an angle of about 75 degrees, and terminates like the sleeve of a straight-waistcoat in a *cul de sac*. This is applied to the arm, and secured by straps or a lace and eyelet holes; at the extremity of this sleeve a band of strong webbing is attached, which is passed round the body and fixed to a broad buckle, which is fastened to a belt of calf's skin, lined with wash leather, about three inches broad, which is passed round the injured arm, just below the insertion of the deltoid. The action of the sleeve and strap is to prevent any action in the arm or forearm, and to bind it firmly to the trunk. To support the elbow in any position which may be required, I employ a leather cap adapted to the extremity of the elbow, and hollowed out at its centre for the olecranon. This is put on over the sleeve, and from it two broad bands of webbing pass obliquely up to the opposite shoulder, one in front of the thorax, and the other behind. These bands are affixed to two broad buckles, which are attached to a leather shoulder-cap, made of calf-skin, well padded and lined with wash leather, which is adapted nicely to the shoulder by means of a buckle and strap, which passes under the axilla. By tightening or slackening these bands the elbow may either be confined close to the side, or brought forward, as in the position required for fractures of the clavicle or coracoid process, and it may be permanently and steadily fixed in that position. Another strap may be brought down from the anterior oblique strap, and passed round the wrist, to assist in supporting the weight of the extremity."

Mr. Chapman, in his Atlas, in describing this apparatus, observes,—“One objection, however, attaches to it; the cap upon which the sling depends, and by which the injured limb is supported, in one form of the bandage, rests upon the opposite shoulder joint, and throwing all the weight of the other limb upon it, presses on the joint painfully, and impedes its motion.” To obviate this inconvenience, he recommends the following contrivance, which you will find delineated at plate 8 of his Atlas, figure 2, and which consists of a pad for the axilla, suspended by a cap to cross the shoulder, and a long band of webbing to support the arm, and confine it to the body, the two ends of which are buckled in front and behind to a circlet slipped over the opposite arm, and resting chiefly on the scapula. The circlet and the shoulder cap are connected behind by a strap which crosses between them, and is buckled to the posterior part of the cap, to draw the shoulders back if necessary. It may be adapted to either side by reversing the band of webbing and transferring the cross-strap. The band is divided down the middle, and reunited by a lace at the back, to accommodate persons of different sizes.

Both these inventions are ingenious and well adapted to the purpose, but at the same time they are subject to the objection of being more complicated than necessary, and consequently more expensive. Should you employ either for fracture

of the neck of the scapula, you must add a pad between the elbow and the side, and likewise fix the arm by a roller carried round the body; but in most cases the paste-board splint, &c., which is a modification of Mr. John Bell's sling for the arm, as you will find by referring to the 99th plate in the seventh volume of Mr. Benjamin Bell's *System of Surgery*, will answer every purpose, and has this advantage, that you can make it yourselves, and adapt it to any sized patient.

M. Delpech, in the first volume of his “*Maladies Chirurgicales*,” remarks, that these accidents are usually accompanied with such severe contusion, that the latter is of more consequence than the fracture itself. The contusion is undoubtedly very considerable in some cases, but not in all; certainly not to the extent imagined by M. Delpech. In the case of my patient at the hospital, the contusion and swelling were comparatively slight, probably from the violence of her fall being in some measure broken by her head having first come in contact with the pavement. However, when the pain is very violent, and the symptoms of inflammation very high, you should subdue them by leeches, purgatives, and the application of cold lotions to the part, always bearing in mind that a certain degree of inflammation is necessary to repair the mischief, and that the quieter the patient is kept, and the less he is disturbed by purgative medicine for the first two or three days, the better.

PRACTICAL REMARKS ON CEPHALOTOMY AND GASTRO-HYSTEROTOMY.

By G. B. KNOWLES, F.L.S., Fellow of the Royal College of Surgeons of England; Professor of Botany and Materia Medica in Queen's College, and Surgeon to the Queen's Hospital, Birmingham.

An interesting case of Cæsarean operation having been reported in No. 25 of the present volume, by Frederick Cox, Esq., of Welford, I am induced to offer a few remarks upon the treatment adopted. The case, although terminating fatally, is detailed with a degree of candour which is highly creditable to Mr. Cox, and which it would be desirable to see more frequently imitated; reports of unsuccessful cases being usually as instructive as those which are followed by a more fortunate result. I trust, therefore, that in the comments which I shall deem it necessary to make, I shall give no offence to Mr. Cox, my object being rather to draw the attention of the profession to certain practical points which I consider to be of vital importance in the operation, than to reflect with any unkindly feeling upon that gentleman's management of the case.

If must be freely admitted that it is scarcely possible for the obstetric practitioner to be placed in a more anxious or responsible position than when he finds himself compelled, by deformity of the pelvis, to effect delivery either by sacrificing the life of the child, or by performing an operation which, in this country, with one solitary exception, has been invariably fatal to the mother. In such a case, the first thing to be

ascertained is, of course, the *actual space* left by the deformity, with a view to determine, without loss of time, whether that space is such as to be available for delivery with probable safety to the mother. It is necessary to inquire, therefore, what is the smallest space through which it may be possible to extract a child *per vias naturales*, without injury to the woman; for, as Burns very justly remarks, it ought not to be forgotten that it is one thing to extract, and another to extract *safely*, in extreme deformity. Upon this point there is some difference of opinion, even among the highest authorities. Dr. Osborne maintained that where the sacro-pubic diameter measures *one inch and a half*, it is always possible to perform embryotomy; and that he himself succeeded in Elizabeth Sherwood's case, the diameter of whose pelvis he stated to have been *an inch and three quarters*. It is suspected, however, by the best obstetric writers, that Dr. Osborne was mistaken in his measurement; the case, therefore, is considered as unsatisfactory, and must not be taken as a rule for general observance in such circumstances. Velpeau is of opinion that craniotomy would be useless, dangerous, and ought not to be attempted even if the fœtus be dead, when the small diameter of the pelvis is less than eighteen or twenty lines, or *somewhat less than an inch and three quarters*. Dr. F. H. Ramsbotham, states that in cases where we find there is less space at the brim than *three inches and a half laterally*, by *one inch and three eighths in the conjugate diameter*, or *three inches by one and a half*, we ought to consider it our duty, however painful and appalling that may be, at once to propose the Cæsarean section, as the only means by which it is possible to save the mother's life, and as offering also the sole chance of safety to the child. Burns says that the crochets cannot be used, when the child is of the full size, unless we have a space of *one inch and three quarters in the sacro-pubic diameter*, by three inches laterally.

From a careful examination of these and various other authorities, together with the result of my own experience, I have long been of opinion, that where the sacro-pubic diameter of the pelvis does not amount to *one inch and three quarters*, delivery can rarely be effected by craniotomy, with any probability of safety to the woman. But in estimating the diameter of the pelvis, we must not omit to take into consideration at the same time, the relative size of the head; for should the child be above the average size, with a large unyielding head, it is very questionable whether delivery could be effected by craniotomy, with safety to the woman, even with a sacro-pubic diameter of *nearly two inches*.

As respects the operation of craniotomy, it is not usual in France to practise it, unless the child has been ascertained to be dead, or there be good reasons for believing that it cannot live. They think it better to deliver by the Cæsarean section, than to sacrifice the child. This feeling has indeed been carried so far in that country, that in 1648 the question, "*Whether it be lawful to destroy one life to save the other*," was submitted to the Doctors of Theology at Paris, who, after a long and grave discussion, decided that if the infant cannot be extracted without killing it, it cannot be extracted without committing a mortal sin; in which case it is necessary to have regard to the maxim of St. Ambrose, viz., *if it be impossible to assist the one*

without injury to the other, it is better to assist neither." Velpeau expressly says, that when the fœtus is ascertained to be strong and vigorous, we ought, instead of sacrificing its life, to extract it by the Cæsarean section, which, although a truly formidable operation, is not always fatal to the woman.*

In this country, however, it has been invariably the practice to have recourse to *craniotomy* rather than to *gastro-hysterotomy*, whether the child be living or dead, unless delivery by such means appear to be impracticable. That this is the most eligible, and at the same time, the most perfectly legitimate course to adopt under such circumstances, I cannot entertain a doubt, the life of the mother being infinitely more valuable than that of the child; for, as Velpeau very justly observes, a thousand social relations will induce us, if possible, to save the mother.

When there is sufficient space, therefore, to admit of delivery by craniotomy, *with a reasonable prospect of safety to the mother*, we ought at once to have recourse to that operation, even though the child be living, rather than consign the woman to the perils of the Cæsarean section. This, I think, should be regarded as a general rule, for, as the editor of the *Medico-Chirurgical Review* observes, "to perform the Cæsarean operation in preference to embryotomy, where the latter is practicable, is most unwarrantable; and evinces a lamentable, not to say a culpable want of judgment, as to the proper estimate of the value of human life." I understand, however, that Dr. Radford, of Manchester, is of opinion that craniotomy should never be performed; but as I am unacquainted with that gentleman's views, I abstain from further comment.

Let us imagine, then, that we have a case in which *craniotomy* is considered impracticable, and that our only resource is the Cæsarean section; the question naturally presents itself, at what period of the labour should the operation be performed? In answering this question I would observe, that it is most essentially important that there should be no unnecessary delay, even for a single hour. Supposing that labour has commenced and has made some progress, it would be well to operate immediately after the rupture of the membranes. It would, however, be much better to anticipate nature by rupturing the membranes, than to allow the strength of the patient to be wasted by fruitless and long-continued pains. That there is an advantage in effecting the escape of the *liquor amnii* before we commence our incision, there cannot be a doubt, as we thus prevent its effusion into the abdominal cavity; but we should be careful to avoid any delay after the escape of the *liquor amnii*, lest the life of the child be compromised by the powerful contraction of the uterus.

If we inquire into the cause of the fatality usually attending the Cæsarean operation in this country, I believe it will not be found to depend upon the influence of climate, nor upon any peculiarity of constitution in the women of Great Britain, as supposed by Mr. Simmons, of Manchester; but to be owing

* Quand tout annonce que le fœtus conserve toute sa force, et qu'il est robuste, nul doute que, loin de le sacrifier, comme on le fait dans la Grande Bretagne et dans le Nord, il ne faille l'extraire sans compromettre sa vie, au moyen d'opérations, graves à la vérité, mais non toujours mortelles pour la femme:—*Velpeau, L'art des Accouchemens. Tome, ii. 1829.*

chiefly to the delay which has been allowed almost invariably to take place, and the consequent exhaustion of the woman, before the operation has been performed. Dr. F. H. Ramsbotham is of opinion that the superior success on the continent is either owing to the operation being performed early in the labour, before exhaustion has supervened; or because it has been undertaken in cases where the constitution has not been so fearfully undermined by previously existing disease.* Dr. Hull very properly observes, that "there is a material difference between a patient's dying *from* an operation and *after* an operation; although, blinded by prejudice, we may entirely overlook this very necessary distinction with regard to the operation in question. In France, and some other nations upon the European continent, the Cæsarean operation has been, and continues to be, performed, where British practitioners do not think it indicated; that it is also had recourse to early, before the strength of the mother has been exhausted by the long continuance and frequent repetition of tormenting, though unavailing pains, and before her life is endangered by the accession of inflammation of the abdominal cavity. From this view of the matter we may reasonably expect that recoveries will be more frequent in France than in England and Scotland, where the reverse practice obtains. And it is from such cases as these, in which it is employed in France, that the value of the operation ought to be appreciated."†

According to the report of Mr. Cox's case, it appears that the patient was first visited about five o'clock p.m., and was found to have been in labour throughout the day; that since twelve o'clock the pains had been strong; and that they now continued to be *strong, regular, and occurring every five minutes*. The antero-posterior diameter was ascertained to be only *one inch and a half*. A second opinion was obtained, and it was agreed (very judiciously) that *craniotomy would be of little or no avail*. That a third opinion, under such circumstances, should have been desired, was natural enough; but it is greatly to be regretted that the consultation was deferred till eleven o'clock the next morning; and still further is it to be regretted, after the sacro-pubic space had been accurately ascertained to be more than *one inch and a half*, that *craniotomy* should have been attempted. Had the woman been delivered by the Cæsarean section on the previous night, it is possible that her life might have been saved.

By referring to the case of Sarah Bate, upon whom I operated with success in May, 1835, both the mother and child being saved, it will be found that the patient had trifling pains at distant intervals, for some hours; that about three o'clock in the afternoon they became strong; that about four o'clock a violent pain ruptured the membranes, and that the operation was performed about eleven o'clock the same night.‡ Here also there was some delay, which from various circumstances was unavoidable; but still the operation was unques-

* Principles and Practice of Obstetric Medicine and Surgery, p. 225.

† Vide, Dr. Hull's Defence of the Cæsarean Operation, London, 1799.

‡ Vide, Case of Deformity of the Pelvis, in which the Cæsarean operation was performed with success by G. B. Knowles. "Transactions of the Provincial Medical and Surgical Association," Vol. IV.

tionably performed before any symptoms of exhaustion had manifested themselves. Had it been delayed till the next day, the case in all probability would have terminated fatally.

To this cause in a great measure I am disposed to attribute the singular success which attended this case. Something may also be due to the after-treatment. I had long been aware that in many of the recorded cases of Cæsarean operation, recourse had frequently been had to local bleeding and to purgatives, with a view to relieve pain, tension, and other alarming symptoms. When we reflect, however, upon the formidable nature of the operation, and the great shock it must necessarily produce upon the system, it will be readily admitted that depletion to any extent, would generally be a doubtful, if not an injurious course of practice. With this impression on my mind, depletion, either by bleeding, or by purging, was studiously avoided; pain was subdued by *opiates*; the bowels were assisted by *injections*. I attach also some importance to the use of *turpentine enemata*, which were administered from time to time, and by which, tension, to a most distressing degree, was effectually relieved.

In submitting to the notice of the profession these remarks upon craniotomy and gastro-hysterotomy, I beg to repeat that the chief object I have had in view, is to advert to a few points of practical importance; but more especially to insist upon the necessity of delivery by the Cæsarean section with as little delay as possible, whenever craniotomy appears to offer but faint hopes of safety to the mother, the latter operation, under such circumstances, being usually as fatal as the former.

CASE OF STRANGULATED INGUINAL HERNIA.

TO THE EDITOR OF THE PROVINCIAL MEDICAL AND SURGICAL JOURNAL.

SIR,

I send you the following case of strangulated inguinal hernia for insertion in your Journal, conceiving that a case presenting any unusual appearances may be interesting to your readers.

I have the honour to be, Sir,

Your obedient servant,

THOMAS BANKS, M.R.C.S.

Stourbridge, Oct. 24, 1844.

John Wallins, aged 67, who had been suffering for seven months with chronic disease of the liver, and much reduced, was seized on the 18th of May, 1844, with symptoms of strangulated hernia. There was not that urgency about his case which usually attends this disease, from the fact of his being reduced by previous disease; still it became necessary to propose to him an operation, as the only means of prolonging his life, if even for a short time, and he reluctantly submitted on the 21st, after the usual means to reduce it had proved unsuccessful. His pulse was very small and weak, but there was very little tenderness on pressure over any part of the abdomen when I proceeded to the operation.