the struggle for breath has exhausted the strength of the sufferer, so rendering the operation less successful than it might have been.

In short, let not the name of the disease deter you; but, when you find a patient clearly progressing to death by suffocation, while the vital powers are otherwise vigorous, my maxim for you would be, open the windpipe and ward off the impending death, whatever be the ultimate result: you have done your duty and saved life, at least temporarily. I admit that it is sometimes a very nice point to decide, when to interfere and when to refrain, and especially to discover when the effusion has spread down into the bronchi or bronchial tubes, in which case the operation would be useless. Percussion of the chest and the sibilant *râles* discoverable by auscultation are valuable aids to diagnosis; but there is one most characteristic sign which I find a sure and ready guide to distinguish between dyspnoea depending on pulmonary occlusion, whether congestive or bronchial, and that depending on tracheal obstruction—I allude to the observation of the respiratory movements. When the obstruction is in the larynx or trachea, the powerful attempts at respiration will be plainly visible, and their inefficacy will be evidenced by the drawing in of the costal cartilages and the intercostal spaces. When this is well marked and increasing, the pulse being moderately good, it is a proof of the vigour of the vital powers, and is a clear indication for tracheotomy.

The steps of the operation are very easily indicated, but very difficult in the performance. The great maxim is, "operate leisurely and without hurry". The patient having been put under the influence of chloroform—a very great assistance in this operation—an incision is to be made about an inch and a half long from half an inch below the cricoid cartilage downwards. Layer after layer of the cellular tissue is to be divided till the trachea comes into view. This, which is easily stated, is a troublesome matter, owing to the perpetual movements of the trachea and the bulging into the wounds of veins, lular tissue, and in children the apices of the thymus gland, all of which must be held aside with retractors. Any vessel which bleeds must be tied; and it must be a principle that the second stage of the operation is not to be undertaken till the white rings of the trachea are clearly seen at the bottom of the wound. A sharp hook is now to be fixed in the upper part of the trachea brought into view, and the knife plunged into it—the back of the knife being towards the larynx—and the incision made half an inch long. A pair of closed dressing forceps are now to be introduced into the slit and opened, on which there will be a violent struggle, then a forcible expiration expelling quantities of false membrane and viscid mucus; and presently the patient will lie quiet, breathing tranquilly through the opening. The silver tube is now to be introduced, and the operation is completed. The only special precaution which I adopt in the after-treatment is to order the air in the apartment to be kept moist by steam from a kettle, or by some other means.

The following case illustrates these points very well.

William S., aged 7 years, when convalescing from scarlet fever, had an attack of tonsillitis. The palate and tonsils became covered with a white exudation, and the voice became hoarse. After a few days he improved so much that there was no anxiety about him, when on the 12th January there was considerable difficulty in breathing and a hoarse barking cough. The white patch was to be seen on the tonsil, evidently extending downwards. On the 13th he continued in the same state, but on the 14th the symptoms had increased in severity so that Dr. Pirie, the medical attendant, requested me to visit him in consultation. When we saw him, however, the dyspnoea had become less urgent, so that we thought that he had a hope of recovery without operation. On the 15th all the symptoms became aggravated, and when I saw him in the evening with Dr. Pirie, it was quite evident that the struggle for breath would soon wear him out. The pulse was fair; he could swallow well; but the fits of dyspnoea were so frequent and urgent that he was tossing about, gasping, and begging to be relieved. An examination of the chest showed most clearly that the obstruction was in the larynx or trachea, and that the effusion had not extended into the smaller bronchi. The muscles were acting very powerfully, so that at each attempt at inspiration the sternum, costal cartilages, and intercostal spaces, were violently pulled inwards. The effort to inspire was evidently very strong, but there was hardly any room for air to pass: a clear indication for opening the windpipe to admit the air.

The nature of the operation having been explained to the parents, they committed the child to our care to do what we thought best for it. The assistance of my friend Dr. Smart having been procured, I proceeded to perform tracheotomy precisely as before described, and with the same result. The child, who before was tossing about in an agony of dyspnoea, was soon breathing with perfect tranquillity through the tracheal silver tube.

I need not describe the progress of the case from day to day. Four or five of my students most kindly volunteered to be with the patient

for the first forty-eight hours, during which time the child was never left without skilled attendance, Dr. Pirie visiting two or three times a day. The result was most satisfactory. The tube was removed on the eighth day, and after that the child made a rapid recovery.

POSTSCRIPT.

As an appendix to the above abstract, I may state that I have now performed tracheotomy in thirty-nine cases; of these thirteen recovered, or one out of every three operated on. As all those operated on were considered to be in a hopeless state, it may be concluded that thirteen lives were saved by the operation.

In the *Glasgow Medical Journal* I published details of my first twenty-six operations. I here append notes of the last thirteen.

CASE XXVII, with Dr. Gray, 30th Dec., 1865. Diphtheria; aged 5. Result—death on the fifth day from extension of inflammation.

CASE XXVIII, with Dr. Coats, 20th April, 1866, aged 3. Chicken-bone impacted in glottis. Result—death from inflammation in bronchi.

CASE XXIX, with Dr. Tindal, 18th Jan., 1867. Diphtheria; aged 7. Result—cure; tube removed on fourth day.

CASE XXX, with Dr. R. Grieve, 31st Jan., 1867. Croup; aged 3. Result—death on the third day.

CASE XXXI, with Dr. G. Miller, 27th Oct., 1867. Diphtheria; aged 5. Result—cure; tube removed on the seventh day.

CASE XXXII, with Dr. Paterson, Partick, 10th Dec., 1867. Diphtheria; aged 2. Result—death in two days.

CASE XXXIII, with Drs. A. D. and McCall Anderson, 4th May, 1869. Croup; aged 2½. Result—death on the second day.

CASE XXXIV, with Dr. Gray, 6th Dec., 1869. Diphtheria; aged 5. Result—death on the sixth day.

CASE XXXV, with Dr. Smellie. Combination of croup and spasmodic croup; boy aged 9; 15th March, 1870. Tube still in; child goes into spasm on its removal.

CASE XXXVI, with Dr. Mather, 22nd March, 1870. Croup; aged 4. Result—death; extension of inflammation.

CASE XXXVII, with Dr. McMillan, 13th Nov., 1870. Diphtheria; aged 8. Result—death from spreading of the disease downwards on the eighth day, after tube was removed.

CASE XXXVIII, with Dr. Pirie, 15th Jan., 1871. Diphtheria; aged 8. Result—cured; tube removed on the eighth day.

CASE XXXIX, with Dr. Ronald, 20th Jan., 1871. Diphtheria; aged 7. Result—death on the third day.

GYNÆCOLOGICAL NOTES.

By ROBERT BARNES, M.D.,

Obstetric Physician, and Lecturer on Midwifery and Diseases of Women and Children, at St. Thomas's Hospital.

III.—IS IT RIGHT TO VACCINATE OR REVACCINATE PREGNANT WOMEN?

THE question has frequently been put to me, Is it right to vaccinate pregnant women? Some persons seem to entertain the apprehension that pregnant women incur special and serious risks under vaccination. To justify exceptional neglect of vaccination in their case, it ought to be shown, not only what this special risk is, but also that it is more serious than the risk incurred by the women themselves by taking small-pox, and thus of propagating the disease to others. The community as well as the pregnant woman must be considered.

To make out, then, a case for special exemption, it ought to be shown that the pregnant woman incurs a particular danger. Where is the evidence of this? The following passage from Dr. Meigs's work on *Diseases of Females* (1848) has been cited to me as authoritative in this matter. "Do not," says Dr. Meigs, "vaccinate women when pregnant. I have been the witness of dreadful distress from the operation. Eschew it, I entreat you." It would be very desirable to have the cases justifying this very emphatic assertion recorded. I fear there is some confusion in the matter. Thus, asking for evidences of mischief, as of abortion, from vaccination, I have been told of abortion and serious illness following small-pox. I do not doubt that small-pox is a most serious accident to a pregnant woman. But does it not follow, *à fortiori*, that pregnant women should be protected against small-pox?

My own experience has supplied me with many illustrations which warrant the following propositions.

1. Pregnant women living under epidemic or zymotic influences are more prone to take the prevalent morbid poison than others.

2. Having taken a morbid poison, they are less able to throw it off. Their excreting organs, charged with the double duty of purifying two organisms, are liable to break down under the additional burthen.

3. The morbid poison then pursues its course in a system which is less able to resist its injurious action. Abortion and a most dangerous form of puerperal fever are very likely to follow.

Against this certainly greater risk of taking small-pox, and certainly greater severity of the disease if taken, what, I ask again, is the special danger of vaccination or revaccination? The operation, we know, is not altogether free from danger in adults of either sex. Before resorting to it, it is wise to get the system into good condition. Do pregnant women run more risk than other adults? Probably they are at some disadvantage. But I believe that the special dread of abortion is exaggerated, if not altogether unfounded. The healthy ovum clings to a healthy uterus with wonderful tenacity. An ordinary illness, much less the slight febrile disturbance of vaccination, will not affect this relation. On the other hand, slighter causes may precipitate an abortion already imminent.

So far is vaccination from causing abortion, that cases are known in which the foetus has gone safely through the vaccine disease *in utero*, so that it has subsequently been proof against vaccination.

I think, then, we may conclude, in the absence of decisive evidence of special danger, that pregnant women are entitled to equal protection against small-pox with the rest of the community; and that vaccination or revaccination should be practised on pregnant women, in their own interest, as well as in that of the community of which they form a part.

The opportunity afforded by the present epidemic of settling this question by the evidence of facts on an extensive scale should not be lost. A Zymotic Committee will, I believe, be appointed by the Obstetrical Society. The relations of zymotics to pregnancy, including the influences of vaccination, is just one of those subjects which the collected experience of many practitioners can alone satisfactorily determine.

To show how urgently the particular question under discussion calls for determination, let me cite the contradictory views expressed to me by two of the most experienced and successful public vaccinators in London.

A. says: "I have never had the moral courage to try the effect, although I have very often been tempted to do so. There is a strong feeling in the minds of women against the practice; and the fear of an action in the Court of Queen's Bench has hitherto deterred me from trying the experiment. I have frequently asked the question you now put to me, but have never had a satisfactory answer."

B. says: "I have only vaccinated four pregnant women, and nothing unusual has occurred with either of them. I do without hesitation recommend it, and intend vaccinating all the pregnant women in the workhouse. I have at the present time two women in an advanced state of pregnancy in the infirmary, suffering from variola; and one convalescent from the disease, having gone through the semi-confluent form without aborting."

Is A. right? or is B. right?

CLINICAL RECORDS.

From the Practice of PROFESSOR ERICHSEN at University College Hospital.

II.—*Gum-elastic No. 4 Male Bougie removed from the Bladder of a pregnant Woman by Urethrotomy: Threatened Abortion: Cure.*

M. M., aged 21, was admitted December 15th, 1870, having been sent up by Mr. Swindell of Whetstone. The patient had been engaged as a housemaid up to one month before admission. She was in perfect health till about one month previously, when she commenced to have pain on passing urine, lasting a short time afterwards. The pain during micturition was of a pricking character, and after it she felt as if there were something more to come away. Lately, the urine had contained blood and matter. She passed it with considerable straining, and the pain remained the same. The pain was increased by movement. During the week before admission, she suffered from incontinence of urine, which escaped involuntarily every few minutes. She had occasionally passed fragments of grit. She said that she was quite regular in her periods up to two months before admission, since when she had seen nothing; but she was extremely reticent, and did not answer questions readily.

On admission, the patient was a fat anæmic girl. She was suffering from constant incontinence of urine, and the thighs and nates were slightly excoriated in consequence. Some of the urine which was collected was found to be alkaline, free from albumen, and depositing a considerable sediment composed of pus and triple phosphates. There was scarcely any blood. On December 16th, she passed a small gritty fragment, which was found to be composed entirely of phosphates.

Mr. Erichsen sounded her, under chloroform, and found a calculus. It gave a distinct click when struck with the sound. It seemed to be of considerable size, was evidently phosphatic, and could be felt with the finger through the anterior vaginal wall.

On December 21st, the patient being tied up in the lithotomy-position, Mr. Erichsen passed a full-sized male median lithotomy-staff, and opened the urethra at the vaginal aspect, dividing the under-surface for about one inch. A pair of small lithotomy-forceps were then passed into the bladder, and the foreign body was removed. On examination, it was found to be a No. 4 male gum-elastic bougie, coiled up, and coated with phosphates to the thickness of about one-sixteenth of an inch. The ivory head was not covered with any deposit, and had doubtless been the cause of the distinct click heard on sounding. The wound in the urethra was brought together with silver sutures, and a catheter tied in. The patient was then removed to bed, and an India-rubber tube attached to the catheter to carry off the urine.

The patient went on well till December 25th, when some hæmorrhage occurred from the vagina, which ceased after a slight loss of blood. This was repeated on the 26th and 27th, until the patient was much weakened by loss of blood. It was then found, on further examination, that she was in the fourth month of pregnancy, and that abortion was threatening. She was transferred to the care of Dr. Graily Hewitt, under whose treatment the progress of miscarriage was stayed; and she gradually recovered, leaving the hospital in about a month after the operation.

Mr. Erichsen stated that this case was extremely interesting in a medico-legal as well as in a surgical point of view. Here was an unmarried girl pregnant, with impending abortion, in whose bladder a male gum-elastic bougie was found. There could be no doubt in the minds of any conversant with the practices that were unfortunately notoriously rife in this country—though less so than in some others—that the bougie had been employed for the purpose of procuring abortion; that it had been used by an unskilled hand; that the urethral orifice had been mistaken for the os uteri; and that the instrument, having slipped in, had occasioned the symptoms of calculus for which she had been admitted. His suspicions as to the alleged calculus being, or having for a nucleus, a foreign body, had been aroused by the reticence of the girl; but he had thought, as is very common in such cases, that the foreign body, whatever it might be, had been introduced to gratify sensual feelings, rather than with a positively criminal intent. Stone in the bladder was so rare in young women, that, when a calculus mass was found, it was almost invariably found around some extraneous body, such as a hair-pin, a piece of pencil, etc., that had been accidentally slipped into the urethra. In this case, the mode of introduction was different; and there could be no doubt, from the nature of the foreign body and from the coexistence of pregnancy, as to the motives that had suggested its use. It had probably been in the bladder about two months, judging by the quantity of phosphates by which it was encrusted. The bougie, as usually happens, was coiled up into one mass; and the ivory handle, being free and uncoated, gave a clear and distinct click to the sound.

With respect to the operation, Mr. Erichsen performed urethrotomy instead of dilating the urethra, as he thought that, as the mass was rather large, the canal might be over-stretched, and incontinence would then result. The cut in the urethra was immediately closed by silver sutures.

CASE OF CIRRHOSIS OF THE LIVER: HÆMORRHAGE AND ASCITES: PARACENTESIS TWICE: TEMPORARY AMENDMENT FROM DIGITALIS: CLINICAL REMARKS.

By C. HANDFIELD JONES, M.B. Cantab., F.R.S.,
Physician to St. Mary's Hospital.

H. C., aged 34, was admitted July 11th, 1870. He was an emaciated, sallow-looking man, suffering from copious ascites, which, he stated, had not been preceded by any notable pain in the region of the liver. The last eight years he had been very temperate, but before that he took gin rather freely. Very soon after his admission, he had profuse hæmatemesis, and hæmorrhage *per rectum*. This ceased under the administration of lead. On July 16th, he was highly anæmic; pulse 105, weak; temperature 101.8. On the 29th, paracentesis was performed, and fourteen pints of fluid were drawn off. The night after the tapping, twenty minims of tincture of opium were given; and on the following day he was in fair case, and took his food well. Pulse 100, jerky. He was taking a drachm of liquor ferri murialis with mixture of acetate of