cases, but completely fails in others. It appears, however, that in conjunction with eserine a good effect can be produced in a case where eserine alone has remained ineffective.

3. The dilatation of the pupil caused by laevo-glaucosan may be valuable from a diagnostic point of view, since, so far as our experience goes, the dilatation is not accompanied by raised tension.

4. In secondary glaucoma laevo-glaucosan will succeed in rupturing synechiae which with other mydriatics remain unaffected. In cases of iritis with raised tension it may be effective as a preliminary measure when hesitation is felt in giving atropine at once, or where atropine has failed to relieve the condition. Owing to the accompanying anaemia, however, its repeated use would appear inadvisable in such cases.

5. Amino-glaucosan is an extremely potent miotic. It cannot be depended upon to contract the pupil and lower the tension in every case of acute glaucoma, but it would appear on occasion to be a very useful adjunct to eserine. In cases where the pupil remains dilated and the tension raised after the administration of amino-glaucosan, this preliminary treatment has undoubtedly made eserine effective subsequently in bringing about a contraction of the pupil and a lowering of the tension. No case has been met with where the drug has caused a rise of tension (as has been reported), but in several cases, although given every legitimate opportunity, it has been without any hypotensive effect.

6. Both drugs are accompanied by a severe reaction and pain, in some cases moderate, in others involving considerable distress. The occurrence of a hypopyon ulcer without other obvious cause after the use of amino-glaucosan suggests that the severity of the reaction on the superficial parts of the eye is not without danger to the cornea, especially in cases where infection is known to be present.

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THE PROBLEM OF PUERPERAL SEPSIS: THE BACTERIOLOGY OF THE PUERPERIUM.

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THIS paper deals with the bacterial flora of the cavity of the uterus after delivery, with special reference to the relation between streptococci and abnormalities of the puerperium. It follows our paper concerning the flora of the cervix uteri during healthy pregnancies. The importance of puerperal infection is so great that normal and morbid cases have been considered separately.

It will be seen that the widely accepted belief that morbidity in the puerperium is in the main due to a single cause—infection by *Streptococcus pyogenes*—requires modification in light of the results which follow. Particularly is this the case if the definition of puerperal pyrexia of the Ministry of Health (1926) be accepted as the standard of morbidity—namely, a pyrexia of 100.4° F. or more, affecting a woman within twenty-one days after childbirth or miscarriage, and lasting twenty-four hours on end or occurring more than once in any given twenty-four hours.

In point of fact, much confusion exists on this subject, for there is no precise definition of the several terms "morbidity," "clinical sepsis," etc., employed. This confusion is in no way dissipated by adoption of the too comprehensive standard of the Ministry, which rests on neither a clinical nor a bacteriological basis, and does not discriminate extragenital causes of raised temperature in the puerperium.

It seems very desirable to establish a method to differentiate cases of what may be termed "true" puerperal sepsis due to *S. pyogenes*, highly contagious and sometimes fatal, from morbid cases of subordinate clinical importance due to bacteria of low pathogenicity. A group of cases of "true" sepsis is described, therefore, to enhance this clinical and bacteriological contrast.

SOURCE OF DATA.

Our data are derived from examination of the following groups of cases.

(a) Normal puerperia exclusively. A group of 88 women confined at the City of London Maternity Hospital was examined, for the most part early in the puerperium.

(b) Morbid puerperia. (1) A consecutive series of 41 cases of puerperal pyrexia, as defined by the Ministry, selected from 460 women recently delivered at the City of London Maternity Hospital. (2) A series of 20 women, all of whom suffered from the severest clinical form of puerperal sepsis, some at the City of London Hospital and some at St. Bartholomew's Hospital.

METHOD.

The methods used have been those already reported in our paper on the bacteriology of pregnancy.¹ Uterine cultures have been made by a guarded swab introduced with the aid of a Fergusson's speculum. Risk of contamination of the swab from other parts of the tract was thus avoided. Aerobic and anaerobic cultures were made in every case. The investigation has been qualitative rather than quantitative. The number of organisms on a swab has often been small, for the swabs were taken for the most part early in the puerperium, from one to three days after delivery. Rather than risk overlooking the streptococcus for which we were searching, the procedure of shaking up swabs in broth, incubating, and plating out eighteen hours later, has been adopted. Use of the same technique and quantities of broth in every test has enabled us to form an approximate estimate of the richness in bacteria of every

GROUP B (1).—MORBID PUERPERIA.

STREPTOCOCCI PRESENT IN UTERUS.					STREPTOCOCCI ABSENT FROM UTERUS.			
Pyrexia of Genital Origin.					Pyrexia of Genital Origin.			
Case No.	Labour.	Puerperium.	Type of Streptococcus.	Other Bacteria.	Case No.	Labour.	Puerperium.	Bacteria.
9	Normal	Morbid	<i>S. cervicis</i> uteri	Diphtheroids	35	Torn perineum	Retained products	Staph. diphth.
59	Normal	Morbid	<i>S. faecalis</i>	Enterococci diphtheroids	51	Severe P.P.H. Transfusion. Manual removal of placenta	Morbid	Staph. diphth. * <i>B. Döderlein</i>
70	Twin birth	Morbid	<i>S. pyogenes</i>	<i>B. coli</i>	72	Torn perineum	Retained products	Staph. Döderlein
73	Vaginal and perineal tears. Membranes incomplete	Morbid	<i>S. faecalis</i>	Haemolytic staphylococcus	80	Normal	Morbid	Diphth. haemol. staph.
81	Slight P.P.H.	Morbid	<i>S. pyogenes</i>	Staph.	85*	Slight P.P.H.	Morbid	Haemol. staph.
82	Membranes ruptured artificially. Perineal tear	Morbid	<i>S. faecalis</i>	<i>B. coli</i>	118	Forceps delivery. Long second stage	Morbid	Diphth. staph.
8	Normal	Morbid	<i>S. pyogenes</i>	Staph.	170	Normal	Morbid	Haemol. staph.
93	Normal	Morbid	<i>S. pyogenes</i>	Staph.	191	Manual rotation. Craniotomy. P.P.H. from cervical tear	Morbid	Blood sterile, urine <i>B. coli</i> , c. swab <i>B. coli</i> <i>S. alb.</i> , <i>B. coli</i>
103	Breech, extended legs	Morbid	<i>S. cervicis</i>	Staph. albus	253	Normal	Morbid	Staph. aureus
173	Manual removal of adherent placenta. Severe P.P.H. Transfusion	Morbid	<i>S. faecalis</i>	Staph. aureus	272	Perineal tear	Morbid	Diphth.
177	Perineal tear	Morbid	<i>S. faecalis</i>	<i>B. coli</i>	327†	Breech, prolapse of cord. Leg brought down	Morbid	Diphth. staph.
182	Artificial rupture of membranes. Severe P.P.H.	Severely septic. Blood culture sterile	<i>S. pyogenes</i> pure culture	Nil	358	Normal	Morbid	Haemolytic staphylococcus
184	Normal	Morbid	<i>S. faecalis</i>	Nil	380	Normal	Morbid	
185	Normal	Severe sepsis. Bilateral phlebitis. Blood culture sterile	<i>S. faecalis</i> pure culture	Nil				
192	Induction by bougies. Long labour. Cervical tear. P.P.H.	Not seriously ill	<i>S. faecalis</i>	Nil				
194	Normal	Morbid, slight	<i>S. pyogenes</i>	Mixed culture				
239	Breech, P.P.H.	Morbid, slight	<i>S. pyogenes</i> few colonies	Mainly <i>B. coli</i>				
242	Long second stage. Severe P.P.H.	Morbid	<i>S. salivarius</i>	Staph. aureus				
254	Normal	Morbid	<i>S. cervicis</i>	Staph. albus diphtheroid				
255	Artificial rupture of membranes	Severe toxæmia. Mastitis	<i>S. pyogenes</i> pure culture	Nil				
338	Twins. Manual removal of placenta. P.P.H.	Morbid	<i>S. faecalis</i>	<i>B. coli</i>				
Pyrexia of Extragenital Origin.					Pyrexia of Extragenital Origin.			
301	Normal	Abscess of breast	<i>S. pyogenes</i> from abscess	Cervical swab not examined	61	Normal	Pneumonia	Enterococci staphylococci
435	Normal	Venous thrombosis of varicose veins	<i>S. faecalis</i>	<i>B. coli</i>	65	Normal	Mastitis	Diphth. haemol. staph.
					145	Normal	<i>B. coli</i> pyelitis	Haemol. staph.
					155	Normal	<i>B. coli</i> pyelitis	Diphth.
					263	Perineal tear	Cold in head	Diphth.

* Swabbed within twenty-four hours of delivery—that is, too early.

† Swabbed very late in puerperium.

sample. At the outset inoculations were made directly from swabs to plates, but often no growth was obtained on these primary plates, or at best a meagre yield, in no way representative of the flora recovered by the later method—that is, from broth cultures and plates therefrom. The bacteriological findings in each group are briefly summarized.

GROUP A.—Normal Puerperia (88 Cases).

The bacteria found represent the normal uterine flora during the puerperium, and are as follows.

Staphylococcus (44 per cent.).—The most characteristic and frequent organism found; appears very early and is last to disappear, not infrequently persisting beyond the lying-in period. In most instances it produces the characteristic offensive butyric odour on solid media of *S. epidermidis*. Roughly 10 per cent. of the staphylococci found caused vigorous haemolysis of the rabbit's blood medium used. The staphylococci were preferentially aerobic, favouring the view that they were of extraneous origin.

Diphtheroids (20 per cent.).—Many forms of diphtheroid bacilli were found. The majority were of robust growth, appeared early, and persisted late in the puerperium.

Döderlein's Bacillus.—Often the first organism to appear after labour, of frequent occurrence, though less often present than the staphylococcus, preferentially anaerobic.

Enterococci (19 per cent.).—Large ovoid cocci tending in broth cultures to occur in pairs or short chains of four or six, forming

large luxuriant pale colonies; more probably indigenous in the vagina than derived from faecal contamination; indifferently aerobic or anaerobic.

Streptococci (19 per cent.).—*S. pyogenes* was found in 2 cases; *S. cervicis uteri* in 7 cases; *S. faecalis* in 9 cases; *S. salivarius* in 1 case. *S. pyogenes* was obtained in mixed culture from two women who experienced normal labours and puerperia. These two strains were vigorously haemolytic, and exhibited "rough" characteristics in culture; there was therefore no reason to doubt their relationship to true *S. pyogenes*, with which their biochemical reactions also agreed. The growth of members of the streptococcus group in general, and of *S. pyogenes* in particular, does not seem to us to be greatly favoured by anaerobic conditions. Anaerobiosis, however, by hindering the growth of the coarser saprophytes, assists the isolation of streptococci. Exceptionally, both growth and haemolytic power of the delicate non-pathogenic streptococcus from the cervix uteri, described in our previous paper, are assisted by anaerobiosis. This cervical streptococcus, like *S. pyogenes*, fails to reduce neutral red, and does not render raffinose and mannite broth acid, but here the resemblance ends; we suggest the name *Streptococcus cervicis uteri* for this organism.

Coliform Bacilli.—Somewhat unexpectedly, *B. coli* was found infrequently (4 per cent.). Bryce,² working at the Melbourne Maternity Hospital, found *B. coli* only twice in 119 cases examined in pregnancy (1.7 per cent.), and we ourselves but thrice in the series of 153 normal pregnancies reported by us (2 per cent.). The observation that this organism seldom finds its way into the genital tract under normal conditions is of

more than passing interest, for, in our experience, *B. coli* is second only to *S. pyogenes* as a cause of serious puerperal sepsis, *S. faecalis* being third on the list of pathogenic organisms, followed by *Staphylococcus haemolyticus*.

Other Organisms.—A Gram-negative coccus similar to that occasionally recovered from the male urethra was found in one case, but no gonococci. A paired, bean-shaped coccus, in shape and size closely resembling the gonococcus, but Gram-positive, noted also by Bryce, was found on two or three occasions. A very large coarsely growing Gram-positive coccus—the colonies described by Bryce as “crumby”—was found fairly frequently. An unnamed organism of the *B. subtilis* group grew from a batch of five swabs received on the same day, and was considered an accidental contamination. A feebly Gram-positive chromogenic bacillus, reminiscent of *B. pyocyaneus*, but forming yellow, not green, pigment, was isolated from several heavily infected swabs.

Anaerobes.—*B. welchii* was not found; other unidentified spore-bearing bacilli, not necessarily obligatory anaerobes, were occasionally found in mixed culture.

Sterile (9 per cent.).—In a few instances no growth was obtained. As will be shown later, the period of maximum floral richness in the puerperal uterus is from the third to the fifth day after delivery; the swabs of our series, therefore, were probably not all taken at the optimum time. Moreover, no normal case was examined on more than a single occasion.

GROUP B (1).—Morbid Puerperia (41 Cases).

Group B (1) comprises 41 cases of puerperal pyrexia as defined by the Ministry of Health standard for 1926. The group includes all the morbid cases in a consecutive series of 450 women delivered in the City of London Maternity Hospital in the latter part of last year, and may therefore be considered representative. The cases in this group are tabulated under two headings in accordance with the presence or absence of streptococci. A further subdivision is made into cases with raised temperature recognizably due to genital and those due to extragenital causes.

Generally speaking, the number of organisms present in samples from morbid cases far exceeds that from normal cases, and potentially pathogenic organisms—for example, *S. faecalis* and *B. coli*—are found more often.

The streptococci isolated were classified as *S. cervicis uteri* 4 examples, *S. salivaris* 1 example, *S. faecalis* 9 examples, and *S. pyogenes* 8 examples. *S. pyogenes* was present, therefore, in 8 only out of 34 cases of puerperal pyrexia of genital origin, to which may be added a ninth case with *S. pyogenes* abscess of the breast.

The morbid cases of this Group B (1) may also be classified from a clinical standpoint as (a) Minor, (b) Major, (c) Serious.

(a) *Minor*.—The majority, 35 cases, were mild.

(b) *Major*.—Three cases; *S. pyogenes* was obtained in mixed culture from the cervixes of two moderately severe cases, and a third presented the clinical picture of marked and rather prolonged toxæmia, although her temperature did not exceed 102° F.; a pure culture of *S. pyogenes* was obtained from the cervix of this patient.

(c) *Serious*.—Three women were seriously ill; from their cervixes respectively *B. coli*, *S. faecalis*, and *S. pyogenes* were recovered in pure culture. Hence the severity of symptoms in the small but important group associated with *S. pyogenes* was proportionate to the intensity of infection.

Dr. Lucy Bryce, in the paper to which reference has been made above, aptly points out that the presence in pure culture of a relatively fastidious organism such as the *S. pyogenes* probably indicates an accession of invasive power, which is associated with virulence for the host, and suggests that the organism in this condition also acquires the power of dominating in culture vigorous strains which would usually outgrow it. A precisely similar phenomenon is familiar in streptococcal follicular tonsillitis. An alternative but somewhat more abstruse explanation is based on immunological principles. It is thought that a specific infection primarily stimulates the non-specific protective mechanism, and as a result the normal and relatively harmless bacterial population is eliminated by the “first-line” defensive powers of the host. A virulent infection resists this non-specific defence and continues to thrive in pure culture until such time as it is subjected to a more slowly acquired specific immunity; at this stage the normal saprophytic population reappears.

Conversely, the occurrence of *S. pyogenes* in mixed culture is indicative of low invasive power against a resistant host, and is associated, as we have shown above, with milder clinical disturbances or none.

GROUP B (2).—Severe Puerperal Sepsis (20 Cases).

The onset of severe puerperal sepsis is often attended by a rigor, and the aspect of the patient is characteristic. Temperatures from 103° F. upwards, with violent fluctuations and

remissions, occur, and a pulse rate of 130 and over is almost pathognomonic. In 19 out of 20 such cases chosen at random to illustrate this form of the disease a pure growth of *S. pyogenes* was obtained by swabbing the cervix; in one no streptococci were found by this method, but were present in blood culture. Including this case, blood cultures were positive in 10 cases, not undertaken in 5, and negative in 5. There was reason to believe that the number of organisms present in the blood afforded a measure of the severity of the illness. The conclusion follows that in severe puerperal sepsis *S. pyogenes* is almost universally present in pure culture in the cervix uteri and in the majority of blood cultures.

DISCUSSION OF RESULTS.

It appears to us that existing standards of puerperal pyrexia are unsatisfactory and that the definitive terms “morbidity,” “clinical sepsis,” “puerperal fever,” etc., have no precise clinical or bacteriological basis. As a practical alternative we suggest the comparatively simple procedure of examination of a swab from the uterus in all doubtful morbid cases, believing that the cervical swab is of the same value in the diagnosis of streptococcal puerperal sepsis as is the throat swab in diphtheria. Actually, the recognition of the vigorously haemolytic *S. pyogenes* on blood agar plates is an even simpler matter than the identification of the Klebs-Loeffler bacillus from serum. Cases proven due to *S. pyogenes* infection would call for guarded prognosis, and steps would be taken to prevent spread of infection; in the remainder, treatment would proceed along general lines without need for isolation or notification.

As the matter stands at present, if the “severe” and “clinically septic” cases be excluded from consideration, it appears that there is no essential difference between the bacterial flora of the normal and of the morbid puerperium. The injuries and exhaustion which follow prolonged labour, with or without instrumental delivery, seem the decisive factors in rendering the maternal tissues vulnerable to infection by otherwise harmless bacteria. Cases of this class relatively seldom give serious anxiety to the obstetrician and are not infectious.

The picture presented by cases of *S. pyogenes* infection is altogether different, and it is this which has at all times excited the attention of observers, both on account of the severity of the illness and the rapidity with which infection spreads from case to case. As a consequence, bacteriological investigation of the lesser degrees of morbidity have not been sufficiently undertaken, while the preponderance of *S. pyogenes* infection in the more serious cases has led to the admittedly erroneous conclusion that puerperal morbidity is in the main due to this organism.

A similar conclusion has been reached by Colebrook,³ who, however, in a letter to the *British Medical Journal*, reports *S. pyogenes* as a sporadic infection in only 6 out of 85 morbid cases recently examined by him at Queen Charlotte's Hospital. We do not fully understand the finding of so few examples of *S. pyogenes* in Colebrook's series, but we are whole-heartedly in accord with him in advocating routine bacteriological examination of the cervix uteri in morbid cases.

THE COURSE OF BACTERIAL INVASION OF THE UTERUS DURING THE PUERPERIUM.

The manner in which the normal condition of bacterial sterility within the uterus is restored is not without practical importance as bearing on the question of treatment by douching, etc., during the puerperium. In the course of studying our first group of 88 cases it became apparent that the uterus was invaded very soon after delivery by a profuse growth of organisms from contiguous surfaces which diminished in the later days of the puerperium.

FitzGibbon and Bigger⁴ found streptococci in the uterus in 27 of 50 women examined, and later, using even greater care to obtain samples exclusively from the cavity of the uterus, found streptococci in 7 of 25 women examined on the fifth to the sixth day after delivery. Their attention was concentrated on the streptococcus group, and no account was taken of other organisms present.

Stähler and Winckler⁵ found the uterus free from infection in most cases by the ninth or tenth day, and, in a

later research, using improved methods, obtained no more than 30 per cent. of positive cultures by that time.

Loeser⁶ investigated the problem still more thoroughly, finding the uterus sterile immediately after delivery, but gradually becoming infected so that 25 per cent. of all cervical cultures were positive on the first day, 50 per cent. on the second day, and 100 per cent. on the third day of the puerperium, infection of the fundus uteri following later, reaching its height by the fifth day and afterwards diminishing.

This was confirmed by the study we conducted at frequent intervals during ten days of a trial group of 12 cases. We found the uterus to be invaded almost at once, positive cultures being obtained in some cases within five to six hours of delivery; infection increased until the third day, persisted unchanged or diminished slightly by the fifth day, and had almost disappeared by the eighth day. This progressive invasion, culminating at the third to the fifth day, affords a ready explanation of the observed delay in the development of puerperal pyrexia until this time. In one-third of a series of 74 febrile cases analysed by us,⁷ a rise of temperature occurred on the third day, and in two-thirds from the second to the fourth day inclusive.

Everard Williams and Reynolds⁸ have shown that barium sulphate emulsion, dropped into the uterine cavity by means of a specially designed cannula and syringe, gradually passed into the Fallopian tubes and reached the peritoneal cavity through the abdominal ostia. The process was traced by consecutive radiographs. They found by experimental ligation of the tubes that barium salts insufflated into the vagina in rabbits travelled upwards only when the ostia were open. The motive force was held to be an aspiration into the abdominal cavity, and ascending infection of the genital tract was thus explained. It appears, therefore, that the uterus after delivery is inevitably invaded by bacteria from contiguous sources, irrespective of manipulation.

CONCLUSIONS.

1. The organisms recovered from the uterus after labour in the majority of cases of "puerperal pyrexia" are similar to those which are found in normal puerperia. It seems possible that the injuries incidental to prolonged labour or instrumental delivery are the chief factors which determine the minor pathogenicity of which these organisms appear to be capable on occasion.

2. *Streptococcus pyogenes* is occasionally found in the absence of symptoms of disease, but in that case it is always in association with other organisms.

3. When *S. pyogenes* is found in cases of "puerperal pyrexia" the severity of the illness is proportionate to the number of streptococci present. The presence of *S. pyogenes* in the cervix uteri should remove the case from the category of "puerperal pyrexia" and allot it to that of "puerperal fever," to be treated accordingly.

4. A means of differentiating *S. pyogenes* infection from other causes of morbidity is required in cases of doubt and in every case occurring during an outbreak of puerperal sepsis. Bacteriological examination of the cervix uteri is an effective method of diagnosis.

5. The uterus is rapidly invaded by bacteria from contiguous surfaces early in the puerperium.

6. Uterine infection normally increases up to the third or fifth day and afterwards diminishes.

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PURPURA FULMINANS FOLLOWING A MILD CASE OF SCARLET FEVER.

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THE following case of purpura fulminans occurring in the course of scarlet fever is, on account of its rarity, worthy of record.

The patient, a girl of 5 years, was admitted to hospital as a case of scarlet fever. The history was to the effect that three days previously she had an attack of sickness, headache, and sore throat, followed by the appearance of a rash on the trunk and limbs. On examination she appeared thin and under-developed. The cheeks were flushed, and she had definite circumoral pallor. A bright punctate rash was present on the body and limbs. The tongue was coated, though peeling had commenced at the margin, and the papillae were enlarged. The throat was congested and the tonsils were enlarged. There was a slight degree of cervical adenitis. Examination revealed no abnormality of the heart and the lungs. The temperature was 100° F., pulse 124, and respirations 28.

During the succeeding days the child appeared to be quite comfortable. She took her food well and slept well. The pyrexia which was present on admission continued between 99° F. and 100° F. for three days, when it rose to 102° F. This rise coincided with an increase in the size of the cervical glands. On the sixth day the temperature fell to normal and remained so throughout. The cervical adenitis subsided completely in a few days. Apart from this rise of temperature there was absolutely no indication of the approach of the more serious condition.

On the morning of the twenty-first day of illness an alteration was noted in the general appearance of the patient. She was now dull and listless and very pale. The pulse, though not increased in rate, was softer than it had been previously. Examination showed areas of ecchymosis over (1) both trochanteric regions, (2) the lateral surfaces of the thighs, (3) the posterior surfaces of the calves. These areas were of a deep purple colour with a narrow bluish margin, and the outline presented a definite scalloped appearance. On palpation there was no tenderness and the affected parts were rough and indurated. On the posterior surface of the left calf the condition had advanced further and a large vesicle had formed on the area of ecchymosis. When seen later in the day the child had become much worse. The pulse rate was increased and the breathing was rapid and shallow. The areas of ecchymosis, especially those on the upper part of the legs, had increased greatly in size. During the night the condition progressed rapidly and the child died the next morning.

Post-mortem Findings.

At the post-mortem examination the following points were noted. The areas of ecchymosis extended over part of the anterior, the lateral, and the posterior surfaces of both thighs, and reached from the level of the great trochanter to within two inches of the knee-joints and spread over the posterior and inner surfaces of both calves. There was also an area on the sacral region. An incision was made across one of the areas so as to involve both affected and unaffected parts, and it was found that the affected tissue was deeply injected. The demarcation of affected from unaffected tissue was as well defined in the deeper tissues as on the surface. On examination of the various organs there was no evidence of any internal haemorrhage. The heart, lungs, liver, spleen, kidneys, and bladder all appeared quite normal. In the stomach and intestine there was not the slightest evidence of petechial haemorrhages.

Discussion.

The remarkable feature of the case was that the rapidly fatal condition followed on a very mild attack of scarlet fever. Further, there was an entire absence of any haemorrhage such as bleeding from the gums or from any other mucous surface, haematemesis, melaena, or haematuria.

Other points of interest were the occurrence of the condition at the end of the third week, the sudden onset with no premonitory symptoms, and the very short duration of the purpuric condition. The ecchymosis was confined to the lower limbs and was more or less symmetrical.

A few somewhat similar cases have been recorded. Kerr¹ reported a few cases of purpura haemorrhagica, all of