too frequent, or uncontrolled by drugs and endanger the patient's life. Too rapid child-bearing has a bad effect on epileptics, and I consider that the number of children should be limited, both for the sake of the mother and of posterity. I recall one case, especially, of a young woman who had frequent children and more frequent fits, and who was fast losing weight and health. She came to me for her fifth pregnancy five months pregnant and with fits so frequent that she always had to have some one with her. I terminated the pregnancy by doing a subtotal hysterectomy. Now she is healthy, well nourished, improved mentally, and her fits are few and far between.

INSANITY

With the " bad family history of insanity " we are not concerned in this paper ; but we may be asked to evacuate the uterus in these cases. Whether we do so depends on our individual outlook, as we have no legal status in this matter. Puerperal mania, or insanity of lactation, in the previous pregnancy is, in my opinion, a definite indication for the termination of pregnancy.

DISPROPORTION

This is the condition above all others in which induction of labour is indicated. By this means there has been a large saving of maternal and foetal lives, the number of operations for Caesarean section has been decreased enormously, and patients who have previously had prolonged labours, with probably difficult forceps deliveries, have by a judicious induction been given a normal labour without instruments. No definite measurements and no definite term of pregnancy can be laid down as to the exact time when induction should be performed. Each case must be frequently examined, especially from the thirty-fourth week onward, and induction performed directly it is difficult to press the head into the brim ; definite overlapping should not be waited for. Induction should not be advised unless the true conjugate is at least 3½ inches, and unless pregnancy can be allowed to proceed to the thirty-second week. If these conditions are not present, then Caesarean section should be performed in order to deliver a child that is likely to survive.

OCCIPITO-POSTERIOR POSITIONS

Induction of labour is often most successful in this condition. If cases of posterior lie with a normal-sized child and small pelvis, or a large child and a normal pelvis, are allowed to go to term there is either a prolonged labour before the head rotates forward or the occiput is unable to rotate forwards at all owing to the size of the head approximating so closely to the size of the pelvic cavity. This difficulty can be avoided in almost every case by induction of labour at the thirty-eighth week. This allows for a smaller head, which has more room in the pelvic cavity to rotate forwards, and as a result no further intervention is necessary in the majority of cases. At the same time as the induction is performed an attempt may be made to rotate the head and anterior shoulder into an anterior position, which may be maintained by pads and binder. This is by no means always successful, but in every case an attempt is worth while.

BREECH CASES

In some cases of breech presentation where external version has been unsuccessful (and these are generally found to be cases in which the legs are extended) induction at the thirty-eighth week, depending on the size of the child, in indicated. In breech cases another method of induction, other than the one described below, must be carried out. The advantage of induction in these cases is to get a smaller child and so make it more easy for a natural delivery to take place. Unfortunately even after induction it may be necessary to bring down the legs in order that the child may be delivered, but the smaller child makes this manœuvre easier.

METHOD OF INDUCTION

The method of induction which I always employ is a modification of the old method of rupture of the membranes. For this purpose I have had made a double curved silver catheter, similar to a prostatic catheter, with a blunt-ended stylet, which can be protruded at the distal end of the instrument. The vagina and cervix are cleaned up thoroughly with ether soap, and then with surgical spirit. Thorough cleansing of the vagina and cervix is essential in order to prevent any chance of introducing sepsis with the passage of the catheter. A Sims's speculum is introduced, and the cervix may be seized with vulsellum forceps, but this is not necessary unless the cervix is very posterior. No dilatation of the cervix is required. The catheter, with the point of the stylet withdrawn, is passed up the cervical canal until it meets the child's head ; the proximal end is then raised and the point of the catheter is passed behind the head, between the uterine wall and the membranes. When the point of the catheter has passed above the child's head the stylet is pushed home and the proximal end depressed ; by so doing the distal end ruptures the membranes. The eyelets of the catheter are now in the amniotic cavity, and liquor amnii commences to flow through the catheter, and is collected in a measured vessel. From half to one pint is drawn off, depending on the amount of liquor amnii present, and when sufficient has been collected the catheter is withdrawn. After the withdrawal of the catheter there is practically no further escape of liquor, so that when labour commences a definite quantity of amniotic fluid is still present.

The advantages of the method are that the opening in the membranes is made well away from the cervix, so diminishing the chances of septic infection of the liquor, that the bag of membranes is retained, and that there is no foreign body left in the uterus to invite sepsis or damage the uterine wall. The method is extremely simple and safe, both for the mother and for the child. Labour usually commences within twenty-four hours, but may be delayed for three days, or in a few cases for seven days. In spite of this delay I have not had a single case in which the liquor became infected. I can confidently recommend this method of induction of premature labour for all cases in which the foetus presents by the vertex, and I hope shortly to publish the results of its use during the past two years.

GONOCOCCAL STOMATITIS

BY

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This condition is rare ; only about forty cases have been recorded since Neisser discovered the gonococcus in 1879. Our findings have an additional interest in view of the recent discussion in the *British Medical Journal* (February 14th, p. 263) on gonococcal infection of the nose.

Mouth infection in the newly born, like ophthalmia neonatorum, occurs during transit of the maternal passages (Rosinski,[1] Leyden,[2] Kast[3]). In adults infection is usually direct, but Chevelle and Georgel[4] have reported a case of metastatic involvement of the buccal cavity. Rosinski[1] gives five to twelve days as the incubation period in infants. In adults, for obvious reasons, it is more difficult to determine, and seems to vary from one day (Petrasie[5]) to seven days (Bronson[6]). The parts most often affected are the soft palate, the pillars of the fauces, the anterior part of the tongue, and the gingival margin

in the anterior part of the mouth (Mead[7]). The mucosa is bluish or rosy red, and the lesion has been described by Mead,[7] Rosinski,[1] and Bronson[6] as a sharply localized whitish or yellowish-white patch surrounded by a reddish zone. The gums are usually inflamed, swollen, and retracted. The breath is offensive, and the mouth movements are extremely painful. Healing occurs without much scarring.

HISTORY OF CASE

In the case we have to record, an unmarried man, aged 23, exposed himself to infection on March 13th, 1931. On the 15th he suffered from nausea, and repeatedly put his fingers down his throat to make himself vomit. Next day he had a discharge from the urethra and from both eyes. On the 17th his gums were swollen, and the following day he noticed a purulent discharge from the mouth. Dysuria had developed by this time, but there was no frequency of micturition. He was admitted to hospital on the 19th. The purulent discharge from the urethra contained gonococci. The usual tests revealed that the infection was limited to the anterior urethra; and the epididymes, spermatic cords, seminal vesicles, and prostate were unaffected. The eyes showed a bilateral purulent ophthalmia; the corneae were unaffected. The buccal mucosa, anterior half of the tongue, the gums, and the tonsils were coated with a greyish adherent membrane. In places the membrane had sloughed off, leaving bright red areas with numerous bleeding points. These superficial ulcers were more numerous in the neighbourhood of the molar teeth than elsewhere. The gums were swollen and retracted. Pain in the mouth was a prominent symptom. He looked seriously ill. His temperature was 101° F.

Diagnosis

On March 21st plates of Thomson's medium were conveyed in a portable incubator from Stafford to Dudley, a distance of 22 miles. The lamp of the instrument was lit before leaving Stafford, so that the medium was warm on arrival at Dudley. This is an important precaution when dealing with a delicate micro-organism like the gonococcus. Swabs were taken from the patient's mouth and were sown on six plates, which were immediately put into the incubator and sent back to Stafford by road. These details are mentioned to show that distance is no impediment with proper equipment and precautions. After forty-eight hours' incubation, four of the plates showed an abundant growth of pneumococci and staphylococci; the remaining two revealed, in the midst of a similar growth, some colonies having the usual appearances of gonococci. These were subcultured until they became habituated to artificial conditions and were then submitted to the usual biochemical tests. They gave the reactions of gonococci, producing acid in glucose, but not in maltose or saccharose. These micro-organisms isolated from the patient's throat will be for convenience designated as "the Dudley strain." They were not agglutinated by the patient's serum which was drawn off within the first week of the disease; and, using them as an antigen, the complement-fixation test on the patient's serum was negative, as it was with the stock laboratory antigen. Considering all the circumstances, these results cannot be regarded as exceptional.

A rabbit was inoculated with a Stoke strain of gonococci obtained some time ago from Dr. McElligott's clinic. The micro-organisms were first killed by formalin. The agglutination reactions of this animal's serum at different periods after inoculation are interesting:

	5th Day	7th Day	10th Day	17th Day
Stoke strain	1 : 125	1 : 500	1 : 250	1 : 50
Dudley strain ...	1 : 125	1 : 250	1 : 250	1 : 50

Adsorption tests showed that the Stoke strain removed all the agglutinins for the Dudley strain, and the Dudley strain rendered the serum negative for the Stoke strain. Both strains were negative to normal horse serum, but were agglutinated in strong dilutions by Types I and II, and by polyvalent antimeningococcal serums; but as these reactions are usual and merely proclaim the close antigenic relationship between the gonococcus and meningococcus they will not be further discussed. The rabbit's serum was submitted to complement-fixation tests. Dr. Price's technique[8] was adopted. Using the Stoke and Dudley strains as antigens, the following results were obtained at the periods stated:

	5th Day	7th Day	10th Day	17th Day
Stoke strain	—	±	+ ±	+
Dudley strain ...	± —	+	+ ±	+

Several direct films made from swabs from the mouth showed Gram-negative intracellular diplococci having the morphological characters of the gonococcus. A differential blood count showed slight eosinophilia up to 4.5 per cent.

Treatment

Treatment was started with urethral irrigations of a 1 in 8,000 solution of potassium permanganate, and an alkaline diuretic was given by the mouth. The eyes were bathed every two hours with a 1 in 5,000 solution of oxycyanide of mercury, and drops of 20 per cent. argyrol were instilled. The mouth was washed out frequently with a 1 in 5,000 solution of potassium permanganate. A detoxicated gonococcal vaccine (starting with 2,500 million organisms) was given alternately with small doses of edwenil (1/2 c.cm.) at two- to three-day intervals. Treatment was started on March 19th, and progress was as follows: March 24th, temperature normal; March 28th, no urethral discharge, and both urines in two-glass test clear; March 30th, the discharge from the eyes, which had been very slight for the last four days, now entirely ceased; April 4th, grey membrane covering mouth completely gone and normal healthy colour reinstated; no swelling of gums and no pain. The patient passed very rigorous tests for cure, and was considered free from infection six weeks after his admission to hospital.

COMMENTARY

The gonococcus must have been carried to the buccal mucosa when the patient attempted to make himself vomit by putting his fingers down his throat. This was two days after exposure to infection and one day before he noticed the urethral discharge—ample time for the gonococcus to multiply in the urethra and produce a highly infective, but not obvious, mucoid secretion. The other possibility here is a metastatic spread. The urethral discharge appeared on March 16th, the gums were swollen on March 17th, and the stomatitis was fully developed on the 18th, so that the time factor alone almost excludes this route. Added to this, the fact that the urethritis remained anterior throughout the whole course of the attack, and the lack of involvement of the prostate and seminal vesicles, allow us to exclude metastatic infection. The ease with which the gonococcus was isolated from the superficial exudate in the mouth, and the failure to find complement-fixing factors or agglutinins in the patient's serum after the stomatitis had ensued, further confirm these conclusions. The eosinophilia has no relation to the stomatitis. It is an occasional accompaniment of gonococcal infection (Buchanan,[9] DaCosta[10]).

The lesion in this case is different in some respects from any we have seen described in the literature. Instead of the sharply localized whitish patches surrounded with

a reddish zone which previous observers have noted, the whole of the mouth, tonsils, and anterior half of the tongue were covered with a grey membrane. Before treatment was commenced there were a few patches of superficial ulceration, chiefly around the molar teeth, where the membrane seemed to have been forcibly removed, possibly by the action of food or the tongue. While under treatment the membrane sloughed off in parts, showing red mucosa beneath without ulceration. The redness gradually faded until the normal colour was resumed. The rarity of this complication is striking, and is possibly due to the reaction of the saliva and the nature of the buccal mucosa. The presence of other micro-organisms, as in this instance, may allow the gonococcus to become established. Any unhealthy or septic condition of the mouth may act as a predisposing cause—gingivitis, pyorrhoea, dental ulcers, etc. Klepper[11] describes the case of an old woman who had simple ulcers of the mouth. She took care of a child with gonococcal urethritis, and herself developed a gonococcal stomatitis. In the case under discussion there were no such predisposing causes, and the patient was a healthy young adult. As a last resort, one must think of a specially virulent strain of gonococcus. That such strains occur seems quite definite clinically, although no bacteriological proof is yet forthcoming.

Concerning treatment, most writers advise the application of a solution of silver nitrate, 1/4 to 2 per cent. (Mead,[7] Vines,[12] Rosinski[1]). Petrasie[5] used an alum gargle and cured his case in a week. Janet[13] suggests a mouth-wash of potassium permanganate. As the gonococcus is easily killed by a weak solution of almost any disinfectant (its power lying in its inaccessibility), the choice of a mouth-wash seems unimportant. Potassium permanganate was used in this case, as it has the chief claim to an approach to specificity.

Although we had found by direct film numerous cells filled with Gram-negative diplococci which showed the morphological characters of gonococci, we were not prepared to make a diagnosis on these results alone, for it has been our experience that in the genito-urinary system and elsewhere Gram-negative intracellular diplococci may occasionally be found which are not gonococci. In the mouth numerous Gram-negative cocci frequently occur—for example, *M. catarrhalis,* meningococcus, parameningococcus, *M. pharyngis siccus,* the various types of *M. flavus,* and others. So that, if we had based the diagnosis on unsupported direct films, our findings would be open to serious criticism. We do not, however, wish to create the impression that the direct film is always worthless. A Medical Research Council Report[14] sums up the position thus:

"(*a*) That Gram-positive organisms when taken up and digested by leucocytes may lose their Gram-positive character.

"(*b*) That more than one observer has noted, in cases of chronic gonorrhoea in which the material is such that a satisfactory film is difficult to obtain, that organisms determined by culture to be gonococci retain the violet stain with unusual obstinacy, and appear thus to be Gram-positive.

"(*c*) That the stain as such does not distinguish between gonococci and other Gram-negative, but non-pathogenic, diplococci which may be present in both male and female genito-urinary tracts.

"The Committee are of opinion that these limitations do not seriously affect the diagnosis of the one order of cases in which, in their view, diagnosis by microscopical examination alone gives consistent results—namely, the active acute cases of the disease."

SUMMARY

This is a synopsis of the known facts on gonococcal stomatitis. An actual case is briefly described and an outline given of the measures adopted to place the diagnosis beyond reasonable doubt.

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TORSION OF OVARIAN CYST WITH BRADYCARDIA

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Many incidents have been recorded concerning twisted pedicles of ovarian cysts, particularly in children. A perusal of the literature, however, does not elicit any reference to slowing of pulse rate during the torsion, or at any other time. In 1893 Keen[1] recorded a case of ovarian cystoma weighing 111 lb., in a child of 15, but there appear to have been few symptoms and signs other than those due to pressure. Palmer Findley[2] records the case of a girl, also 15 years of age, who had a cyst of 32 lb. without untoward effects. Reuben[3] presents a report containing a reference to a girl, aged 14, who had an ovarian cyst with a twisted pedicle, without very unusual signs. The onset of menstruation at the age of 7 in a child with a large ovarian cyst is mentioned by Keatings.[4] Others, including Chu,[5] Nutt,[6] Pillai,[7] and Stevens[8] have placed on record their findings in cases of ovarian cysts. Nowhere, however, does slowing of the pulse rate appear to be mentioned.

THE ORIGIN OF BRADYCARDIA

Slowing of the heart has been noted in some cases of gastro-duodenal origin, and extrasystoles have been noted in connexion with digestive disorders. Cases of extrasystole in this group are usually found in young adults; they are due to afferent autonomic impulses stimulating the vagus centre. The result of this is that the vagus produces its inhibitory influence upon the cardiac rate, and the cardiac cycle may be so affected at times that the prolonged diastole is of such an interval that the intrinsic ventricular beat becomes manifest, with the production of an extrasystole. The condition is similar to the ventricular escape resulting from continuous vagal stimulation experimentally, in which the ventricle begins its own rhythm, as in cases of complete heart-block.

HISTORY OF A CASE

A girl, aged 20, came to me with a history of having had two attacks of pain on the right side. When I first saw her she was lying with her legs flexed, and was groaning with pain, which was most intense in the lower right abdomen. No actual vomiting had occurred, but she complained of nausea. The temperature was 100.4° F., the pulse rate was 52, and the respiration rate 32. The catamenia was of average type, being a twenty-six-day cycle, with a menstrual flow lasting four days.

The case was obviously an acute abdominal condition, but the slow pulse rate was most unsatisfactory as a guide. The patient looked drawn and ill. The abdominal wall was very rigid, especially in McBurney's area; therefore we first