder, 10 grains.

March 8.—Slept well. Pulse 92. Tongue moist and nearly clean; no headache; skin natural; urine passed naturally. Lochia free and sanguineous; abdomen tender. Hot bran poultices to abdomen, to be changed every two hours. Beef tea.

Sp. Eth. N. ... ... 15 minims
Battley's Sedat. ... ... 5 minims

in camphor and peppermint-water, every four hours.

March 9.—Pulse 94. Tongue moist; shivering in the night; skin not hot. Turpentine stupes to abdomen. Dover's powder at night, with calomel.

March 10.—Pulse 119, but not hard; skin moist; lochia free. Slept well. Pressure on abdomen well borne. Bowels not open. Castor oil half an ounce.

March 11.—Pulse 116. Bowels open twice from the oil.

March 12.—Pulse 98.

The patient required no further attention, and was duly cautioned to apply for the induction of premature labour, if again pregnant.

Remarks.—Had a quick delivery been attempted in this case, contusion and laceration, and in all probability a fatal result, would have ensued; but the gradual and more cautious delivery left the maternal tissues uninjured and conduced to a favourable recovery.

An earlier delivery, preceded by relaxants to dilate the os uteri, would have been preferable, had the opportunity been afforded.

This patient not long after fell again pregnant, and her mother would not allow her daughter to have labour induced. She was delivered in her second labour at a distance beyond my district of the charity, and as a parochial patient; craniotomy was again performed, and the difficulty was so great that the surgeon said she must not come to him again.

Case CXXX.—*Head and hand; head and foot presentation.*

If these are met with shortly after or at the moment of the escape of the waters, the hand in the one case and the foot in the other, must be gently reduced above the head with the point of the index finger, taking care to place the patient for the rest of the labour on the opposite side to that on which they have prolapsed.

It has been recommended not to interfere in these cases, lest the head be displaced, and the shoulder descend. I have never met with this accident, and have saved the patient some suffering by the practice.

Presentations of the head and feet were erroneously supposed by Rigby never to occur, except during turning, when the feet had been brought down into the pelvis before the head had left it, and therefore was a result of unskilfulness on the part of the practitioner. I may observe that, in the case which I published in the first edition of this work —the only case which I have met with—turning was never thought of, and therefore not attempted; nor had the practitioner who consulted me caused the descent in any way. It happened in a single birth.

I reduced the foot above the head, left the latter alone engaged in the brim of the pelvis, and a living child was expelled quickly after. Should the case be seen too late for reduction of the hand in the one complication, or the

foot in the other, and arrest of the head occur, the forceps will be indicated.

I was once called to a head and arm presentation, after impaction had existed for some hours, the violence of the pains threatening laceration of the uterus. The waters had long escaped before the case was seen by the attendant. Delivery by craniotomy was inevitable, but early reduction of the arm, had the opportunity been afforded, would most probably have saved the child.

CASE CXXXI.—*Delivery by Craniotomy and turning.*

May 14th, 1863, 10 a.m., I was called to a primipara, aged 24. Labour had commenced the day before; the waters had come away at 1½ a.m. on the day of my summons; the pains then ceased, and did not return till 4 a.m.

Present state.—Vagina contracted and dry; head high up, and moveable; promontory of sacrum abnormally projecting; tongue white; urine passed naturally; no sickness since first stage ended.

I ordered, to soften and expand the vagina, tartar emetic, half a grain every quarter of an hour. Two grains were given when sickness followed relaxation and ample mucous secretion; it was then discontinued. Chloroform was next administered moderately for about two hours. The pains were not lessened by the chloroform; the scalp became more tumid. I had eventually to deliver by craniotomy, as the forceps and version were both inadmissible. Finding it necessary to lessen the head so considerably that no purchase was left within reach, I was obliged to pass my hand into the uterus, and deliver by turning.

This patient had a slight attack of pelvic cellulitis after delivery, but it yielded to a few leeches, to the hypogastrium, and hot stupes, with Dover's powder at night, and she recovered in the ordinary period.

CASE CXXXII.—*Patient's age* 55; *disproportion at pelvic brim; face to right ilium; perforation; reduction of head; subsequent delivery by turning. Recovery without a bad symptom.*

June 9th, 4 a.m., 1857, I was requested by Mr. J. C. Day, of Camden Town, to see a patient, æt. 55, in her seventh pregnancy. She had had five miscarriages, after which, viz. two years ago, a full-term child, living, which was with difficulty delivered, after a prolonged application of the forceps.

She had now been several hours in labour; the waters had escaped four hours before my visit.

Present state.—Pulse 120; the patient fatigued; os uteri two-thirds dilated, rigid; the body of the uterus and the abdominal parietes are so flaccid that the limbs of the child are readily traced on placing the hand over the abdomen. Tumidity of scalp. The head lies transversely on the pelvic brim, face to right ilium. The presentation is high up, and does not bear on the os uteri.

Treatment and Remarks.—The catheter was first passed, though no urine was perceived in the bladder. The condition of the mother demanded delivery. The forceps were contra-indicated by the pelvic contraction, as well as by the rigid state of the os uteri; craniotomy was therefore the only available proceeding.

The distance of the head from the outlet rendered it necessary to pass my entire hand into the pelvic cavity, ere I could reach the presentation. I then guided the perforator and made the requisite opening into the skull. As complete an evacuation of cerebral substance as possible was effected. I removed also several sections of bone, preserving as much scalp as possible, to cover the rough edges. The guarded crotchets were then adjusted, and traction

applied in the axis of the pelvic brim, but no advance was made. Fearing to contuse the mother's soft parts at the brim of the pelvis, the operation having already, with an anxious care for the safety of the maternal structures, occupied nearly an hour, I determined to complete the delivery, by *turning*, as in the last case. The hand was readily passed up by the side of the reduced head, the exposed edges of the broken skull were carefully covered with scalp, a foot brought down, and the child easily extracted.

CASE CXXXIII.—*Contraction of pelvic brim, deep pelvis; perforation, and extensive reduction of head; delivery completed by turning. The patient recovered without any interruption.*

I was consulted May 3rd, 1852, at half-past 10 a.m., by the late Mr. Cocke, of Ulster Place, Regent's Park, for a patient in her second labour. Her first labour ended naturally at the seventh month; the child living.

Previous history.—This labour, at full term, had commenced overnight, at about 8 o'clock. The waters escaped at 4 this morning. The uterine tumour had not subsided in the usual degree on the approach of labour, which was afterwards explained by the contraction of the pelvic brim.

Present state.—Head presents high up, with a considerable puffy swelling upon it; the pelvic cavity appears deeper than usual; the promontory of sacrum projects much, and the head is tilted forwards upon the pubes.

Treatment.—The catheter was introduced. The perforator was then passed up, but so high was the head situated, that I was obliged to pass my entire hand into the pelvis, in order to guard satisfactorily the mother's tissues during the operation of reducing the head. I lessened the

skull as much as practicable, and made a firm purchase with the guarded crotchets, but no advance was made. Fearing contusion from further attempts, and desiring to relieve the patient from her suspense and suffering, I passed my hand carefully up by the side of the presentation, and grasped a foot. I covered the edges of the fractured bones with the scalp, and safely accomplished the operation of turning. I now brought the child gradually through the pelvis without difficulty. The uterus contracted well, throwing off the placenta.

Mr. Cocke subsequently wrote to me, "Your patient has recovered without a bad symptom."

Remarks.—Had this pelvic contraction been known in time, premature labour could have been induced, and the child in all probability have been saved. I have never before had occasion to perform the operation of turning, after craniotomy.* The great depth of the pelvis rendering any further attempt at reducing the skull an unsafe proceeding to the mother, required its performance in this case.

This operation having been performed successfully on four occasions at least of a like kind, proves that it may be safely and properly undertaken, and may be considered less dangerous to the mother than further proceeding in very difficult cases to reduce the skull.

At the time of meeting with the above case, I was not aware that version had ever been performed after craniotomy; but I observe that Dr. F. H. Ramsbotham had been compelled to adopt it on two occasions, after considerably reducing the skull.—(*Obstet. Med. and Surgery*, note, p. 811, 4th edition.)* Other operators have since found it advantageous.

* Since the above case I have performed version after craniotomy twice, viz. in 1857 and 1863, as above recorded. *Cases* CXXXI., CXXXII.

CASE CXXXIV.—*Arm presentation; turning; child living. Good recovery.*

December 15th, 1856, 5 p.m.—A patient in my district of the Royal Maternity Charity, a little deformed woman, but whose pelvis, nevertheless, was not involved in the deformity, being in labour of her second child, sent for her midwife. The hand protruded at the outlet of the pelvis. She had been some hours in slight labour pains, and the liquor amnii had escaped upwards of an hour.

With some difficulty I passed my hand up by the side of the presenting arm into the uterus, and delivered the child by turning. It was born in a state of asphyxia, but completely resuscitated by the usual means. The placenta came away without trouble. The mother and child did well.

CASE CXXXV.—*Arm presentation; turning; child living. Good recovery.*

June 4th, 1858, I was consulted in a case of arm presentation; the patient's age 36, the pregnancy her seventh. The "waters" had escaped an hour before my arrival. I passed my hand up without much difficulty, and hooking my index finger around the more distant knee, readily accomplished version. The child descending with the toes forwards, I rotated the trunk, directing the front surfaces of the child obliquely backwards. The arms were brought down, when the shoulders entered the brim. The head was next guided through the brim, by disposing the face towards the right synchondrosis; and so the child was delivered.

It was born in a state of asphyxia, but readily resuscitated from it.

CASE CXXXVI.—*Cross birth; side of abdomen and chest; turning; child still-born.*

Saturday, March 25th, 1854, I was requested by a professional friend to meet him in a sixth labour. The liquor amnii had come away on the previous Thursday. The side of the abdomen and chest presented. The insertion of the funis at the umbilicus of the fœtus easily felt.

By slow degrees I succeeded in reaching one leg and bringing it down. I left my friend to conduct the remainder of the case, judging it unwise, on account of the insufficient dilatation of the os uteri, to attempt delivery of the child at present. After some delay, on account of arrest of the head, the extraction of a still-born child was effected. The patient did well.

CASE CXXXVII.—*Arm presentation; hæmorrhage; firm clots at os uteri mistaken for placenta prævia; delivery by turning; child still. Good recovery.*

Patient, æt. 35, had had previous children. There had been profuse hæmorrhage. The surgeon who had requested my aid fancied he felt the placenta presenting; tough clots at the os uteri led to that suspicion. The liquor amnii had escaped three hours. I passed up my hand to the feet without great difficulty, and delivered by turning. During the operation I felt the cord, and without pulsation.

Probably the hæmorrhage had deprived the child of life.

The placenta caused no difficulty, and the mother's recovery was good.

CASE CXXXVIII.—*Arm presentation; some flooding; attempts to turn had failed; after anæsthesia it was accomplished. Child born dead. Mother recovered well.*

February, 1850.—I was called to a patient, æt. 28, deformed by rickets; the pelvis, however, was but little affected in its dimensions.

It was the patient's third pregnancy. The arm presented, and repeated attempts to turn had been made without success. Under these circumstances I was sent for.

My first efforts at version were unsuccessful, so violent were the uterine contractions. I succeeded, however, easily after giving chloroform by inhalation to the extent of a drachm.

The child was still-born, as was to be expected, after so much pressure had been exerted upon it.

The after-birth followed in less than ten minutes, without hæmorrhage.

I should not omit to add, that there had been some hæmorrhage before I saw her, which, during turning, I found to be due to a low attachment of the placenta to the uterus, although its edge did not quite reach the os uteri. The uterus contracted well after delivery, no hæmorrhage recurred. Good recovery.

CASE CXXXIX.—*Arm and funis; turning; child a male, living.*

September 4th, 1863, I was called by a professional friend to Kensington, to a lady, aged about 40, who had had several children. Some liquor amnii had escaped, the arm presented with the funis, which still pulsated.

I essayed external or abdominal manipulation only, so as to lower the breech, and bring the feet or a foot to the os

uteri, and thus to obviate introducing the hand; it only availed me, however, in bringing the feet within easier reach, but this even was a gain.

Having brought down the feet, I subsequently, at the proper time, drew down the arms, before the head engaged. The head was arrested; but by making traction upon it with two fingers of the left hand in the mouth, so as to depress the face, at the same time pressing up the occiput with the two fingers of the right hand, and drawing, at the same time, upon the body of the child, a male child was delivered; but it required resuscitating treatment before active respiration was set up; a lusty cry followed, not the less welcome to the parents, because it was their first and long wished for son.

The patient recovered favourably.

CASE CXL.—*Arm presentation; turning; child living.*

A patient of the Middlesex Hospital, fourth pregnancy.

Previous history.—The three first labours natural, the children still living. In the present labour the waters had come away three-quarters of an hour before my visit.

Present state.—The arm presents no constitutional disturbance.

Treatment.—By external and internal manipulation, I brought down one foot; the other not being within easy reach, I did not search for it. I fixed a ribbon noose around the ankle, and by the aid of external manipulation in raising the shoulder and head, version was accomplished. The child, a male, was born asphyxiated, but fully resuscitated by the means mentioned in other cases, including the Sylvester method.

CASE CXLI.—*Shoulder presentation ; version ; child still-born.*

April, 1863.—A patient of the Middlesex Hospital, her age 36; a seventh labour, attended by a midwife.

The case was seen by me first at 4 in the morning; the uterine orifice then admitted but one finger, and I distinguished a shoulder. I gave instructions to be called again when the os uteri was a little more dilated, and before the discharge of the waters.

I was not summoned again till 8, when the liquor amnii had escaped at 7; the version was easily effected; but the child still-born.

Delivery at 7, or rather before the escape of the waters, would probably have saved the child.

CASE CXLII.—*Arm presentation ; attempts at version without chloroform had failed ; after its administration, turning was easily performed, and the child saved.*

About the year 1861, I was called to an arm presentation.

The liquor amnii had escaped for some time, and attempts to turn had been made fruitlessly. Instruments were in readiness for embryotomy; but as a last resource my advice was sought.

Examining, on my arrival, and finding the presentation firmly impacted, I suggested a repetition of an attempt at version; but not without the influence of chloroform. A supply of that agent was forthwith procured, and when she was fully under its effect, as far as necessary, I was enabled to turn with perfect facility.

The child was of full size, asphyxiated; but quickly restored to active life by friction over the spine, and other usual means.

CASE CXLIII.—*Arm presentation. Delivery by embryotomy. Good recovery.*

Saturday, November 30th, 1839, 8 a.m., Mr. Woodthorpe, surgeon, of Kingsland, requested me to visit a patient in his neighbourhood; of previous good health; her age 28; her second labour. Her first child was born thirteen years ago; she then passed a widowhood of twelve years, and married again a year ago.

The liquor amnii escaped on Monday, but no pain setting in till Friday evening, the vaginal examination was deferred till then.

Saturday morning, at 4, the arm was first found in the vagina; several fruitless attempts, before and subsequently to a full opiate, were made to turn, after which I was sent for.

I found an impacted state of presenting arm, which was swollen; an excited state of heart and arteries; a hot, dry skin, and vaginal mucous membrane. For these states, and also to prepare the patient for a final attempt to turn, I ordered bleeding to faintishness in the sitting posture, and a full dose of laudanum; but such was still the impaction, that, even after the above treatment, version was quite impracticable.

It being hazardous to delay longer, I now perforated the axilla, using the arm as my guide; eviscerated the cavities of the trunk; and so, by traction at the arm, I brought the child by degrees through the outlet. This patient had a good recovery in the usual time after a natural labour, and has had a living child since by a natural labour.

Had the practice of anæsthesia been introduced at the above date, possibly, applied in time, the result might have been different.

CASE CXLIV.—*A transverse presentation; elbow, with funis; turning impracticable after a full dose of opium; delivery by the crotchets. Good recovery. Remarks.*

In the year 1844, Mrs. —, æt. 20, in labour of her second child. Her first (now living) had been delivered by the forceps. The waters had escaped a quarter of an hour before my arrival, the mouth of the womb at the time being nearly fully dilated. The elbow and funis presented; there was very feeble pulsation in the cord. The patient had a moist skin, of natural temperature; her pulse was but little raised above its natural rhythm; the vagina not heated, and sufficiently covered with mucus.

I attempted, by gently and gradually passing my hand up into the uterus, to turn; but powerful uterine contractions were induced, which returned in full force against me on each attempt. I administered one drachm of laudanum, waited patiently for its action, then repeated my efforts, but without effect.

The cord had now ceased entirely to pulsate; I accordingly proceeded to deliver by the crotchets, perforated the chest in the axilla, divided the contiguous ribs, obtained a purchase on the body by the guarded crotchets, and so brought the child through the passage. The body came sideways, the breech and feet being first expelled, as in a case of "spontaneous evolution." The uterus contracted well; the placenta was thrown off within half an hour, and removed from the vagina. The patient was left with a perfectly contracted uterus, and earnestly expressing her gratitude. Pulse 90, quick.

Visit on the following day.—Pulse 80, soft; skin moist, of natural temperature; lochia good; urine passed without difficulty; convalescence uninterrupted.

Remarks.—In this case the uterine action, and that of

the accessory powers, were such as to render turning impracticable even after the exhibition of opium, which so frequently enables us, by diminishing the violence of the womb's contractions, to complete the operation. The treatment of bloodletting adopted in some cases with occasional success, in quelling excessive uterine action, would have been improper here; the patient's constitutional strength did not admit of it.

The adoption of anæsthesia in child-birth had not then been introduced. Ether was first used as an anæsthetic in parturition on the 19th of January, 1847, preparatory to the operation of turning; chloroform on the 8th of November of the same year (*Obstetric Memoirs*, p. 631, *et seq.*), by Dr. Simpson.

I first employed it in a case of labour in the latter part of the same year, in a case of rigidity of the vagina, with acute suffering. The wished for relaxation, and a happy delivery speedily followed.

CASE CXLV.—*Cross-birth: arm and foot presentation with funis. Embryotomy. Favourable convalescence.*

December 5th, 1849, at 10½ p.m.—A third labour. I was requested to see a patient, of a neighbouring parochial infirmary, æt. 30, in labour at full term. The presentation consisted of the arm, foot, and funis. The liquor amnii had escaped three hours before; repeated attempts to turn the child had been made. The coils of cord prolapsed were devoid of all pulsation. The child was immovably fixed.

I perforated the most accessible part of the chest, eviscerated, and then with the crotchets brought the child gradually into the world. The patient had an uninterruptedly good recovery.

The pelvis was deep in this case, which made the operation a little more tedious.

CASE CXLVI.—*Cross-birth; arm presentation. Embryotomy. Collapse. Jaundice. Recovery.*

August 3rd, 1855, at 1½ a.m., I met Dr. Broxholm, of Richmond Road, Islington, in a third labour, arm presentation; the patient's age 28. The liquor amnii had escaped four hours and a half before. Proper attempts to turn had entirely failed, the child being firmly fixed in its position. I decided, on examination, not to repeat them, and a very low condition of the patient, with an extremely weak fluttering pulse, also determined me not to give chloroform.

I therefore at once perforated the chest, and eviscerated; but even now the child could not be extracted. I therefore divided the accessible portion of the spine, which proved to be the first dorsal vertebra. I made a purchase with a pair of embryotomy forceps, and so brought the child into the world. The placenta came away quickly afterwards. The patient was so low during and after the operation, that I was obliged to give her a little brandy from time to time. From the extreme prostration and vomiting, with a pulse 140 and intermittent, I feared a rupture of some portion of the uterus might have taken place, and we gave a guarded prognosis. We were much pleased, however, to find, on the following day, that the patient had considerably rallied.

Pulse 120, regular; tongue harsh and brown; there is occasional bilious vomiting; the face is flushed; skin a little above the natural temperature; but the patient's expression is not anxious; the breathing is not laboured, the abdomen is a little tympanitic, but not tender. Urine passed without pain, sufficient in quantity and not high-coloured; lochia ample. We had now better hopes.

This patient had an attack of jaundice on the fourth day after delivery, which yielded to a few doses of blue pill and mild aperients. Effervescing salines, with hydrocyanic acid,

were found useful in allaying the vomiting and febrile disturbance, which occurred during the first three days of the puerperal month. The general treatment of the case after delivery requiring due watching, and causing very natural anxiety as to the issue, was very ably conducted by my friend Dr. Broxholm, who has informed me of the complete recovery of his patient.

CASE CXLVII.—*Shoulder presentation. Turning impossible, even after anæsthesia. Delivery by embryotomy. Good recovery.*

Sunday, March 4th, 1855, I was called to a patient under the care of an intelligent midwife of the Royal Maternity Charity.

The liquor amnii had escaped on the previous Thursday, but for two days no pain followed. On Saturday the midwife was sent for, found the os uteri yet closed, and left with directions to be again sent for when active pains set in.

When again called, the labour had lasted several hours. The shoulder was presenting and fixed. A drachm of laudanum was now given, and after an interval to allow of its taking effect, an attempt to perform turning was made, but without success.

I was then sent for, and placed the patient under chloroform; still the presentation remained as fixed as before.

I was therefore compelled to deliver by embryotomy, eviscerating through an opening which I made in the axilla, after first bringing down the arm as a guide to that region. The child was now easily extracted, the placenta thrown off spontaneously. The patient had a favourable recovery.

The previous labour, also attended by the above Charity,

was an arm presentation, and the child was saved by turning, before the liquor amnii had escaped; and in all probability the child of the present labour would also have survived had the waters not so unfortunately come away before her labour.

CASE CXLVIII.—*Arm presentation. Delivery by the crotchets with decapitation. Favourable recovery.*

October 29th, 1851, I was called to the case of a poor woman, æt. 34, in her third labour, the arm presenting.

Previous history.—The waters escaped spontaneously on the 26th instant, without pains. At 11 last night (28th) she was seen by a surgeon. At that time the os uteri was firmly contracted around the arm and shoulder, on which account he had administered tartar emetic and opium, to relax the os uteri; but without success.

Present state.—I find the arm in the vagina, much swollen and desquamating; the genital mucous surfaces exquisitely tender, heated, and dry; the tongue coated with a brown fur; pulse weak, 120. The patient's countenance expressed great exhaustion. I determined on delivery by embryotomy, as the only safe mode of relieving the poor woman. I found the swollen arm to occupy so much space in the vagina, as to leave insufficient room for operating on the parts of the child above, without exposing the mother's tissues to injury. I therefore first removed the arm at the shoulder, then, finding the neck most accessible, I passed the decapitating hook round it, and effected its division. Pressing the head aside, I now made a purchase by the guarded crotchets on the child's chest, and brought the trunk into the world. The head I next delivered by craniotomy without difficulty.

I did not think it advisable to place this patient under

chloroform, fearing ill consequences in her condition; and, at the same time, looking upon any further attempt at version of an impacted decomposing child as contrary to reason, I did not contemplate such a proceeding.

I have only to add, that, notwithstanding two rigors, one before and another after delivery, the patient had a perfectly good delivery.

On the following day the bladder responded freely; the pulse was at 80; the patient felt comfortable.

Had anæsthesia been appealed to early on the previous day, it is not improbable that turning might have been accomplished, and the child saved.

Case CXLIX.—*Cross birth; arm presentation; Delivery by embryotomy. Good recovery.*

February 2nd, 1854, 1½ p.m., I was called by Mr. Rawlins, of Kentish Town, to a case of arm presentation, second labour. The liquor amnii had escaped the night before. Well-directed attempts to turn had been made by Mr. Rawlins, but without success.

I thought it unadvisable to repeat the attempt at version, till I had first placed the patient under chloroform. She was reduced to unconsciousness and quiescence: in short, it would not have been prudent to have carried its administration further; yet the operation was even then impracticable, the child being still immoveably fixed. I managed to reach one foot and bring it down, and threw a tape noose around it; but after repeated attempts to effect the turning, I was obliged to desist. In my search for the extremity, I found the funis without pulsation, and therefore was the less disappointed.

I now perforated the chest at the axilla with the trocar, but finding the swollen arm a great impediment to safe proceedings as regards the mother's tissues, I was obliged

to separate it at the shoulder-joint. I then eviscerated the thorax, when the child readily came by traction at the foot. The placenta passed away without trouble, and the patient recovered without a single bad symptom.

Case CL.—*Shoulder presentation. Embryotomy. Good recovery.*

April 7th, 1846, at 6½ a.m., I was called by Mr. Samuel Bacon to Mrs. C——, æt. 40, of robust health, in her ninth labour. All her previous confinements had been favourable.

The pains had set in at 9 the previous evening. At 3 in the morning—six hours later—the "waters" came away; the mouth of the uterus was at this time nearly fully dilated. The shoulder was now detected to be the presenting part. Without loss of time, my friend endeavoured to deliver by turning; but so great was the resistance, that after repeated efforts he was unsuccessful. Under these circumstances I was consulted.

I found turning impracticable. The patient's robust habit of body, and her pulse full and firm, justifying a resort to the relaxing agency of bloodletting, preparatory to a final attempt to save the child, I suggested that treatment. Twenty ounces were removed, the patient being in the sitting posture. Fainting did not take place. One drachm of laudanum was given immediately afterwards; nevertheless version could not, even now, be accomplished, the shoulder remaining as fixed as before.

As there was risk in leaving the patient longer unrelieved, I now commenced the operation of embryotomy, and, guided by the arm, which I had previously brought down, I perforated the axilla, dividing the ribs, and eviscerating.

I then made a purchase on the trunk, by a pair of craniotomy forceps, yet the child could not be brought down. It was therefore necessary to divide the neck; but the arm

which I had already drawn down, to give me more room for reaching a lower extremity, being in my way I removed it first at the shoulder-joint. After decapitation, the trunk was readily brought into the world, and the head was then delivered by craniotomy; my friend here giving me useful assistance, by the pressure of his hand upon the hypogastrium, so as to fix the head at the pelvic brim. The afterbirth followed without trouble, and the uterus contracted well.

Immediately after delivery—which, with the necessary care of the mother's tissues, occupied an hour and a half—the pulse from 120 fell to 104.

At our visit on the following morning the pulse was 80, and soft. The patient had had a good night, and had passed water freely without any pain. Lochia natural.

Beyond extra care to keep the patient undisturbed by visitors, and ordinary attention otherwise, no treatment was called for in this case. The patient recovered as quickly as after any of her previous labours.

Remarks.—The preparatory treatment of this patient, prior to delivery, although it did not enable me to accomplish my first object of turning, contributed no doubt to guard the patient from any unpleasant results of prolonged efforts to save the child by that operation; as also from those evils which might have been reasonably apprehended from the subsequent proceedings, however cautiously conducted.

I have only, in two other instances, found it necessary to separate the arm in delivering by embryotomy under cross presentations. In the present case, the neck was situated so high up that the difficulty of acting upon it was increased, and the arm could not now be replaced in the uterine cavity. I therefore separated the arm, as above stated, using Smellie's scissors, carefully surrounding the shoulder-joint with the index and middle fingers of my left hand. Adopting the same precautions with the neck, I effected its division in the same way.

I have since had constructed for this purpose, by Mr. Coxeter, a special pair of scissors, between ten and eleven inches long, blunt at the end, without shoulders, and curved near their extremity. The division should be effected little by little, the finger being placed at the distal side of the neck, and hooked around it, to guard the surrounding maternal tissues. I had found the ordinary decapitator very ineffective.

CASE CLI.—*Cross birth; arm presentation; spontaneous expulsion of Douglas; child still-born. Mother did well.*

November 18th, 1854, I was called by Mr. Wilkinson, of the Caledonian Road, to a third labour. The liquor amnii had escaped several hours before. The left arm and side of the child's body presented, the arm lying under the pubes, the clavicle extending close under the pubic arch. I arrived quickly, but the pains in the interim had been very violent, and had at length accomplished the expulsion of the child before my arrival; its breech being expelled first, the arm not receding. The child was dead, and of about seven months' gestation.

Mr. Wilkinson's description of the birth was a very accurate account of the above rare operation of nature, so clearly explained by Dr. Douglas in 1811.

I have had two similar cases of spontaneous expulsion under my observation, in both of which the women had had children before, the pelves exceeded the standard capacity, the children were under the average size, and they were still-born; apparently had not been long dead, and probably were destroyed by the undue pressure to which they had been exposed.

Case CLII.—*Arm presentation.*

A patient of the Middlesex Hospital, aged 27. I saw this case soon after the escape of the waters, and the uterus not being strongly contracted, I had no difficulty in delivering by turning, which I performed after Paré's method, using the external hand, as I have always done, to aid the touch of the internal hand. The child, a male, survived. It was not her first child.

APPENDIX.

PELVIMETERS.

I HAVE hitherto said nothing on the subject of pelvimeters, as I have not found them of much service, nor are they much in favour in this country. In vol. vi. of the Obstetrical Society, p. 187, is a plate of one constructed in the year 1859 for Dr. Harris; the measuring blades having been introduced closed, they are separated, so as to be applied respectively to the promontory of the sacrum behind, to the back of the symphyses pubis in front; while a graduated scale, fixed to one of the handles, and passed through an opening in the opposite handle, measures the distance to which they have diverged when the observation is complete.

An instrument, on a similar principle, but of lighter construction, was shown to the Obstetrical Society by my friend Dr. Meadows, for Dr. Lumley Earle, in 1861. The pelvimeters invented by continental obstetricians have long been before us. One of these is Bandelocque's callipers, which take the measurement outside the pelvis from behind forwards; one button of the callipers being applied to the back of the sacrum opposite the promontory, the other in front of the symphyses pubis. This gives the intervening measurement. Three inches are allowed for the thickness of the sacrum and pubes combined; but it is found untrustworthy, in consequence of the varying thickness of the bones. In M. Lobstein's use of it, three

inches and a quarter conjugate diameter was inferred to exist; he therefore applied the forceps: but after failing with them, and after a fruitless attempt to turn, he was obliged to deliver by craniotomy. The patient died, and a diameter of only two inches and a half was found.

Pelvimeters for use within the pelvic cavity, if any are employed, should alone be resorted to, of which Stein's beckenmesser among artificial instruments is the most convenient. It consists of two parts, one of which slides upon the other with two vertical pieces; one fixed at the extremity of the instrument, which is applied against the promontory of the sacrum; the other on the sliding portion which is moved forwards to the back of the pubes. The stem is graduated, and then the intervening distance can be noted by the distance to which the outer part of the slide has advanced outwardly. It acts somewhat on the principle of the shoemaker's rule.

After all, as I have intimated above, the natural pelvimeter, the right finger, has always served me more satisfactorily than I apprehend any artificial one would do.

We should place the top of the index and middle finger on the sacral promontory, then indent with the nail the measuring finger, withdraw it, and apply a pocket rule to it, allowing half an inch for the obliquity of the line.

HEAD AND HAND.

The cases will show the treatment; the hand is to be pushed up above the head, in the absence of pain. Should it re-descend, push it up again and place the patient on the opposite side to that on which it prolapsed. Should the head have descended too low for this, and be arrested, deliver by the forceps.

HEAD AND FOOT.

Here the like treatment is to be had recourse to.

EMBRYOTOMY IN TRANSVERSE PRESENTATIONS.

Where the constitutional powers are so prostrate that they will not admit of any of the above preparatory measures, or where, having been applied, they have not had the desired effect, the only mode of saving the patient is by the operation of embryotomy. But let us not postpone this operation till serious prostration has supervened, till the parts have become contused, or lacerations of the uterus or vagina have taken place.

Embryotomy—thus become imperative—consists generally, in perforating the chest in the axilla, eviscerating, and discharging gaseous or liquid contents. The child is then brought into the world, by drawing upon the arm. Sometimes we have to make a purchase on the body, by a pair of forceps suitable for this purpose.

In some cases it is necessary to puncture the abdomen, to discharge ascitic fluid.

In others, before we can bring down any part of the trunk, we are obliged to separate the head from the body. For this purpose, the decapitating hook designed, after that of Celsus, by the late Dr. John Ramsbotham, generally has been used. My father's decapitating knife, with guard blade, also effects the division of the neck very safely. Either of these is passed around the neck, which is then severed by traction, with a slight to-and-fro movement of the handle, in the direction of the cutting edge. I have in latter years used, for this purpose, a special pair of curved and blunt-ended scissors, gradually dividing the parts, from below upwards, while surrounded by the fingers of my left hand. Indeed, whatever be the instrument used, the neck of the child and the instrument must be surrounded by the fingers of the left hand, while making the division. Thus is the mother secured from injury.

The head being thus disconnected from the body, the latter is easily extracted, and the head is subsequently de-

livered by craniotomy, being fixed at the brim by the hand of an assistant during our proceedings. In two cases, one with Dr. F. G. Broxholme, where the loins and back, and not the neck, were accessible, I effected the delivery by dividing the spine in that region. In both instances the patients had good recoveries.

INTRODUCTION OF THE CATHETER.

The young practitioner will sometimes be a little puzzled in the passage of the catheter in difficult labours, in consequence of some degree of swelling and disturbance in the position of the parts, and some irregularity in the course of the urethra.

He should, when about to pass the catheter, place his patient near the right edge of the bed, with her knees drawn up and separated sufficiently from each other. He will then separate the labia majora with the fingers of his left hand, and taking the catheter in his right hand, he will, with the point of his index finger feel for the clitoris; tracing the finger point in the middle line downwards for about an inch, he will perceive a very slight eminence, in the middle of which he will feel the urethral orifice. The point of the catheter (I usually employ a gum elastic one) is then to be introduced and carried upwards and a little backwards; and the urine will now speedily flow through it. Sometimes it will be necessary to press upon the head upwards and backwards to shift it from the urethra ere we succeed.

A beginner not unfrequently at first slips the instrument into the vagina, but he will readily discover his mistake, if when the urine does not flow, he passes his finger into the vagina, where he will find the instrument lodged, and can then remedy his error. Sometimes he passes the point of the catheter into a lacuna of the mucous membrane; if so, its immediate arrest will prompt him to seek again for the

real situation of the orifice; and should he then fail, a delicate use of the eye will be better than long irritation of these sensitive surfaces with the point of the instrument.

Sometimes the urethra is much elongated, so that the ordinary female catheter will not suffice for length. And sometimes the course of the urethra is so devious as to require more than ordinary dexterity to introduce the catheter. I have given one or two instances.

In my own practice, I rarely disturb the patient from her labour position on the left side, and very rarely employ the eye; but when this is necessary, on account of the swollen state of the parts and their displacement, it should be done with great consideration for the patient's feelings, therefore without any unnecessary exposure.

STATISTICS, WITH ANALYSIS,

OF 13,783 DELIVERIES UNDER MY SUPERINTENDENCE.

OF these labours, 13,160 occurred in the western district of the Royal Maternity Charity (1842–64); 623 were attended by the pupils of my midwifery class, and by the St. George's and St. James's Dispensary.

In the Royal Maternity Charity (an institution founded in 1757), the boundary-line extends three miles in every direction from St. Paul's Cathedral. I have the management of the western division, which commences a little on the east side of St. Paul's, is bounded by the Thames on the south, and extends northwards and westwards. The two other divisions, the eastern and southern, are respectively directed by my colleagues, Dr. Robert Barnes and Dr. J. Braxton Hicks.

The patients are attended by carefully educated midwives, and are delivered at their own homes; an arrangement by which is insured a great freedom from puerperal fever, a disease which at different periods has been so fatal in the lying-in hospitals of this and other countries, as to raise the mortality in them, as records show, rarely to less than 1 in 100, and sometimes to 1 in 80, and that from causes inseparable from such a mode of attendance, although capable of being mitigated in some small degree by good ventilation and strict cleanliness.

1842—1864.

I.—Labours, 13,783; Children, 13,916.

Single births	13,650	or	1	in	1·009	or 99·035 per cent.
Twin births	133	,,	1	,,	103·631	,, 0·965 ,,
Children living ..	13,379	,,	1	,,	1·040	,, 96·069 ,,
Children still-born ..	537	,,	1	,,	25·931	,, 3·859 ,,
Male children	7,133	,,	1	,,	1·951	,, 51·257 ,,
Female children ..	6,745	,,	1	,,	2·063	,, 48·469 ,,
Sex omitted in reports	38					

II.—Presentation of the Children Born.

Cranium (vertex)	12,926	1 in	1·076	or 92·886 per cent.
Face	123	1 ,,	113·138	
Ear	1	1 ,,	13,916	
Breech	161	1 ,,	86·435	
Feet	77	1 ,,	18·073	
Knee	4	1 ,,	3,479	
Arm (elbow in 3)	28	1 ,,	497	
Shoulder	8	1 ,,	1,739·500	
Back	1	1 ,,	13,916	
Side	1	1 ,,	13,916	
Head and hand	23	1 ,,	605·043	
Head and both hands ..	1	1 ,,	13,916	
Head and foot	1	1 ,,	13,916	
Head and funis	26	1 ,,	535·231	
Head, hand, and funis ..	2	1 ,,	6,958	
Head, foot, and funis ..	1	1 ,,	13,916	
Shoulder and funis ..	2	1 ,,	6,958	
Hand and funis	1	1 ,,	13,916	
Breech and funis	1	1 ,,	13,916	
Arm and funis	3	1 ,,	4,638·667	
Foot, hand, and funis ..	1	1 ,,	13,916	
Foot and funis	3	1 ,,	4,638·667	
Placental presentations —one with hand, one with arm and funis ..	26	1 ,,	535·231	
Presentations doubtful—labours rapidly finished before aid arrived ..	495			
	13,916			

III.—Of the Twin Deliveries, 133 in number.

1. *The presentations were—*

Head and head	in	74
Vertex and ear	,,	1
Head and breech	,,	21
Face and breech	,,	1
Breech and head	,,	1
Head and feet	,,	21
Feet and head	,,	1
Head and knee	,,	2
Head and shoulder	,,	1
Head and side, with funis	,,	1
Arm and head	,,	1
Breech and breech	,,	4
Breech and feet (one with funis)	,,	2
Feet and feet	,,	1
Foot and arm	,,	1
		133

2. *The sexes of the twins.*

Both males	in	43
Both females	,,	47
Male and female	,,	40
Sexes not stated	,,	3
		133

3. *The vitality of the twins.*

Born living	in	241
Still-born	,,	25
		266

4. *The vitality of the mother.*

Mothers recovered	131
Mothers died	2

1 From collapse after a *seventh* twin labour.
1 From peritonitis after convulsions in labour.

IV.—Of the FACE PRESENTATIONS, 123 in number.

Children delivered naturally	121
Of these were born living..	111
,, ,, still	10
One child delivered by "turning," still.	
,, ,, by forceps, living.	

The rule laid down in the general management of the face cases was to allow them to proceed, and to aid the rotation of the chin to the pubic arch, when that change seemed difficult of accomplishment. The termination with the chin to the front was considered normal; while that in which the face labour terminated with the chin to the sacrum was considered rare, and more difficult. The above case, terminated by forceps delivery, was an instance.

Of the 12,926 cranial presentations, only 6 are reported to have terminated with the face to the pubes. Probably this was under the actual number, although experience shows me that they are extremely rare. They are derived, I believe, in all cases from original fronto-cotyloid positions, which had departed from the rule of postero rotation.

V.—The CROSS-BIRTHS and the principal Complications of labour were—

Cross-births	45	1 in	309·244
Complex presentations	67	1 ,,	207·701
Prolapse of funis	40	1 ,,	347·900
Hæmorrhage	166	1 ,,	83·030
1. "Accidental," before labour	42	1 ,,	328·166
2. Placenta prævia	26	1 ,,	530·115
3. Between birth of child and before expulsion of placenta	64	1 ,,	215·359
4. After placenta expelled..	35	1 ,,	393·800
Morbidly adherent placenta	14	1 ,,	984·500

Puerperal convulsions		8	1 in 1,722·875
Before and after delivery	1		
Before delivery	2	8	
During labour	2		
After delivery	3		
Rupture of uterus		3	1 in 4,594·333
of the three coats and vagina	2	3	
of the peritoneal coat only	1		
Inversion of the Uterus		1	1 in 13,783

Analysis of the TRANSVERSE PRESENTATIONS, 45 in number.

Turning was performed in 36. Of the children so born 17 were living, 19 still. The still births included 5 in which the cord presented; 1 other child was dead before labour.

Spontaneous expulsion occurred in two, but both were still births. In *one* the case I observed to terminate as Douglas described; the presenting arm not receding from its position under the pubic arch, while the breech was propelled downwards posteriorly to it, and was so expelled.

In the other the one arm first presented and was followed by the other arm with the head, which was depressed forwards upon the sternum.

Embryotomy unavoidable in three cases; one shoulder presentation; two arm presentations. Chloroform, given as far as safe, had not induced the necessary relaxation. *Four* were six months' fœtuses, and came as they presented.

All the mothers did well, excepting one who died of acute jaundice on the day after delivery by turning.

Analysis of the COMPLEX PRESENTATIONS, 67 in number.

In 23, Head and hand; reduction of the hand above the head; all living.

In 1, Head and both hands; reduction of hands; child living.

In 1, Head and foot; reduction of foot; child living.

In 26, Head and cord.

In a few of these the cord was reduced; in others it was too late to attempt its reduction. Here the forceps were

applied, when the head was not advancing, and no proof was present of the child's death; but if the head was descending quickly, nature was left to take her own course.

Turning was not adopted in any of these cases of this complication, although I have found it successful in a few other instances where I have tried it. Of the children, 17 were living, 9 still-born.

In 2, Head, hand, and funis. In *one* the prolapsed parts were reduced; in the *other* turning was performed—both living.

In 1, Head, cord, and foot; forceps delivery; still birth.

In 3, Foot and cord; *one* living, *two* still-born.

In 1, Breech and funis; still-born.

In 4, Arm and cord, all turned; *one* living, *three* still-born.

In 2, Shoulder and funis turning; still-born.

In 1, Foot, hand, and funis; foot brought down; child still.

In 1, Placenta, arm, and funis; turning; still birth.

In 1, Hand and placenta; turning; child dead.

Thus, of the 67 complex presentations, the child was born living in 46; still in 21.

Prolapse of the funis, 40 cases (not including one with partial placenta prævia) yielded 21 living births; 19 still births; the usual proportion given of still births being half of the number born under this complication.

COMPLICATION BY HÆMORRHAGE, 167 Cases.

I. Before delivery	... ...	68	,,
viz., Accidental	... ...	42	,,
Unavoidable	...	26	,,

A. *Accidental Hæmorrhage*, 42.

In 1, with miscarriage at second month. The mother did well.

In 1, at the sixth month of pregnancy, third attack with great exhaustion.

Treatment.—I induced labour by tepid water injection

into the uterus, and gave five half-drachm doses of ergot. The child was expelled seven and a half hours later, still-born. The placenta and membranes came away with the fœtus. Offensive lochia existed two days with pyrexia; for this uterine injections of warm water were used, which brought away some putrid blood-clots. Upon this the febrile disturbance subsided at once, and with tonic treatment (quinine) the patient rapidly got well. I may here remark, that I have been called to other cases, where the plan of washing out the vagina and uterus had not been practised. The febrile disturbance had continued, and death ensued from blood-poisoning. In one case I recollect the death was sudden, doubtless produced by a blood-clot in the circulation interfering with the action of the valves of the heart.

In 5, with labour at between seven and nine months, treated by cold applications. The children were still-born, and the mother did well.

In 1, the waters had escaped after a long walk; patient near full term; cold water applications. The child was soon expelled without aid, and the patient had a good recovery.

In 1, six weeks before delivery; treated by rest; cold applications, sulphuric acid and opium. The flooding then ceased, and delivery followed at full time. Child decomposed.

In 1, slight hæmorrhage without pains, subdued by rest, a cool regimen with acids. Child born living, fifteen days later. Mother did well.

In 8, at or near full term. Cold applications and draughts of cold water sufficed, with rest in horizontal posture. The mothers had good recoveries.

In 1, the *plug* was used without discharging the waters. It arrested the flooding. The liquor amnii came away later and spontaneously, and the child followed quickly afterwards. Still-born. The mother recovered favourably.

In 23, the *membranes were ruptured* by the finger or by the stilet.

In 15 of these the flooding was thus arrested, and of these three were twin labours, and the six children living. In 8, the flooding continued. In 2 of these a rigid os uteri forbade turning. The vagina was therefore plugged, a broad bandage applied around the abdomen. The hæmorrhage was thus arrested during the necessary dilatation of the orifice of the uterus. On the removal of the plug, the children were expelled still-born. In 5, delivery was subsequently accomplished by turning for the continuing hæmorrhage, and the mothers had good recoveries. The mothers in the above had all good recoveries, with *two exceptions.*

One of these was an eighth labour; the patient had flooded for several days, and stated that she had mistaken the discharge for the waters. When visited, the liquor amnii was at once discharged, when the hæmorrhage immediately ceased. The relief, however, came too late. The uterus after delivery remained flaccid, and ergot and brandy were given in vain; result fatal.

The *other* was the case of a patient aged 35, her eleventh pregnancy. The hæmorrhage had followed upon lifting a heavy wash-tub full of water. The same night she had actively joined in a dancing party and taken very freely of spirituous drinks. A very large loss of blood had taken place before the midwife was summoned. She immediately, according to her general instructions for all cases of severe flooding, at once discharged the waters, when the hæmorrhage was immediately arrested. The delivery very soon followed; a bandage was tied around her, cold applied, and good ergot given, but the flooding nevertheless returned for a short time after the child's birth. The child was born at 6½ p.m., and death ensued at 11 the same night.

Thus, in the above 42 cases of accidental hæmorrhage, 40 mothers recovered well; 2 mothers died from delay on the part of the patient and her friends, in not timely sending for aid.

B. *Placenta prævia, Unavoidable Hæmorrhage, 26 in number.*

In 4, partial presentation of the placenta. The membranes were artificially ruptured; the hæmorrhage then ceased, and the births followed without further interference; two children living; two still. The mothers did well.

In 2, placenta prævia partial. The waters were discharged; the flooding then ceased. Pains not following, ergot was given. One child came living, the other was still-born. The mothers recovered.

In 3, partial placenta. The "waters" of the amnion were drawn off; but the hæmorrhage being unchecked, "turning" was then had recourse to. Two children were born living, one child still. All the mothers recovered well.

In 1, partial placenta prævia. Rupture of the membranes failed to stop the flooding; and turning being found impossible, even under chloroform, the "plug," bandage, and ergot were resorted to. Child still-born nine hours later. The patient aged 35; her seventh labour. Recovery good.

In 1, partial. The membranes had given way spontaneously; the hæmorrhage continued. Turning. The neck of the uterus grasped the head firmly. The child still-born. Mother did well.

In 1, partial, with arm and cord. Turning. Child still. Mother aged 31; eighth labour; did well.

In 1, partial placenta prævia, with arm. Uterus strongly contracted; the waters had escaped. The district surgeon had attempted "version," but the patient successfully resisted his efforts; so I was sent for, exhibited chloroform, and thus in a few minutes, by external and internal manipulation combined, I succeeded with facility in extracting the child by "turning." Child still-born. The patient recovered her consciousness completely within five minutes after delivery. The placenta was thrown off

naturally into the vagina, and thence removed. Having freely ventilated the room, and given strict injunctions that the patient should not be removed for several hours, I left her, with a good pulse, a good expression of countenance, a well-contracted uterus, and with the security of a firm bandage and compress. The sequel was, that this patient died two hours after delivery, of consecutive hæmorrhage. She had not lost sufficient blood to blanch her, even on the removal of the placenta. It appeared that she was a very obstinate woman, of intemperate habits; that, in defiance of instructions, she persisted in sitting up directly the midwife left. While in this posture profuse bleeding set in, and proved quickly fatal.

The midwife had, as I had requested, remained an hour with this patient after delivery, to watch her; had enjoined every precaution before leaving. The patient's age was 34; it was her fifteenth confinement. Her last labour had also been one of placenta prævia, and the hæmorrhage so profuse that great exertion was required to save her life.

In 1, partial placental presentation, but nearly of the complete form. The os uteri was too small to admit of *turning;* the liquor amnii had escaped before my visit at 2 p.m. Hæmorrhage was still going on. I detached the placenta from the cervix all round as high as* my fingers could reach; having cleared away the clots and fluid blood, I waited; but the hæmorrhage continuing more copiously than before, I now plugged the vagina firmly, with good effect, and gave the patient a drachm of laudanum to allay restlessness and promote relaxation of the rigid os uteri. At 4½ p.m. the pains were pressing down the plug, hence I removed it; the child was then expelled forthwith, and still-born. Mother did well.

* In accordance with the doctrine of my colleague, Dr. Robert Barnes, who, however, does not guarantee its success, which must be dependent on uterine contraction. It nevertheless set the cervix at liberty, and so hastened full dilatation.

In 5, placenta prævia complete. The os uteri being sufficiently dilated, I turned. Children still-born; one of these a seven-months child. Mothers did well.

In 1, placental presentation complete; blood had been draining away for some hours; "turning" was resorted to as soon as the os uteri would allow of it. Child still. The mother died during delivery. The "plug" was not adopted. It should have been applied during the delay, before delivery could be undertaken; had it been, I am disposed to believe this mother's life might have been saved.

In 1, placenta prævia total; patient's age 34; fourth labour. The flooding had commenced three weeks previously, without apparent cause. Five attacks of hæmorrhage had preceded my visit, although the patient had been warned to send immediately, should a second flooding ensue. Brandy had been given, and the waters discharged while the messenger came for me. I detached the placenta from the cervix, and excited uterine action by ergot. The hæmorrhage becoming copious, and the patient faint, I determined, after giving more brandy, on delivery. I succeeded in gradually hooking down a knee, and thus little by little in extracting the child, and shortly after the placenta. The uterus contracted well. Child still-born. Mother did well.

In 1, placenta prævia total. Hæmorrhage had existed more or less for four days. Brandy given. Delivery then by turning. Patient's age 30. Sixth labour. Eight months' gestation. Child still; mother did well.

In 2, entire placenta prævia; much flooding; one patient very faint, requiring brandy before delivery. Turning. On waters escaping, flooding ceased. Children still; the mothers progressed favourably.

In 1, the placenta covered the os uteri completely, as in the above cases. On passing the hand, however, I found the placenta had been detached spontaneously. I did not then deliver, as the patient was greatly exhausted, and no

hæmorrhage was present. Brandy and eggs were given, and after a sufficient interval, the patient having rallied, I delivered her slowly by turning. Child still; mother progressed slowly on account of her feebleness, but recovered.

Thus, in twenty-six cases of placenta prævia—of which *fourteen* were partial, *twelve* entire—24 mothers recovered; 2 mothers died, or 1 in 13; 6 children survived; 20 children were still-born.

II.—Hæmorrhage between the birth of the child and the removal of the placenta, 64 in number.

In 1, after rapid delivery in erect posture, the funis being torn across at the time.

In 52, they were mostly instances of *uniform inertia* of the uterus. In others various forms of *spasmodic contraction* of the uterus, with atony of limited portions of the organ.

Cold applications and pressure, with sometimes artificial removal of the placenta, were the treatment of the first.

The removal of the placenta formed the treatment of the second, sometimes conjoined with an opiate or a little chloroform.

In 11, there existed *morbidly adherent placenta*, which was detached and removed.

In all the cases where the effects of the flooding demanded it, stimulants were given as appeared necessary. All the mothers did well except one, who died of blood-poisoning.

III.—Hæmorrhage after expulsion or removal of the placenta, 35 in number.

In 1, the hæmorrhage induced convulsions.

In 1, after a primiparous labour of only one hour's duration.

In 2, after the birth of twins; in 1, convulsions had occurred before delivery.

In 1, hæmorrhage had also occurred in former labours.

In 1, it was observed that, after ergot and other remedies

failed, the application of the child to the breast induced the needful contraction of the uterus.

In 1, on the sixth day after delivery, and from premature exertion.

In 1, the patient was emaciated, having been almost starved during her pregnancy; husband a drunkard. She died on the evening of her delivery, but the loss of blood had not been absolutely large.

In 2, on the ninth and twelfth day after delivery, from relaxation of the uterus.

In 1, the hæmorrhage followed natural labour, and proved fatal, by exhaustion, twelve days after, although fully supplied with nourishment.

There was nothing worthy of special comment in the remaining cases.

The ordinary treatment of cold and pressure was pursued, and, to such as required it, brandy was administered to sustain their failing powers.

In all these cases of post partum hæmorrhage, the ordinary treatment of the application of cold, pressure, &c., was pursued; and, to such as required it, brandy was administered to sustain their failing powers.

All the thirty-five cases recovered, excepting the two above specified.

PUERPERAL CONVULSIONS, 8 in number.

Before and after delivery,	1.
Before delivery	2.
During labour	2.
After labour	3.

The following are some particulars of these cases:—

In 1, before and after delivery, in a primipara aged 19. *Treatment*—V.S. and forceps delivery, with aperients; cold applications to shaved head; child male, still-born, the mother being still unconscious; blister to nape of neck subsequently, and aperients. Consciousness did not return till the eighth day. Good recovery. The patient has had a

living birth twice since without difficulty or ailment, and was attended in my district by the Royal Maternity Charity.

In 1, before delivery, in a case of twins; hæmorrhage occurred immediately upon delivery, and proved curative of the convulsions. Children both males, living.

In 1, during protracted labour, in a primipara, continuing also after delivery. Venesection; craniotomy for impaction of child's head. Child a female. Good recovery.

In 1, before delivery. *Treatment*, V.S. Child born alive without further interference by head presentation. Good recovery.

In 1, the convulsions supervened nine hours after an easy labour; child living. Aperients, followed by anti-spasmodics, and cold lotions to head, sufficed for the cure.

In 1, after delivery of seventh child living, labour had been easy. The attack was excited by mental shock. Leeches had been applied, without improvement, before my visit. *Treatment* V.S. to sixteen ounces, followed by calomel and croton oil; good recovery.

In 1. A twin and sixth labour. The convulsions came on at midnight; the patient had had eleven fits. Eight leeches were applied to the temple, and purgatives given; after that the convulsions ceased. Delivery followed spontaneously, at 4 p.m., following day. The convulsions did not return; but consciousness was not recovered till the third day. Peritonitis asthenic subsequently appeared, and proved fatal on the eighth day. The children—females—died on the day after birth. This patient, not being deemed a good subject for general blood-letting, was not so treated.

In 1, twin labour, both males, presented by the head, and survived. Depletion and aperients formed the treatment.

Of the above cases of puerperal convulsions we see that 7 mothers recovered; 1 mother died subsequently of peritonitis; 7 children born living; 3 children still-born.

Three of the labours were twin labours. The forceps and craniotomy deliveries were resorted to, each once.

In the other cases the births were spontaneous. Renal disease and uræmia were suspected in the above fatal case.

Rupture of the Uterus or Vagina, 3 Cases.

In 1, *rupture of uterus through the three coats and vagina* during a rapid labour. Fatal. This case occurred in March, 1857; the patient's age was 36. It was her *ninth* labour. The child was born by a head presentation, a female, and not large. The labour was rapid. The "waters" had escaped at 2 p.m.; labour did not set in till 6 p.m.; indeed, at half-past 4, the os uteri was ascertained to be closed, and the patient was left sitting at the tea-table with her family, and not yet complaining of pain. Not till a quarter-past 8 was the midwife sent for, on active pains commencing. She arrived at half-past 8, and found the child lying dead on the bed in a pool of blood. The flooding continued, notwithstanding cold applications and bandaging, till near the patient's death, which took place at about 10 o'clock the same evening, evidently from loss of blood.

I saw her soon after delivery, and found her with the symptoms of rupture of the uterus, and dying. At the *post-mortem* examination, conducted by Mr. H. Charles Stewart, of St. John's Wood, in my presence, a laceration was discovered extending through the neck of the uterus and upper part of the vagina on the left side, *not* involving the peritoneal coat, under which there was found extravasated in patches some coagulated blood. To the naked eye there was no apparent pathological condition of the lacerated parts to explain the lesion; but we must presume that the tissue at that point must have been much weakened, prematurely degraded; and hence the fatal result.

One case in February, 1864, occurred in the neighbourhood of Barbican, near the eastern boundary of my district.

Elizabeth Hawthorn, aged 37, her seventh pregnancy. The midwife, an intelligent and well-conducted person, reported that she was sent for February 11, at 8 a.m. The waters had then escaped two days. She found os uteri of diameter of half-a-crown, head presenting, the pains slow and feeble. The case not requiring her yet, she left by patient's wish.

At 1 p.m. the patient was visited again by the midwife, who found her shivering, pains slow, the os uteri now obliterated, head in pelvis, with face to pubes at outlet. The pains being so feeble, ergot was given twice, half a tea-spoonful of the powder each time; but it produced no increase of pain, and did not make her sick.

She complained of pain in her right side. She was a woman who had worked hard at sawing oak wood for taps to oil-casks. She was of temperate habits, and said she had always had plenty to eat. She was intensely thirsty, felt very weak, the pulse was scarcely perceptible. The midwife being alarmed at her state, she called neighbouring assistance, and Mr. Mason arrived at 2 p.m, or soon after; but the patient was dying, and soon expired undelivered. As in the former case, I advised the midwife to communicate at once with the coroner for her own sake.

The *post-mortem* inquiry was conducted by Mr. Mason and his assistant, in presence of my friend and colleague, Mr. Nunn, surgeon of the Middlesex Hospital. The appearances were the following:—

A rupture of the uterus was found in two places, through the cervix and at the junction of the cervix and body of the uterus on the right side. Some fluid and coagulated blood was found in the cavity of the abdomen, and extravasated in the cellular tissues under the peritoneum, in which the child lay with its head against the rent. The child was a male enormously large; all her children were large; but this child was further enlarged by hydrocephalus. It had also spina bifida, and double hair-lip. The thumbs and great toes wanted each their first phalanx.

Microscopic examination of thin sections at the ruptured portions exhibited a great abundance of fat globules.

1. *Rupture of the peritoneal coat only* of the uterus.—There were several semilunar or crescentic rents, and a considerable affusion of blood into the peritoneal cavity. These rents occurred before labour, and were produced by a fall, and, it was suspected, by several kicks during an Irish row. Labour followed prematurely a few hours after, at about eight months' gestation; flooding under a relaxed uterus with collapse succeeded, which reasonably alarmed the attending student, who immediately sent for aid; but the case was quickly fatal.

A *post-mortem* examination was conducted by Dr. Wm. Bloxam, present also Mr. T. J. Saunders, when we observed the above appearances. The rents were on the posterior surface of the uterus. The case occurred in a patient of St. George's and St. James's Dispensary, to which I was then Obstetric Physician, and an inquest was held to ascertain the cause of death, as some rumours were afloat of a kick having been inflicted on the abdomen, while the patient was on the ground.

2. *Rupture of perinæum*, back to but not through the sphincter.—Both patients have had more than one child since, without any inconvenience, as they allege. In one I suspect, from the midwife's account, it was produced during the passage of the shoulders; in the other, during the passage out of the head.

INVERSION OF THE UTERUS.

One case of *Inversion of the Uterus*, with much flooding. The womb was perfectly and easily reduced by the hand, but the case proved fatal, from the combined effect of the shock and the great loss of blood sustained. This patient's age was 23; it was her second pregnancy; her previous health had been good. The child, a female, had presented

by the head, and was born living without unusual assistance. There had been no morbid adhesion of the placenta, and the inversion, it appeared, had occurred quite *spontaneously*.

PROLAPSION OF THE RECTUM [one case] several inches.

It occurred during the latter part of the child's transit through the passages, and was easily reduced after delivery by steady and gentle pressure.

OTHER COMPLICATIONS.

Of *collapse*, after a sudden delivery of twins, in a subject greatly weakened by scanty nourishment in pregnancy; fatal, with very slight hæmorrhage, one case.

Of *retention of urine*, two cases, both under face presentation. They did well after use of the catheter, about three pints of urine being drawn off in each.

Of great *excess of liquor amnii*, interfering with due action of the uterus, one case. The waters were accordingly discharged, upon which vigorous pains set in, and the child was quickly born.

Of *amaurosis during pregnancy and labour*, one case in a primipara; no depletive treatment indicated, sight returned after delivery, and the patient did well under the ordinary puerperal management.

Of *delirium in protracted labour*, one case during the latter part of the second stage, of short duration; and as the child was at this time advancing rapidly, under efficient "pains," it was not deemed necessary to apply the forceps.

Of *hemiplegia, complicated labour*, one case, which had supervened from disease of the "nervous centres" six weeks before this, her tenth labour. Patient aged 33. The child was born living, without operative interference, and was yet living nine months later. The mother, notwithstanding good nursing and nourishment, died of exhaustion fourteen days after delivery.

Of *chronic bronchitis, complicating and protracting labour*, two cases, of many years' standing; both patients had had many labours, and sank from exhaustion a few days after delivery.

Other cases of chronic bronchitis of less severity occurred, which admitted of the patients' returning to their former condition.

Operative Deliveries—137.

I.—*Labours which required the operation of turning* :—60.

Transverse presentations	36
Face presentation..	1
Head, hand, and funis..	1
Accidental hæmorrhage	5
Placenta prævia partial	6
Placental presentation total	11
	60

In this number 57 mothers recovered; 20 children survived.

For the details refer to the respective kinds of labour.

II.—*Forceps deliveries, with one in which the tractor blade* (*vectis*) *was used*, were 16, in 13,783 labours, or 1 in 861·438 :—

In 11, uncomplicated cases of head presentation single births.

In 2, first children in twin labours.

In 1, face presentation.

In 1, puerperal convulsions.

All the mothers did well; 12 children were saved; 3 were still-born.

The tractor, miscalled vectis, in which sense it should never be used, was employed in one case of arrest of the head. The mother did well; the child was saved.

III.—*Embryotomy* in 21, or 1 in 656·333.

a. Craniotomy in 15, or 1 in 918·866.

In 4, deficient pelvic space absolutely; of these the sacro-pubic at brim was one and a half inch in one.

In 2, head of child much ossified—impaction.

In 1, the child, a male, large, impacted in brim.

In 1, the child, a male, a little above the average size, impacted, but I believe in consequence of swelling of fœtal scalp and of maternal tissues; the labia majora were livid and swollen to size of a child's head at term.

In 1, same condition precisely.

In 1, puerperal convulsions and impaction.

In 1, hip-joint disease, causing pelvic contraction.

In 1, carcinoma of the uterus.

In 1, rigidity of os uteri, which all the relaxing agents failed to soften. Incision of os uteri was not thought safe in this patient's constitution.

In 1, deficient development of vagina in a primipara, aged $14\frac{1}{2}$.

In 1, face to pubes and impacted.

All these patients recovered, except one, who was not brought under the Charity's care until she had been much too long in labour.

b. Embryotomy in Breech and Cross-births in 6, or 1 in 2297·166.

In 3, in breech presentation.

In 1, in shoulder presentation.

In 2, in arm presentation.

In *one* of the breech cases, the arrest was of the head, which was hydrocephalic, and had to be perforated behind the ear.

In the cross-births *turning* under chloroform had been attempted, but proved impracticable.

In these 6 cases of embryotomy all the patients recovered.

IV.—*Inductions of Premature labour*—40 in number.

In *five* cases only for small pelvis; in one of these at seven and a half months, by injection of warm water into the uterus; the child born twenty-four hours afterwards and living. Both mother and child did well.

In a second woman, with deformed pelvis, operated on for *induction* thrice. The two first labours were terminated, after many hours of severe pains, by craniotomy. Since that, she has been under my care on three successive occasions. In the first, labour was induced by the stilet; child still. In the second and third, by warm water injections, leaving the membranes of the ovum unbroken; child living both times.

In *one*, for incessant vomiting and exhaustion, which had resisted all other remedies; third pregnancy; labour induced by stiletting the membranes; a female child born living in eleven hours after the operation. Mother and child did well.

In *one*, for repeated and exhausting hæmorrhages at six months. Labour induced by injecting warm water into the uterus; the child was born seven hours afterwards, without further aid. The next day, the lochia being offensive, the uterus was washed out by warm water injections. This I repeated on the following day, after which the patient went on favourably to convalescence.

In *twenty-three*, for accidental hæmorrhage; by stilet, in 22; by plugging the vagina, in 1.

In *ten*, for placenta prævia; induction effected by stilet, ergot being added in 3.

In these 40 cases all the mothers did well, with two exceptions (see *Accidental Hæmorrhage*).

The large majority of the operations being performed on account of much previous flooding, the children were in most of the cases still-born. The respective numbers of living and still in the flooding cases are seen under that head.

*

Record of 526 *of the above labours, to show the frequency in which the funis was round the neck of the child.*

Funis once round the neck; 29 living; 2 still-born,	31	in 526
Funis twice round neck; living	7	„
Funis thrice round neck; child resuscitated ...	1	„
Funis once round neck and arm; child living ...	1	„
Funis round neck and body; child living	1	„
Funis round leg; child living	1	„
	—42	

Of these, 40 were living; 2 were still-born.

The treatment in all, where the cord was *once* round the neck, was, never to pull it over the head, lest the funis might be stretched and the uterus irritated, or the placenta prematurely detached; to slip it over the shoulders in all cases.

Where the cord was more than once round the neck, and could not be loosened and passed upwards over the shoulders, it was ligated and divided, and so the child's birth was allowed to proceed, or assisted if necessary.

Of the still births, which were 537; 104 were premature; of these 38 decomposed; 5 syphilitic.

5 were atrophied after blows, falls, or frights.

1, Dead before labour; cause unknown.

17, Under accidental hæmorrhages.

20, In placenta prævia.

91, Under head presentations, born without interference, of which four were twins.

4, Head and funis.

10, In face labours, but one of these decomposed.

31, In breech presentations; three delivered by embryotomy. In one, accidental hæmorrhage had preceded; in one, funis was round neck; in one, funis prolapsed. One patient had been struck upon the abdomen before labour.

26 Footling births; five of these were twin cases; in one case the neck of the uterus contracted spasmodically around the neck of the child.

2 Foot and funis.

3 Knee cases; one a twin.

21, Embryotomy under cranial, pelvic, or cross presentations; but in one of these convulsions had preceded. One of the footling cases was complicated by hydrocephalus.

In 16, Arm presentation. *Thirteen* delivered by turning; but one of these was dead before labour; one died during the extraction of the head, the pelvis being small; *two* were born by spontaneous expulsion; one of these according to Douglas's explanation, the other by a rarer mode. The arm was first expelled, the head then passed with the thorax, the side of the face being applied to the front of the chest.

5, Arm and funis by turning.

3, Elbow by turning.

2, One or both hands by turning.

1, Foot, hand, and funis.

2, Puerperal convulsions; *one* child delivered by the forceps, *one* by craniotomy.

1, Child anencephalous.

1, Labour had been protracted by chronic bronchitis; probably the forceps would have been of service.

2, Pelvis deformed; but the children being twins, were eventually born without operative aid.

4, Protracted labours. Children large; eventually expelled spontaneously by head presentation. Probably the forceps, timely applied, would have rescued the children.

2, Forceps deliveries, for disproportion.

1, A second twin. Ergot had been given to quicken its birth.

1, The patient's fourth still-born child.

4, The patients had fallen shortly before delivery.

1, Patient had received a severe mental shock, from witnessing the fall of a man from a scaffold.

1, The mother, emaciated by a starving diet during pregnancy, gave birth to a feeble and emaciated child.

1, Patient a hard gin-drinker; child emaciated.

3, Child born before help arrived, with funis round neck.

In the remaining number the cause of the still-births was not apparent. No difficulty nor complication occurred; many of them were precipitate births born before the arrival of help.

PUERPERAL AND OTHER DISEASES AFTER DELIVERY.

Peritonitis, 28 cases.

In 11, subacute, requiring mild antiphlogistic treatment; recovered.

In 11, acute, requiring active depletive treatment; recovered.

In 1, sthenic; maltreated by ignorant mother. Patient moribund when visited; died the same night.

In 1, asthenic with phlebitis, turpentine stupes; recovered.

In 2, asthenic; fatal; one traced to infection.

In 1, ditto; patient aged 24; second child; death from diarrhœa. Cause most probably the tainted atmosphere of the room from the labour clothes improperly put away under the bed, and neglected to be removed, till I discovered them at the visit, when the fatal illness had already seized the patient.

In 1, asthenic, fatal by diarrhœa. Patient aged 28; fourth child.

In 1, after a twin, and sixth delivery, following puerperal convulsions. Patient recovered consciousness on the third day, and died on the eighth day, of the above disease.

Inflammation of uterus in 6,

with high-toned fever. Leeching; hot poultices; ipecacuanha and opium. Recovered.

OTHER EXAMPLES.

In 3, *phlebitis of uterus* and appendages; pyæmia; fatal. In one of the patients, who had had most offensive lochia, the patient died suddenly, complaining of agony at the chest, with terrified expression of countenance, and uttering a loud shriek; a blood-clot was probably loosened from the seat of disease, and circulated to the heart, and so impeded the action of the valves.

In 1, *severe neuralgia;* pain of the abdomen; much constitutional disturbance; a soothing anodyne treatment, &c., restored the patient.

In 1, *phlegmasia dolens*, followed by breast abscess; fomentations, and diaphoretics; nourishing diet. Recovered.

In 1, *phlebitis of left leg;* spongio-piline fomentations; anodyne diaphoretics; laxatives as needed; nourishing regimen; later, quinine. Recovered.

In 1, *pyæmia*, after adherent placenta; the placenta was removed with difficulty, and probably imperfectly by the midwife, who acted contrary to instruction in undertaking the case herself. She first sought advice two days after delivery, when the patient had become delirious, her face dusky, lips congested, lochia suppressed, no pain. Death the next day.

This life should have been saved by skilful removal of the placenta, followed by uterine injections of warm water with Condy's fluid. Putrid placental remains were absorbed, and led to blood-poisoning.

In 1, *pyæmia* after an easy labour; patient's previous health bad; scrofulous. She became feverish during the first week, with offensive lochial discharge. She was seen by the district union officer. I first saw her three days before her death. The head and face were then much swollen, and there was evidently deep-seated suppuration in and about the parotid gland. The patient quickly suc-

cumbed, notwithstanding every effort then made for her recovery, with a supporting regimen, and favouring an external escape for the matter. At an earlier period of the case, when the lochia became offensive, disinfecting uterine injections should have been resorted to.

In 1, *pyæmia* or blood-poisoning after a fifth labour; lingering; child still-born. Shivering on fifth day, with suppression of milk and lochia; general pyrexia, with diffused tenderness of the abdomen, till the fourth week, when diarrhœa set in with constant vomiting. Her recovery sometimes seemed improbable; however, being abundantly supplied with nourishment and stimulants, night and day, she eventually recovered. Turpentine stupes, opiates, medicines to allay vomiting; tonics were judiciously resorted to, as indicated at the corresponding periods of the case.

In 1, *fever and shivering*, with offensive lochial discharge, on the third day after delivery, procured by the induction of labour, for repeated and exhausting hæmorrhages. The vagina and the uterus were at once syringed out with the antiseptic warm lotion on three different occasions. This, with an anodyne diaphoretic mixture, and subsequently quinine, was followed by recovery.

In 1, *pelvic inflammation*, consequent on a fall over a chain in the docks, shortly before labour. The pain was severe, and the patient very weak. Turpentine stupes were applied two or three times; and hot bran poultices to the abdomen were renewed every hour to promote free diaphoresis over that part. Dover's powder was given every four hours to keep up a gentle soporific effect. This, with castor-oil on the third day of treatment, and subsequently tonics, completed the cure.

In 2, *abdominal cellulitis*.—In these cases hot fomentations and linseed poultices were renewed every two hours; anodyne diaphoretics given. They recovered.

In 1, *inflammation of vagina* and sloughing, which left a vesico-vaginal fistula of the size of a five-shilling piece,

arising from protracted labour. Child large; eventually delivered by embryotomy. The fistula was subsequently permanently cured by plastic surgery, November 1, 1858. The patient's age 30. She had had eight children. The opening, at the time of the operation, had contracted three-fourths of its original dimensions, and was situated at the junction of the urethra and neck of the bladder. Operator, Mr. B. Brown, to whom I referred the case.

Since that time these operations, which formerly were so unsuccessful in their issue, are now, in the hands of various skilled surgeons, easily cured, and by very simple means, in a quarter of the time they formerly occupied.

In 1, *typhus fever*, which supervened on the eleventh day after delivery; eleven cases of fever following in the same house. A strong nourishing and stimulating treatment was employed, and the patient recovered, although for several days in considerable danger.

In 2, *ephemeral fever*, as usual marked by shivering, hot, and sweating stages. In *one*, an emetic, purgative, followed by quinine and suitable nourishment; in the other, aperients, diaphoretics, quinine, &c. Both cases did well. One had been erroneously diagnosed before I saw it, as puerperal fever, and pronounced hopeless.

In 4, *milk fever*, one with high delirium; did well with laxatives and cooling regimen.

In 5, *inflammation of the breasts*.—Two recovered without suppuration, by leeching, followed by poulticing and purging. *Three* advanced to suppuration. Leeching was considered unadvisable; treated by poultices; by incision in two of these.

In 2, *mania*.—One of these cases I saw within a few hours of delivery. The other did not occur till the third day. The treatment which I adopted consisted of gentle aperients, as indicated, nourishment, stimulants, morphia. Recovered.

In 1, *delirium and pyrexia* from violent passion; laxatives, cold to head. Recovered.

In 1, *enteritis;* the appropriate general treatment, with leeching, and hot stupes to abdomen. Recovered.

In 1, *abscess in cellular tissue of abdominal wall;* incision. Recovered.

In 1, *abscess in the perinæum* at side of rectum, in first puerperal week, with only local symptoms; incision. Recovered.

In 2, *painful varicose veins.*—In one bandaging and horizontal posture, with suitable diet, were sufficient; in the others there was inflammation of the skin and much debility. Hot fomentations, lying position, laxatives; did well.

In 1, *gastro-intestinal, with uterine cellulitis and low fever;* anodyne diaphoretics, stupes to abdomen, with sinapisms, &c. Recovered.

In 1, *fever with enlargement of spleen.* Fatal.

In 1, *fever* from indulgence in spirits and porter; purgatives, with calomel. Did well.

In 1, *attacks of fainting* (hysterical). Did well.

In 1, *hysterical palpitation of heart.* Did well.

In 1, *hysterical convulsions from violent passion.* Did well under ordinary treatment with laxatives.

In 1, *collapse from sudden emotion*, in a passion with her husband. I found the patient gasping for breath, with cold, clammy skin, intermittent pulse. She gradually sank. She was naturally of passionate temper; her husband had long been out of work, and they had been on scanty food for some months. It was the fifth day after delivery when this incident occurred.

In 2, *diarrhœa*, in one sanguinolent with high fever; the proper treatment for each ended in recovery.

In 1, *cholera;* fatal.

In 8, *bronchitis.*

Two, subacute; mild antiphlogistic treatment with ipecacuanha.

One, acute, with pleurisy; leeches once, two blisters, ipecacuanha and opium each night.

Five, chronic; *three* of which did well after blistering, one of these having superadded acute inflammation; the labours had all been easy. *Two* of the five died of exhaustion after labour.

In 1, *dry pleurisy* of left side with strong marked friction sound on auscultation; treated by leeching, blistering twice. Dover's powder, ten grains each night; diaphoretic mixture with nitrous ether; laxatives.

In 1, *phthisis* suspected; great debility in labour, emaciation and cough; no gurgling, no evidence of excavation in lung, feeble respiration, and percussion dull superiorly.

In 3, *phthisis*, one with hæmoptysis. In one, acute symptoms came on, resulting in death seven weeks after delivery.

In 1, *rheumatism*, lumbago. Mustard plasters; Dover's powder; saline aperients, containing bicarbonate of potash. Did well.

In 1, *acute jaundice*, day after delivery.

The above analysis shows that the maternal mortality was 31 in the 31,783 deliveries, or 1 in 444.

The causes, as may be collected from the above analysis, to which I must refer for the particulars under the several heads, were from—

Accidental hæmorrhage	2
Placenta prævia hæmorrhage	2
Post partum hæmorrhage	2
Rupture of uterus and vagina, all the coats	2
Rupture of peritoneal coat only	1
Inversion of uterus...	1
Chronic bronchitis, and exhaustion	2
Peritonitis, *one* sporadic and sthenic, *six* asthenic, of which one after convulsions in a twin labour ...	6
Phlebitis of uterus, pyæmia	3
Pyæmia after adherent placenta	1

*

Pyæmia without previous placental complication, in a scrofulous subject...	1
Fever, with enlargement of spleen...	1
Collapse from violent emotion of anger, the day after delivery	1
Collapse after sudden delivery of twins, the patient's seventh twin labour	1
Cholera	1
Phthisis	1
Disease of nervous centres, with hemiplegia...	1
Acute jaundice the day after delivery, by "turning" for arm presentation. No bad symptoms till day after labour	1
Exhaustion after a too long protracted labour—*see* Craniotomy	1
	31

CORRIGENDA ET ADDENDA.

[*The reader is requested to make the following Corrections.*]

P. 9, last line, *for* "cholera" *read* "chloroform."

Pp. 10, 142, transpose the following specific gravities so as to read—

Ether, sp. gr.	735
Chloroform, sp. gr. ...	1497

P. 214, line 16, *for* "and" *read* "or."

P. 334, last line, *for* "7 living, 3 still," *read* "9 living births (2 died next day), 2 still."

P. 338, line 28, *for* "complicated" *read* "complicating."

INDEX

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