

the wrist, an increase in the temperature of the body, greater depth and frequency of the respirations, and a general appearance of returning animation about the countenance. Sometimes the arms have been thrown about, or spasmodic twitchings of the face have taken place. The quantity of blood required to produce these effects varies greatly, but in the majority of cases has been very small. Occasionally two ounces have proved sufficient, and the average may be taken as ranging between four and six; although in a few cases between ten and twenty have been used. The practical rule is to proceed very slowly with the injection until some perceptible result is observed. Should embarrassed or frequent respiration supervene, we may suspect that we have been injecting either too great a quantity of blood, or with too much force and rapidity, and should desist until the suspicious symptoms pass away. It may happen that the effects of the transfusion have been highly satisfactory, but that in the course of time there is evidence of returning syncope. This may possibly be prevented by the administration of stimulants, but if these fail there is no reason why a fresh supply of blood should not again be injected, but this should be done before the effects of the first transfusion have entirely passed away.

Secondary Effects of Transfusion.—The subsequent effects in successful cases of transfusion merit careful study. In some few cases death is said to have happened within a few weeks, with symptoms resembling pyæmia. Too little is known on this point, however, to justify any positive conclusions with regard to it.

[Transfusion with defibrinated blood was, I believe, first tried in America by Dr. Joshua G. Allen, of Philadelphia, on December 30, 1868, on a woman who suffered from the effects of repeated attacks of uterine hemorrhage. Six fluidounces were injected, and the patient recovered a reasonable degree of health. In 1869, Dr. Allen repeated the operation four times, in two of the cases being associated with Dr. Thomas G. Morton at the Pennsylvania Hospital, and using a double vessel for keeping the blood warm, consisting of a conical cup for holding the blood and a lower vessel for containing warm water, the two being made in one and the temperature ascertained by an outside thermometer. Dr. Morton repeated the experiment on two other patients in 1870 and 1874, the second, a girl of eleven, being operated on twice, at intervals of six weeks, for bleeding from the nose and bladder, the effect of purpura; she entirely recovered. Dr. M. used a set of instruments specially designed for the work, and shown in illustration in the *Amer. Journ. of the Med. Sciences*, July, 1874, p. 112. Between 1874 and 1886 he repeated the operation on several hospital and private patients.]

Intra-venous saline injections are far more readily used, are safer, and are believed from the tests that have been made to be quite as efficacious as blood. What has been called artificial serum consists of 20 grammes of sulphate of soda and 10 grammes of chloride of sodium in 2 litres of water. The solution should be injected into a large vein slowly and in large quantity, as much as a pint or more at a time, and repeated at intervals; the fluid should be blood-warm. Another formula consists of pure common salt $1\frac{1}{2}$ fluidrachms, liquor potassæ 1 minim, and pure carbonate of potash 45 grains in two quarts of water.—ED.]

PART V.

THE PUERPERAL STATE.

CHAPTER I.

THE PUERPERAL STATE AND ITS MANAGEMENT.

Importance of Studying the Puerperal State.—The key to the management of women after labor, and to the proper understanding of the many important diseases which may then occur, is to be found in a study of the phenomena following delivery, and of the changes going on in the mother's system during the puerperal period. No doubt natural labor is a physiological and healthy function, and during recovery from its effects disease should not occur. It must not be forgotten, however, that none of our patients are under physiologically healthy conditions. The surroundings of the lying-in woman, the effects of civilization, of errors of diet, of defective cleanliness, of exposure to contagion, and of a hundred other conditions which it is impossible to appreciate, have most important influences on the results of childbirth. Hence it follows that labor, even under the most favorable conditions, is attended with considerable risk.

The Mortality of Childbirth.—It is not easy to say with accuracy what is the precise mortality accompanying childbirth in ordinary domestic practice, since the returns derived from the reports of the Registrar-General, or from private sources, are manifestly open to serious error. The nearest approach to a reliable estimate is that made by the late Dr. Matthews Duncan,¹ who calculated, from figures derived from various sources, that no fewer than 1 out of every 120 women, delivered at or near the full time, died within four weeks of childbirth. This indicates a mortality far above that which has been generally believed to accompany childbearing under favorable circumstances. It, however, closely approximates to a similar estimate made by McClintock,² who calculated the mortality in England and Wales as 1 in 126; and in the upper and middle classes alone, where the conditions may naturally be supposed to be more favorable, at 1 in 146; more recently he had come to the conclusion from his own increased experience, and the published results of the practice of others, that 1 in 100 would more correctly represent the rate of puerperal mortality.³ In

¹ The "Mortality of Childbed," *Edin. Med. Journ.*, vol. 1869-70, p. 329.

² *Dublin Quarterly Journ. of Med. Science*, 1869, vol. xlviii, p. 256.

³ *Brit. Med. Journ.*, 1878, vol. ii, p. 215.

these calculations there are some obvious sources of error, since they include deaths from all causes within four weeks of delivery, some of which must have been independent of the puerperal state.

But it is not the deaths alone which should be considered. All practitioners know how large a number of their patients suffer from morbid states which may be directly traced to the effects of childbearing. It is impossible to arrive at any statistical conclusion on this point, but it must have a very sensible and important influence on the health of childbearing women.

Alterations in the Blood after Delivery.—The state of the blood during pregnancy, already referred to (p. 145), has an important bearing on the puerperal state. There is hyperinosis, which is largely increased by the changes going on immediately after the birth of the child; for then the large supply of blood which has been going to the uterus is suddenly stopped, and the system must also get rid of a quantity of effete matter thrown into the circulation, in consequence of the degenerative changes occurring in the muscular fibres of the uterus. Hence all the depurative channels by which this can be eliminated are called on to act with great energy. If, in addition, the peculiar condition of the generative tract be borne in mind—viz., the large open vessels on its inner surface, the partially bared inner surface of the uterus, and the channels for absorption existing in consequence of slight lacerations in the cervix or vagina—it is not a matter of surprise that septic diseases should be so common.

It will be well to consider successively the various changes going on after delivery, and then we shall be in a better position for studying the rational management of the puerperal state.

Some degree of nervous shock or exhaustion is observable after most labors. In many cases it is entirely absent; in others it is well marked. Its amount is in proportion to the severity of the labor and the susceptibility of the patient; and it is, therefore, most likely to be excessive in women who have suffered greatly from pain, who have undergone much muscular exertion, or who have been weakened from undue loss of blood. It is evidenced by a feeling of exhaustion and fatigue, and not uncommonly there is some shivering, which soon passes off, and is generally followed by refreshing sleep. The extreme nervous susceptibility continues for a considerable time after delivery, and indicates the necessity of keeping the lying-in patient as free from all sources of excitement as possible.

Immediately after delivery the pulse falls, and the importance of this as indicating a favorable state of the patient has already been alluded to. The condition of the pulse has been carefully studied by Blot,¹ who has shown that this diminution, which he believes to be connected with a diminished tension in the arteries due to the sudden arrest of the uterine circulation, continues, in a large proportion of cases, for a considerable number of days after delivery; and, as a matter of clinical import, as long as it does, the patient may be considered to be in a favorable state. In many instances the slowness of

¹ Arch. gén. de Méd., 1864.

the pulse is remarkable, often sinking to fifty or even forty beats per minute. Any increase above the normal rate, especially if at all continuous, should always be carefully noted and looked on with suspicion. In connection with this subject, however, it must be remembered that in puerperal women the most trivial circumstances may cause a sudden rise of the pulse. This must be familiar to every practical obstetrician, who has constant opportunities of observing this effect after any transient excitement or fatigue. In lying-in hospitals it has generally been observed that the occurrence of any particularly bad case will send up the pulse of all the other patients who may have heard of it.

Temperature in the Puerperal State.—The temperature in the lying-in state affords much valuable information. During and for a short time after labor there is a slight elevation. It soon falls to, or even somewhat below, the normal level. Squire found that the fall occurred within twenty-four hours, sometimes within twelve hours after the termination of labor.¹ For a few days there is often a slight increase of temperature, especially toward the evening, which is probably caused by the rapid oxidation of tissue in connection with the involution of the uterus. In about forty-eight hours there is a rise connected with the establishment of lactation, amounting to one or two degrees over the normal level; but this again subsides as soon as the milk is freely secreted. Crédé has also shown² that rapid, but transient, rises of temperature may occur at any period, connected with trivial causes, such as constipation, errors of diet, or mental disturbances. But if there be any rise of temperature which is at all continuous, especially to over 100° Fahr., and associated with rapidity of the pulse, there is reason to fear the existence of some complication.

The Secretions and Excretions.—The various secretions and excretions are carried on with increased activity after labor. The skin especially acts freely, the patient often sweating profusely. There is also an abundant secretion of urine, but not uncommonly a difficulty of voiding it, either on account of temporary paralysis of the neck of the bladder, resulting from the pressure to which it has been subjected, or from swelling and occlusion of the urethra. For the same reason the rectum is sluggish for a time, and constipation is not infrequent. The appetite is generally indifferent, and the patient is often thirsty.

Generally in about forty-eight hours the secretion of milk becomes established, and this is occasionally accompanied by a certain amount of constitutional irritation. The breasts often become turgid, hot, and painful. There may or may not be some general disturbance, quickening of pulse, elevation of temperature, possibly slight shivering and a general sense of oppression, which are quickly relieved as the milk is formed and the breasts emptied by suckling. Squire says that the most constant phenomenon connected with the temperature is a slight elevation as the milk is secreted, rapidly falling when lactation is established. Barker noted elevation, either of temperature or pulse, in only four out of fifty-two cases that were carefully watched. There

¹ "Puerperal Temperatures," *Obstetrical Transactions*, 1868, vol. ix, p. 129.

² *Monats. f. Geburt.*, 1868, Bd. xxxii, S. 493.

can be little doubt that the importance of the so-called "milk fever" has been immensely exaggerated, and its existence, as a normal accompaniment of the puerperal state, is more than doubtful. It is certain, however, that in a small minority of cases there is an appreciable amount of disturbance about the time that the milk is formed. Out of 423 cases, Macan¹ found that in 114, or about 27 per cent., there was no rise of temperature; in 226 the temperature did rise to 100° and over, and of these in 32, or a little over 7 cent., the only ascertainable cause was a painful or distended condition of the breast. Many modern writers, such as Winckel, Grünwaldt, and D'Espine, entirely deny the connection of this disturbance with lactation, and refer it to a slight and transient septicæmia. Graily Hewitt remarks that it is most commonly met with when the patient is kept low and on deficient diet after delivery, especially when the system is below par from hemorrhage or any other cause. This observation will, no doubt, account for the comparative rarity of febrile disturbance in connection with lactation in these days, in which the starving of puerperal patients is not considered necessary. It is certain that anything deserving the name of milk fever is now altogether exceptional, and such feverishness as exists is generally quite transient. It is also a fact that it is most apt to occur in delicate and weakly women, especially in those who do not, or are unable to, nurse. There does not, however, seem to be any sufficient reason for referring it, even when tolerably well marked, to septicæmia. The relief which attends the emptying of the breasts seems sufficient to prove its connection with lactation, and the discomfort which is necessarily associated with the swollen and turgid mammæ is, of itself, quite sufficient to explain it.

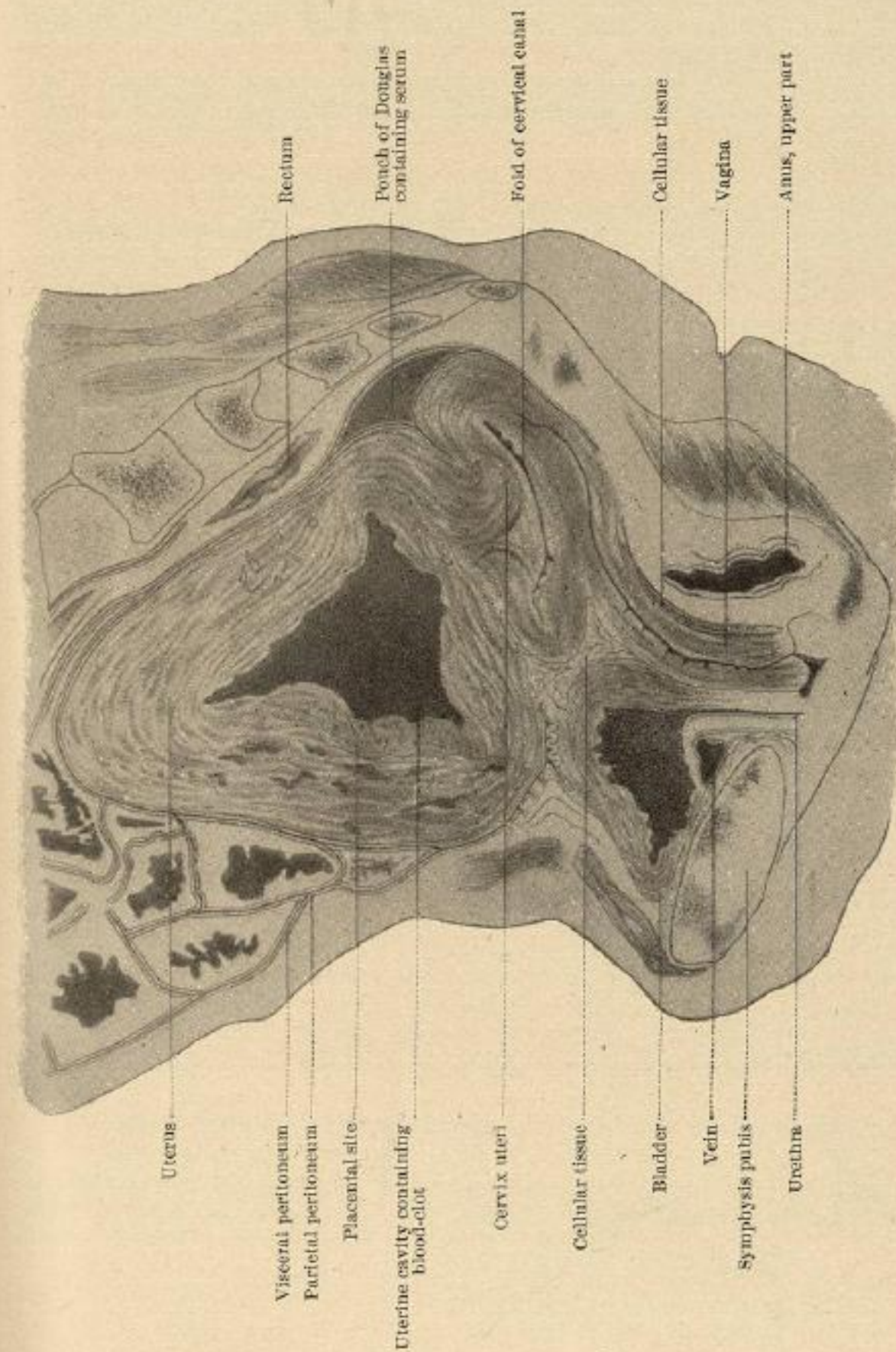
In the urine of women during lactation an appreciable amount of sugar may readily be detected. The amount varies according to the condition of the breasts. It increases when they are turgid and congested, and is, therefore, most abundant in women in whom the breasts are not emptied, as when the child is dead, or when lactation is not attempted.

Contraction of the Uterus after Delivery.—Immediately after delivery the uterus contracts firmly, and can be felt at the lower part of the abdomen as a hard, firm mass, about the size of a cricket-ball. (Plate V.) After a time it again relaxes somewhat, and alternate relaxations and contractions go on at intervals for a considerable time after the expulsion of the placenta. The more complete and permanent the contraction, the greater the safety and comfort of the patient; for when the organ remains in a state of partial relaxation, coagula are apt to be retained in its cavity, while, for the same reason, air enters more readily into it. Hence decomposition is favored, and the chances of septic absorption are much increased; while even when this does not occur, the muscular fibres are excited to contract, and severe after-pains are produced.

After the first few days the diminution in the size of the uterus progresses with great rapidity. By about the sixth day it is so much

¹ Dublin Quarterly Journ. of Med. Science, 1878, vol. lxxv. p. 485.

PLATE V.



VERTICAL MESIAL SECTION (FROZEN) OF PELVIS WITH POST-PARTUM UTERUS, and pelvic organs in situ, 1½ hours after delivery. After BARBOUI.

(To face page 578.)

lessened as to project not more than one and a half or two inches above the pelvic brim, while by the eleventh day it is no longer to be made out by abdominal palpation. Its increased size is, however, still apparent *per vaginam*, and should occasion arise for making internal examination, the mass of the lower segment of the uterus, with its flabby and patulous cervix, can be felt for some weeks after delivery. This may sometimes be of practical value in cases in which it is necessary to ascertain the fact of recent delivery, and under these circumstances, as pointed out by Simpson, the uterine sound would also enable us to prove that the cavity of the uterus is considerably elongated. Indeed, the normal condition of the uterus and cervix is not regained until six weeks or two months after labor. These observations are corroborated by investigations on the weight of the organ at different periods after labor. Thus Heschl¹ has shown that the uterus, immediately after delivery, weighs about twenty-two to twenty-four ounces; within a week, it weighs nineteen to twenty-one ounces; and at the end of the second week, ten to eleven ounces only. At the end of the third week, it weighs five to seven ounces; but it is not until the end of the second month that it reaches its normal weight.* Hence it appears that the most rapid diminution occurs during the second week after delivery.

Fatty Transformation of the Muscular Fibres.—The mode in which this diminution in size is effected is by the transformation of the muscular fibres into molecular fat, which is absorbed into the maternal vascular system, which, therefore, becomes loaded with a large amount of effete material. Heschl believed that the entire mass of the enlarged uterine muscles is removed, and replaced by newly-formed fibres, which commence to be developed about the fourth week after delivery, the change being complete about the end of the second month. Luschka and Robin² contend that this entire change in the structure of the fibres does not occur, but that their diminution in size is effected by granular degeneration and subsequent absorption of the existing muscle cells, by means of which they become gradually reduced to their natural size. This view has been more recently maintained by Sanger. Generally speaking, involution goes on without interruption. It is, however, apt to be interfered with by a variety of causes, such as premature exertion, intercurrent disease, and very probably by neglect of lactation. Hence the uterus often remains large and bulky, and the foundation for many subsequent uterine ailments is laid.

Changes in the Uterine Vessels.—Williams³ has drawn attention to changes occurring in the vessels of the uterus, some of which seem to be permanent, and may, should further observations corroborate his investigations, prove of value in enabling us to ascertain whether a uterus is nulliparous or the reverse; a question which may be of medico-legal importance. After pregnancy he found all the vessels enlarged in calibre. The coats of the arteries are thickened and

¹ Researches on the Conduct of the Human Uterus after Delivery.

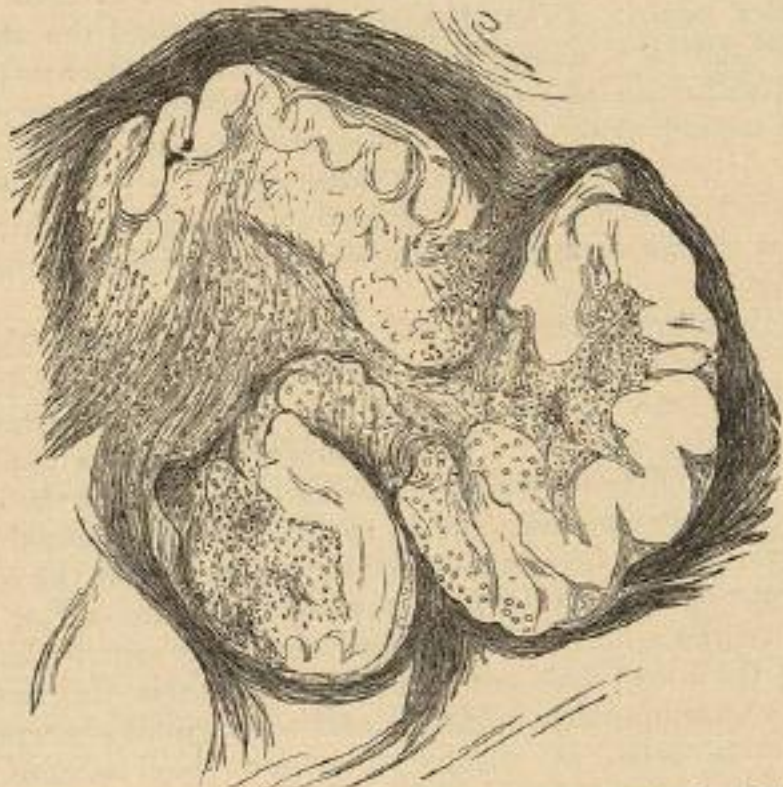
² "The Involution of the Muscular Tissue of the Puerperal Uterus," *Annals of Gynecology*, Boston, July, 1888.

³ "Changes in the Uterus resulting from Gestation," *Obst. Trans.*, vol. xx.

hypertrophied, and this he has observed even in the uteri of aged women who have not borne children for many years. The venous sinuses, especially at the placental site, have their walls greatly thickened and convoluted, and contain in their centre a small clot of blood (Fig. 206). This thickening attains its greatest dimensions in the third month after gestation, but traces of it may be detected as late as ten or twelve weeks after labor.

Changes in the Uterine Mucous Membrane.—The changes going on in the lining membrane of the uterus immediately after delivery are of great importance in leading to a knowledge of the puerperal state, and have already been discussed when describing the decidua (p. 106).

FIG. 206.



Section of a uterine sinus from the placental site nine weeks after delivery.
(After WILLIAMS.)

Its cavity is covered with a reddish-gray film, formed of blood and fibrin. The open mouths of the uterine sinuses are still visible, more especially over the site of the placenta, and thrombi may be seen projecting from them. The placental site can be distinctly made out in the form of an irregularly oval patch, where the lining membrane is thicker than elsewhere. (See Plate V.)

Contraction of the Vagina, etc.—The vagina soon contracts, and by the time the puerperal month is over it has returned to its normal dimensions, but after childbearing it always remains more lax and less rugose than in nulliparæ. The vulva, at first very lax and much distended, soon regains its former state. The abdominal parietes remain loose and flabby for a considerable time, and the white streaks, produced by the distention of the cutis very generally become permanent. In some women, especially when proper support by band-

aging has not been given, the abdomen remains permanently loose and pendulous.

The Lochial Discharge.—From the time of delivery up to about three weeks afterward a discharge escapes from the interior of the uterus, known as the *lochia*. At first this consists almost entirely of pure blood, mixed with a variable amount of coagula. If efficient uterine contraction has not been secured after the expulsion of the placenta, coagula of considerable size are frequently expelled with the lochia for one or two days after delivery. In three or four days the distinctly bloody character of the lochia is altered. They have a reddish watery appearance, and are known as the *lochia rubra* or *cruenta*. According to the researches of Wertheimer,¹ they are at this time composed chiefly of blood corpuscles, mixed with epithelium scales, mucous corpuscles, and the debris of the decidua. The change in the appearance of the discharge progresses gradually, and about the seventh or eighth day it has no longer a red color, but is a pale greenish fluid, with a peculiar sickening and disagreeable odor, and is familiarly described as the "green waters." It now contains a small quantity of blood corpuscles, which lessen in amount from day to day, but a considerable number of pus corpuscles, which remain the principal constituent of the discharge until it ceases. Besides these, epithelial scales, fatty granules, and crystals of cholesterin are observed. Various micro-organisms are found in the discharge, especially in the lower part of the vagina, such as the trichomonas vaginalis, streptococci, rod bacteria, and others, and they increase in numbers toward the end of the week after delivery. The conditions existing in the vagina greatly favor their growth, and hence the special importance of strict attention to cleanliness and antiseptic precautions during convalescence.

The amount of the lochia varies much, and in some women it is habitually more abundant than in others. Under ordinary circumstances it is very scanty after the first fortnight, but occasionally it continues somewhat abundant for a month or more, without any bad results. It is apt again to become of a red color, and to increase in quantity, in consequence of any slight excitement or disturbance. If this red discharge continues for any undue length of time, there is reason to suspect some abnormality, and it may not unfrequently be traced to slight lacerations about the cervix, which have not healed properly. This result may also follow premature exertion, interfering with the proper involution of the uterus; and the patient should certainly not be allowed to move about as long as much colored discharge is going on.

Occasionally the lochia have an intensely fetid odor. This must always give rise to some anxiety, since it often indicates the retention and putrefaction of coagula, and involves the risk of septic absorption. It is not very rare, however, to observe a most disagreeable odor persist in the lochia without any bad results. The fetor always deserves careful attention, and an endeavor should be made to obviate it by directing the nurse to syringe out the vagina freely night and morning with creolin and water; while, if it be associated with quickened

¹ Virchow's Arch., 1861.

pulse and elevated temperature, other measures, to be subsequently described, will be necessary.

The after-pains, which many childbearing women dread even more than the labor pains, are irregular contractions occurring for a varying time after delivery, and resulting from the efforts of the uterus to expel coagula which have formed in its interior. If, therefore, special care be taken to secure complete and permanent contraction after labor, they rarely occur, or to a very slight extent. Their dependence on uterine inertia is evidenced by the common observation that they are seldom met with in primiparæ, in whom uterine contraction may be supposed to be more efficient, and are more frequent in women who have borne many children. They are a preventable complication, and one which need not give rise to any anxiety; they are, indeed, rather salutary than the reverse; for, if coagula be retained *in utero*, the sooner they are expelled the better. The after-pains generally begin a few hours after delivery, and continue in bad cases for three or four days, but seldom longer. They are generally increased when the mammæ are irritated by suction. When at their height they are often relieved by the expulsion of the coagula. In some severe cases they are apparently neuralgic in character, and do not seem to depend on the retention of coagula. They may be readily distinguished from pains due to more serious causes, by feeling the enlarged uterus harden under their influence, by the uterus not being tender on pressure, and by the absence of any constitutional symptoms.

The management of women after childbirth has varied much at different times, according to fashion or theory. The dread of inflammation long influenced the professional mind and caused the adoption of a strictly antiphlogistic diet, which led to a tardy convalescence. The recognition of the essentially physiological character of labor has resulted in more sound views, with manifest advantage to our patients. The main facts to bear in mind with regard to the puerperal woman are: her nervous susceptibility, which necessitates quiet and absence of all excitement; the importance of favoring involution by prolonged rest; and the risk of septicæmia, which calls for perfect cleanliness and attention to hygienic precautions.

As soon as we are satisfied that the uterus is perfectly contracted and that all risk of hemorrhage is over, the patient should be left to sleep. Many practitioners administer an opiate; but as a matter of routine this is certainly not good practice, since it checks the contractions of the uterus and often produces unpleasant effects. Still, if the labor have been long and tedious, and the patient be much exhausted, fifteen or twenty drops of Battley's solution may be administered with advantage.

Within a few hours the patient should be seen, and at the first visit particular attention should be paid to the state of the pulse, the uterus, and the bladder. The pulse during the whole period of convalescence should be carefully watched, and, if it be at all elevated, the temperature should at once be taken. If the pulse and temperature remain normal, we may be satisfied that things are going on well; but if the one be quickened and the other elevated, some disturbance or compli-

cation may be apprehended. The abdomen should be felt, to see that the uterus is not unduly distended and that there is no tenderness. After the first day or two this is no longer necessary.

Treatment of Retention of Urine.—Sometimes the patient cannot at first void the urine, and the application of a hot sponge over the pubes may enable her to do so. If the retention of urine be due to temporary paralysis of the bladder, three or four 20-minim doses of the liquid extract of ergot, at intervals of half an hour, may prove successful. Many hours should not be allowed to elapse without relieving the patient by the catheter, since prolonged retention is only likely to make matters worse. In many cases the use of the catheter may be avoided by propping up the patient in the sitting posture, in which she is often able to micturate when she cannot do so lying, and this plan has the further advantage of allowing the lochia to drain away from the vagina. It may be necessary, subsequently, to empty the bladder night and morning, until the patient regain her power over it, or until the swelling of the urethra subsides, and this will generally be the case in a few days. The utmost care should be taken to keep the catheter aseptic, and it should lie in a basin of 1 : 1000 sublimate solution, otherwise its frequent use might lead to cystitis. Occasionally the bladder becomes largely distended, and is relieved to some degree by dribbling of urine from the urethra. Such a state of things may deceive the patient and nurse, and may produce serious consequences. Attention to the condition of the abdomen will prevent the practitioner from being deceived, for in addition to some constitutional disturbance, a large, tender, and fluctuating swelling will be found in the hypogastric region distinct from the uterus, which it displaces to one or other side. The catheter will at once prove that this is produced by distention of the bladder.

Treatment of Severe After-pains.—If the after-pains be very severe, an opiate may be administered, or, if the lochia be not overabundant, a linseed-meal poultice, sprinkled with laudanum, or with the chloroform and belladonna liniment, may be applied. If proper care have been taken to induce uterine contraction, they will seldom be sufficiently severe to require treatment. In America quinine, in doses of 10 grains twice daily, has been strongly recommended, especially when opiates fail and when the pains are neuralgic in character, and I have found this remedy answer extremely well. The quinine is best given in solution with 10 or 15 minims of hydrobromic acid, which materially lessens the unpleasant head symptoms often accompanying the administration of such large doses. The inhalation of the nitrite of amyl in severe cases is said to be very efficacious.¹

Diet and Regimen.—The diet of the puerperal patient claims careful attention, the more so as old prejudices in this respect are as yet far from exploded, and it is by no means rare to find mothers and nurses who still cling tenaciously to the idea that it is essential to prescribe a low regimen for many days after labor. The erroneousness of this plan is now so thoroughly recognized that it is hardly

¹ Mr. F. W. Kendle: *Lancet*, 1887, vol. 1, p. 696.

necessary to argue the point. There is, however, a tendency in some to err in the opposite direction, which leads them to insist on the patient's consuming solid food too soon after delivery and before she has regained her appetite, thereby producing nausea and intestinal derangement. Our best guide in this matter is the feelings of the patient herself. If, as is often the case, she be disinclined to eat, there is no reason why she should be urged to do so. A good cup of beef-tea, some bread and milk, or an egg beaten up with milk, may generally be given with advantage shortly after delivery, and many patients are not inclined to take more for the first day or so. If the patient be hungry there is no reason why she should not have some more solid, but easily digested food, such as white fish, chicken, or sweetbread; and, after a day or two, she may resume her ordinary diet, bearing in mind that, being confined to bed, she cannot with advantage consume the same amount of solid food as when she is up and about. Dr. Oldham, in his presidential address to the Obstetrical Society,¹ made some apposite remarks on this point which are worthy of quotation: "A puerperal month under the guidance of a monthly nurse is easily drawn out, and it is well if a love of the comforts of illness and the persuasion of being delicate, which are the infirmities of many women, do not induce a feeble life which long survives after the occasion of it is forgotten. I know no reason why, if a woman is confined early in the morning, she should not have her breakfast of tea and toast at nine, her luncheon from some digestible meat at one, her cup of tea at five, her dinner with chicken at seven, and her tea again at nine, or the equivalent, according to the variation of her habits of living. Of course there is the common-sense selection of articles of food, guarding against excess, and avoiding stimulants. But gruel and slops and all intermediate feeding are to be avoided." No one who has seen both methods adopted can fail to have been struck with the more rapid and satisfactory convalescence which takes place when the patient's strength is not weakened by an unnecessarily low diet. Stimulants, as a rule, are not required; but if the patient be weakly and exhausted, or if she be accustomed to their use, there can be no reasonable objection to their judicious administration.

Attention to Cleanliness.—Immediately after delivery a warm napkin or pad of aseptic wool is applied to the vulva, and after the patient has rested a little, the nurse removes the soiled linen from the bed and washes the external genitals. It is impossible to pay too much attention during the subsequent progress of the case to the maintenance of perfect cleanliness. Perfectly antiseptic midwifery is no doubt an impossibility, but a near approach to it may be made, and the greater the care taken the more certainly will the safety of the patient be insured.² It will be a wise precaution to advise the nurse

¹ *Obst. Trans.*, 1865, vol. v. p. 14.

² I have for the past year or two distributed the following rules to the monthly nurses attending my own patients, with the result, I believe, of a marked improvement in their comfort and a more generally satisfactory convalescence:

ANTISEPTIC RULES FOR MONTHLY NURSES.

1. Two bottles are supplied to each patient. One contains a mixture of perchloride of mercury, of the strength of 1 part to 1000 of water (called the 1:1000 solution), the other carbolyzed vaseline (1:8).

never to touch the genitals for the first few days, unless her hands have been moistened in a 1:20 solution of carbolic acid, or 1:1000 solution of perchloride of mercury, or lubricated with carbolyzed vaseline. The linen should be frequently changed, and all dirty linen and discharges immediately removed from the apartment. The vulva should be washed daily with a solution of perchloride of mercury of the strength of 1:2000, or with creolin and water, and the patient will derive great comfort from having the vagina gently syringed out once a day with the latter solution. Systematic douching of the vagina has been found prejudicial in lying-in hospitals, but in private practice, used as here advised, I am quite satisfied of its utility. The remarkable diminution of mortality which has followed such antiseptic precautions in lying-in hospitals well shows the importance of these measures. The room should be kept tolerably cool, and fresh air freely admitted.

Action of the Bowels.—It is customary, on the morning of the second or third day, to secure an action of the bowels; and there is no better way of doing this than by a large enema of soap and water. If the patient object to this, and the bowels have not acted, some mild aperient may be administered, such as a small dose of castor oil, a few grains of colocynth and henbane pill, or the popular French aperient, the "Tamar Indien."

Lactation.—The management of suckling and of the breasts forms an important part of the duties of the monthly nurse, which the practitioner should himself superintend. This will be more conveniently discussed under the head of lactation.

Importance of Prolonged Rest.—The most important part of the management of the puerperal state is the securing to the patient prolonged rest in the horizontal position, in order to favor proper involution of the uterus. For the first few days she should be kept as quiet and still as possible, not receiving the visits of any but her nearest relatives, thus avoiding all chance of undue excitement. It is customary among the better classes for the patient to remain in bed for eight or ten days; but, provided she be doing well, there can be no objection to her lying on the outside of the bed, or slipping on to a sofa, somewhat sooner. After ten days or a fortnight she may be permitted to sit on a chair for a little, but I am convinced that the longer she can be persuaded to retain the recumbent position, the more complete and satisfactory will be the progress of involution; and she should not be allowed to walk about until the third week, about

2. A small basin containing the 1:1000 solution must always stand by the bedside of the patient, and the nurse must thoroughly rinse her hands in it every time she touches the patient in the neighborhood of the genital organs, for washing or any other purpose whatsoever, before or during labor, and for a week after delivery.

3. Pledgets of cotton-wool should be used for washing the genitals instead of sponges.

4. Vaginal and rectal pipes, catheters, etc., must be dipped in the 1:1000 solution before being used. The surfaces of slippers, bedpans, etc., should also be sponged with it.

5. Vaginal pipes, enema-tubes, catheters, etc., should be smeared with the carbolyzed vaseline before use.

6. Unless express directions are given to the contrary, the vagina should be syringed once daily after delivery with warm water with sufficient creolin dropped into it to give it a milky hue.

7. All soiled linen, diapers, etc., should be immediately removed from the bedroom.

N.B.—These rules are for the purpose of protecting the patient from the risk arising from accidental contamination of the hands, etc. It is, therefore, hoped that they will be faithfully and minutely adhered to.

which time she may also be permitted to take a drive. If it be borne in mind that it takes from six weeks to two months for the uterus to regain its natural size, the reason for prolonged rest will be obvious. The judicious practitioner, however, while insisting on this point, will take measures at the same time not to allow the patient to lapse into the habits of an invalid, or to give the necessary rest the semblance of disease.

Subsequent Treatment.—Toward the termination of the puerperal month some slight tonic, such as small doses of quinine with phosphoric acid, may be often given with advantage, especially if convalescence be tardy. Nothing is so beneficial in restoring the patient to her usual health as change of air, and in the upper classes a short visit to the seaside may generally be recommended, with the certainty of much benefit.

CHAPTER II.

MANAGEMENT OF THE INFANT, LACTATION, ETC.

Commencement of Respiration.—Almost immediately after its expulsion, a healthy child cries aloud, thereby showing that respiration is established, and this may be taken as a signal of its safety. The first respiratory movements are excited, partially by reflex action resulting from the contact of the cold external air with the cutaneous nerves, and partly by the direct irritation of the medulla oblongata, in consequence of the circulation through it of blood no longer oxygenated in the placenta.

Apparent Death of the Newborn Child.—Not unfrequently the child is born in an apparently lifeless state. This is especially likely to be the case when the second stage of labor has been unduly prolonged, so that the head has been subjected to long-continued pressure. The utero-placental circulation is also apt to be injuriously interfered with before the birth of the child when a tardy labor has produced tonic contraction of the uterus, and consequent closure of the uterine sinuses; or, more rarely, from such causes as the injudicious administration of ergot, premature separation of the placenta, or compression of the umbilical cord. In any of these cases it is probable that the arrest of the utero-placental circulation induces attempts at inspiration, which are necessarily fruitless, since air cannot reach the lungs, and the foetus may die asphyxiated; the existence of the respiratory movement being proved on post-mortem examination by the presence in the lungs of liquor amnii, mucus, and meconium, and by the extravasation of blood from the rupture of their engorged vessels.

In most cases, when the child is born in a state of apparent asphyxia, its face is swollen and of a dark livid color. It not infrequently

makes one or two feeble and gasping efforts at respiration without any definite cry; on auscultation the heart may be heard to beat weakly and slowly. Under such circumstances there is a fair hope of its recovery. In other cases the child, instead of being turgid and livid in the face, is pale, with flaccid limbs, and no appreciable cardiac action; then the prognosis is much more unfavorable.

Treatment of Apparent Death.—No time should be lost in endeavoring to excite respiration, and, at first, this must be done by applying suitable stimulants to the cutaneous nerves, in the hope of exciting reflex action. The cord should be at once tied, and the child removed from the mother; for the final uterine contractions have so completely arrested the utero-placental circulation as to render it no longer of any value. If the face be very livid, a few drops of blood may with advantage be allowed to flow from the cord before it is tied, with the view of relieving the embarrassed circulation. Very often some slight stimulus, such as one or two sharp slaps on the thorax, or rapidly rubbing the body with brandy poured into the palms of the hands, will suffice to induce respiration. Failing this, nothing acts so well as the sudden and instantaneous application of heat and cold. For this purpose extremely hot water is placed in one basin, and quite cold water in another. Taking the child by the shoulders and legs, it should be dipped for a single moment into the hot water, and then into the cold; and these alternate applications may be repeated once or twice, as occasion requires. The effect of this measure is often very marked, and I have frequently seen it succeed when prolonged efforts at artificial respiration have been made in vain.

If these means fail, an endeavor must be at once made to carry on respiration artificially. The best means of doing this have been exhaustively studied by Dr. Champneys,¹ who considers the only two reliable means of carrying on artificial respiration are those of Schultze and Sylvester. The Sylvester method is, on the whole, that which is most easily applied, and, on account of the compressibility of the thorax, it is peculiarly suitable for infants. The child being laid on its back, with the shoulders slightly elevated and the feet held in an elongated position by an assistant, the elbows are grasped by the operator, and alternately raised above the head, and slowly depressed against the sides of the thorax, being at the same time everted, so as to produce the effect of inspiration and expiration. In Schultze's method the child is grasped on either side of the thorax, the operator's thumbs being anterior, the index fingers being in the axillæ, and the remaining fingers on the child's back. The operator's arms are now stretched out so that the child hangs at arm's length between his knees. By this means the chest is expanded, and inspiratory movements are produced. The operator's arms are now swung upward until they are horizontal. This causes the child's body to be flexed, its head is directed downward, and its legs fall toward the operator until the weight of its body rests on his thumbs. By this means its thorax and abdomen are compressed, its diaphragm is forced upward, and expira-

¹ Medico-Chir. Trans., vol. lxxiv. pp. 41, 87, and vol. lxxv. p. 75.