defined, together with any infected glands or mesentery. The sigmoid flexure is rendered mobile by the careful separation from it and from the meso-sigmoid of the acquired adhesions already referred to. A sufficient length of bowel having been drawn out of the abdomen, it is divided with the cautery at such a point as to leave two or three inches of the proximal bowel protruding from the abdominal incision after the edges have been approximated by sutures. The mesentery of the distal bowel is separated from the sacrum as far down as possible and a ligature is tied firmly round the rectum at its lowest limit above the growth, any infected mesentery above the level of the ligature being thoroughly eradicated. The rectum is divided by the cautery immediately above the ligature. The ligatured stump is then inverted into the rectum and securely buried by purse-string and other sutures. Then the peritoneum of the pelvis lining its wall and the bladder in the male, and the uterus and broad ligament in the female, is picked up on a catgut suture so that that portion of the peritoneum of the pelvis which contains the rectal growth is completely separated by an artificial diaphragm from the general peritoneal cavity, and whatever disease still remains lies entirely below the protecting diaphragm which has thus been constructed. A curved tube fitted with a special rubber apparatus (Fig. 1), which I have employed for

many years, is then tied into the portion of the sigmoid flexure left protruding from the abdominal incision, all fouling of the wound or discomfort to the patient during the whole period of convalescence being absolutely avoided by this means. The two or three inches of gut projecting from the wound is utilised to re-attach the glass tube as each section of bowel sloughs off with the constriction due to the ligature till the bowel is divided flush with the skin. This leaves a perfect aperture which is readily controlled by the rectus muscle and over which a cup and belt is worn without inconvenience.

After the operation the patient is put upon continual saline injections subcutaneously. Two pints are introduced into the axilla at once while the patient is still under the anæsthetic; during the three days following the operation about eight or ten pints are absorbed in this way by continued transfusion. To meet any risk of infection of the material introduced I devised an arrangement by means of which this can be effectually eliminated. It has also the advantage of occupying a very small bulk in the bag of the surgeon. It is made for me by Messrs. Down Bros. It consists of a bag made of the best rubber capable of containing two pints of water (see Fig. 2). It has a metal orifice sufficiently large to admit of the ordinary salt "tabloids." To this is joined a rubber tube by means of a bayonet catch, to which a suitable needle can be attached. This needle is fitted with a shield which serves the double purpose of keeping it covered after sterilisation and preventing any blunting of its point. A rectal nozzle is also supplied in the event of the surgeon wishing in certain cases to introduce the solution into the rectum. By using saline solution subcutaneously in this manner any sickness with the

strain on the wound and the associated pain and distress is absolutely avoided, while the danger of shock to the patient from the operation is reduced to a minimum. I first employed this continual transfusion with the most marked success in cases in which I had removed the big bowel, with the result that the risks from the operation are very much reduced, while I believe the tendency to the formation of

FIG. 2.

adhesions about the dilated small intestine, which is an occasional annoying sequence, is apparently obviated by it. The bag can be placed in any situation in or above the bed and its contents can be kept warm by placing it on a hot-water bottle, &c. If the solution does not run freely pressure can be exerted in it readily or it may be suspended at a greater height. To employ it the bag is filled with water after the salt has been introduced into it. The shield, tubing, and needle are then connected and the whole thing is put into any suitable vessel and boiled. The shield being taken off the needle, it is introduced between the cleansed skin and is fixed in position with a suitable dressing so as to assure asepsis at the seat of puncture.

After a fortnight has elapsed the remainder of the rectum is removed from below. This is done by a careful dissection of the rectum from the sacrum and from the bladder or vagina till the portion of the peritoneal cavity which has been shut off by the artificial diaphragm is encountered. From this peritoneal space into which the finger enters the remainder of the rectum is easily removed. The cavity left is drained in the usual manner and closes up rapidly.

One satisfactory result of this method of operating is that before the second step in the operation the patient gets about with comfort, and after the second step the sitting posture can be resumed after the lapse of a few days.

Cavendish-square, W.

THE METHODS OF PRIMITIVE MIDWIFERY.

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I.

I WILL introduce my subject by quoting a description of present-day practice as observed by a member of our profession who was for many years in charge of a mission hospital in South India, who has kindly communicated it to me verbally. It gives an excellent illustration of the methods to which the reader's attention is invited.

When a Hindu woman is in labour all her relations crowd into the room. In an ordinary case they may let the woman go on as best she can, but in any case of difficulty they call in a so-called "barber woman." She is supposed to know something and claims to know a great deal, but as a matter of fact is completely ignorant and filthily dirty. Suppose the labour to be lingering or the case to be primiparous and that delivery does not follow as soon as expected, then

various expedients of cruel and brutal nature are adopted. For instance, they may jump on the body of the woman as she lies upon the floor. They may try to seize any presenting part and tear at it, perhaps even pulling off the scalp of the child. They may tear the vulva and vagina or use knives in a senseless endeavour to make a way for the child. The woman may be made to sit over hot ashes and burning twigs or charcoal. When she is very far gone they may at last send for the medical missionary, who may find the patient severely burned or lacerated, bruised and bleeding. The bladder may be ruptured, the abdomen greatly distended, the patient pulseless and insensible. She may die before anything can be done or may expire immediately after delivery. If the burned cases survive the first shock they will very likely die from gangrene, or the whole of the vagina and bladder may slough, and tetanus is very common. After labour the patient is kept lying on the floor for three days without food or drink. The baby is given cow's milk at once, which upsets it. It is against their religious ideas to wash the child till the tenth day. A large proportion of the newly-born children die from tetanus. The mothers are considered to be unclean until the eighth day and are often kept outside of the house in a little shed, which is a dark room like a cupboard. After their first bath they are taken back into the house but if fever set in the bath of purification is delayed until they are well, if they do get well. If these women are treated rightly in childbirth their labours are as easy and normal as are those of women in England, probably more so on the average. When labour is delayed, or they desire to produce abortion, a powerful and irritant poisonous drug is sometimes administered, the nature of which is not known to us. It causes severe pain and green vomit and seems always to be fatal.

A second similar illustration is taken from the *New York Medical Record* for January, 1906, where Dr. W. D. Bell describes observations made during a residence of 13 months on the island of Luzon in the Philippines. He says that the so-called safety supposed to exist amongst savage peoples in childbirth was not found in these islands, for barbarous practices and tortures with far-reaching consequences were what were really observed. No attention was paid to the sanitary surroundings of the patient. As soon as the first real pains manifested themselves the patient was held on the ground and a cloth was passed around the abdomen and the four ends were pulled by four persons seated on the ground with their feet against her body. As soon as a portion of the child presented it was immediately seized by a fifth assistant and vigorously dragged upon, regardless of consequences. If any delay occurred a plank was laid across the abdomen on which a native assistant stood, raising himself on his toes and coming forcibly down on his heels. This was usually successful except in breech presentations, when a rude attempt at version was made with hands innocent of any effort to cleanse them. Few cases escaped laceration and sometimes the uterus was ruptured. If the same means failed to expel the placenta forcible traction was made on the cord and very often parts of the placenta were left behind, with the usual consequences. Prolapse, inversion, and puerperal sepsis were frequent here, also chronic endometritis. Syphilis and gonorrhoea were also common.

II.

The development of obstetrics falls into three stages. First, there is the *primitive stage*. This is characterised by the absence of all literature and of all knowledge of anatomy and physiology, and by an overwhelming amount of superstition, by the crudeness and absurdity of its ideas and the barbarity of its methods. It is almost without exception in the hands of women. In the second or *intermediate stage* we find the beginnings of obstetric literature and some attempt to describe the various positions of the foetus in the womb and to lay down rules for treatment. The practice of midwifery is almost wholly in the hands of women, but men are called in in very bad cases to help. The treatises are written by men for the guidance of midwives. Version and embryotomy begin to be described but not forceps. The third or *scientific stage* may be said to begin about the time of Ambroise Paré in the sixteenth century, and its history has often been written. The intermediate stage has its dawn in the ancient Hindu physicians, such as Susruta, and there may even yet be recovered some of the lost literature of Egypt which will show more obstetric knowledge than we at present credit to those times. An account of their obstetric knowledge will

be found in Mackay's "Ancient Gynaecology." Literature practically begins for us with the writings of Hippocrates and his followers in the fourth century B.C. Ancient obstetrics reached its high-water mark in the works of Soranus and his translator Moschion in the second century A.D. From this time it made very little advance till the time of Paré—in fact, there was decided retrogression during the middle ages.

Midwifery was in the primitive stage from the earliest times till the days when Greek learning made a bright spot in the general darkness, and it remained primitive throughout the centuries except where Greek, Roman, and Arabian medicine spread, and even here obstetric art was but too little removed from the realm of superstition and ignorance. It remains primitive to-day wherever Western science has not spread and forms a most interesting field for the study of the obstetrician and ethnologist. The human race has shown wonderfully little precocity in the practice of obstetrics. Nations who have perfected the arts of agriculture and of the chase, who have forged offensive and defensive weapons, built temples and palaces, woven textile fabrics, produced pottery, sculpture, poetry, and philosophy, have remained woefully ignorant of an art which, if necessity begets invention, might, one would think, have been one of the oldest and most advanced known to mankind. To some extent this may be due to the fact that the management of childbirth has been so very largely in the hands of women. The history of the race seems to show that all the mechanical arts have been developed not by women but by men. Obstetrics never began to develop till men took it from the exclusive practice of women, studied the mechanism of childbirth, and supplied the necessary mechanical aids. But man has no place in primitive obstetrics; uncivilised man would certainly decline to concern himself with such woman's affairs. She is regarded as an inferior being. As one writer says: "She is worth so little, so easily replaced; she is good for the bearing of children, to look after them, and to give satisfaction to her master, and especially to do the work of the field. As soon as she is a nuisance she is left, sold, killed, possibly eaten." It is certain that if scientific treatment were available but its cost exceeded the market value of the woman it would be refused. The birth of scientific midwifery coincided with the revival of learning, the introduction of printing, the Reformation, the discovery of the new world, and the introduction of inductive methods of research. The exalted estimate of the value of woman's life which the spirit of chivalry engendered prepared the way.

In studying this subject I have made use of Herrgott's French edition of Siebold's "History of Obstetrics" and also of the valuable historical sketch prefixed to Winckel's colossal "Handbuch der Geburtshilfe," but more especially of Ploss's ethnological monograph "Das Weib in der Natur- und Völkerrunde" (eighth edition, by Dr. Bartels, 1905). Also of Engelmann's "Labour amongst Primitive Peoples," and Mackay's "History of Ancient Gynaecology." There are various other papers scattered through the journals of the Anthropological Institute and elsewhere. An almost exhaustive bibliography will be found in Ploss, Vol. II.

The subject has two aspects. One is concerned with various rites, superstitions, and customs which have little or no direct bearing on the progress and welfare of the parturient woman, such as the various deities that have to be propitiated. These I pass by here. Secondly, there are various modes of practice (or malpractice) which bear directly on the obstetric management of the case and on the issue as regards mother and child. This attempt to give a concise, though by no means exhaustive, review of these will, I hope, interest those who may not have paid much attention to the subject. Perhaps this article may lead some readers of THE LANCET who have the opportunity of first-hand study of the practices referred to to add to our knowledge by recording personal observations, such as those which have already been given in this paper.

The question has been raised as to how far any obstetric art is necessary amongst uncivilised people. Are there not many of the primitive races where the process of parturition is so easy that difficulties and fatalities are rare? The answer gathered from Engelmann and Ploss seems to be that so long as the woman lives in a perfectly natural state, leading an active outdoor life and taking her share in manual toil, labour is usually short and easy and the process remains purely physiological and is only a rather difficult physiological evacuation. So that we find amongst nomadic

tribes that a childbirth may be only an incident in a day's march, the woman after an hour or two resuming her walk carrying her newly born child, or mounting her horse and galloping on after her company, and many native races know almost nothing at all of a "lying-in" period. But on the other hand, as soon as the more natural conditions are interfered with difficulties and dangers arise. Even amongst the former class such conditions as the falling of the womb and of the vaginal walls have a notable frequency. Inter-marriage of different races, especially of lower with higher, produces dystocia, and women with half-breed children often die in labour. But the evidence available suffices to make it abundantly clear that amongst untaught nations there is a very serious amount of ignorance, maltreatment, and brutality which entail a vast amount of suffering and death which might be avoided by the introduction of Western methods. Let no one adopt the comfortable notion that it is superfluous to seek to diffuse scientific obstetric teaching in the world. One object of this paper is to prove the contrary.

Let us take an example. China is known to be a land well advanced in certain arts. How is it with midwifery? In the *China Medical Missionary Journal* for 1890 Dr. J. C. Thomson tells us that Chinese women naturally suffer less and have easier deliveries than Western women, but owing to the violent massage and other manipulations to which they are subjected the severest ruptures and lacerations are seen, with all the inevitable consequences of sloughing, necrosis, sepsis, and death. The mortality in childbed is excessively high, and he says: "In the practice of obstetrics in China we see century after century of the blindest empiricism, with no ray of medical science to shine into the habitations of cruelty."

As examples of the atmosphere of ignorance and superstition in which such races dwell I may remind the reader that many races recognise no death from natural causes, ascribing all fatalities to witchcraft or "the evil eye," or to the malevolence of some supernatural being. We find such absurdities as the custom of putting the husband to bed when the child is born, whilst the wife waits upon him.¹ Amongst one tribe of Finns the pregnant woman changes her shoes every month to throw off her tracks the devil who is waiting to devour the newly born child. The Chinese hold that pregnancy may last for three years if the child does not wish to leave the womb. The Indian women will whisper to the unborn child that a rattlesnake is near so as to induce the child to leave the womb. Chinese women will wear stockings which have been blessed by the lama, so as to expedite delivery, and will swallow pilules of paper on which magic words are written, while for cross-births a remedy is found in the ashes of the husband's hair. Examples of such puerile and ludicrous practices could be multiplied indefinitely.

III.

We will now consider some of the actual methods employed in primitive midwifery with some allusion to traces of the same amongst more civilised peoples. The different *postures* occupied by women in labour have been studied by Engelmann and Ploss and will be found described and illustrated in the works already referred to. The most common and natural position in ordinary cases seems to be a squatting posture, like that of defecation, but almost every conceivable position has been noted.

Administration of internal remedies.—Of world-wide prevalence is the use of medicines to strengthen the patient, to ease her sufferings, or to excite uterine action. Probably every kind of aromatic drug has been employed for this purpose. The Hippocratic school esteemed silphion which the Latin calls *laserpitium* and which was perhaps *asafetida*. The Romans used pomegranate and fenugreek, and the Arab physicians use an enormous number of drugs, and amongst European nations honey, myrrh, henbane, adderswort, castor, savin, mint, rue, pepper, cinnamon, figs, various balsams and oils, and so on, infused in water, wine, or beer. Amongst other nations than European we may select from many examples, turnip juice (Caribs), decoction of tobacco in cow or ewe milk (Hottentots), decoction of opium (Chinese), the powdered vertebrae of the electric eel (Venezuelans), slippery elm (North American Indians), and so *ad infinitum*. Nauseous and repulsive substances also may be employed such as cold water in which a woman has just washed her feet or even urine (a tribe in the Dutch East

Indies), and sometimes irritant or poisonous substances. Emetics have been widely used. Engelmann depicts a midwife amongst the Kiowa Indians blowing an emetic into the mouth of a parturient woman. It is obvious that the straining caused might act on the uterus mechanically. The Chinese often excite vomiting and uterine action by thrusting the woman's own pigtail down her throat till she is sick. Sternutatories played a considerable part in ancient midwifery. They were condemned by Soranus but are advocated by Roesslin. Ergot does not seem to have been used until the sixteenth century. To deprive a woman of food or drink or both from the beginning to the end of labour is a not uncommon custom. This was the practice in Germany in the seventeenth century: while the woman was on the "birth-chair" absolutely nothing to take was allowed her. In some parts of India it is thought to be very dangerous for a woman in labour to drink water.

External remedies.—The use of unguents to facilitate delivery is one of the oldest practices in obstetrics. Susruta, whose date is anything up to 1000 B.C., recommends anointing of the external and internal genitals. Similar advice is given by Moschion, Aëtius, Paulus Aegineta, and Avicenna, and the practice has continued to the present day, and it is only modern aseptic ideas that exclude these miscellaneous lubricants. The abdomen also is rubbed with various medicaments. For example, I may mention the use of oil in Guatemala, of an infusion of an astringent plant in Mexico, of Kalapa milk in the Babber Islands, and of a mixture of fat and brandy in Galicia. The Greeks and Romans used medicated bougies or pessaries placed in the vagina or os uteri.

Baths and affusions.—These are also employed. For example, hot water is applied to the abdomen in Peru. Some Australian tribes pour cold water over the abdomen. In Doreh, in New Guinea, the parturient is held by two other women while a third pours cold water over her till the child is born.

Vapour baths and fumigations have a very wide distribution. Felkin gives a sketch from a tribe on the White Nile of a woman who is in labour and is squatting over a hole dug in the ground in which is a fire and over it a pot containing a decoction of herbs. The rising steam is said to make labour easier. Steam baths with medicated vapour are similarly used in Russia, in China, and in many other places. In Central California in difficult labour a plaster consisting of hot ashes and wet earth is placed on the abdomen. The Arabians used many such methods and in the oldest German works for midwives many substances are recommended for fumigation, such as galbanum, castor, cow's hair, sulphur, opopanax, and the dung of pigeons or hawks. In German South-West Africa in lingering labour the woman is placed in a bath or has applied to her body the abdominal viscera of a recently killed ox, while the still moist skin serves for a wrap. These are sufficient examples of very widespread practices.

Mechanical assistance to women in labour by employment of external force.—The idea that labour may be assisted by pressing or squeezing the abdomen is obvious, and very primitive, and has given rise to almost universal practice. It has a basis of sound principle in it, and applied within due limits and according to right methods it has a well-recognised place in obstetric art, but nothing that we shall discuss in this paper shows more forcibly how a right idea may be exaggerated and abused till it gives rise to the most brutal and dangerous malpraxis. Gentle finger pressure and massage, rhythmic and well designed, may really be of service in exciting pains and even in rectifying cross-births; and massage has been very widely practised in various times and amongst various races. The Japanese may be especially mentioned for their skill in this respect. As varieties and examples of the more violent methods of applying external force I may mention: 1. Violently kneading the abdomen of the parturient or giving blows with fists, knees, or feet, or by butting with the head. 2. Forcible compression with the arms. For this purpose the helping woman may sit behind the patient and compress the womb with hands clasped around the abdomen. Sometimes the husband or a strong man may be employed for this purpose. The woman may kneel or stand meanwhile or may even be hanging to a bar or partially suspended to a tree-trunk or branch. 3. The pressure may be made with a bandage surrounding the abdomen, the ends being pulled by one or more women or by a man. 4. Or pressure may be made by kneeling or standing on the patient's abdomen while she lies on her

¹ See Lubbock: *Origin of Civilisation and Primitive History of Man*, chap. 1.

back, or made on her back while she lies on her face, while a pillow may be placed under the abdomen. Felkin depicts a woman on her knees leaning over a log whilst a bandage round the abdomen is twisted with a stick like a tourniquet, the pressure being applied intermittently. 5. Pressure is sometimes applied by weights. Heavy weights are used by the Tartars in Astrakhan, great stones in Serang, and warm bricks with great pressure (Malays). In the Philippine Islands a beam or plank may be laid across the abdomen and assistants may sit or stand on this. A carved wooden idol of great weight is used in Siberia. 6. The woman may stand and compress her body against a bamboo or may lean over a horizontal pole or cord. These violent methods often result in internal injuries, such as rupture of the uterus and bladder and other viscera. 7. Shaking the woman in labour was much esteemed in ancient Greece as a method of expediting delivery. A cloth was passed around her and she was shaken violently at least ten times. Then they laid her in bed so that the head lay downwards and the feet upwards, and the assisting women, who held the legs of the patient placed on their shoulders, shook her repeatedly to and fro. Soranus was wise enough to condemn this. As examples of the same barbarous method amongst savage races take the following: raising and shaking the woman with a jerk, as in shaking flour out of a sack (Mexico); rolling on the ground and then suspending by the feet and shaking (Southern India); and rolling violently in a blanket by four people and shaking in all directions. The woman may be slung to the branch of a tree by a cord running under the arms, whilst a woman hangs around her waist (Coyotero-Apachen Indians); or a man will take the woman on his back and run about shaking her (North-West Russia). 8. Another strange practice is to invert the woman with the idea of altering the position of the child into a more favourable one when delivery is delayed. This was done amongst the ancient Greeks. It has been observed in Algeria. Also amongst some Indian tribes this is done repeatedly, and if it prove of no avail the midwife inserts her hand and pulls at anything she can reach. Fatal results follow this treatment. An instance of extreme barbarity is reported by Stern and quoted by Ploss as occurring in Persia. In extreme cases the woman is held head downwards with the legs fully abducted, and the kabli, with rusty scissors or kitchen knife, cuts the perineum mercilessly. If the woman bleeds severely it matters but little, although the midwife would be blamed if the child's arm or leg were severed.

The serious nature of a transverse presentation is widely recognised. It is obvious that where no obstetric science is known a cross-birth will almost always be fatal. Various nations have made attempts to rectify the position of the foetus during pregnancy and here and there some have learned how to do it by external manipulation. The prevalence of massage may depend partly on this idea. Metzger, quoted by Ploss, is of opinion that the women in Damara-land, South Africa, have a successful method of performing cephalic version by external manipulation. The art is handed down from mother to daughter. Lübbert says that the natives of German South-west Africa are well acquainted with cross-births and seek to rectify them by external manipulations, but if these fail they will put the parturient woman on a cart and drive her over a rough road to shake the foetus into better position. Other crude attempts to rectify the malposition are recorded in various tribes.

That internal manipulations for the rectification of cross-births and other malpositions have been practised in the past to some extent is certain. The ancient Hindu understood how to turn for cross-presentation and how to deliver breech presentations by pulling down the legs. Probably the Talmudists refer to the same thing. The writings of Soranus give plain directions with figures for dealing with various presentations by cephalic and podalic version and the Japanese in this direction also show skill and knowledge. There does not seem to be much evidence of the practice of internal manipulations amongst savage peoples of to-day. Engelmann emphasises the rarity of such a method of manipulating within the vagina. As exceptions we may notice that the Calmucks have for a long time been able to perform version in difficult labour. The modern Greeks are said by Ploss to seek the help of shepherds in difficult cases, for these have experience in the delivery of sheep. Emin Pasha found in Unyoro in Africa men who were able in arm presentation to replace the arm and to turn the child in the womb. Version is said also to be performed in Massana in East Africa and also by midwives in Algeria.

To pull violently on any presenting part is, on the other hand, the most obvious way of attempting delivery by those who do not understand anything about the anatomy of the parts. It is a sign of advanced knowledge to know when to refrain from doing it. Arms are often pulled off this way. I have been privately informed of a confinement in Africa where the head presented but would not advance, when a cord was tied round the neck of the child and then carried through a wall to be pulled by men outside the delivery chamber. The head, as might be expected, parted company with the trunk.

Embryotomy.—The idea that a child may be delivered in a difficult case by cutting it into pieces as far as it can be reached might occur to the savage mind and from this might come the discovery of the fact that perforating the head often is followed by speedy delivery after previous long delay. Susruta describes embryotomy and so do the ancient Greeks, who also employed hooks to assist in extracting the foetus. Soranus describes the operation of embryotomy and speaks of its use in hydrocephalus, and from this time onwards it is well recognised. Amongst other nations we find mention of embryotomy performed with a knife by the medicine men of the Sungari (Manchuria). Schoolcraft describes a case amongst the Dakota Indians of an impacted arm presentation. The arm was cut off and the child extracted piecemeal by thoroughly ignorant women. Similar crude embryotomy is described by Baumstark as being performed amongst the Warangi in the Massai steppe in East Africa, and the necessity of delivery by destruction of the child is recognised amongst the natives of German South-west Africa. It is also performed in the same rough and dangerous fashion in extreme cases by women in Sumatra.

Cæsarean section.—Post-mortem Cæsarean section is of very ancient date and was even enjoined in the law of Numa Pompilius, and the Talmudist Rabbis discussed the legitimacy of the performance of post-mortem Cæsarean section on the Sabbath day. Niebuhr in the eighteenth century observed the practice amongst the Hindus; the child was buried if dead and the mother burned. In Malabar also, according to Speersneider, the child was excised and buried separately. Emin Pasha relates that in Unyoro if the mother died in labour the child had to be removed with the knife, whether dead or alive. To neglect this was of evil presage for all concerned. From Bosnia comes an account of a horrible superstition which led thieves and burglars to kill a woman in the seventh month of pregnancy, extract the child, and cut it in pieces to make a charm which made the inmates of a house sleep like the dead while a burglary was being accomplished. A similar superstition is made the basis of one of the Ingoldsby Legends ("The Hand of Glory"). It is said by Ploss that even in 1889 this frightful superstition was in force. The removal of a living child from the living mother is said to have been first performed in 1500 by Nueffer. In a lecture published in THE LANCET of Jan. 9th, 1904, p. 76, I have given an account of this case. There are references to the operation in the Talmud and in the Norse Sagas and other legendary histories. But that which is of special interest in this place is the evidence that amongst savage nations in recent years Cæsarean section has been known to be successfully performed. The best example of this will be found in a paper by R. W. Felkin in the *Edinburgh Medical Journal* for April, 1884, a very accessible reference which everyone who may be interested in this subject should read. Felkin saw one case in which it was proposed to perform the operation, but obtaining permission to examine the patient he found it to be a simple case of uterine inertia, and he delivered with forceps. In a second case he was not allowed to examine and did actually see the operation performed by a man in Uganda, both mother and child surviving. The uterus was not sutured, the abdominal wound was closed with pins that are compared to acupuncture needles, and with string made from bark which held the pins together. The woman made a rapid recovery. Schoolcraft speaks of a case amongst the Chippeway Indians in which a man successfully delivered his wife of a living child by Cæsarean section, but he did not witness the operation. And a slave woman in the West Indies is said to have delivered herself by abdominal section.

Support of perineum in labour.—In a certain number of instances it has been observed that native women give support to the perineum in labour. The practice is rare, but there are some well-established examples, as in certain tribes in

Palestine, Russia, and India, and also in Japan and Persia. In the East Indies rags are sometimes stuffed into the anus and in Southern India a bag of ashes has been used to support the perineum. In our survey of primitive midwifery it is possible to find many grains of common sense amongst an overwhelming quantity of rubbish.

IV.

Treatment of the umbilical cord.—The widest differences are observed in this respect. The severance may be made by the father or by an assisting woman, or by the mother herself. It may be bitten through with the teeth, the mother even doing this for her own infant. It may be cut with sharp shells or sharp stones or pieces of wood, or with a kind of knife or saw fashioned from bamboo, &c. Sometimes the cord is ligatured with vegetable fibre or string, or may be tied in a knot. Many tribes never ligature. The cord is then often divided with a blunt instrument and being torn and crushed natural hæmostasis may be thus secured. Often some rough kind of styptic is applied to the foetal end, such as ashes or charcoal or chalk. Sometimes it is cauterised with a glowing piece of wood or iron. In some parts of China the end of the cord is wrapped in oiled paper and then ignited. Fatal hæmorrhage is common when these primitive methods are in vogue. The cord may be cut close to the body, or, on the other hand, be left very long, sometimes even looped around the neck of the child. Umbilical hernia is a common result of such modes of treatment. The cord may be divided as soon as the child is born, or not till the placenta is delivered, and the placenta may undergo various anointings and washings first. Sometimes the child's body is twisted round directly after birth, so as to produce torsion of the cord.

Delivery of the placenta.—In very many cases where labour is easy the woman is delivered without assistance and remains squatting on the ground and straining till the placenta comes, as with patience it usually will. Sometimes, although the placenta is retained, no further efforts are made to extract it and this, of course, may lead to septic symptoms. To assist the delivery of a retained placenta all kinds of drinks are in use, also emetics, disgusting nauseants, and sternutories. Sometimes the finger is thrust into the patient's mouth till she vomits or a lock of her hair is used for the same purpose; in China I am told by my friend Dr. O. Wenyon that the woman's own pigtail is thus employed. Barbarous methods are also common. The woman may be made to stand up and jump or be jolted by others. Amongst the Khirgis we read of her taking a wild ride on horseback over hill and dale to dislodge the retained placenta, often returning more dead than alive. The steam or vapour bath is used for this purpose also. To pull on the cord when the placenta is not delivered as soon as is deemed proper is a universal error. Fatal hæmorrhage, inversion, and prolapse follow this practice. Some tribes tie a stone to the cord and let the woman walk about. Others tie the cord to the thigh to prevent the imaginary danger of the placenta being drawn up into the abdomen. There are some tribes amongst the North American Indians who have learned that only gentle traction is permissible; it is obvious that when the placenta is lying in the vagina traction on the cord will appear to be a brilliantly successful method. Abdominal manipulations for the same end are common all the world over. They vary from gentle massage with perhaps inunction of oil to firm or severe hand compression of the uterus, violent kneading of the abdomen with fists, or pressure with hot stones placed on the abdomen. Worse still, a woman may stand on the patient's abdomen kneading violently with her feet; or, while the patient stands erect she may be clasped forcibly around the body. The abdomen may be compressed by a cloth passed around it and dragged or twisted with a stick after the manner of a tourniquet. Also water may be poured from a height on to the abdomen. That very serious injuries often result from the more violent measures it is unnecessary to say. Internal manipulations for placental extraction are not very common, but examples are recorded in various parts. Some of the North American Indian women have been known to introduce the hand, and so in India and some of the Pacific Islands. In German South-West Africa Lübbert has seen this done with very great care and very reasonable precautions. Here, also, the Japanese are distinguished by careful treatment of the third stage of labour.

Treatment of post-partum hæmorrhage.—All sorts of drugs and decoctions are in use. Kneading of the abdomen is a

more rational remedy and doubtless is often effective. It is often done with great violence and we read of a woman being made to stand against a wall while another woman strikes the abdomen with her head or her knee (Indian tribe). Binding the abdomen is a common expedient. Various charms are in vogue and one cure is to make the woman swallow a spoonful of her own blood. In Annam post-partum hæmorrhage has been treated by laying the patient on her back while another woman treads on the abdomen, thus giving violent massage with her feet. Or she may be violently dragged by the hair. Cold affusion is sometimes used, or heat may be applied to the genitals till the pubic hair is singed. As the result of such treatment, of which the above are but a few examples, falling of the womb is very common.

The puerperal period.—With the idea that something must be done after delivery to restore the womb to its place we find amongst certain tribes such measures as massage and compression, various vaginal injections, the application of hot stones to the abdomen, or even violent tamponade of the vagina (tribe in Palestine). Especially noteworthy is the very widespread practice of applying heat, smoke, or steam to the woman in the puerperal period. This may be done by digging a hole in the ground, putting in hot stones, and pouring vinegar over them while the patient sits above. Or she may be exposed near a fire or may stand or lie above it. This is often carried out so severely that the mother is badly scorched or fatally burned. She may be kept in a small hut and the heating process continued for many days, and even a whole month. Flagrant examples of this are seen in Cochin China and amongst the Siamese, in New Guinea, in some Indian tribes, and in many other places. The child may share the treatment. Milder forms of vapour baths and fumigations have been common in various parts of Europe.

Most various are the customs in regard to bathing and ablution after childbirth. Religious belief governs this to some extent. Near Cape Horn a woman was seen to take four sea baths on the day on which she was confined. In another tribe we read of a woman being confined on the bank of a river and taking a plunge in the water immediately after. Others are washed two or three times daily, whilst on the other hand we find that all washing may be postponed for 14 days or more. Various medicated solutions may be used for the ablutions of the puerperal period. In Turkestan the woman after delivery has been known to be treated by wrapping the loins and abdomen in the skin of a black sheep just flayed alive, while the skin of a hare recently killed enwrapped her feet. To feed the woman after delivery on fluid or exclusively vegetarian diet or on some form of broth is very common. The most brutal practice we read of in this connexion is the refusing of drinks to the woman after delivery. In Malacca they may not drink cold water for 14 days. Among the Hindus, for instance, the custom is found of allowing the woman to hunger and thirst for five days, giving only some dry rice, and this in spite of the heat. This withholding of water even accompanies the barbarous treatment by scorching fire of which I have spoken. Sometimes women are made to drink urine. The idea that water is harmful and must be given in very small quantity is a barbarous notion, of which we have scarcely shaken ourselves free in the treatment of fever and post-operative thirst. Childbirth usually takes place in more or less seclusion, and it is a practice somewhat widely diffused to erect a special hut either near the house or at a considerable distance, say in the shelter of a wood, where the woman may pass the days of her lying-in, her husband being more or less attentive to her requirements or more or less completely neglectful of her according to local custom. On the other hand, the confinement may take place *coram populo*, with a crowd of interested spectators, who may contribute invocations or encouraging cries (Loyalty Islands).² Space forbids extending this article further, but fuller details will be found by the student in the authorities indicated. In India the education and provision of native midwives are promoted by such excellent institutions as those founded by Lady Dufferin and others. Many mission hospitals are doing similar work in various parts of the world. I know that it has been found in some parts of China that native Chinese women when properly trained are very apt to learn and make excellent midwives who can even use forceps with

² See Journal of the Anthropological Institute, vol. xix., p. 503.

skill. For those English and American ladies who having qualified themselves by a full curriculum at home have devoted their lives to helping their suffering sisters in regions remote from civilisation by skilful practice of scientific obstetric art we feel a degree of respect and admiration which is beyond expression.

Leeds.

OBSERVATIONS ON PHOSPHATURIA AND THE TREATMENT OF DISEASE BY CONVERSION.

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AN interesting article on the conversion of diseases in a work by Dr. John Ferriar, physician to the Manchester Royal Infirmary, entitled "Medical Histories and Reflections," published in 1795, opens with the following passage: "A disease is said to be converted when new symptoms arise in its progress which require a different designation and which either put a period to the original disorder or combining with it alter the physician's views respecting the prognostics or the method of cure." In the course of this article, which is now as suggestive as it was when written over 100 years ago, numerous illustrations from practice in support of his views will be found. I am mainly interested in one of Dr. Ferriar's references which provides an additional reason for ventilating the application of conversion in the instance I am taking. The reference is as follows: "It must be added that general fever sometimes cures local inflammation; Mr. Hunter says he has seen a gonorrhoea extinguished by the accession of a fever." Such an experience must not be unknown to many others.

It has not infrequently been observed in the treatment of chronic urethritis and muco-purulent discharges following it, irrespectively of the internal administration of alkalies and often imperceptibly to the patient himself, that the urine became altered in character and assimilated with that known as phosphaturia. And, further, that when this change was observed the cessation of the discharge or gleet, as it is commonly called, for which the patient had originally come under treatment, usually soon followed, either spontaneously or by treatment appropriate to the phosphaturic state without apparent reference to the cause which preceded it. This casual observation raised the question whether it was possible that there was any relationship between this incident and what followed, whether, in fact, the phosphaturic state of the excretion was inimical to the existence of the infecting bacillus. The observation was made so frequently as to suggest this and led to the systematic examination of the urine and other discharges for gonococci in all persons coming under treatment for gleet more carefully and frequently than previously. From them the following conclusions appeared to be grounded.

1. That in a considerable number of instances thus designated and of undoubted specific origin there was no evidence at the time of my examination that there was anything wrong with the urine or with any urethral discharge complained of inconsistent with the phosphaturic state alone. This condition was either apparent to the eye on allowing the urine to stand for a short time in a glass vessel or was evidenced by boiling the excretion when any cloudiness which followed was immediately removed by the addition of nitric acid. Here any pus corpuscles which the microscope detected were physically explainable by the crystalline precipitates the urine contained and which were often present in sufficient quantities to give this excretion a semi-purulent or opaque appearance. How or when this phosphaturic transformation took place in the history of an ordinary case of chronic infecting urethritis was not always easy to determine. In many instances which were carefully tested and microscopically examined this change appeared to mark the concluding stage of gonococcal life and was also often coincident or nearly so with the adoption of such treatment as the phosphaturic state usually requires. Further, these examinations showed how easily and frequently phosphaturia may counterfeit and be treated for a specific urethritis and even be intensified by the remedies commonly used for the latter.

2. The second inference was that the artificial production and temporary continuance of a state of phosphaturia

might be utilised in the treatment of specific gleet affections following upon gonococcal infections. To produce a urine having the prominent features of phosphaturia by the administration of alkalies—bicarbonate of potassium was generally selected for this purpose—is not a matter of much difficulty or of any detriment to the patient. The effect on the urine should be sufficient to render it responsive to the usual tests, microscopical and otherwise, by which phosphaturia is recognised, and not merely to produce an alkaline reaction to test paper. Further, it is necessary to maintain this condition for some little time, during which period all local applications should be suspended. It will usually be found after a period of ten days or so and as the phosphaturic condition gradually passes off under the influence of altered treatment and diet appropriate to this state that no signs will be found such as were previously complained of. In some instances the artificially induced phosphaturia was slow in passing off, whilst in others its presence appeared to have been too limited to effect the desired object and required repetition. On the whole, however, the results have proved satisfactory. There was a time when infecting urethritis—at all events in its earlier stages—was very generally treated by the administration of alkalies, though the reason for this was not such as I am offering. I am not at all sure in the matter of rapidity of cure that we have much improved upon this older practice by the more mechanical processes which are now often substituted.

If these observations are found in their wider application such as I have construed them a more convenient and less unpleasant method of treatment may be arrived at. They have extended over some years, and though they may not embrace the whole truth they may be read in the light of a contribution towards it.

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HÆMO-PERICARDIUM ASSOCIATED WITH SYPHILIS.

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THE following case came under my notice some time ago and presents some interesting features. The patient was a married man, aged 65 years, of German nationality. When first examined by me he was fairly well nourished and well developed. His expression was gloomy and unintelligent; he was partly demented; he retained a delusion that he had been given 129 pints of medicine in one dose at a hospital. No other symptom of megalomania had been forthcoming and his general condition alternated chiefly between emotional restlessness and apathy. The skin of his entire body was very dry and slightly jaundiced. On the skin over the sternum and the interscapular region were several scars of either circular or crescentic shape, each of the size of a large pea. There was a painless swelling on the anterior border of the right tibia of the size of a florin and below this and immediately above the ankle were several small cicatrices irregular in shape; on the left leg were several ulcers with "punched-out edges" below the tuberosity of the tibia, and several similar ulcers on each forearm and extending on to the dorsum of the hand, and vaccination marks on the left upper arm. He walked slowly and with some stiffness of the hip-joints; the patellar reflexes were diminished and delayed; his grasp was feeble. Babinski's sign was absent and ankle clonus was not elicited. His right pupil was larger than the left; both reacted sluggishly to light and for the process of accommodation; the consensual reflex was present. The hearing was bad on each side; his tongue protruded in the middle line and was fleshy and grossly tremulous and furred posteriorly. He had only four teeth in his mouth (in the upper alveolus) and those were carious. His palate was unduly arched anteriorly. The cardiac sounds were irregular in rhythm; a slight bruit was audible at the first sound; his pulse was 70 and the radial and temporal arteries were tortuous and thickened. The respiratory system was healthy. His appetite was good; his intestinal movements were performed regularly. The liver was tender but no enlargement or alteration in shape or surface was discoverable. There was a brown discolouration on the glans penis one-eighth of an inch in