

P U E R P E R A L I N F E C T I O N :

A R E V I E W O F F I V E H U N D R E D C A S E S .

B Y

WILLIAM NAPIER, M.B., Ch.B.

1927.

ProQuest Number:27535136

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 27535136

Published by ProQuest LLC (2019). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code
Microform Edition © ProQuest LLC.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

PUERPERAL INFECTION: A REVIEW OF FIVE HUNDRED CASES.

Introduction: Puerperal Infection is rampant: a problem to the public health administrator, a source of continual worry to the general practitioner, and a menace to all child-bearing women. The opportunity of observing a large series of cases does not present itself to many; the recording of such a series is therefore desirable, and I have attempted to do so in the following pages.

The five hundred cases dealt with were, with few exceptions, notified to the Medical Officer of Health of Glasgow, and all came under my care, consecutively, between April, 1923 and November, 1925, in the wards of Belvidere Fever Hospital. I shall consider them from four viewpoints:

- A. Incidence and Mortality,
- B. Clinical Features,
- C. Bacteriology,
- D. Treatment,

and conclude with a summary. Frequent allusion is made to the abridged case-reports, sixty-three in number, which, with charts, are bound separately for ease of reference.

Historical Note: From remote times regarded as a poisoning caused by retention either of the lochia or of the milk, Puerperal Infection, then commonly epidemic in the hospitals, was attributed in the latter part of the eighteenth century to air-borne contagion. In 1795 GORDON, of Aberdeen, declared that doctors and midwives themselves transmitted the infection. Nearly fifty years later the American, O. W. HOLMES, realised more clearly the danger of coming from the post-mortem room or the bedside of an infected patient to the maternity ward without first cleansing the hands and changing the clothes. SEMMELWEISS made similar but independent observations in Vienna in 1847, and by the use of chlorinated lime solution as a disinfectant for hands and instruments, materially reduced the prevalence of the disease. The germ theory of infection and putrefaction followed, and in 1864 LISTER inaugurated his antiseptic technique, beneficial no less to obstetrics than to surgery. PASTEUR's crowning achievement was to demonstrate, in 1879, to the Académie de Médecine in Paris, streptococci which he had isolated from the blood of patients suffering from puerperal infection.

In recent years the disease has shown no sign of abatement, proof that the whole problem of its causation is yet unsolved; in particular, the part played by auto-infection requires elucidation.

A. INCIDENCE AND MORTALITY.

1.Age: The following table shows the age-distribution arranged in groups of five years:

| | A | B | C | | |
|-------------------|---------------------|---------------------|--------------------------|----------------|---------------------------------|
| <u>Age-group.</u> | <u>No.of Cases.</u> | <u>No.per Cent.</u> | <u>Maternity Series.</u> | <u>Deaths.</u> | <u>Case Mortality per cent.</u> |
| Under 21 | 26 | 5.2 | 14.25 | 5 | 19.2 |
| 21 - 25 | 144 | 28.8 | 31.125 | 29 | 20.1 |
| 26 - 30 | 144 | 28.8 | 24.0 | 29 | 20.1 |
| 31 - 35 | 94 | 18.8 | 14.125 | 17 | 18.1 |
| 36 - 40 | 72 | 14.4 | 12.75 | 12 | 16.7 |
| 41 & over | 20 | 4.0 | 3.75 | 4 | 20.0 |

The ages ranged from 14 to 47 years. In column B, the numbers are reduced to percentages; for comparison, a similar distribution was made of a series of 800 maternity cases (patients of the Glasgow Royal Maternity Hospital^{*}) - column C. It will be observed that in the first age-group the sepsis figure is relatively very low, in the second less deficient, while in each of the others it preponderates, with greatest difference in the third and fourth groups, over the corresponding maternity figure. The inference is that the liability to sepsis is least below the age of 21, after which it rises to a maximum between 26 and 35, and then diminishes. The case mortality rate varied little at different ages save between 30 and 40, when it was low, thus differing from the records of EICHEL¹, who found a steadily increasing risk of death at each age over 20.

^{*}Figures kindly supplied by the Registrar.

2. Number of Pregnancy: The distribution according to the pregnancy just terminated was as follows:

| | <u>No. of Cases</u> | <u>Deaths</u> | <u>Case Mortality per cent</u> |
|-------------|---------------------|---------------|------------------------------------|
| Primiparae | 153 | 32 | 20.9 |
| 2- parae | 76 | 17 | 22.4 |
| 3- " | 54 | 13 | 24.1 |
| 4- " | 44 | 7 | 15.9 |
| 5- " | 41 | 9 | 21.9 |
| 6- " | 31 | 3 | 9.7 |
| 7- " | 28 | 4 | 14.9 |
| 8- " & over | 67 | 9 | 13.4 |
| Unknown | 6 | 2 | - |

The percentage of primiparae was 30.6, as compared with 35.2 in CAMPBELL's² series and 32.1 in that of the Scottish Departmental Report³. Comparison with the series of maternity cases, in which the primiparae constituted 36.75 per cent, reveals no indication of a greater incidence of sepsis after first pregnancy; but it is probable that more women seek hospital care for first than for later confinements, and that the proportion of primiparae in the maternity series is thus exaggerated. As regards mortality, deaths were relatively frequent after 1st, 2nd and 3rd pregnancies.

3. Illegitimacy: 30 women, or 6 per cent, were unmarried, and in nine the illness followed abortion. The eight deaths in this group represent the high mortality of 26.6 per cent.

4. Character of Labour: The figures for normal and abnormal labour are only approximate, being drawn for the most part from each patient's own account of her confinement; in any case the terms are difficult to define.

| | <u>Cases</u> | <u>Deaths</u> | <u>Case Mortality per cent</u> |
|-----------------|--------------|---------------|------------------------------------|
| Normal Labour | 299 | 48 | 16.1 |
| Abnormal Labour | 119 | 28 | 23.5 |
| Abortion | 82 | 20 | 24.4 |

Of women delivered at term or late in pregnancy, some operative measure was necessary in 39.8 per cent, a proportion undoubtedly higher than that of operative deliveries in general, indicating that interference increases the liability to sepsis. The higher case mortality associated with abnormal labour is also noteworthy.

The duration of the third stage of labour is believed to influence the number of organisms found in the puerperal uterus; thus AHLFELD⁴ obtained the lowest morbidity when the placenta was retained for over an hour. 319 patients gave the time of expulsion of the afterbirth, thus:

| | | | |
|----------|---------|-----|-------|
| 0 - 30 | minutes | 269 | cases |
| 30 - 60 | " | 33 | " |
| 60 - 120 | " | 11 | " |
| Over 120 | " | 6 | " |

Post-abortion Sepsis constituted 16.4 per cent of the series, as compared with 17.3 per cent in that of the Scottish Departmental Report³. The duration of pregnancy was

| | |
|-----------------|-------------|
| Under 2 months, | in 25 cases |
| 2 - 3 | " " 32 " |
| 3 - 4 | " " 11 " |
| 4 - 5 | " " 6 " |
| 5 - 6½ | " " 4 " |
| Unknown, | " 4 " |

Since about 16 per cent of all pregnancies terminate by abortion⁵, the incidence of sepsis was practically the same as after delivery at term. The case mortality, however,

was considerably higher in post-abortum sepsis.

5.Attendance at Confinement:

| | <u>Cases</u> | <u>Deaths</u> | <u>Case Mortality per cent</u> |
|----------------|--------------|---------------|------------------------------------|
| Doctor | 201 | 37 | 18.4 |
| Midwife | 183 | 30 | 16.4 |
| Institution | 21 | 6 | 28.6 |
| No information | 13 | 3 | - |

Abortions are not included. The ratio of doctors' to midwives' cases was 52.3 : 47.7, as compared with 38.3 : 61.7, the corresponding ratio for attendances at births in Glasgow during 1925⁶. The view³ that the type of attendance at confinement has no significant effect on the incidence of puerperal fever is thus disproved. GEDDES⁷ attributes the relative frequency of sepsis in the practice of medical men to their carrying infection from septic wounds. A slightly higher death-rate prevailed among the doctors' cases. Most of the "institution" cases came from the Glasgow Royal Maternity Hospital.

6.Day of Sickening:

| | <u>Cases</u> | <u>Deaths</u> | <u>Case Mortality per cent</u> |
|--------------------|--------------|---------------|------------------------------------|
| Day of confinement | 49 | 18 | 36.7 |
| 1st day of puerp'm | 62 | 20 | 32.3 |
| 2nd " " | 73 | 11 | 15.1 |
| 3rd " " | 74 | 11 | 14.9 |
| 4th " " | 44 | 9 | 22.7 |
| 5th " " | 31 | 6 | 19.4 |
| 6th " " | 29 | 3 | 10.3 |
| 7th " " | 13 | 4 | 30.8 |
| | <u>375</u> | <u>82</u> | |
| 8 - 14th " " | 88 | 9 | 10.2 |
| 15 - 21st " " | 19 | 3 | 15.8 |
| Over 21st " " | 18 | 2 | 11.1 |

More than half the patients were fevered by the third day

of puerperium, and three fourths by the seventh day. The proportion of women free of symptoms for over a fortnight is high: such cases usually proved to be examples of pelvic inflammation or phlegmasia, in which the earliest manifestations of infection had probably been overlooked. The case mortality curve is irregular, but points to infections of early onset as being the most dangerous.

7. Day of Notification:

| <u>Duration of fever</u> | <u>Cases</u> | <u>Deaths</u> | <u>Case Mortality per cent</u> | |
|--------------------------|--------------|---------------|--------------------------------|-----|
| Under 24 hours | 47 | 3 | 6.4 | (a) |
| 1 day | 91 | 15 | 16.4 | (b) |
| 2 days | 88 | 21 | 23.9 | (c) |
| 3 " | 58 | 12 | 20.7 | (d) |
| 4 " | 40 | 10 | 25.0 | (e) |
| 5 " | 38 | 11 | 28.9 | (f) |
| 6 " | 22 | 4 | 18.2 | |
| 7 " | 18 | 4 | 22.2 | |
| 8- 14 " | 66 | 12 | 18.2 | |
| 15- 21 " | 17 | 4 | 23.5 | |
| Over 21 " | 15 | - | - | |

The table shows the estimated duration of fever before admission to hospital, and suggests that there is often considerable delay in the notification of cases. That "hospital treatment - - - is effective in proportion to the shortness of the illness that has preceded its initiation"³ is proved by the death-rates (a) to (f); the later notifications with their lower mortality probably represent less virulent infections.

Errors in Diagnosis: It has been said that there is a natural disinclination to diagnose infection when some other plausible reason can be found for the symptoms.

Women bearing no sign of puerperal sepsis were frequently notified, nevertheless, and 49 diagnoses were revised as follows:

| <u>Revised Diagnosis</u> | <u>No. of cases</u> |
|--|---------------------|
| Scarlatina - - - - - | 3 |
| Lobar Pneumonia - - - - - | 4 |
| Pulmonary Tuberculosis - - - - - | 2 |
| Mitral disease, with failure of compensation | 2 |
| Erysipelas, extra-genital - - - - - | 1 |
| Puerperal Insanity - - - - - | 1 |
| Post-partum Convulsions - - - - - | 1 |
| Suppurative Mastitis - - - - - | 10 |
| Nephritis - - - - - | 2 |
| Cystitis - - - - - | 1 |
| Phlebitis - - - - - | 1 |
| Menorrhagia - - - - - | 1 |
| Threatened Abortion - - - - - | 2 |
| Incomplete Abortion (aseptic) - - - - - | 11 |
| Ruptured Ectopic Pregnancy - - - - - | 1 |
| Rupture of Uterine Attachments - - - - - | 1 |
| Normal puerperium - - - - - | 5 |

General Mortality: In the whole series there were 96 deaths, a mortality of 19.2 per cent; this rate may be compared with that of other observers:

| | |
|--|--------------------------------------|
| WILLIAMS ⁸ | 10% (includes many mild cases) |
| ALFIERI ⁹ | 13.7% (from the records of 14 years) |
| Metropolitan Asylums Board ¹⁰ | 23% (cases treated in 1925) |
| KROHNE ¹¹ | 35% (a series of 7893 cases) |
| FITZGIBBON & BIGGER ¹² | 51% (57 acute cases) |

These widely differing results simply indicate varying degrees of severity of the infections dealt with.

B. CLINICAL FEATURES.

Few diseases present the diversity of Puerperal Infection: it is not one, but a variety of conditions resulting from bacterial invasion of the puerperal woman. The infecting organisms may remain limited to the genital tract, spread to the neighbouring structures, or travel by lymph- or blood-stream to distant parts of the body. I found that, clinically, cases might be grouped as follows:-

1. Infections whose course was not modified or interrupted by the occurrence of inflammatory foci outwith the genital tract - called, for convenience, "simple" or "uncomplicated" cases.

2. Infections during whose course such foci did appear; included are all cases of

Pelvic Inflammation,
General Peritonitis,
Pyæmia,
Phlegmasia Alba Dolens.

Each type will be considered in turn.

I. Simple Cases.

This group contained 328 patients, or 65.6 per cent of the series. The types of infection were those commonly

known as Saproaemia and Septicaemia, terms indicating respectively the intoxication resulting from the action of saprophytes in the uterus, and the infection caused by the entrance of pyogenic organisms. They are taken together because it was often by no means easy to decide which was present; many patients presented symptoms of both. A number of authorities are now agreed, indeed, that since clinically many pyrexias of the puerperium cannot be assigned with certainty to either class, the distinction drawn between sapraemia and septicaemia is unwarranted (WATSON,¹³ CANNEY¹⁴, BERKELEY & BONNEY¹⁵).

Onset: Information as to the occurrence of prominent early symptoms, as shivering, vomiting, and pain, was as a rule readily obtained from the patient and her attendants. It was found that a rigor indicated the onset of fever in 155 cases, or 47.3 per cent, and was repeated in 65, or 19.8 per cent. Vomiting, a less common initial symptom, and rarely persistent, occurred in 88 cases, or 26.8 per cent. Pain other than headache was most unusual, but 15 women admitted having had slight abdominal discomfort.

Condition on arrival in hospital: A common and remarkable feature was the patient's sense of well-being: whether slightly or seriously ill, she imagined that there was little wrong with her, and wondered why she had been sent to hospital. THORP¹⁶ regards this euphoria as a very constant symptom unaltered save by peritonitis or impending

death; HAUCH¹⁷ and RONSHEIM¹⁸ also mention it. It may be one of the psychological effects of child-bearing, but is no doubt contributed to by the freedom from pain and other distressing symptoms which characterises this form of puerperal sepsis. Pain was not always absent, however. Occasionally the early abdominal discomfort remained, but administration of an enema was nearly always sufficient to relieve it. More common was pain in the breasts, due to interruption of suckling and consequent retention of milk. In severe cases, invasion of the lungs and pleurae sometimes caused thoracic pain.

Appearance: Many patients not only felt well, but looked well. Anaemia, however, was very common, all degrees being observed from slight "natural" pallor to the extreme blanching sometimes associated with post-partum haemorrhage. This frequency of bloodlessness may be taken as an indication of its power, by lowering the resistance of the tissues, of predisposing to infection. In grave cases a gray, toxic appearance, sometimes with cyanosis of the lips and ears, was present. A few patients were brought to hospital semi-conscious and moribund.

The Tongue formed an index to the gravity of the illness. Moist, whether coated with white fur or, as it occasionally was, perfectly clean, it denoted mild infection; dry, hard, and crusted, a more serious condition. In some twenty patients all gravely ill, the tongue had a glazed and

fissured appearance. The lips also were dry and glazed in severe infections, and occasionally tremulous, a sign of ill omen. Only once did I observe herpes febrilis. The skin was generally moist and free of eruption; three patients had jaundice.

Temperature, Pulse, and Respiration: The temperature, taken in the axilla, was rarely under 100°, and often much higher. Too much reliance was not placed, to begin with, on the pulse-rate, which was usually exaggerated from excitement; I have more than once observed initial rates of 140 in very mild cases. Respirations, in the absence of pulmonary complications, were not often more frequent than 30 per minute.

Heart and Lungs: In the great majority of patients these organs were healthy. Only five showed evidence of valvular disease of the heart (cases 280,387,406); systolic apical murmurs without other sign of cardiac disorder were more common, and probably of haemic origin. As regards the lungs, bronchitis, comparatively frequent, was present in 32 patients, or nearly 10 per cent; there was consolidation in 7, and advanced tuberculosis in one case.

Abdomen: The condition of the abdomen may be thus tabulated:

| | | | | |
|----------------------|-----|----------|------|----------|
| Abdomen normal, | 234 | cases--- | 71.3 | per cent |
| " distended, | 16 | " | 4.9 | " " |
| " rigid (lower half) | 3 | " | 0.9 | " " |
| " tender: | | | | |
| R. iliac fossa, | 22 | " | | |
| L. iliac fossa, | 28 | " | | |
| Both iliac fossae, | 28 | " | | |
| | 78 | " | 23.8 | " " |

The distension was gaseous, and appeared only in the sharply ill. Tenderness was never severe, did not invade the upper abdomen, and was rarely accompanied by muscular rigidity; pressure over the uterus did not cause discomfort. Slight degrees of enlargement of the liver and spleen were not infrequent.

Bowels and Bladder: Constipation was almost invariable in the mild cases. The resulting alimentary toxæmia no doubt plays a part in keeping the temperature above normal, and the loaded bowel may be a cause of abdominal tenderness. On the other hand, diarrhoea, sometimes severe, was a feature of 38 grave infections. Slight degrees of albuminuria were frequent, especially in the presence of high fever; and 14 patients showed signs of acute nephritis. Pyuria occasionally indicated cystitis or pyelitis, and bile was found in the cases of jaundice.

Uterus: Subinvolution of the uterus is generally regarded as characteristic of mild forms of sepsis, and it is therefore noteworthy that the condition was present in 29 per cent of fatal infections. In milder illnesses it was very common to find the fundus at the level of the umbilicus on the 7th day of puerperium or even later; but approximately one fourth of the post-partum cases showed a normal degree of involution of the uterus. Patency of the cervical canal, regarded by LEA^{19a} as a most important sign of uterine infection, was invariable, providing an exit for discharge if the posture was such as to encourage drainage.

Lacerations: Tears of the cervix and perineum were by no means uncommon. Cervical lacerations, rarely extensive, were associated mainly with severe infection; perineal tears occurred with equal frequency in mild and severe cases, and only two extended into the rectum. Many of the smaller lacerations were unstitched and gaping, while in the sutured wounds healing was arrested and the raw surfaces grey and unhealthy. Provided the uterus remained intact, a remarkable degree of destruction of vagina and perineum was not incompatible with a mild general reaction (case 420).

The Lochial Discharge varied considerably in quantity and character. Copious in the typical case, it had the appearance of thick yellow pus, and was by no means always foul-smelling; these qualities corresponded in general with the large, flabby type of uterus. Where involution was not arrested, the lochia tended to be more watery in consistence, less in amount, and occasionally quite absent.

Abortions: The size of the uterus depended on the duration of pregnancy and whether or not the organ was empty. Very often the abortion was incomplete and the patient bleeding freely on admission. At other times the discharge tended to be abundant and foul-smelling.

Course of the Illness: The duration of pyrexia from the time of admission to hospital was as follows:

| | |
|----------------|----------|
| Under 24 hours | 45cases. |
| 1-- 3 days | 111 " |
| 4-- 7 " | 64 " |
| 7--14 " | 37 " |
| 15--21 " | 10 " |
| 3-- 4 weeks | 4 " |
| 4-- 6 " | 6 " |

The majority of patients showed an almost immediate improvement on coming into the ward, 67 per cent attaining convalescence within a week. Fatal infections numbered 51, a mortality rate of 15.5 per cent. Three women died within 24 hours, 4 others within 48 hours, and about two thirds of the total within a week; but the protracted course of a few cases raised the average period in hospital to 8.5 days.

The Temperature Chart: "A study of charts", said a recent report²⁰ on puerperal sepsis, "would be much more likely to provide useful information than a mere record of the character of the pyrexia and of its highest point". Generally the fever was of irregularly remittent or intermittent type, the evening temperature exceeding the morning by two or three degrees; greater daily variation indicated thrombophlebitis as the type of infection rather than the more common lymphatic septicaemia. Continued fever was observed much less frequently; such cases had an unfavourable outlook (cases 267,301). While the degree of pyrexia was not of great prognostic significance, the charts of some fatal infections showed a steady rise of temperature (case 387); in others hyperpyrexia immediately preceded death (359). Resolution of fever was almost always by lysis, but after a

brief febrile period crisis sometimes occurred, giving the chart a resemblance to that of lobar pneumonia (case 90).

After the first day in hospital, the state of the pulse formed a better guide to prognosis than the temperature. Always of low tension and of a rate of 120 and upwards in the gravely ill, it often became uncountable and even imperceptible at the wrist some hours before death; when strong and of moderate rate the outlook was favourable even in the presence of considerable pyrexia. Respirations, save when accelerated by pulmonary complications, kept pace with the pulse-rate.

Symptoms: With the exception of thirst and loss of appetite, common to all fevers, subjective symptoms were as a rule entirely absent. It was rare for the abdomen to be tender after 24 hours, and meteorism soon disappeared in all but the worst cases. Following rapid involution of the uterus, the discharge, profuse and purulent for a few days, became scanty and serous. Diarrhoea sometimes indicated severe infection. Rigors and vomiting after the onset were most unusual, but occasionally repeated chills and wide excursions of temperature pointed to thrombophlebitis (cases 286, 424). After several weeks of fever emaciation became evident, and anaemia more pronounced. As regards nervous symptoms, insomnia was often troublesome in the gravely ill, and there was sometimes delirium (case 359). Euphoria has been mentioned. Puerperal insanity was observed in five women, all presenting a mild degree of infection, and suffer-

ing from the depression and delusions of melancholia; four made an early and complete recovery, the fifth was transferred to the mental observation ward of a general hospital.

Skin Eruptions were infrequent; occasionally an erythematous "septic" rash appeared, and, as desquamation sometimes followed, the exclusion of scarlatina was important. That there is a relationship between the two diseases has long been believed: BRAXTON HICKS²¹ declared in 1867 that three fourths of the puerperal fever he saw "was somehow mixed up with scarlatina". HAMER²² and others still regard them as associated, but the modern view is that scarlet fever and puerperal sepsis have nothing in common but their streptococcal origin. In support of this, I observed only one case presenting symptoms of both infections: in addition to subinvolution and foul lochia, there were sore throat and rash, with subsequent desquamation, arthritis, and nephritis (case 332). I have shown, however, that three cases of scarlatina were wrongly notified as sepsis.

Skin haemorrhages, as described by LEA^{19b} and by HAMANT & MATHIEU²³, were not encountered. Rashes due to serum will be mentioned under Treatment. Of the cases of jaundice, two were mild and made rapid recovery; the third, a very virulent infection in a girl of fourteen, ended fatally (case 267).

Complications: 1. Intense anaemia following post-partum haemorrhage has been alluded to; there were nine such cases,

with four deaths. The illness was usually of grave and prolonged nature, demonstrating the feeble resisting powers of the patient, but occasionally profound anaemia accompanied a comparatively mild infection (compare cases 286 and 73). 2.Erysipelas once appeared on the vulva, and spread rapidly over the buttocks and thighs. This patient was isolated and made a good recovery. 3.Acute Nephritis occurred in 17 cases, 6 of which ended fatally. Often mild, the complication was usually established early; less frequently it made its appearance, as in scarlatina, during convalescence. There were two examples of eclampsia (cases 267,273) and one of uraemia (case 406), all fatal. 4,Cystitis occasionally resulted from spread of infection from the genital tract; the symptoms were never prominent. 5.Suppurative mastitis, a purely local condition with no likely relationship to puerperal sepsis, was not infrequently notified as the graver disease; six women, however, suffered from abscess of the breast during the course of general infection.

6.Heart complications did not intrude upon this group of cases. Grave infection sometimes caused slight cardiac dilatation, with enfeeblement of the heart-sounds, and sometimes a systolic murmur developed. 7.Pneumonia: by far the most deadly of complications, and usually a terminal phenomenon, this occurred in 23 patients, of whom only three recovered. Hypostatic congestion and consolidation were most frequent, but examples of bronchopneumonia also were

observed. There were two cases of pleural effusion, and one of streptococcal empyema (case 316).

Pulmonary Infarction: Obstruction of a large branch of the pulmonary artery, with sudden death, is not an uncommon accident of the puerperium. While no such case presented itself, there were six instances of embolism of small vessels in the lungs. The symptoms were sudden sharp pain on one side of the chest, dyspnoea and cough, all of brief duration; a pleuritic rub sometimes appeared, and once slight haemoptysis. The course of the illness was but little affected. Though it was clear that the emboli came from the pelvic veins, the presence of thrombophlebitis was not always evident beforehand; in case 334, for example, the complication caused relapse of temperature after an afebrile period of a week. More severe were cases 280 and 424, in which the venous type of infection was indicated by the number of rigors. Of the two fatal cases, each showed post mortem a recent infarction of the lung.

Convalescence: With the fall to normal of temperature and pulse-rate, convalescence became established, and as a rule was uninterrupted. Brief relapses, ushered in with a rigor, sometimes indicated lochiometra, due not to the closure of the os uteri but to antifixion of the organ; with the escape of discharge the temperature immediately settled again. Other causes of relapse were nephritis and mastitis. In one patient, slight secondary pyrexia was accompanied by pain in the hypogastrium, where considerable bruising of the

abdominal wall was found to have resulted from vigorous massage of the uterus for the control of haemorrhage a week before.

The Fatal Cases: Death occurred without resolution of fever in all but two cases. One patient, after rapid recovery from a mild pyrexia, died suddenly in convalescence of syncope, attributed to fatty degeneration of the heart; the other also apparently recovered, and died later of uraemia (case 406).

II. Pelvic Inflammation.

Incidence: In this group were 62 cases, or 12.4 per cent of the series. From the table (see Appendix) it will be observed that, compared with the "simple" infections, pelvic inflammation was relatively more common in the age-groups "under 21" and "31-35". The percentage of primiparae was rather less, that of normal deliveries greater, and that of abortions very low (6.4). A greater proportion of cases were attended by midwives. 17.8 per cent sickened after the 14th day of puerperium, as compared with 3.7 per cent.

Early Symptoms: Pelvic or abdominal pain was a constant feature, sometimes postponed however for a week or more after the onset of illness. Again comparing with the

uncomplicated cases, initial rigors were almost equally frequent: occurring in 48.4 per cent as compared with 47.2; vomiting was much more common: in 40.3 per cent as compared with 26.8. Although anaemia was again prominent, a mild degree of infection prevailed; few women were seriously ill, and only five showed signs of organic disease, as follows: mitral stenosis, lobar pneumonia, and three cases of bronchitis. Tears of the cervix and perineum were more common, and some of them very extensive.

Onset of Pelvic Inflammation: 39 patients came to hospital with localising signs already present; in the remainder they were rarely delayed for more than a fortnight, the illness at first appearing no different from the type already described. The onset was denoted sometimes by a more remittent pyrexia (cases 340,415,471), sometimes by relapse of temperature after convalescence was apparently established (cases 7,215,286).

Pelvic inflammations fell into one or other of two classes, (a) cellulitis - 46 cases, (b) peritonitis and salpingitis - 16 cases.

Pelvic Cellulitis: Symptoms and signs were limited to one or both sides of the uterus: the right in 26 cases, the left in 14, an order of frequency at variance with the general belief that the left broad ligament is the more commonly affected; in 6 the condition was bilateral. Pain, often the first indication, was slight or entirely absent; tenderness never acute and of short duration. Within a day or

two a very firm mass was palpable, small as a marble, or big enough to fill the whole area between Poupart's ligament and the uterus, with which it then appeared continuous. The effusion, when large, could be felt also by vaginal examination, which rarely caused pain. It was uncommon for the uterus to show more than slight lateral displacement; subinvolution was usual, and the discharge copious. While pressure symptoms were never prominent, two women complained of pain in the lower limb on the affected side, and occasionally slight discomfort was referred to the bladder or rectum.

Effect on the General Condition: Patients were little disturbed by the occurrence of parametritis, a large effusion having as little effect as a small one. I have never seen it cause severe symptoms suggestive of diffuse peritonitis, as described by SHEAR²⁴. As a rule pyrexia did not last long, and with the fall of temperature women sometimes admitted feeling better than before the onset; more than once, indeed, the localisation of infection appeared to influence very favourably the course of the disease. In case 58, where signs of parametritis were accompanied by unusually prolonged and intermittent pyrexia, with rigors, thrombophlebitis was probably superadded.

Results: (a) 37 patients made an uneventful recovery. Convalescence was more protracted than in the simple puerperal infection, the inflammatory effusion taking upwards of three or four weeks to be absorbed; in some women a

small nodule was still palpable when they left hospital.

(b) Suppuration occurred in 8 patients. Abscess-formation was generally late, indicated by recurrence of pain in more acute form, softening of the pelvic mass, and a swinging temperature, with sometimes a rigor and vomiting. The usual site of pointing was over Poupart's ligament; here copious pus, in one instance over a pint, was liberated in five women (case 471). In another, a large abscess, forming in the cellular tissues of the abdominal wall, drained for several weeks through an opening near the umbilicus; RONSHEIM¹⁸ describes a similar case of "remote parametritis". In two, the pus was expelled spontaneously per vaginam. Recovery was complete in all but one woman, who, leaving hospital with a discharging sinus after three months' illness, was lost trace of. (c) Death: The only fatal case was under observation for but a few hours; there was evidence, both clinical and post mortem, of extensive bilateral pelvic cellulitis.

Pelvic Peritonitis and Salpingitis: This less common form of pelvic inflammation tended to appear earlier, usually within a few days of delivery; exceptionally, over six weeks elapsed. In no case did the temperature fall to normal before the onset, and the improvement sometimes noticed after parametritis did not occur.

The onset was indicated by acute pain and tenderness over the whole lower abdomen, frequently by vomiting, and less often by a rigor. Occasionally general peritonitis

was closely simulated, as much by the quality of the pulse and persistent sickness as by general abdominal tenderness and distension (case 486). Within a few days symptoms and signs were limited to the near neighbourhood of the uterus, where tenderness persisted, along with muscular rigidity and often tumidity of one of the iliac fossae. Middle-line tenderness was also met with, and once a firm mass rising above the symphysis pubis, regarded at first as the fundus uteri, proved to be a collection of pus lying behind the uterus (340). Vaginal tenderness was almost constant. Rectal and bladder pain, when present, was of sharper variety than in parametritis, being due not simply to pressure, but to actual inflammation of the surface of these organs (case 64)

Site of Inflammation: (a) In six cases the inflammatory exudate accumulated in the pouch of Douglas. Abdominal tenderness was in or near the middle line, and the vagina showed considerable bulging and tenderness of its posterior wall. Of five such effusions which suppurated, three were drained by vaginal incision (cases 64,340); the others ruptured spontaneously, into the rectum (case 212) and vagina respectively. Following the release of pus improvement was rapid in all save one patient, who died of pneumonia.

(b) Salpingitis: Ten women suffered from infection of one or both Fallopian tubes, the right in 5, the left in 3, and both in 2 cases. Abdominal and vaginal tenderness was lateral, and, though the mass could be felt through the

vaginal wall, there was little, if any, bulging. The presence of pus was sometimes difficult to determine, but pyosalpinx was diagnosed in three patients, two of whom died (case 299). Each of the others had a severe illness followed by rather lengthy convalescence, and complete resolution had not always occurred at the time of dismissal from hospital. This was clearly by far the most serious type of pelvic inflammation, with a close relationship to diffuse peritonitis.

Complications and Mortality: Few of the cases of this group presented complications; there was one instance each of nephritis, facial erysipelas, pulmonary infarction (case 415), and insanity. The mortality rate of 6.4 per cent compared favourably with that of the "simple" cases. Convalescence, however, was slow, and it is of course this form of infection that is likely to lead, if neglected, to chronic pelvic inflammation, with sterility and general ill-health.

Re-examination of Cases: To estimate the extent of disability, if any, brought about by para- and perimetritis, all patients were asked to return for re-examination at a later date, varying from six months to two years after their dismissal, and 23 of them did so. Three women, while not invalided, then complained of intermittent pelvic pain, present usually at menstrual periods, and associated with weakness; they were obviously suffering from pelvic adhesions. The remainder had enjoyed good health, and several were again pregnant, or had had a subsequent normal delivery.

III. General Peritonitis.

Incidence: 35 patients, or seven per cent, suffered from diffuse peritonitis as part of general puerperal infection. The incidence was greatest in the age-group 21-25, and there was a high percentage of primiparae. Post-abortion cases were relatively numerous (28.6 per cent); normal deliveries few, with a consequent high proportion of doctors' cases. The early onset was notable: 60 per cent of patients sickened on or before the third day of puerperium.

History: Two symptoms were almost invariable: general abdominal pain, usually severe and of sudden onset, sometimes, however, following pain in one of the iliac fossae; and repeated vomiting. Rigors occurred in only 13 cases (37 per cent), that is, less often than in the types of infection already considered.

General Condition: Almost every patient came to hospital in an exceedingly grave state, many indeed beyond the possibility of recovery. The sunken eyes and anxious expression of the Hippocratic facies were in striking contrast to the placid features of the cases of septicaemia. Pallor, with cyanosis of lips and ears; a dry brown tongue, and cold, clammy skin, were common, and nearly always the mental faculties were alert. All degrees of pyrexia from 99° to 105° were recorded, but the pulse was always frequent, soft, and of small volume, and the respirations hurried, shallow,

and thoracic. Few organic abnormalities were noticed in heart or lungs, but dilatation of the ventricles with extreme feebleness of the heart-sounds frequently reflected the gravity of the illness. Secondary invasion of the lungs was common.

Abdomen: I found it rare for the abdomen, except in the very early stages, to present the classical signs of general peritonitis. The initial severe pain tended to pass off, so as to be slight or even absent by the time the patient came under observation. Tenderness, never acute, sometimes became limited to one of the lower quadrants, where its persistence perhaps indicated a superadded tubal infection; occasionally the entire abdomen could be palpated without causing the least discomfort. Muscular rigidity, likewise, while rarely absent, was often evident only in the lower abdomen; unusually well-marked in one of the patients who recovered (case 67), some resistance to pressure may be regarded as a favourable sign. "Boarding" of the abdomen was never observed. Distension not infrequently resulted from ileus paralyticus, but extreme degrees, with diminution of liver dulness and tympanicity, did not occur early. The presence of fluid was not often clearly elicited. Limitation of movement with respiration was usual but rarely absolute.

In short, the recent observation of NUTHALL²⁵ on pneumococcal peritonitis may be applied with equal force to puerperal peritoneal infection: "Clinically, (it) is

characterised by a peculiar absence of the local pain, local tenderness, and local rigidity of other forms. The patient is much more ill than the local symptoms seem to indicate".

Pelvic Organs: Subinvolution of the uterus was not often pronounced, and the lochial discharge tended to be scanty and watery, save after abortion, when more often foul and purulent. Tenderness and bulging of the vaginal vault was observed in eleven patients; in three a more definite pelvic mass indicated pyosalpinx. There were a few severe tears of the cervix, and two women had faecal incontinence from complete rupture of the perineum. Rectal examination commonly revealed the ballooning of the lower bowel associated with intestinal paralysis, often the cause of constipation unrelieved by enemas. The urine was concentrated and albuminous.

Diagnosis: That there may be difficulty in the diagnosis of puerperal general peritonitis is admitted by LEA^{19c}. WILLIAMS⁸ recognises that abdominal symptoms may be slightly marked or even absent; and HAUCH¹⁷ that the discovery post mortem of diffuse peritonitis may come as a surprise. MUNRO KERR²⁶ and his associates, on the other hand, regard the clinical features as perfectly obvious and characteristic. While so they were in many cases of the present series, there was a number of patients in whom the state of the abdomen was distinctly misleading. Repeated vomiting was by far the most constant sign, and I came to regard every case presenting

it, along with a history of abdominal pain, with suspicion, even though pain and tenderness were absent at the time of examination. Tumidity of the abdomen also was looked on as a valuable sign.

Among cases presenting difficulty were nos. 308 and 484; in each, the early signs suggestive of peritonitis passed off, the patient being regarded subsequently as suffering only from septicaemia. In two others, both rapidly fatal, signs of peritoneal infection were not present to begin with, though apparent later, and in one of them, at least, it is probable that the peritoneum was invaded after arrival in hospital (cases 220,246). Again, diffuse peritonitis may be simulated by other conditions, as simple, gaseous distension from ileus paralyticus (case 122). The following case-report is an interesting example of mistaken diagnosis:

Mrs. S., aet. 36, 11-para - ten previous confinements normal. 26/10/23, instrumental delivery; child still-born; placenta expelled whole; no bleeding.

28/10/23, Onset of fever and vomiting; has had severe abdominal pain since confinement; admitted to ward.

On admission: appeared moribund; T. 100.6, P. 144, R. 44. Conscious, but very weak; deep anaemia; tongue glazed and dry. Pulse racing and thready; chest normal; abdomen much distended and tender all over, especially on left side; some shifting dulness detected in flanks. There was vomiting of green fluid; enema given with poor result; urine albuminous.

General peritonitis was diagnosed and the Surgeon summoned. Soon after, there was a brisk haemorrhage, and vagina was packed; no further bleeding. Patient was considered too ill for laparotomy; died 12 hours after admission.

Post mortem: Abdominal cavity full of blood. There was an extensive tear of peritoneum and vagina away from the posterior uterine wall, so that vagina was directly connected with peritoneal cavity. Blood clot filled the pelvis and extended up behind peritoneum, which was pushed forward, to level of left kidney. Uterine wall healthy.

Course: The illness was rarely protracted, and thus progressed: Distension and tympanicity increased, while pain and tenderness diminished or disappeared; rigidity remained slight. Almost invariably, vomiting recurred at frequent intervals, the vomitus, ejected in small quantities, brown or black in colour. The stools, once the action of the bowels was re-established, often became loose, and intractable diarrhoea persisted to the end. Rigors did not occur. With a gradual increase of pulse-rate, the temperature in some instances fell to normal (cases 46,246); respiration became more shallow and laboured, and signs of pneumonia frequently appeared before death. The mind remained clear. Three patients exhibited a more chronic form of peritonitis, and survived for several weeks, one after laparotomy (case 288); the others have been mentioned as giving rise to errors in diagnosis (308,484).

Mortality, and Duration of Illness: The gravity of puerperal general peritonitis is indicated by the fact that only two of 35 patients recovered, a mortality of 94.6 per cent. In a recent report²⁰ on 16 cases, 94 per cent were fatal. KOEHLER'S^{27a} figures are 83.8 for cases operated on, and 100 per cent for others; OLDFIELD²⁸, however, claims 8 recoveries in a series of 14.

7 patients were dead within 12 hours of admission, a further 6 within 48 hours, and 11 others within 4 days; two died on the 5th, two on the 6th, and two on the 10th day; the remaining three on the 22nd, 33rd, and 49th days respect-

ively. The two survivors, both operated on, owe their lives to early diagnosis and immediate active treatment (cases 67,429). Each made a complete recovery and reported at a later date in good health.

IV. Pyaemia.

Incidence: 24 infections, or 4.8 per cent, were of pyaemic nature. Cases were relatively frequent in the age-group 26-30, with a higher proportion of primiparae than any other type of infection. As with general peritonitis, abnormal deliveries were frequent; but only one case of pyaemia followed abortion. The onset, comparatively late, was after the seventh day of puerperium in a third of the number.

General Condition: The infection was commonly a severe one, and in its mode of onset and general aspect differed little from septicaemia. One patient had abdominal symptoms, and mention has been made of the resemblance to diffuse peritonitis (case 122). The pyaemic foci, sometimes present almost from the beginning, but more often of late development, were met with in the following situations:

1. Joints: Invasion of a joint was an almost certain

indication of virulence; sometimes several were attacked almost simultaneously. Trauma no doubt plays a part in determining the onset, and it was found that the elbow and wrist, which may be strained by the patient's efforts to raise herself in bed, were more frequently affected than more protected joints, as the ankle. A history of such minor injury was obtained, indeed, more than once (case 244). The frequency of invasion of the various joints was as follows:

| | |
|-------------------------|----------|
| Sterno-clavicular joint | 1 case. |
| Shoulder | 3 cases. |
| Elbow | 6 " |
| Wrist | 5 " |
| Metacarpo-phalangeal | 1 case. |
| Hip | 4 cases. |
| Knee | 4 " |
| Tarsal joints | 1 case. |

The symptoms were generally those of any acute arthritis: pain aggravated by movement, acute tenderness, with redness and swelling; but in one or two grave cases pain was altogether absent. Pus-formation was not invariable, the condition sometimes appearing to abort in one joint while another took on active suppuration (case 122). The wrist especially seemed liable to improve, while, at the other end of the scale, invasion of the knee always heralded a fatal issue (414,468). The pus, often abundant, was usually of watery consistence, but tended to be sticky from admixture with synovial fluid.

2.Parotid Gland: Four examples of suppuration of this gland were observed: it was always unilateral, and twice occurred without other metastatic focus. One patient had

painless but increasing swelling over the gland for months before confinement, and it may be that this subacute parotitis was the cause and not the result of general infection. In the third case (122), parotid infection was accompanied by slight joint involvement; in the fourth (414), it was part of a severe pyaemia with multiple abscesses.

3.Eye: Panophthalmitis complicated one fatal illness, the organisms no doubt being carried to the eye by the bloodstream. There was no history of injury, and no other septic focus. The woman had the presystolic murmur of mitral stenosis. Similar examples of eye-infection have been recorded by WILLIAMS⁸ and by SCHOKAERT²⁹.

4.Cellular Tissues: Abscess-formation in the cellular tissues of the body was the commonest manifestation of pyaemia. The focus was sometimes solitary, more often multiple, and frequently there was coincident joint-infection. The abscesses were situated in the

| | |
|---------------|-------------|
| Chest-wall | in 2 cases. |
| Forearm | " 3 " |
| Sacral region | " 7 " |
| Buttocks | " 6 " |
| Thigh | " 1 case. |
| Leg | " 3 cases. |

Again it was noticed that infection was most common in parts of the body exposed to injury, namely, the buttocks and sacral region, where pressure caused devitalisation of tissues. As regards the sacral region, the process differed from the formation of bedsores in that pus appeared in the subcutaneous tissues before the overlying skin was

destroyed; extensive sloughing followed, in spite of constant good nursing, with the result that bone was sometimes exposed over a wide area (case 490). Abscesses of the buttocks, commonly large and bilateral, tended to be deep-seated to begin with, the pus appearing to surround, while not actually invading, the hip-joint. Some may have had their origin in parametritis, the pus leaving the pelvis by the sacro-sciatic notch (case 483). The foci in the chest-wall appeared respectively in the scapular and pectoral regions. Breast abscesses are not included in this account, being non-pyaemic; acute bartholinitis, another purely local infection, was only once observed.

Course: The disease was often very protracted. During the weeks which sometimes elapsed before the appearance of metastases, the temperature usually showed considerable daily remissions or intermissions, rigors were frequent and severe, and there was steady loss of strength. Improvement followed release of pus in the milder cases, but often the benefit was only temporary, and the patient further exhausted by prolonged wound-drainage. Particularly slow of healing were foci of the buttock and sacral area. The relationship of pyaemia to malignant endocarditis is close, but evidence of cardiac disease was not often found. Even in the gravest infections the mental faculties tended to remain unimpaired, and the plight of some women with multiple discharging wounds became miserable in the extreme.

Worthy of special mention are two cases: in one, a series of abscesses in the right lower limb indicated a particularly virulent suppurative thrombophlebitis (case 84); in the other, resolution of temperature dated from an attack of facial erysipelas, which thus appeared to bring to an end a prolonged infection (case 38).

Results: Fatal cases numbered six, or 25 per cent. In five, septic arthritis, usually multiple, was present: case 414 had eleven metastatic foci, including four joints; case 490 five foci, including both shoulder-joints. Pneumonia hastened two deaths.

As regards the recoveries, joint-infection nearly always resulted in some impairment of function, but ankylosis was never complete. Only eight women came for re-examination; all were in good health, and their disability, if any, slight (cases 38, 51, 84, 244).

V. Phlegmasia Alba Dolens.

Incidence: There were 51 cases, or 10.2 per cent. Phlegmasia was relatively frequent over the age of 40, and correspondingly infrequent in primiparae. Examples of excessive procreation were observed in several women who had had upwards of ten confinements, two of them sixteen and and nineteen respectively. Over three fourths of the cases

followed normal labour, and only one was subsequent to abortion. Symptoms appeared, in the majority, after the seventh day of puerperium.

Onset, and General Condition: 35 patients, none very ill, came to hospital with phlegmasia already developed. Many stated that pain and swelling of the limb was all that had troubled them; a number had also the symptoms of general infection. In the remaining 16, admitted suffering from sepsis of varying degree, local symptoms appeared, as a rule, within a week or two; occasionally much later.

Systematic examination of the heart, lungs, and abdomen revealed no special feature save a large proportion of apical heart-murmurs, probably haemic, and related to the anaemia which was particularly frequent. The uterus was usually well retracted, lochia scanty, and lacerations absent. One patient had jaundice during the first week of illness.

Etiology: It is probable that phlegmasia is always secondary to puerperal infection, even when this is so mild as to have been overlooked. Getting out of bed too soon after delivery was admitted by a number of women, and is a likely predisposing cause; while the common practice of nursing puerperal cases over a long period in Fowler's position must, by retarding the circulation in the lower limbs, favour the occurrence of "white leg". The part played by varicose veins is, apparently, not a large one, for in very few patients were they pronounced. Anaemia, however, is an important factor: I have mentioned that it

was common; SCHAANNING³⁰, too, found thrombosis comparatively frequent in women whose confinements had been protracted and attended with excessive loss of blood.

The Part Affected: Phlegmasia affected one or both lower limbs, as follows:

| | | | |
|-------------------------------|----------|---|----|
| Left only | 24 | } | 31 |
| " followed by Right | | | |
| Right only | 11 | } | 19 |
| " followed by Left | | | |
| Left and Right simultaneously | <u>1</u> | | |
| Unilateral | 35 | | |
| Bilateral | | | 16 |

Phlegmasia of the left lower limb thus proved the more common but the less serious, spreading to the other side in only 22.6 per cent of cases (7/31), as compared with 42.1 per cent (8/19) in which spread occurred from the right. The time elapsing between swelling of the two limbs varied from two to 27 days, the average being 12 days.

Clinical Features: The local condition requires but brief mention. All degrees were observed, from slight swelling of the thigh with tenderness over the femoral vein, to the typical white leg, hard, tender, and immensely swollen from hip to ankle. I was unable to distinguish as separate clinical types the "thrombotic" and "lymphatic" forms, which appear to differ only in degree; BERKELEY & BONNEY¹⁵ regard the more severe condition as probably due simply to very extensive thrombosis, and not to lymphangitis complicating phlebitis. The state of the veins varied, they being either visible, palpable as hard tender cords, or impalpable.

Evidence of pelvic thrombosis was found in only two cases. Pitting on pressure, a sign of improvement, usually appeared first at the ankle. Swelling of the second limb, while sometimes very slight, usually equalled that of the first.

Effect on the General Condition: The improvement sometimes noticed to follow the occurrence of pelvic cellulitis was observed even more convincingly in certain cases of phlegmasia. Including 7 who were admitted with one limb swollen, the complication attacked 23 patients in hospital. Of 12 women in whom it appeared during the height of the fever, at least half derived benefit; for with the onset of local symptoms the temperature, after swinging sometimes for weeks, fell gradually to normal, and convalescence was established (cases 230,331,333; three other charts showed equal improvement). In the remaining six cases, benefit was less obvious or absent; in chart 500, for example, the fall of temperature was delayed for nearly a fortnight. Two patients died of septicaemia (case 427).

Phlegmasia during Convalescence: Eleven women had entered on convalescence before the appearance of white leg, but only one had been allowed out of bed. Pain in the thigh was often the earliest symptom, followed after a day or two by relapse of temperature, sometimes by one or more rigors and vomiting, and by the local signs. Pyrexia was generally transient, the reaction shown on chart 119 being unusually severe; chart 408 presents a double relapse caused by successive invasion of the two limbs. There was

no case of phlegmasia after an apyrexial period of a fortnight.

Results: With the two exceptions mentioned, all patients made a good, if slow, recovery. The duration of swelling varied from 12 days - an unusually rapid resolution - to 14 weeks, with an average of 37 days. Oedema sometimes returned in ambulant convalescents, and stiffness was a fairly common sequel, but all were able to walk out of hospital.

C. BACTERIOLOGY.

The bacteriology of Puerperal Infection was studied by (1) blood-culture, (2) culture of uterine smears, (3) examination of purulent effusions, and (4) post mortem examination.

1. Blood Culture - Method: As it was found that milder cases always gave negative results, examination of the blood for organisms was made only when the infection was severe. A simple method of withdrawing the sample was chosen, the apparatus being an all-glass 20 c.c. syringe, with 2"-needle of medium bore (standard wire gauge no. 19), sterilised, and flushed with warm normal saline immediately before use. The veins of the arm having been distended by the application of a rubber tourniquet, and the skin in front of the elbow thoroughly cleansed, the needle was plunged into the median basilic vein. As a rule the blood was under sufficient pressure to drive out the piston and enter the barrel of the syringe; in this way about 3 c.c. was allowed to flow, when the tourniquet was released and the needle withdrawn. Absolute asepsis was, of course, observed. Difficulty in finding the vein was occasionally experienced in dealing with stout women, and for a second attempt a fresh needle was taken. When necessary, two or more successive cultures were made from the one patient.

The blood was at once transferred to an Erlenmeyer flask containing 50 c.c. of warm sterile bouillon of hydrogen-ion concentration (pH) 7.6. After incubation for 24 hours at 37° C., turbidity of the medium usually indicated bacterial growth. Microscopic examination followed, and streptococci, when found, were tested (a) as to their haemolytic powers, by inoculating Petri capsules of blood-agar and incubating - haemolysis being shown by a clear zone of medium around the colony; and (b) as to their fermentative action on certain carbohydrates and on litmus milk, by adding to portions of the culture one per cent solutions of lactose, mannite, and salicin, along with one per cent of Andrade's indicator, and by inoculating cream-free milk containing litmus solution. In each case, after 24 to 48 hours' incubation, a pink or red tint in the liquid indicated the presence of acid; sometimes, too, the milk was coagulated.

2. Culture of Uterine Smears: Smears from the wall of the uterus were taken in mild and severe infections, but, while the procedure caused no distress and allowed complete examination of the lower genital tract, it was considered inadvisable in the gravely ill and in cases of phlegmasia.

Method: With the patient in the lithotomy position, a Sims' speculum was inserted into the vagina, the anterior lip of the cervix grasped with vulsellum forceps, and the uterus pulled down. The surface of the cervix and os externum was then wiped clean with gauze, and the smear

taken by passing a long probe dressed with sterile wool, or alternatively a platinum loop, into the uterus. Ordinary care only was necessary to prevent contamination from the surrounding mucous surfaces. Methods equally simple are favoured by BERKELEY & BONNEY¹⁵, who find satisfactory a swab mounted on forceps, and by MARBAIS³¹, who uses the platinum loop; they are in no way inferior, in my opinion, to the more elaborate technique of DÖDERLEIN and LITTLE, as described by LEA¹⁹.

At first, slopes of Löffler's blood-serum were used as culture medium, but bouillon of pH 7.6 was found better, and test-tubes containing about 5 c.c. inoculated, further procedure, including differentiation of streptococci, being the same as in blood-examination. Turbidity due to bacterial growth was better seen in the smear cultures; the suspended matter tended, when streptococcal, to settle at the bottom of the tube, in staphylococcal and B. coli growths to remain as a uniform opalescence.

Results: In 124 blood-cultures were found:

| | | |
|------------------------|--------|------------------|
| Streptococcus | in 45, | or 36.3 per cent |
| Streptococcus & B.coli | " 1, | " 0.8 " " |
| B. coli | " 4, | " 3.2 " " |
| Staphylococcus aureus | " 3, | " 2.4 " " |
| No growth | " 71, | " 57.3 " " |

In 117 uterine smear cultures were found:

| | | |
|---------------------------|--------|------------------|
| Streptococcus | in 60, | or 51.3 per cent |
| Streptococcus & B.coli | " 3, | " 2.6 " " |
| B. coli | " 14, | " 11.9 " " |
| Staphylococcus aureus | " 8, | " 6.8 " " |
| Gonococcus | " 4, | " 3.4 " " |
| Saprophytes, or no growth | " 28, | " 24.0 " " |

3.Examination of Purulent Effusions: All specimens of pus were examined. Peritoneal and joint infections invariably proved streptococcal, as also the multiple sub-cutaneous abscesses of pyaemia. Solitary collections of pus, whether pyaemic or due to parametritis, were sometimes staphylococcal (*S. aureus*), associated in one instance with the same organism in the blood, in the remainder with negative blood-cultures (case 483). As regards urinary infections, only one, a fatal case (299), was streptococcal; *B. coli* was not uncommonly present in the urine.

4.Post Mortem Examination: 46 autopsies were performed. The following is a summary of the more important findings:-

The brain was not always examined; the only abnormality noted was congestion of the surface vessels.

Heart: More than half the cases showed fatty degeneration of the myocardium. In five, recent vegetations on the mitral cusps indicated active endocarditis, probably of malignant type (case 490); and there were a few chronic valvular lesions, with hypertrophy of the heart-muscle. Three examples of pericarditis included two small serous effusions, and a larger collection of pus co-existent with general peritonitis.

Lungs: Congestion and oedema of the dependent parts of the lungs, as well as bronchopneumonia, were common. In eight examples of lobar pneumonia, consolidation was limited to the lower lobes, and to the stage of red hepatisation. Three cases, each with symptoms of the condition during life,

presented pulmonary infarcts: one, small, at the anterior margin of the right upper lobe (case 280); the others larger and near the base (484). Some degree of dry pleurisy commonly accompanied the pneumonias; and there were eight examples of purulent effusion, often bilateral, all associated with diffuse peritoneal infection (cases 228,308).

Peritoneum: General peritonitis was present in no less than 25 cases, or 54.3 per cent of the autopsies, a proportion comparable with KNEISE's³² 48.3 per cent of a series of 89. The effusion was nearly always copious, yellow or brown in colour, of watery consistence, but frankly purulent; leaving, when sponged away, flakes of pus adherent to the organs, especially of the lower abdomen and pelvis. In two cases the peritonitis was of chronic type, the abdominal contents being firmly matted together by dense adhesions (cases 308, 484).

Stomach and Intestines: The chief abnormality was the gaseous distension, sometimes enormous, consequent on paralysis of the muscular coat of the gut; while usually accompanying, it was found occasionally in the absence of, diffuse peritonitis. Petechial haemorrhages on the serous surface of stomach and bowel were a feature of some of the most virulent septicaemias, and small extravasations on the gastric mucosa were sometimes added. The appendix, while sharing any peritoneal inflammation, never aroused suspicion of being its cause.

Liver, Spleen, and Kidneys: The usual septic changes

were seen. Fatty degeneration of the liver was occasionally so intense as to give the organ a brilliant yellow colour. The spleen was commonly enlarged, and its tissue, sometimes congested, more often soft and pale; there was one example of splenic infarction. The kidneys showed cloudy swelling and fatty degeneration in varying degree, and the signs of acute nephritis were not infrequent. Recent infarction of the kidney was twice present (case 267), miliary abscesses of the cortex twice (301,490), and once a larger, solitary abscess (406).

The Uterus varied considerably in size and appearance. In some of the most fulminant infections it presented to the naked eye little departure from the normal, the cavity being empty, the lining smooth, and involution evident. More often the organ was large and flabby, the tissues of the cervix sloughing, and the lining covered with foul, black excrescences; in abortion cases remains of the ovum sometimes remained. There were two examples of abscess of the uterine wall, one multiple (cases 359,371). Criminal interference was evident in two subjects dead of general peritonitis following abortion. In each the uterus was perforated on its posterior wall just above the cervix: the opening in one case big enough to admit a finger (case 46); in the other, such as might be produced by a large urethral bougie, and associated with a second and larger aperture leading from the anterior vaginal fornix to the peritoneal

cavity (case 220).

Uterine Appendages: Of five cases of pyosalpinx, one was bilateral and walled in by adhesions (299); the others limited to one side and associated with general peritonitis. SCHICKELE & RIOTTE³³ have shown that in such cases pus passes from the peritoneal cavity into the Fallopian tubes by way of the ostium, and support to this view, that salpingitis does not precede, but follows, infection of the general peritoneum, is lent by the fact that in the majority of cases of diffuse peritonitis the tubes were healthy. One example, however, of ruptured pyosalpinx, suggested that here the peritoneal was secondary to the tubal infection. Small ovarian abscesses were seen twice (case 371); evidence of pelvic cellulitis once, in the form of a copious jelly-like mass between the folds of the broad ligament and surrounding the cervix uteri. Extensive thrombosis of pelvic veins was not often observed, probably from the fact that only one case of pyaemia (490) was examined.

Bacteriology: Cultures made from the spleen at each post-mortem revealed, with only two exceptions, streptococcal infection. Of the four cases presenting Bacillus coli in the blood, two were examined and that organism found in the spleen of each. In the only fatal case of staphylococcal infection, permission for autopsy was not granted. Post-mortem uterine cultures were, as is to be expected, less uniform, saprophytes predominating; but all

collections of pus in the organs and serous cavities were streptococcal.

Analysis of Results: While it is evident that almost all severe infections of the puerperium are due to streptococcus, culture of the organism from the blood is by no means always successful. In a recently published Report²⁰ on 136 cases, only 39 per cent gave a positive blood-culture, as compared with 44 per cent in GASTELUM'S³⁴ group of 195, and 36 per cent in the present series. Culture of uterine smears have yielded streptococci as follows:

| | | | | | |
|-------------------------|---|---|---------------|------|-----------|
| WILLIAMS ³⁵ | - | - | of 226 cases, | 29.2 | per cent. |
| FOULERTON ³⁶ | - | - | " 54 " | 46.2 | " " |
| ABRAHAMS ³⁷ | - | - | " 120 " | 52.5 | " " |
| This series | - | " | 117 " | 51.3 | " " |

Type of Streptococcus: SCHOTTMÜLLER's view that the haemolytic power of these organisms is an index to their virulence is supported by WINTER³⁸, who in a large series of febrile abortions had a mortality from haemolytic infections almost double that from non-haemolytic. FITZGIBBON & BIGGER¹², however, though finding haemolytic types to predominate in the proportion of four to one, regarded each as equally powerful; and by several other writers haemolysis is considered of little value in determining virulence (KANter & PILOT³⁹, KOTTLORS⁴⁰). ABRAHAMS³⁷ is of opinion that puerperal fever is infection with a definite and specific organism, differing culturally from *S. pyogenes*,

and acidifying glucose, lactose, and saccharose, not mannite, and clotting milk; JORDAN's⁴¹ views are similar. LASH & KAPLAN⁴² found that puerperal strains of *S. haemolyticus*, while non-specific, were closely related; none of them affected mannite.

In the present investigation, 84 cultures of streptococci were typed, as follows:

Group I. Haemolytic, fermenting lactose and salicin, not fermenting mannite; milk acidified - *S. pyogenes* 60.

Group II. Non-haemolytic, fermenting lactose and salicin, not fermenting mannite; milk acidified - *S. mitis* 9.

Group III. Non-haemolytic, fermenting lactose, salicin, and mannite; milk acidified and coagulated - *S. faecalis* 15.

The organisms of group I were associated invariably with the graver infections; they tended to form chains of considerable length, according to STITT⁴³ an important indication of virulence. *S. mitis* infections were as a rule less severe, though one ended fatally; while *S. faecalis* was recovered only from the uterus, the blood in such cases being negative. Both of these organisms were generally of short-chained variety.

Bacillus Coli: This bacterium was found in the blood in 3.2 per cent of cases, as compared with 2.9 per cent in the Report²⁰ quoted; in the uterus in 11.9 per cent, as compared with 5.8 per cent in the series of WILLIAMS³⁵. The four blood infections were identical clinically with streptococcal septicaemia, and three ended fatally (cases

267,486). The majority of the uterine infections were mild, with negative blood-culture. *B. coli* was occasionally associated with streptococcus, as in case 299, where both organisms were cultured successively from the blood. Such an association, as regards uterine swabs, was found by BONNEY & FOULERTON⁴⁴ in very many of their graver cases.

Staphylococcus Aureus: Like *B. coli*, this is an occasional cause of septicaemia. There were three examples of general staphylococcal infection, with one death (case 479); similar cases have been reported by REEB⁴⁵ and by WYATT⁴⁶. The organism was found in the uterus in 6.8 per cent; by WILLIAMS, in 3.1 per cent.

Pneumococcus, etc: Pneumococcal infections have been recorded recently by HENDRY⁴⁷ and by BLAIR BELL⁴⁸; while THALHIMER & HOGAN⁴⁹ claim once to have found *B. influenzae* in the blood. No such infections were observed in the present series.

Gonococcus: Widely varying opinions have been expressed as to the importance of gonococcus in the etiology of puerperal infection. ENO⁵⁰ considers that from 20 to 30 per cent of cases are due to it. FOULERTON³⁶, on the other hand, did not find it once in a series of 54 cases, and SCHUMANN⁵¹ only once in 150 cervical smears of pregnant women. In the series under present consideration only four uterine swabs revealed gonococcus, and there was nothing clinically to indicate that the organism plays any part in the causation of generalised puerperal infection.

D. TREATMENT.

Prophylaxis: The prevention of Puerperal Infection, vastly more important than any method of cure, hardly lies within the scope of this work. It must be remembered, however, that prophylaxis does not end with the onset of symptoms: the disease may exist in but a mild form, and the patient has still to be guarded against more virulent infection. Admitted without precaution to a puerperal fever ward, she is exposed to considerable risk. The remedy lies in an efficient system of barrier nursing or bed-isolation. In the wards of Belvidere Hospital, each patient was considered of potential danger to her neighbours; nurses, after coming in contact with her discharges, were required to cleanse the hands thoroughly before proceeding to the next bed. It was recognised also that by injudicious attention infection might readily be aggravated, and local treatment in the lesser degrees of sepsis was, therefore, reduced to a minimum. Similarly, to avoid infecting the bladder, the catheter was rarely in use except before a major operation.

Nursing: RUSSELL ANDREWS⁵² epitomises the treatment of puerperal sepsis as "nursing, and looking out for pus"; and it is true that for the average patient the services of the nurse are more necessary than those of the physician. In support of this, over 30 per cent of the uncomplicated

cases were afebrile within 72 hours of coming into hospital, this early benefit due almost entirely to the application of the general principles of nursing. The cleansing of the skin, intestinal tract, and vagina promoted increased elimination of toxins; suitable posture encouraged the flow of lochia; while the better ventilation, diet, and comfort of a hospital ward also played their part in hastening recovery. In the more serious infections, the nurse's duties included sponging of the skin to allay fever and to promote sleep, the prevention of bedsores, and the care of the mouth.

As regards diet, it was little curtailed except during the early part of the febrile period, when fluids only were allowed. WILLIAMS'S³⁵ treatment of puerperal cases is to "feed them well and give them fresh air".

Posture: With few exceptions, patients were nursed in Fowler's position, the head of the bed being raised on wooden blocks. This certainly favours the flow of lochia, and is comfortable, but by retarding the circulation in the lower limbs may contribute to the onset of phlegmasia. SHEAR²⁴ regards it as increasing the normal antiversion of the puerperal uterus, and recommends the lateral posture as best for drainage. FITZGIBBON & BIGGER¹² advocate free movements and frequent sitting upright, but these measures cannot apply to any but mild cases. Sometimes the prone position was necessary for pyaemic patients.

Local Treatment.

Curettage of the Uterus: Until comparatively recent times, no case of puerperal fever was considered adequately treated till the uterus was explored and any retained placenta, membranes, and blood-clot expelled by curettage, or scraping of its walls. The curettes were of two kinds, a sharp instrument, which removed not only the loosely-adherent necrotic material, but also the bacterial breeding-ground formed by the inner layer of the uterine wall itself; and the blunt curette, whose action was less drastic. More recently the danger of this procedure was realised, namely that by breaking down the protective barrier of leucocytes and opening up blood sinuses it might convert local into general infection; a risk obviously greater after labour at term than after abortion, owing to the very vascular state of the uterus at the end of pregnancy.

One of the first to condemn the practice of curettage was WHITRIDGE WILLIAMS, in 1899, and, though few were then of his opinion, he has now the support of most of the writers of the present day. Thus WATSON¹³, SHEAR²⁴, FITZGIBBON & BIGGER¹², LUKER⁵³, SIGWART⁵⁴, and HOLLADAY⁵⁵ are strongly opposed to all intrauterine manipulation; BENOIT⁵⁶ favours curettage only when done immediately after delivery, KOEHLER^{27b} only in cases of early septic abortion; while GORDON⁵⁷ and VAN DONGEN⁵⁸, dealing solely with abortion, condemn all active treatment in the presence of sepsis. Even the

uterine douche is regarded by most upholders of conservative treatment as of danger, in that it may carry infection upwards through the Fallopian tubes.

In the opposite camp are WHITEHOUSE⁵⁹, who sees no risk in the use of the sharp curette combined with irrigation; MUNRO KERR²⁶ and CANNEY¹⁴, advocates of blunt curettage; DELMAS⁶⁰ and BECKER⁶¹. LEA^{19d}, writing in 1910, also favoured active treatment in all but the most virulent infections, sometimes substituting for the curette as a scraping agent, a brush-like instrument, the "ecouvillon".

Personal Experience of Curettage: In the series of cases under review, curettage was adopted, to begin with, as a routine method of treatment, save when clearly contra-indicated, as by general peritonitis. The sharp curette was never used, the blunt rarely for cases other than abortions; nearly always the gloved finger sufficed to bring away any placental debris and blood-clot, though difficulty was occasionally experienced in reaching the fundus. The results were disappointing: of 60 women curetted during the pyrexial period, I did not observe improvement in any; either there was no effect (cases 7,286), or the patient became obviously worse (122,301). In one instance the temperature showed a downward trend, followed, however, by pulmonary infarction (334); twice the onset of general peritonitis appeared to date from the time of operation (220,246). In the most notable example of all of the

deleterious influence of active treatment, the patient, already apparently convalescent from a mild local infection, developed signs of virulent thrombophlebitis with multiple abscesses (case 84).

The conclusion early arrived at was that curettage of the uterus, far from being of benefit, was liable seriously to aggravate the disease. It was also considered that the preparation for, and after-effects of, the general anaesthetic demanded by the operation were undesirable in dealing with patients whose chief need was rest. Active treatment was, therefore, discarded, save in the presence of haemorrhage, in favour of conservative methods.

Conservative Technique: After a night's rest in hospital, the patient was placed in the lithotomy position, the external parts thoroughly cleansed, and careful examination made of the vagina and cervix, any perineal stitches being removed. The character of the lochia as it issued from the uterus having been noted, and a swab taken, a warm vaginal douche of lysol, a drachm to a pint of water, was given, and any raw surfaces painted with tincture of iodine. Exceptionally, in the presence of extensive sloughing of its walls, the vagina was packed with iodoform gauze, which was changed daily (case 420).

This treatment did not disturb any but the most nervous of women. A few seemed dissatisfied that they had not to undergo the expected operation; more often relief was

expressed. Subsequent local care consisted in maintaining cleanliness of the external genitals, and in regular administration, while the discharge was copious, of vaginal douches. This not only promotes mechanically the escape of lochia, but has the effect of stimulating uterine retraction.

Treatment of Haemorrhage: 29 patients, the majority cases of incomplete septic abortion, required active treatment for haemorrhage. Rarely copious, it was usually present at the time of, or soon after, admission to hospital, though sometimes delayed for a week or more. Blunt curettage, followed by the uterine douche - lysol, a drachm to the quart of water, as hot as could be borne on the arm, - massage of the uterus, and the intramuscular administration of ergotin and pituitrin, were nearly always sufficient to control the bleeding. Occasionally, persistent oozing of blood necessitated packing the vagina; I have never found it necessary to pack the uterus.

Curettage during Convalescence: Objection may be raised that by failure to explore the uterus in every case, retention of large portions of placenta and membrane may be overlooked, with consequent chronic toxæmia and persistence of discharge. Save after abortion, however, such retention is uncommon, and, even when it occurred, the effect was found negligible. When the lochia remained profuse and foul, the treatment adopted was to delay until the temperature

had been normal for several days; dilatation of the os and curettage with the finger or blunt instrument were then proceeded with, under general anaesthesia. Once the uterus was empty, discharge quickly ceased. The advantage of waiting until the febrile period is over has been demonstrated, in the case of incomplete, septic abortion, by HILLIS⁶², OFFERMANN⁶³, DUBROWITSCH⁶⁴, and BOVIN⁶⁵. My own experience is that curettage during convalescence, whether post-partum or post-abortion, is quite immune from the dangerous after-effects that may be associated with its employment during the period of pyrexia. Rigors never occurred, any rise of temperature, as in other forms of aseptic traumatic fever, being very transient (case 44); two patients, indeed, showed no febrile reaction whatever.

There is then an analogy between the treatment of the puerperal uterus and that of ordinary wounds:- (a) Properly carried out, curettage immediately after delivery may be regarded as comparatively safe, the uterus then being sterile: compare immediate stitching of a clean wound. (b) It is dangerous during the course of puerperal fever: compare the result of stitching a septic wound. (c) It again becomes safe with resolution of fever, the septic process being over: compare skin-grafting when there is no further risk of infection.

Other Methods of Local Treatment: HOBBS⁶⁶ and PHILLIPS⁶⁷ advocate uterine drainage by means of injections

of sterile glycerin, a powerful lymphagogue, and also, as COMPTON⁶⁸ has proved, an efficient antiseptic. CHIRIE⁶⁹ recommends the introduction into the uterus and vagina of pure cultures of lactic acid bacilli, the acid generated inhibiting the growth of streptococci, and favouring healing by the promotion of leucocytosis. WHITEHOUSE⁵⁹ and CANNEY¹⁴, in addition to curetting, irrigate the uterus by the Carrel-Dakin method. Operative measures also have been recommended. BLAIR BELL⁷⁰ and BONNEY⁷¹ have recorded favourable results of tying and removing the thrombosed vessels in cases of thrombophlebitis; BALDWIN⁷² is an advocate of panhysterectomy.

None of these methods was adopted. The operative treatment, sound in theory, presents practical difficulties that are insurmountable. As KOEHLER²⁷ says, it is impossible to tell when to operate or how extensive is the process. As regards the other methods, it is still far from proved that any is really beneficial, and they are at variance with the conservative measures adhered to in this investigation.

General Treatment.

Treatment of Puerperal Sepsis with drugs is largely empirical and symptomatic. None is known definitely to influence the course of the disease; a few may help by putting the system into more favourable condition for

resisting infection.

Ergot was used as a uterine stimulant in all cases presenting subinvolution, in dose of $\frac{1}{2}$ to 1 drachm of the liquid extract given thrice daily for a few days after admission. For more rapid action, the hypodermic preparation, often combined with pituitrin, was administered after curettage. Quinin sulphate, gr.3-5 t.i.d., also was given as a routine. Its antipyretic action is probably negligible, but it has a general tonic effect, and is believed^{27c} to stimulate uterine contraction. Occasionally it led to toxic symptoms - tinnitus and deafness - and had to be discontinued. Arsenic, in frequent use in the form of Fowler's solution or liquor arsenici hydrochloricus, was of value, especially in prolonged subacute infections complicated by anaemia. Tincture of perchloride of iron also proved beneficial in this type of case.

Stimulants were required in all severe infections. My custom was to administer tincture of digitalis, m.10-15 4-hourly, at the first sign of cardiac distress, and case 331, in particular, showed benefit from its use. For quicker effect, reliance was placed on the hypodermic administration of strychnin, pituitrin, or camphor; of these, the camphor, gr.3 in olive oil, seemed most efficient. Infusions of normal saline, rectal and submammary, often proved of undoubted value; sometimes 10 per cent of glucose was added. Intravenous infusion was reserved for grave

cases, and probably for this reason any benefit appeared very temporary (case 286).

Alcohol was used sparingly as a stimulant and its effect carefully watched. While many writers condemn it absolutely, KUSTNER⁷³ upholds its worth, and claims the prompt cure of ten cases of puerperal fever by the daily administration of sufficient brandy and wine to produce deep intoxication. He saw no bad results, and considers of chief importance the toxic effect of the alcohol on the bacteria; but few will be inclined to adopt this heroic treatment. Whisky never was given for more than two or three days at a time, in doses of 3 or 4 drachms 4-hourly, and although its more prolonged use tends to cause depression, both physical and mental, these short periods of administration were sometimes clearly of benefit. I found it also most useful, when given at night with or without other drugs, in promoting sleep.

Hypnotics: The value of a good night's rest can hardly be overestimated. Paraldehyde was the hypnotic in most common use: slow in action and not always reliable, it is non-depressant. Where it failed, Dover's powder (gr. 10) or nepenthe (m.15-30) was given with surer effect. Chloral and bromide, on account of their depressant action, were not often administered, save in the presence of mental symptoms or undue nervous excitement.

Of other symptoms requiring treatment, diarrhoea, one

of the most important and intractable, was met, after an initial purge with castor oil, with bismuth preparations; these failing, full doses of lead and opium pill usually had the desired effect. Constipation, in severe cases sometimes due to ileus paralyticus, as a rule responded to fractional doses of calomel - gr.1 every hour till the bowels moved - combined with turpentine enemata (case 122).

Pneumonia and nephritis were treated on general lines. In a severe case of eclampsia which has been mentioned (273), the usual treatment was applied, including gastric lavage, saline infusion, and large doses of magnesium sulphate. Morphia failed to control the fits, but administration of luminal, gr.3, was followed by prolonged sleep and complete cessation of convulsions.

Lactation: In all severe puerperal infections the secretion of milk is arrested; many women less gravely ill, however, suffered, after coming to hospital, from overdistension of the breasts consequent to the interruption of suckling. The condition yielded readily to a full dose of salts, external preparations of belladonna, and, when necessary, to exhaustion. Occasionally a mother expressed the wish to continue nursing, and this was granted when the infection was not severe. RUNGE & LAUER⁷⁴ favour the continuance of suckling in mild cases; and I have never observed any disadvantage accrue to either mother or child. The process favours involution of the uterus, and may spare

the baby from the risk attached to artificial feeding.

Convalescence: Many patients entered on convalescence thin and bloodless, but improved rapidly under treatment with Easton's and Parrish's syrups, combined with a liberal diet. In the absence of complications, they were allowed out of bed at the end of a week's normal temperature, and dismissed after a further 7 to 10 days. The lack of a verandah to the ward was deplored, but convalescents were encouraged to go out as much as possible; frequently women making a tardy recovery were, in fine weather, carried into the open. The extent to which a few hours of fresh air cheered the patient, and improved her appetite and ability to sleep, was often remarkable.

Treatment of Special Types of Infection.

1. Pelvic Inflammation: In the absence of suppuration, no local treatment of parametritis was necessary. Several abscesses were evacuated under general anaesthesia by incision just above, and parallel to, Poupert's ligament (case 471); a strip of gauze made an efficient drain, and in all but one patient, in whom a sinus persisted, healing took place within 14 days of operation. For a case of remote parametritis, two incisions were required near the middle line of the abdominal wall.

In perimetritis local applications were necessary for relief of pain, sometimes together with a sedative as

nepenthe or a morphia suppository. For the release of fluid in the pouch of Douglas, a general anaesthetic was administered and the posterior vaginal wall incised in the middle line, behind the cervix. By pushing a pair of sinus forceps upwards through the peritoneum and separating the blades, the thick pus was allowed to escape (cases 64,340). A wide rubber tube, held in position by stitches fixed to the thighs by adhesive plaster, served for drainage, and was retained for three days.

The treatment of pyosalpinx was much more difficult. All authorities are agreed that the danger of converting local into diffuse peritonitis by early laparotomy is a very real one. The streptococcus remains active and alive in the pelvic organs for many months (BLAIR BELL⁷⁵), and any attempt at removal of infected tubes within this period may have disastrous results. For this reason, the few cases of pyosalpinx were treated expectantly, Fowler's position being maintained. One woman recovered after a long illness, another died of general sepsis; in the third case an attempt was made by the Consulting Surgeon to open the abscess by posterior colpotomy. A large amount of pus was drained off, but death occurred on the following day (case 299).

Patients convalescent from pelvic inflammation were kept in bed until, as far as could be estimated, absorption of inflammatory exudate was complete, and were warned on

dismissal to seek medical advice should symptoms reappear. I have shown that complete recovery was attained by the great majority of those who presented themselves for re-examination.

2.General Peritonitis: "In general diffuse peritonitis", wrote GALABIN⁷⁶ of puerperal infection in 1905, "abdominal section affords such a forlorn hope that it can scarcely be urged, though the prognosis may be quite hopeless without it". Most authorities are now agreed that, although the chance of recovery held out by operation is slender, it should not be rejected. The methods recommended vary. KOEHLER^{27d} favours "the smallest operation, laparotomy and drainage"; LEA^{19e} recommends, in addition, counter-openings in the lumbar region and pouch of Douglas, as well as irrigation with saline; OLDFIELD⁷⁷ drains suprapubically and vaginally; MUNRO KERR & FERGUSON²⁶ advise vaginal hysterectomy as offering the only hope of success. An interesting method is that of EDWARDS⁷⁸, who describes the successful treatment of a case by lymphaticostomy, or drainage of the thoracic duct in the neck. It is recognised by all, however, that for treatment to be of any avail, it must be carried out at the earliest possible moment.

Herein lay the main difficulty in dealing with the cases of this series. Patients rarely came to hospital within 24 hours of the onset of symptoms; more often this period was many times exceeded, so that women were admitted

in such a hopeless state that the question of operation did not arise. Even in patients under observation from the beginning, the onset of peritoneal infection was occasionally so insidious as for a time to escape detection; but nearly always the condition was obvious on the patient's arrival in the ward. The responsibility for operative treatment lay with the Consulting Surgeon to the hospital, whose practice it was to perform laparotomy whenever there seemed any chance of success.

Technique of Operation: Under general anaesthesia, chiefly with ether, a middle-line incision about 4" long was made below the umbilicus. The condition of the pelvic contents was rapidly investigated, but no attempt made to remove suppurating tubes. One end of a large rubber drainage tube was pushed down into the pelvis, the other left protruding through the wound. Normal saline was, in some cases, poured into the peritoneal cavity, and the abdomen closed. On account of the invariably grave condition of the patient, the procedure was carried out with all speed, and followed by infusion of salines and free stimulation.

Results: Of 12 patients submitted to operation, only two recovered, these being young women of good physique, for each of whom active treatment was possible on the second day of illness (cases 67,429). Of the others, one died on the table, and several within a few hours of leaving it; only one survived the 10th day after operation (288).

Suffering was in no small measure increased by surgical interference, for, though vomiting was sometimes mitigated, abdominal pain often became intense, making the end a very miserable one. Since without operation the patient may be made fairly comfortable, this fact should be borne in mind when the question of laparotomy arises.

Treatment other than Operative: Where operation held out no hope of improvement, treatment was limited to the administration of stimulants and sedatives. Morphia was often necessary, less for relief of pain than to control vomiting and promote sleep. Intestinal paralysis, often troublesome, responded sometimes to calomel in fractional doses, but of greatest benefit was a hypodermic of pituitrin, 1c.c., with physostigmin gr.1/100- 1/50, repeated after four hours if required: a combination of drugs always efficacious. For diarrhoea, pill of lead and opium was given. Patients were nursed in Fowler's position, in order as far as possible to limit exudate to the pelvic peritoneum, whose absorptive power is lower than that of the upper abdomen.

3.Pyaemia: The special treatment required for cases of pyaemia was almost entirely surgical, namely, the removal of pus from suppurating foci, followed by drainage. For abscesses of the cellular tissues, the ethyl chloride spray usually provided sufficient anaesthesia, and the pus was easily reached by simple incision. As a rule two openings were made, and a perforated drainage-tube passed from one to the other; the tube was then self-retaining, and permit-

ted of irrigation of the cavity, though this was seldom necessary. Most troublesome, on account of their large size, and of the tendency of the surrounding tissues to become necrotic, were abscesses in the region of the sacrum and buttocks (case 483). The prone position, in which patients were sometimes nursed, favoured a more healthy state of these tissues, but made adequate drainage very difficult. Usually, evacuation of pus was followed by at least temporary improvement, but not so when the foci were multiple; in one case of grave pyaemia, the many incisions and frequent dressing of wounds caused the patient so much distress that aspiration of pus with needle and syringe was adopted (case 414).

For joint-infections, a general anaesthetic was usually required. Whenever possible, a double incision was made, and one or more drainage-tubes inserted into the joint, which was subsequently irrigated with saline. In the case of the knee, considerable tendency to flexion was experienced, and on two occasions a splint required, Thomas's knee-splint being found the most suitable (case 468). The danger of ankylosis was borne in mind. Passive movement while infection was still active, besides being very painful, appeared to delay healing and keep up discharge. Once convalescence was reached, however, massage and movements were instituted, and continued, after the patient left hospital, by arrangement with the massage department of one

of the infirmaries. A useful joint resulted in every case (cases 51,84).

4. Phlegmasia: Treatment of phlegmasia may be dismissed in a few words. At the onset, local sedatives, as hot fomentations and glycerin of belladonna, were required for relief of pain. The limb was kept warm by a covering of cotton-wool, and immobilised between sandbags. When the oedema was slow in clearing up, I found it of benefit to have the foot raised on pillows, and, on the patient leaving bed, a supporting bandage was applied to the limb.

Treatment by Special Methods.

1. Serum Treatment: The pioneers of this method of treatment were MARMOREK, who in 1895 prepared the first antistreptococcal serum, and VAN DE VELDE, who produced a polyvalent serum in the following year. Serum therapy in puerperal infection has not fulfilled expectations, and most writers of the present day regard it as of very doubtful value. KOEHLER^{27e} finds any favourable effect due simply to the production of leucocytosis, which can be brought about much more easily by other means; HAMM⁷⁹ has shown that an adequate dose cannot be less than half a litre.

Recommending the employment of serum are SHEAR²⁴, who regards it as an antidote of great value; WHITEHOUSE⁵⁹,

MURRAY⁸⁰, and ROULLAND⁸¹, in favour of its intravenous injection; LUKER⁵³, who considers the intravenous route not devoid of risk; and BAILEY⁸². This writer claims great benefit, in a series of 14 cases, from the use of serum, which he thinks has a tendency to localise the disease by the production of parametritis. His charts, however, do not adequately support his views, and BRODHEAD⁸³, criticising his results, sees no proof that the serum did any good.

In the present investigation, that used was the polyvalent antistreptococcus serum of Burroughs Wellcome and Co., substituted occasionally, without advantage, by their "puerperal" type. 40 selected cases, nearly all severe, were given it, the majority at an early stage of infection; in the remainder, serum treatment was adopted only on the disease, perhaps a considerable time after its onset, taking a more serious form. Given by intra-muscular injection on the outer aspect of the thigh, the usual dose of serum was 50 c.c.; but sometimes 25 - 30 c.c. was considered sufficient. Often it was repeated on two or three successive or alternate days, as the condition of the patient seemed to require. The average amount per case was 70 c.c., the largest amount for one patient 175 c.c.

Results: In 30 severe cases, including examples of pyaemia and general peritonitis, not the slightest improvement was observed. The lack of response is illustrated in

many of the charts (e.g. cases 299, 424, 484); occasionally, indeed, the infection seemed aggravated (cases 301, 387). In ten patients there was apparent benefit - "apparent", because it is easy to believe that some would have shown the same improvement without serum. Thus the charts of cases 268 (serum-treated) and 245 (no serum) show a similar fall of temperature; likewise, the more gradual resolution of fever of 306 and 420 (serum-treated) may be compared with that of 73 (no serum). Improvement more clearly due to serum was shown in case 436, where pyrexia of ten days' duration began to subside immediately after the first dose. Cases 415, 446, and 460 also may be regarded as deriving benefit. These examples of improvement cannot be attributed to larger dosage or earlier administration, but only to the presence of a less grave form of infection.

Serum Sickness: Six patients suffered from serum sickness. Each showed a morbilliform or scarlatiniform rash about the tenth day after injection; three women had, in addition, relapse of temperature with joint-pains (cases 306, 436). It is noteworthy that no less than four of these cases are in the "benefit" group.

One may conclude that antistreptococcal serum is valueless in all severe forms of puerperal infection. In the milder forms of sepsis improvement may follow its use, but many of the supposed cures are probably the result of coincidence.

2. Vaccine Treatment: Favourable results attained by the use of autogenous vaccines in the early stages of the disease are reported by MUNRO KERR²⁶, DAELS⁸⁴, WESTERN⁸⁵, and JORDAN⁴¹. Opinion is more general, however, that they are of benefit only in prolonged and attenuated infections, and CHOME⁸⁶, LEQUEUX⁸⁷, and others consider them dangerous in the acute forms of puerperal sepsis. KOEHLER^{27f} regards their effect as simply a foreign- protein reaction. ROULLAND⁸¹ favours local vaccination, or the application of vaccines to the uterus.

Only seven women received vaccine treatment, four having streptococcal and three staphylococcal infections.

The following is a summary of the cases:-

- I. Septicaemia; streptococci in blood. Vaccine treatment commenced soon after admission, doses rising from 5 to 40 million organisms at 3 or 4-day intervals. No effect on temperature or general condition. Died. (case 316).
- II. Septicaemia with pyosalpinx; streptococci in blood. Vaccine given on failure of serum treatment; dosage as above. No benefit. Died. (Case 299).
- III. Pyaemia with many abscesses; streptococci in blood. Vaccine given when serum had failed; dose $2\frac{1}{2}$ to 20 million. No effect. Died. (Case 414).
- IV. Septicaemia; streptococci in blood. Vaccine treatment started after three weeks' illness; doses from 5 to 1000 million. No benefit. Ultimately phlegmasia with fall of temperature. (Case 230).
- V. Suppurative cellulitis: abscess in abdominal wall; staphylococcus aureus in pus. Vaccine treatment started after acute stage of illness was over; dose 50 to 400 million. Improvement slow but definite.
- VI. Pyaemia with extensive suppuration of hips and buttocks; staph. aureus in pus. Vaccine treatment started at end of acute stage; dose 50 to 1000 million.

Improvement slow but definite. Chart shows febrile reaction to vaccine. (Case 483).

VII. Breast abscess following puerperal infection; staph. aureus in pus. Vaccine given in similar dosage. Complete recovery.

Comment: The vaccine was autogenous in each case.

No benefit was observed in any of the streptococcal infections, all of which were grave. In the staphylococcal cases infection was less severe, none of the blood-cultures being positive; moreover infection had passed its acute phase and was localised before treatment was adopted; improvement was observed in each.

It would be unwise to draw conclusions from such a small series, but the results support the view that autogenous vaccines are useless in the acute stage of puerperal septicaemia. Once this is over, leaving local suppuration, the result of pelvic inflammation or pyaemia, they may be of value in overcoming the infecting organisms and bringing about more speedy recovery.

3. Intravenous Medication: The injection of a drug directly into the blood-stream represents the most rational method of combatting puerperal infection, provided one can be found to destroy the infecting agent without damaging the tissues of the body. The idea is by no means new, for TYLER SMITH⁸⁸ recorded, in 1869, the successful treatment of a puerperal case with intravenous ammonia. Within

recent years many substances, including antiseptics, colloidal solutions of metals, and "foreign" proteins, have been tried, and almost as many discarded as ineffective or dangerous. Some of the advocates of intravenous medication, with the drugs they recommend, are: FITZGIBBON & BIGGER¹², colossal iodine; DUDGEON⁸⁹, perchloride of mercury; KIEHNE⁹⁰, perchloride of mercury and neo-arsphenamin; LUKER⁵³, quinin bi-hydrochloride; WHITEHOUSE⁵⁹, acriflavine 0.4 per cent solution; GASTELUM³⁴, magnesium sulphate 0.3 per cent solution; SCHUMANN⁹¹, 1 per cent mercurochrome; SCHOLTEN⁹², colloidal silver and copper; GOW⁹³, Witte's peptone 10 per cent solution; and KOEHLER²⁷, who finds all these useless, Pregl's solution of iodine. POLAK⁹⁴ and PIPER⁹⁵, after trial of mercurochrome, have given up intravenous therapy as ineffective. An interesting experiment is that of PHILIPP⁹⁶, who attempted, unsuccessfully, to destroy the organisms in the blood by inhalations of narylene gas.

Eusol: In the present series the intravenous preparation chosen was eusol, a solution of equal parts of bleaching powder and boric acid, whose antiseptic action depends on the liberation of hypochlorous acid. It has been used for puerperal sepsis by CANNEY¹⁴; GRACIE⁹⁷, using bigger doses (50c.c.) in the treatment of subacute infective endocarditis, found it of doubtful benefit and liable to cause distress.

Eusol was administered to nine grave cases, including two of pyaemia and one of general peritonitis. Given usually on admission, it was sometimes more or less a last resort. The site of injection was the median basilic vein, the dose 12 c.c. of the freshly made solution, to which was added four times the amount of normal saline. One woman received a second dose, after 48 hours' interval.

Results: One example of benefit from eusol was observed, but it was very transient (case 484): the temperature fell to normal and the pulse rate was considerably reduced, followed by almost immediate relapse. No other patient showed the slightest improvement (cases 479, 490), and in two instances sickness and vomiting resulted from use of the drug.

The conclusion is that intravenous eusol, though perhaps worthy of further trial, has so far proved valueless, and that ill effects may follow its administration.

4. Abscess of Fixation: It is well known that a circumscribed inflammatory focus, developing during the course of a general infection, often has a most favourable influence on the prognosis (LEA^{19f}, KOEHLER²⁷, JORDAN⁴¹). As I have mentioned, improvement was frequently noticed when parametritis or phlegmasia became superimposed on septicaemia; and on one occasion the occurrence of facial erysipelas proved the turning point in a prolonged

infection (case 38).

That a similar focus, artificially produced, might be equally beneficial was shown, in 1891, by FOCHLER, who, by injection of turpentine in puerperal cases, provoked local suppuration and so established the method of treatment by "abscess of fixation". In spite of much adverse criticism it has survived and is becoming more popular, especially with French physicians. Among recent writers using and recommending the method are IVENS⁹⁸, CARLES⁹⁹, PORTACOELI¹⁰⁰, POUX & RASCOL¹⁰¹, and PERY¹⁰². Important points in treatment are, the careful selection of cases and time of application, and the preserving of the abscess as long as possible intact. Failure of reaction of the tissues is regarded as of ill omen.

The improvement has been variously attributed to leucocytosis, to raising of the opsonic index, and - the modern view, according to KOEHLER^{27g}, who does not favour the method - to a form of foreign-protein therapy, the protein being derived from the necrotic tissues at the site of injection.

Method: Rectified oil of turpentine was used in amount varying from 1.5 to 4 c.c., the larger quantity usually as a second dose on failure of the first. Injection was made through a fine needle into the muscles of the flank, care being taken to avoid spilling the fluid into the subcutaneous tissues, where it caused pain.

Practically no discomfort resulted from development of the abscess, and, for its evacuation, freezing of the overlying skin, which remained healthy, provided sufficient anaesthesia. Drainage was then carried out as for any other discharging wound; healing tended to be slow. The pus, thick, curdy and yellow, was always sterile.

Summary of cases:

- I. Septicaemia; blood-culture negative. High temperature and frequent rigors. Serum ineffective. Turpentine 1.5 c.c. injected. Only one further rigor; temperature fell gradually and general condition improved as abscess developed. Pus released after 11 days. Uninterrupted recovery. Case 424.
- II. Staphylococcal septicaemia. Turpentine 1.5 c.c. had no local or general effect. Five days later 4 c.c. injected. The abscess was very slow in forming, and fever continued. On 24th day incisions set free a large amount of pus, with immediate fall of temperature and recovery. Case 479.
- III. Streptococcal septicaemia. Serum useless. Definite fall of temperature to normal from date of turpentine injection (1.5 c.c.). There was, however, immediate relapse from formation of an abscess in thigh at the site of serum injection. Temperature again fell when this was opened, and convalescence was uninterrupted. Case 453.
- IV. Septicaemia; blood negative. After turpentine injection (1.5 c.c.) there was gradual fall of temperature, followed by relapse. 4 c.c. then given. At this point patient elected to leave hospital.
- V. Grave streptococcal infection. Serum useless. Turpentine on two occasions made no improvement: abscess small, and its evacuation without effect on temperature. Pyaemia and death. Case 468.
- VI. Grave streptococcal pyaemia. Serum ineffective. Turpentine 4 c.c. had no general effect. Abscess developed slowly and opened on 16th day. No fall of temperature. Death. Case 490.

VII. Streptococcal septicaemia. Turpentine 4 c.c. had no effect on general condition. Big abscess opened on 8th day; no fall of temperature. Ultimately phlegmasia and recovery. Case 500.

Comment: All the patients were seriously ill, and only in one, the first, did the method bring about striking and rapid improvement. The second also improved, but progress was much more gradual. In case III the turpentine abscess was small; the septic focus in the thigh took its place, however, in bringing about recovery, which justly may be regarded as due to abscess of fixation. The result in case IV was not ascertained. The remaining three patients showed no response. Some of the abscesses were of considerable size, but, as cases VI and VII show, extensive suppuration did not guarantee improvement. On the other hand, slight local response to the irritant appeared to signify a bad prognosis.

Conclusion: Abscess of Fixation is in theory a sound means of treating grave forms of puerperal infection. It may be regarded as a heroic remedy, and is not justified in mild sepsis. While by no means always producing the desired effect, it is sometimes of conspicuous value, and is worthy of more general recognition than at present it receives.

SUMMARY.

In a series of 500 cases of Puerperal Infection:

Liability to infection was found least below the age of 21, greatest between 26 and 35. The incidence was high after abnormal labour, and, correspondingly, after confinements attended by doctors. 16.4 per cent followed abortion.

19.2 per cent were fatal. High mortality was associated particularly with illegitimacy, with abnormal labour and abortion, and with infections of early onset; to a less extent, with 1st, 2nd, and 3rd pregnancies.

Uncomplicated infection, a painless and insidious disease, formed the most common clinical type (65.6 per cent of the series). The sapraemic and septicaemic forms often were indistinguishable, many grave cases showing the local signs of putrefaction. No evidence of relationship with Scarlatina presented itself. The duration was usually short: not more than a week in 67 per cent. Pneumonia was the commonest immediate cause of death. Mortality 15.5 per cent.

Cases presenting pelvic inflammation (12.4 per cent) more often followed normal labour, rarely abortion. Slower of onset, the infection was characterised by the occurrence, sooner or later, of pelvic pain. Parametritis, the milder form, more common on the right side, caused but slight

disturbance, and sometimes brought about a general improvement; perimetritis caused more local and general reaction, especially on invasion of the Fallopian tubes. Both forms not infrequently ended in suppuration. The risk of incomplete resolution, with consequent chronic invalidism, is slight in hospital-treated cases. Mortality only 6.4 per cent.

General Peritonitis (7 per cent), early of onset, was most frequent in primiparae, after abnormal labour, and after abortion. Not always obvious, and by far the most fatal manifestation of infection, it should be borne in mind in the examination of every grave case. Vomiting was the most constant sign; the abdomen often misleading. Mortality 94.6 per cent.

Pyæmia (4.8 per cent), also very common in primiparae, and after abnormal labour, but rare after abortion, usually started late and ran a prolonged course. Metastatic foci appeared to depend, to some extent, on trauma; joint-invasion was the most serious. Mortality 25 per cent.

Phlegmasia (10.2 per cent) was more frequent in older women; three fourths of cases followed normal labour. Likely causes were early getting up, Fowler's position over a long period, and anaemia. The left limb was more often affected; from the right, spread to the other side was more common. The thrombotic and lymphatic forms appeared to differ only in degree. Striking general improvement

sometimes followed the onset.

Bacteriological examination of blood, uterine smears, and purulent effusions showed that, with rare exceptions due to B.coli or Staph. aureus, the disease was caused by streptococcus. Haemolytic types were responsible for all the most serious infections, non-haemolytic, as a rule, for those less severe. There was no evidence that gonococcus gives rise to general infection.

Of 46 autopsies, diffuse peritonitis, whose frequency in fatal infections is not sufficiently realised, was a feature of more than half; two examples were associated with perforation of the uterus. Common also were fatty degeneration of the organs, pneumonia, and purulent pleural effusions.

As regards treatment, fresh air and good nursing did more than the administration of drugs; but stimulants and hypnotics were often necessary.

Curettage of the uterus during the febrile period proved, in the absence of haemorrhage, not only unnecessary, but harmful; no disadvantage was observed to follow the substitution of conservative methods. Curettage during convalescence was found harmless.

For diffuse peritonitis, laparotomy with drainage was performed whenever there seemed likelihood of success; but, very often, the patient came to hospital too late to benefit by any treatment. Pyaemia and pelvic inflammation often demanded surgical measures for the release of pus.

The response of acute infections to serum and auto-genous vaccines was disappointing. Serum was doubtfully beneficial in less severe illnesses, vaccines more definitely so in the presence of suppurating residua. Intravenous eusol proved useless.

Abscess of fixation, a heroic remedy not always justified, gave promising results, and merits more widespread recognition.

APPENDIX.

Distribution of the various types of Puerperal Infection
(percentages shown in red after the actual numbers) according
to:

| | Uncomplicated | | Pelvic Inflammation | | General Peritonitis | | Pyæmia | | Phlegmasia | | Totals | |
|---------------------|---------------|------|------------------------|------|------------------------|------|--------|------|------------|------|--------|------|
| 1.Age: | | | | | | | | | | | | |
| Under 21 | 17 | 5.2 | 6 | 9.7 | 2 | 5.7 | - | - | 1 | 2.0 | 26 | 5.2 |
| 21 - 25 | 98 | 29.9 | 19 | 30.6 | 12 | 34.3 | 4 | 16.7 | 11 | 21.6 | 144 | 28.8 |
| 26 - 30 | 96 | 29.3 | 15 | 24.2 | 9 | 25.7 | 9 | 37.5 | 15 | 29.4 | 144 | 28.8 |
| 31 - 35 | 55 | 16.7 | 15 | 24.2 | 7 | 20.0 | 4 | 16.7 | 13 | 25.5 | 94 | 18.8 |
| 36 - 40 | 51 | 15.5 | 4 | 6.5 | 4 | 11.4 | 6 | 25.0 | 7 | 13.7 | 72 | 14.4 |
| 41 & over | 11 | 3.4 | 3 | 4.8 | 1 | 2.9 | 1 | 4.1 | 4 | 7.8 | 20 | 4.0 |
| 2.Pregnancy: | | | | | | | | | | | | |
| Primiparae | 106 | 32.3 | 18 | 29.0 | 12 | 34.3 | 9 | 37.5 | 8 | 15.7 | 153 | 30.6 |
| Multiparae | 222 | 67.7 | 44 | 71.0 | 23 | 65.7 | 15 | 62.5 | 43 | 84.3 | 347 | 69.4 |
| 3.Type of labour: | | | | | | | | | | | | |
| Normal | 189 | 57.6 | 45 | 72.6 | 13 | 37.1 | 13 | 54.2 | 39 | 76.4 | 299 | 59.8 |
| Abnormal | 73 | 22.3 | 13 | 21.0 | 12 | 34.3 | 10 | 41.7 | 11 | 21.6 | 119 | 23.8 |
| Abortion | 66 | 20.1 | 4 | 6.4 | 10 | 28.6 | 1 | 4.1 | 1 | 2.0 | 82 | 16.4 |
| 4.Attendance: | | | | | | | | | | | | |
| Doctor | 131 | 50.0 | 22 | 37.9 | 15 | 60.0 | 12 | 52.2 | 21 | 42.0 | 201 | 48.1 |
| Midwife | 111 | 42.4 | 28 | 48.3 | 10 | 40.0 | 8 | 34.8 | 26 | 52.0 | 183 | 43.8 |
| Institution | 13 | 5.0 | 4 | 6.9 | - | - | 2 | 8.7 | 2 | 4.0 | 21 | 5.0 |
| Unknown | 7 | 2.6 | 4 | 6.9 | - | - | 1 | 4.3 | 1 | 2.0 | 13 | 3.1 |
| 5.Day of sickening: | | | | | | | | | | | | |
| 1- 7 days | 268 | 81.7 | 40 | 64.5 | 28 | 80.0 | 16 | 66.7 | 23 | 45.1 | 375 | 75.0 |
| 8-14 " | 48 | 14.6 | 11 | 17.7 | 3 | 8.6 | 8 | 33.3 | 18 | 35.3 | 88 | 17.6 |
| 15-21 " | 5 | 1.5 | 5 | 8.1 | 1 | 2.8 | - | - | 8 | 15.7 | 19 | 3.8 |
| Over 21" | 7 | 2.2 | 6 | 9.7 | 3 | 8.6 | - | - | 2 | 3.9 | 18 | 3.6 |
| Totals | 328 | 100 | 62 | 100 | 35 | 100 | 24 | 100 | 51 | 100 | 500 | 100 |

^x Abortions not included.

REFERENCES.

1. EICHEL, O.- Amer. Jour. Obstet. Gyn., 1924, vii, 667.
2. CAMPBELL, Dame Janet- Report on Maternal Mortality, 1924, p. 110.
3. Scottish Departmental Report on Puerperal Morbidity and Mortality, 1924, pp. 8, 9.
4. AHLFELD - quoted by LEA (infra) p. 249.
5. EDEN, T.- "Manual of Midwifery", 1915, p. 221.
6. Report of Medical Officer of Health, Glasgow, 1925, p. 82.
7. GEDDES, G.- "Puerperal Septicaemia", 1926.
8. WILLIAMS, J. Whitridge - "Obstetrics", 1920, pp. 955, 964.
9. ALFIERI, E.- Gynécologie et Obstétrique, 1923, viii, 64.
10. Report of Metropolitan Asylums Board - Brit. Med. Jour., 1926, ii, 398.
11. KROHNE - quoted by LEA (infra) p. 26.
12. FITZGIBBON, G. and BIGGER, J.- Brit. Med. Jour., 1925, i, 773.
13. WATSON, B. P.- Brit. Med. Jour., 1923, i, 505.
14. CANNEY, J.- Brit. Med. Jour., 1924, ii, 356.
15. BERKELEY, C. and BONNEY, V.- "The Difficulties and Emergencies of Obstetric Practice", 1921, pp. 469 et seq.
16. THORP, E.- "Puerperal Sepsis and its Prophylaxis", 1922, p. 16.
17. HAUCH, E.- Gynécol. et Obstét., 1923, viii, 46.
18. RONSHEIM, J.- Amer. Jour. Obstet. Gyn., 1924, viii, 359.
19. LEA, A. W.- "Puerperal Infection", 1910, pp. (a) 187 (b) 153 (c) 321 (d) 274 (e) 325 (f) 176.
20. London Committee's Report on Puerperal Sepsis, Brit. Med. Jour., 1925, i, 779.
21. BRAXTON HICKS - Abstract of Medical Sciences, 1868, i, 300.
22. HAMER, W.- Brit. Med. Jour., 1922, i, 348.
23. HAMANT, A. and MATHIEU - Gynécol. et Obstét., 1923, viii, 485. (Abstract)
24. SHEAR, J.- "Obstetrics, Normal and Operative", 1920, pp. 683
25. NUTHALL, A. W.- quoted in Lancet, 1926, i, 772. (et seq.)
26. MUNRO KERR, J., FERGUSON, YOUNG, and HENDRY - "A Combined Textbook of Obstetrics and Gynecology", 1923, pp. 515, 516
27. KOEHLER, R.- "The Therapy of Puerperal Fever", English Edition, 1926, pp. (a) 98 (b) 53 (c) 34 (d) 91 (e) 234 (f) 206 (g) 199).
28. OLDFIELD, C.- Brit. Med. Jour., 1925, ii, 64.
29. SCHOKAERT - Gynécol. et Obstét., 1923, viii, 427.
30. SCHAANNING, G.- Brit. Med. Jour., 1924, ii, Ep. 48 (Abstract).
31. MARBAIS - Gynécol. et Obstét., 1923, viii, 446.
32. KNEISE - quoted by WILLIAMS (supra) p. 943.
33. SCHICKELE and RIOTTE - Gynécol. et Obstét., 1923, viii, 462.
34. GASTELUM, B.- Jour. Amer. Med. Assoc., 1926, ii, 1520 (Abstract).
35. WILLIAMS, J. Whitridge - Jour. Obstet. Gyn. Brit. Emp., 1925, ii, 239.
36. FOULERTON, A.- Practitioner, 1905, iii.
37. ABRAHAMS, R.- Jour. Obstet. Gyn. Brit. Emp., 1924, iv, 700.
38. WINTER, G.- Jour. Obstet. Gyn. Brit. Emp., 1924, ii, 348 (Abstract).

- 39.KANTER and PILOT - Surg.Gyn.and Obstet.,1924,xxxviii,96.
- 40.KOTTLORS,E.- Brit.Med.Jour.,1927,i,Ep.3. (Abstract)
- 41.JORDAN,J.F.- Brit.Med.Jour.,1912, ii, 1.
- 42.LASH,A.and KAPLAN,B.- Jour.Amer.Med.Assoc.,1925,i,1991;
and 1926,i,1197.
- 43.STITT,E.R.- "Practical Bacteriology", 1923, p.86.
- 44.BONNEY,V.- Lancet, 1926, i, 167.
- 45.REEB - Gynécol. et Obstét., 1923, viii, 465.
- 46.WYATT,J.- Lancet, 1926, ii, 512.
- 47.HENDRY,J.- Jour.Obstet.Gyn.Brit.Emp., 1925, ii, 251.
- 48.BLAIR BELL,W.- Brit.Med.Jour., 1921, i, 693.
- 49.THALHIMER and HOGAN - Amer.Jour.Obstet.Gyn.,1923,vi,343.
- 50.ENO,E.- Surg.Gyn.Obstet., 1923,i,797.
- 51.SCHUMANN,E.- Amer.Jour.Obstet.Gyn., 1924,viii,257.
- 52.ANDREWS,Russell - Jour.Obstet.Gyn.Brit.Emp.,1925,ii,256.
- 53.LUKER,S.- Jour.Obstet.Gyn.Brit.Emp.,1923,iv,592.
- 54.SIGWART,W.- Jour.Amer.Med.Assoc.,1923,i,1818. (Abstract)
- 55.HOLLADAY,E.- Amer.Jour.Obstet.Gyn.,1923,vi,299.
- 56.BENOIT,F.- Gynécol. et Obstét.,1923,viii,451.
- 57.GORDON,O.- Jour.Obstet.Gyn.Brit.Emp.,1922,i,129. (Abstract).
- 58.VAN DONGEN,J.- Brit.Med.Jour.,1925,i,Ep.9. (Abstract).
- 59.WHITHOUSE,Beckwith - Lancet, 1924,i,1091.
- 60.DELMAS,P.- Brit.Med.Jour., 1925,i,Ep.19. (Abstract).
- 61.BECKER - Jour.Obstet.Gyn.Brit.Emp.,1926,i,146. (Abstract).
- 62.HILLIS,D.- Surg.Gyn.and Obstet.,1924,i,83.
- 63.OFFERMANN - Jour.Obstet.Gyn.Brit.Emp.,1922,i,146.(Abstract)
- 64.DUBROWITSCH -Jour.Obstet.Gyn.Brit.Emp.,1924,i,125.(Abstract)
- 65.BOVIN,E.- Jour.Obstet.Gyn.Brit.Emp.,1924,iv,681. (Abstract)
- 66.HOBBS,R.- Jour.Obstet.Gyn.Brit.Emp.,1925,ii,254.
- 67.PHILLIPS,H.- Brit.Med.Jour., 1925,ii,1125.
- 68.COMPTON,A.- Lancet, 1926, ii, 326.
- 69.CHIRIE,J.- Jour.Amer.Med.Assoc.,1924,i,1899. (Abstract)
- 70.BLAIR BELL,W.- Jour.Obstet.Gyn.Brit.Emp.,1924,iv,647.
- 71.BONNEY,V.- Brit.Med.Jour., 1920,ii,263.
- 72.BALDWIN,J.- Amer.Jour.Obstet.Gyn.,1923,v,499.
- 73.KUSTNER,H.- Jour.Amer.Med.Assoc.,1926,ii,289. (Abstract)
- 74.RUNGE,H. and LAUER,A.- Brit.Med.Jour.,1924,ii,Ep3.(Abstract)
- 75.BLAIR BELL,W.- Brit.Med.Jour.,1923,ii,402.
- 76.GALABIN,A.- Practitioner, 1905,iii,309.
- 77.OLDFIELD,C.- Jour.Obstet.Gyn.Brit.Emp.,1923,iii,500.
- 78.EDWARDS,A.- Surg.Gyn.and Obstet.,1924,i,256.
- 79.HAMM - Gynécol. et Obstét.,1923,viii,436.
- 80.MURRAY,H.L.- Brit.Med.Jour.,1920,ii,269.
- 81.ROULLAND,H.- Jour.Obstet.Gyn.Brit.Emp.,1925,i,164.(Abstract)
- 82.BAILEY,H.- Amer.Jour.Obstet.Gyn.,1924,vii,658; & viii,7.
- 83.BRODHEAD - Amer.Jour.Obstet.Gyn.,1924,vii,729.
- 84.DAELS - Gynécol. et Obstét.,1923,viii,433.
- 85.WESTERN,G.- quoted in MEARA's "Treatment of Acute
Infectious Diseases", 1921, p.765.
- 86.CHOMÉ - Gynécol. et Obstét.,1923,viii,434.
- 87.LEQUEUX - Gynécol. et Obstét.,1923,viii,435.

88. TYLER SMITH - Abstract of Medical Sciences, 1870, i, 321.
89. DUDGEON, L. - Lancet, 1926, i, 170.
90. KIEHNE, H. - Jour. Amer. Med. Assoc., 1923, i, 1658. (Abstract)
91. SCHUMANN, E. - Brit. Med. Jour., 1926, i, Ep. 39. (Abstract)
92. SCHOLTEN, G. - Jour. Obstet. Gyn. Brit. Emp., 1925, i, 174 (Abstract)
93. GOW, A. - Lancet, 1924, i, 300.
94. POLAK, J. - Amer. Jour. Obstet. Gyn., 1925, x, 521.
95. PIPER, E. - Amer. Jour. Obstet. Gyn., 1922, iv, 532; & 1925, x, 371.
96. PHILIPP, E. - Jour. Obstet. Gyn. Brit. Emp., 1925, iii, 611. (Abst't)
97. GRACIE, J. - Lancet, 1924, ii, 797.
98. IVENS, Frances - Brit. Med. Jour., 1920, ii, 271.
99. CARLES, J. - Brit. Med. Jour., 1926, ii, Ep. 61. (Abstract)
100. PORTACOELI - Gynécol. et Obstét., 1923, viii, 438.
101. POUX and RASCOL - Bull. de la Soc. d'Obstét. et de Gyn.,
1923, vii, 453.
102. PÉRY - Gynécol et Obstét., 1923, viii, 459.

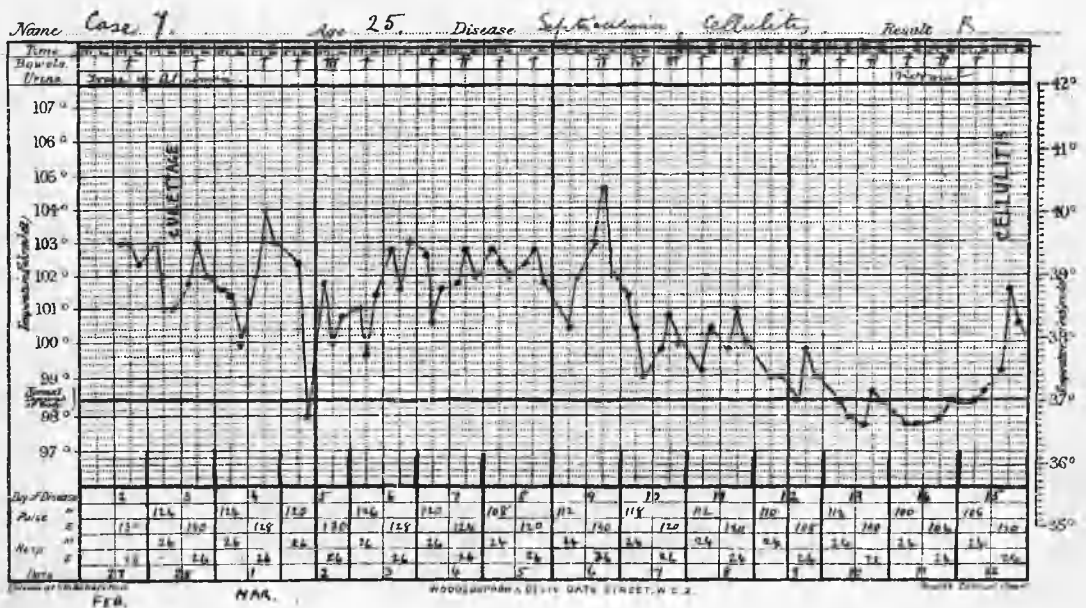
PUERPERAL INFECTION :

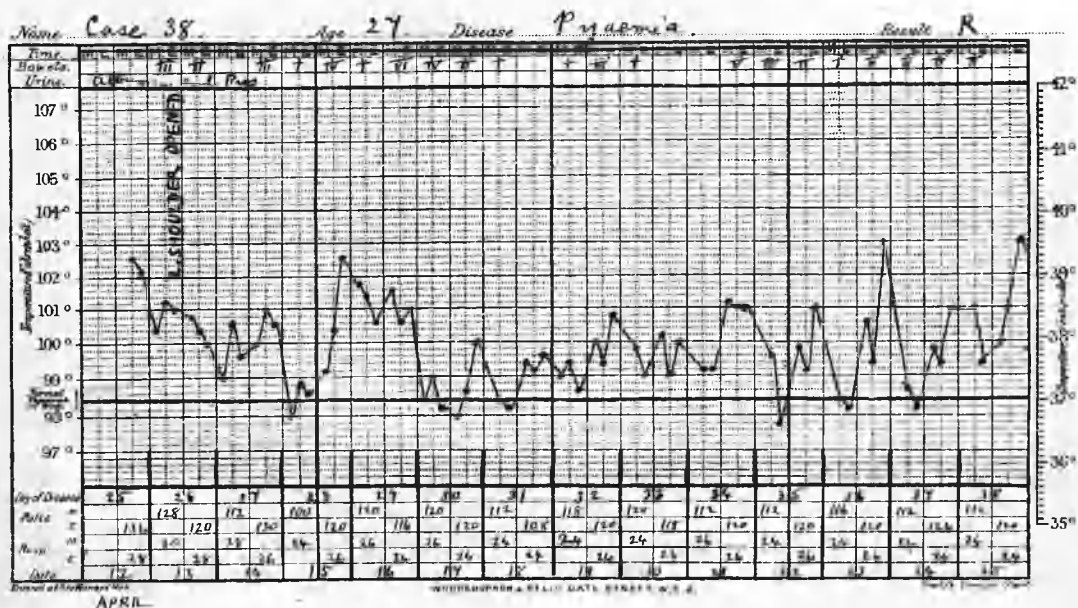
A REVIEW OF FIVE HUNDRED CASES .

CASE - BOOK .

22-2-23 Forceps delivery.
24-2-23 Onset of fever 100 degrees and rising.
27-2-23 Abdomen. Mild but constant pain; tongue coated;
heart and lungs normal; abdomen flaccid; fundus 2-inch
above umbilicus; on side open; small perineal tear.
28-2-23 Uterus contracted; a little debris present.
10-3-23 Temperature fallen to normal; patient quite
comfortable.
14-3-23 Temp. swinging B Y up to several degrees; uterus
hard tender mass in right lower quadrant of abdomen; feet
also vaginally.
22-3-23 Swelling much less; temp. settling on 100.
4-4-23 Mass almost imperceptible. Discharged.

Nov. 1923 WILLIAM NAPIER, M.B., Ch.B. a pain on right side
when walking. No fever or bloody pain.
Has had a normal confinement and is again 9 months pregnant.





Case 38 - Primipara, aet 27.

14-3-23 Breech delivery in Maternity Hospital; child still-born.

18-3-23 Onset of fever: 3 rigors. Has had pain and swelling in left shoulder for last three or four days.

12-4-23 Admitted, well-nourished but pale and acutely ill. Tongue moist, coated; pulse soft and rapid; heart, lungs and abdomen normal; fundus impalpable; discharge profuse, purulent; urine contains albumin and pus. Left shoulder swollen and tender; surrounding tissues oedematous; skin in places red and glazed; movements much restricted, on account of pain.

Under general anaesthetic, joint incised and about a pint of foul pus released. Joint-capsule had burst superiorly, exposing the head of the humerus. Three drainage tubes inserted.

22-4-23 Shoulder greatly improved, but fever persists.
Urine still albuminous.

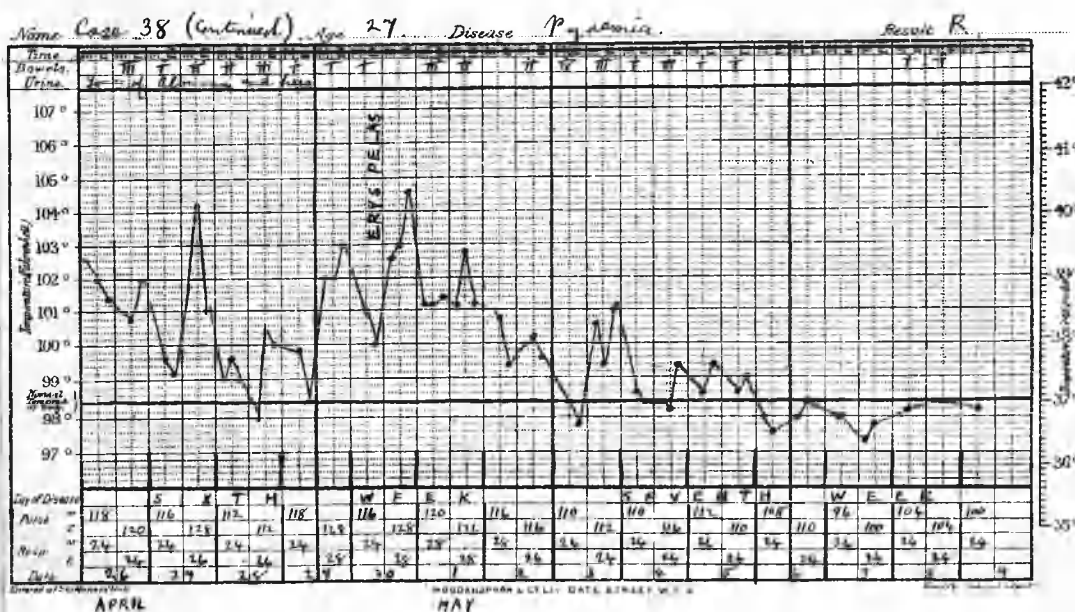
30-4-23 Erysipelas has appeared on the face.

3-5-23 There has been gradual fall of temperature since onset of erysipelas, which is now subsiding.

16-5-23 Much better. No further pyrexia. Wounds almost healed; joint-movements fairly good, but considerable atrophy of the deltoid. Urine improved.

11-6-23 Dismissed well.

Nov.1925. Has been in excellent health since leaving hospital. Left arm cannot be raised above level of shoulder; Other movements good; Has had massage in Western Infirmary. Patient is 6 months pregnant.



Case 38 - Primipara, aet 27.

14-3-23 Breech delivery in Maternity Hospital; child still-born.

18-3-23 Onset of fever: 3 rigors. Has had pain and swelling in left shoulder for last three or four days.

12-4-23 Admitted, well-nourished but pale and acutely ill. Tongue moist, coated; pulse soft and rapid; heart, lungs and abdomen normal; fundus impalpable; discharge profuse, purulent; urine contains albumin and pus. Left shoulder swollen and tender; surrounding tissues oedematous; skin in places red and glazed; movements much restricted, on account of pain.

Under general anaesthetic, joint incised and about a pint of foul pus released. Joint-capsule had burst superiorly, exposing the head of the humerus. Three drainage tubes inserted.

22-4-23 Shoulder greatly improved, but fever persists. Urine still albuminous.

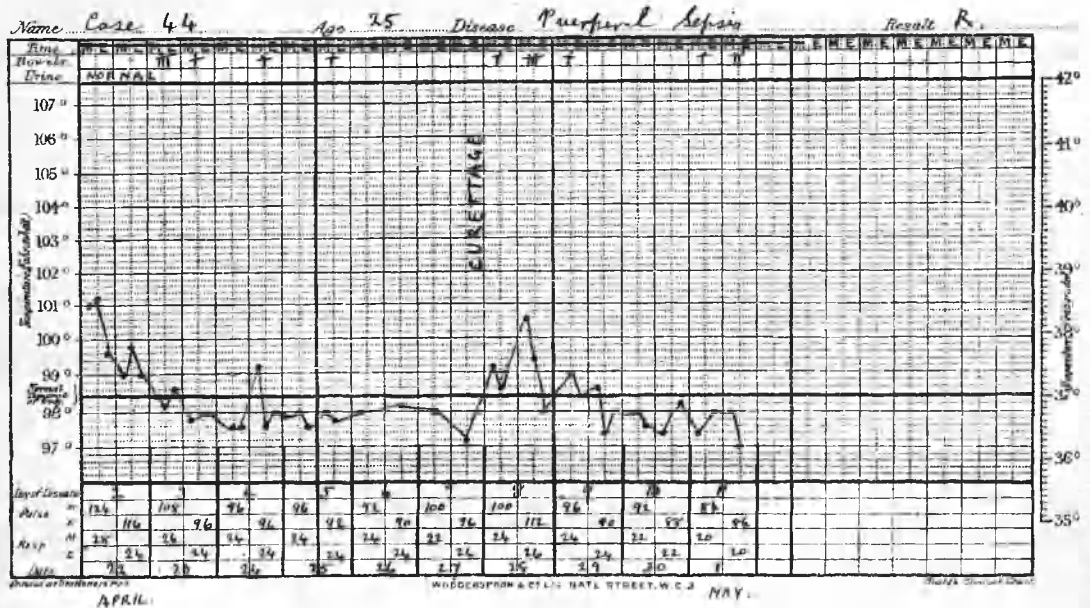
30-4-23 Erysipelas has appeared on the face.

3-5-23 There has been gradual fall of temperature since onset of erysipelas, which is now subsiding.

16-5-23 Much better. No further pyrexia. Wounds almost healed; joint-movements fairly good, but considerable atrophy of the deltoid. Urine improved.

11-6-23 Dismissed well.

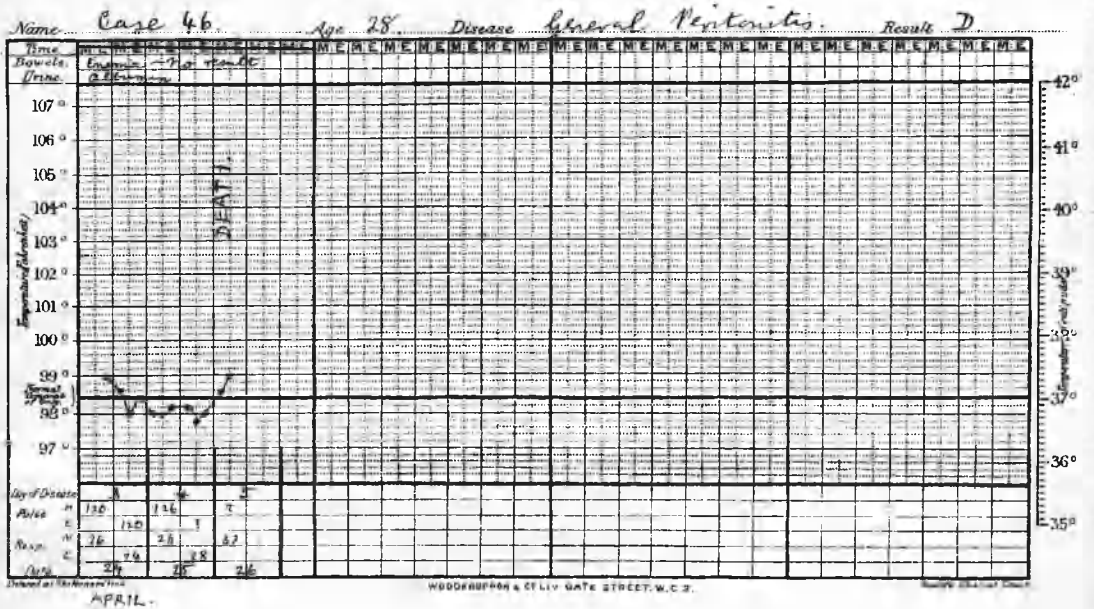
Nov. 1925. Has been in excellent health since leaving hospital. Left arm cannot be raised above level of shoulder; Other movements good; Has had massage in Western Infirmary. Patient is 6 months pregnant.



Case 44 - Primipara, aet 25.

- 16-4-23 Normal confinement.
 21-4-23 Onset of fever: rigor and slight vomiting.
 22-4-23 Admitted, moderately ill. Colour poor; tongue furred, dry; pulse soft; heart normal; lungs have signs of bronchitis. Abdomen normal save for slight tenderness in left lower quadrant; fundus 3" above symphysis; discharge profuse, purulent; os open; no tears and no vaginal tenderness.
 27-4-23 Temperature normal, but discharge still profuse and foetid. Curetted under general anaesthesia.
 2-5-23 Curettage caused only slight febrile reaction. Discharge now much less, and odourless.
 12-5-23 Dismissed well.

Post Mortem: Heart normal in all respects; pericardium normal. Lungs congested, free of consolidation; left pleura thickened and adherent. Abscess full of thin pus; gut enormously dilated; uterus large but empty, with a perforation admitting two fingers in the posterior wall, just above the cervix. Liver, spleen and kidneys congested.



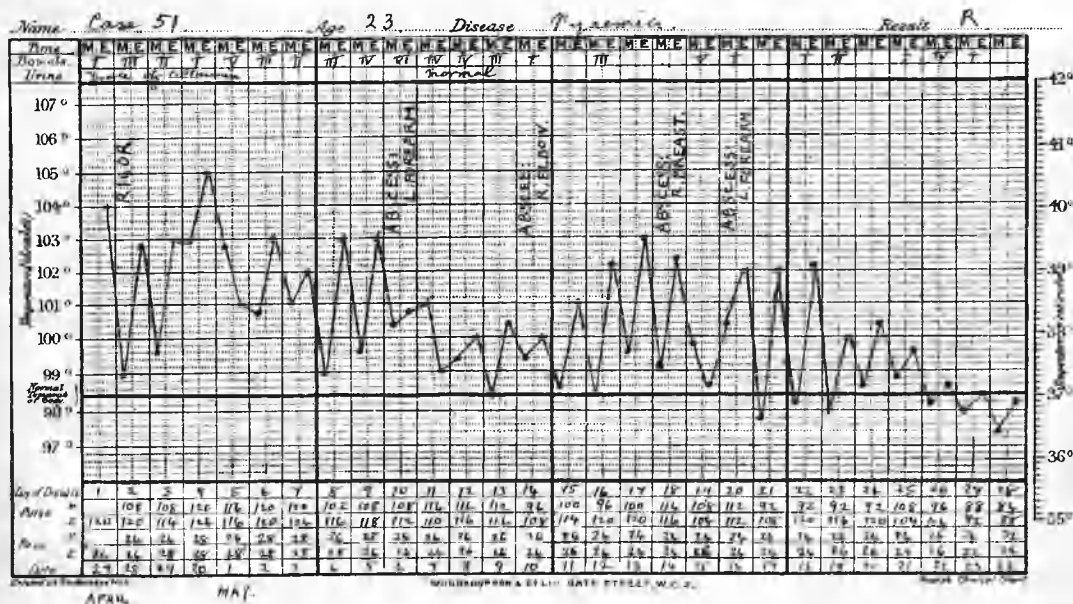
Case 46 - 2-para, aet 28.

22-4-23 Instrumental delivery; child still-born. Fever, with abdominal pain and vomiting, the same day.

24-4-23 Admitted acutely ill. Poorly nourished, slightly cyanosed; pulse very feeble; no abnormality in heart and lungs. Abdomen greatly distended; practically free of tenderness, it is flaccid above the umbilicus; in the lower half slightly hard. Fundus at umbilicus. Percussion note tympanitic save low in flanks, but presence of fluid is doubtful; liver dullness diminished. Cervix much lacerated; no vaginal tenderness or bulging.

25-4-23 Much worse. More distension, but no tenderness; pulse almost imperceptible. Becoming comatose. No vomiting. Bowels have not moved with enemas and fractional doses of calomel. Died next morning.

Post Mortem: Heart normal in all respects; pericardium normal. Lungs congested, free of consolidation; Left pleura thickened and adherent. Abdomen full of thin pus; gut enormously distended; uterus large but empty, with a perforation admitting two fingers in the posterior wall, just above the cervix. Liver, spleen and kidneys congested.



Case 51 - Primipara, aet.23.

15-4-23 Forceps delivery.

27-4-23 Onset of fever, with pain in right ankle and leg. One rigor and vomiting.

Admitted same day. Colour poor; tongue glazed and dry; breasts swollen and tender. Heart, lungs and abdomen normal; fundus impalpable; discharge scanty; vaginal examination negative; uterus well retracted. Calf of right leg slightly swollen and very tender; no discoloration, oedema, or varicosity.

29-4-23 Leg better, but pain in both forearms, which are swollen and tender, especially left.

6-5-23 Right arm better, left more swollen: incised, and a large amount of pus released. Left wrist-joint very stiff and sore. Leg normal.

10-5-23 Abscess over head of right radius opened.

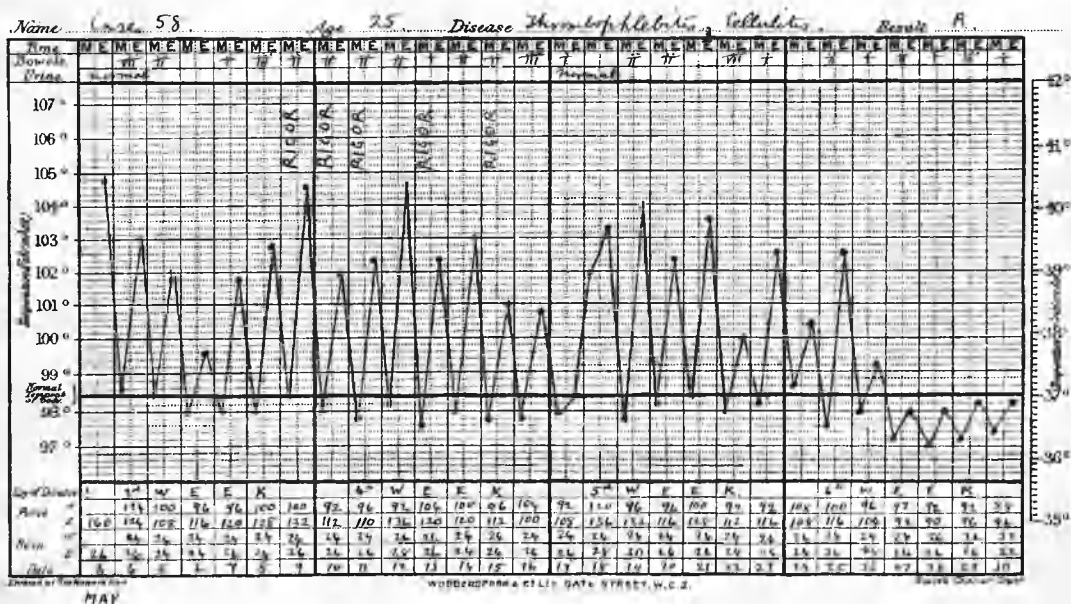
14-5-23 Superficial abscess on right breast opened.

16-5-23 Left forearm again swollen and tender: two new incisions under general anaesthesia; much pus.

24-5-23 No further abscesses; wounds are draining and temperature has fallen. There is, however, left drop-wrist, with stiffness of fingers. Joint splinted.

14-6-23 Wounds healed and wrist greatly improved. General condition good. Dismissed - to get massage at Royal Infirmary.

Nov.1925. In very good health since leaving hospital; arms have healed perfectly and patient has full use of them.



Case 58 - 4-para, aet.25.

10-4-23 Forceps delivery at 8½ months, preceded by copious bleeding. Onset of fever uncertain, probably a week after delivery. Frequent rigors; on 27-4-23, acute abdominal pain.

3-5-23 Admitted. Moderately ill, colour good. Heart and lungs normal; abdomen neither tender nor rigid; a hard mass felt in right lower quadrant. Fundus not felt; discharge scanty.

15-5-23 No improvement. Temperature has been swinging widely since admission; rigors frequent, some vomiting. Swelling as before; no pain. Condition suggests thrombophlebitis in addition to pelvic cellulitis.

29-5-23 Much better; temp. settled. Mass much smaller.

16-6-23 Mass almost impalpable. Dismissed.

Nov.1925. Patient has been perfectly well since going out. She is now 5 months pregnant.

Case 64 - 7-para, act.27.

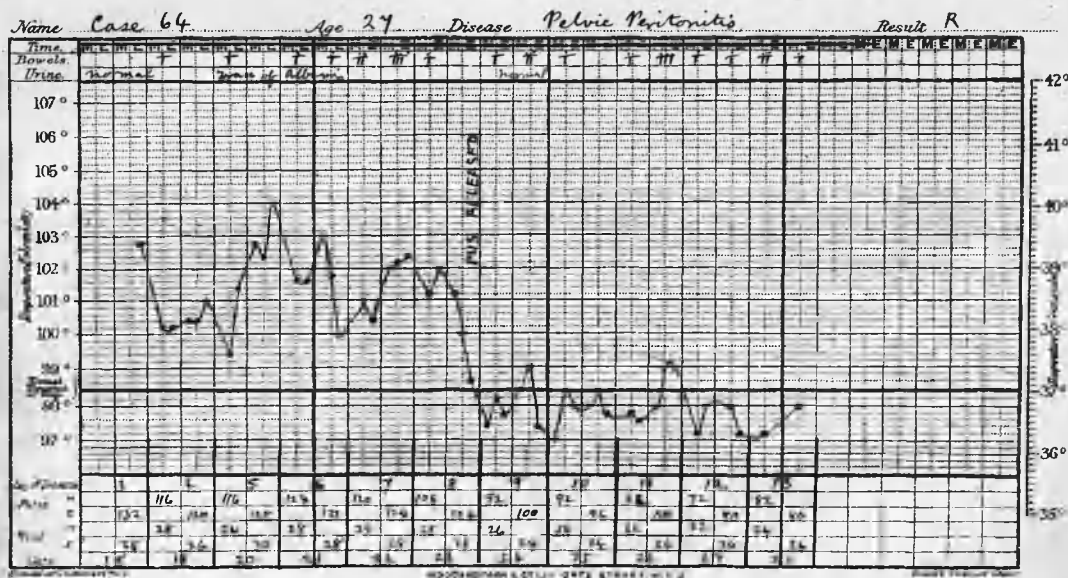
16-5-23 Two months' abortion. Fever since, with foul discharge and slight pain in left side of abdomen; no sickness.

18-5-23 Admitted. Moderately ill, colour good; tongue moist, furred. Heart and lungs normal; abdomen normal, save for very slight tenderness in left lower quadrant; uterus impalpable. Foul-smelling purulent discharge; bi-manually, uterus small, cervix displaced forward; slight fulness in pouch of Douglas.

23-5-23 For a day or two pain has been acute, and referred to the lower abdomen and rectum; no sickness. There is slight hypogastric tenderness; a large, very tender swelling in pouch of Douglas.

Under general anaesthesia, incision made in posterior vaginal fornix: much foul pus released. Opening packed.

Temperature fell immediately and there was no relapse.



Case 73 - 4-para,aet.37.

26-5-23 Normal confinement.

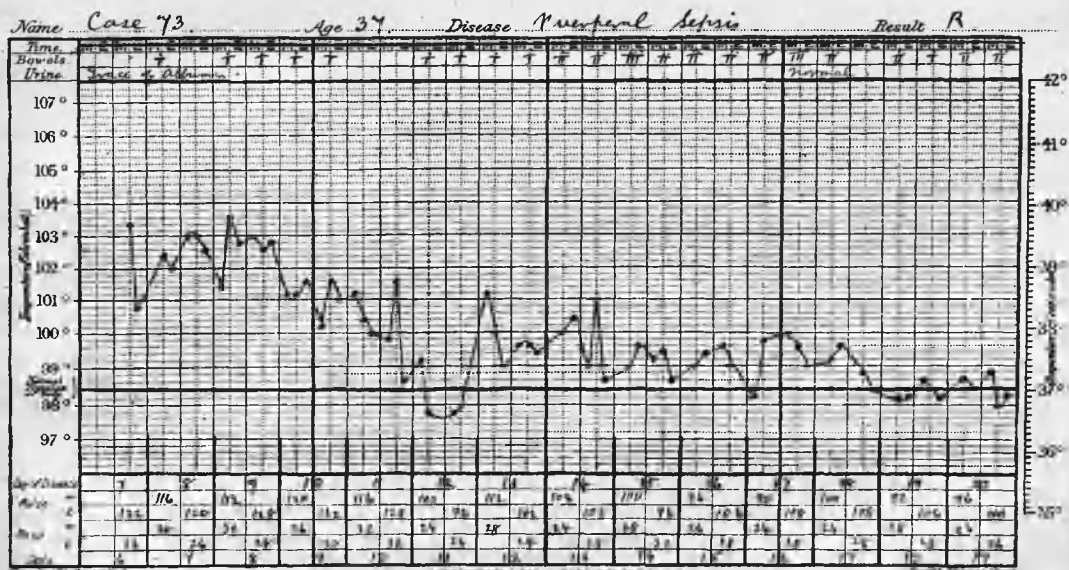
30-5-23 Onset of fever: several rigors and considerable bleeding.

6-6-23 Admitted. Profoundly anaemic and weak. Tongue glazed and dry; pulse soft and rapid; visible pulsations in the vessels of the neck. Heart sounds feeble; at the apex a soft systolic murmur follows the first sound; no increase in cardiac dulness. Lungs normal. Spleen somewhat enlarged; abdomen otherwise normal; discharge scanty, saneous. Blood examination: Hb 15 per cent, R.B.C. 1,350,000; W.B.C. 8,000. Blood films show many poikilocytes but no nucleated red cells; no abnormal white cells.

16-6-23 Hb 25 per cent; R.B.C. 1,530,000; W.B.C. 8,400. General condition very much improved.

3-7-23 Improvement continues: Hb 30 per cent; R.B.C. 2,245,000; W.B.C. 8,400. In film no abnormal cells seen. Temperature has been normal for some time.

10-7-23 Anaemia still considerable; otherwise condition is good. Dismissed.



Case 84 - 7-para, aet.30.

23-6-23 Normal confinement.

24-6-23 Onset of fever: one rigor; no sickness or pain.

2-7-23 Admitted. Condition good and patient quite comfortable. Temp. normal; tongue furred, moist; heart, lungs and abdomen normal. Fundus 1" below umbilicus; discharge saneous; vaginal examination negative. Patient is apparently convalescent.

4-7-23 Slight bleeding since admission: under general anaesthesia, uterus curetted with finger; little debris found.

11-7-23 Operation was followed by a rigor, and there has been fever since. Right lower limb has become swollen from hip to ankle, and very tender, especially on inner aspect of thigh. Distended veins are visible. Condition appears more acute than ordinary phlegmasia.

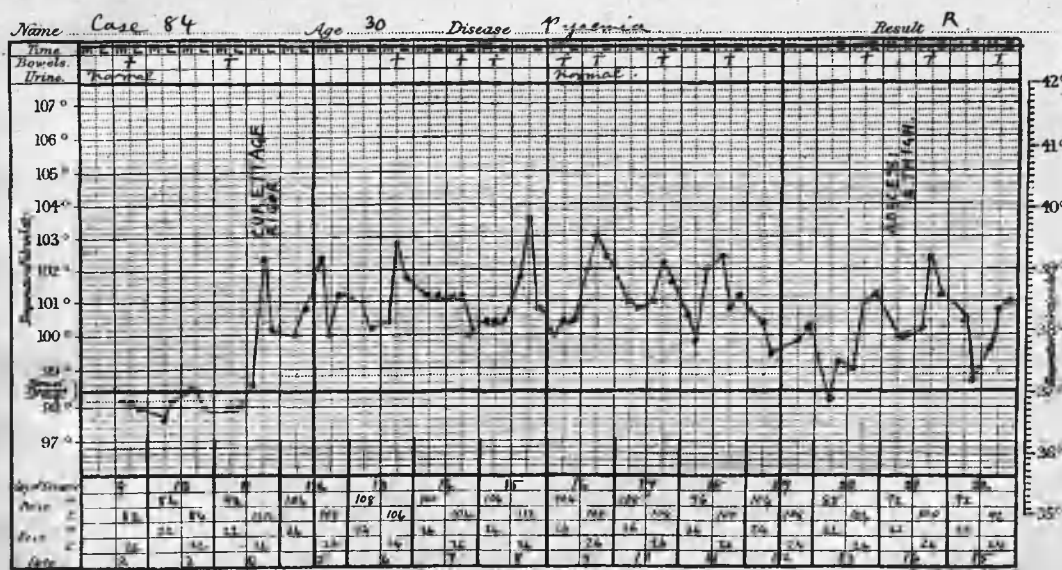
16-7-23 Swelling and tenderness still more marked. Incisions on the inner side of thigh and leg have released a large amount of pus.

1-8-23 Patient still fevered and very ill. The whole limb seems infiltrated with pus, and several further incisions have been necessary, one requiring a general anaesthetic.

28-8-23 Today the last incision was made - in calf. Condition has improved, and temp. is normal since the 12th.

29-9-23 Further great improvement. Thigh wounds healed, those of the leg nearly so. Patient dismissed, on crutches, at her own request.

Nov.1925. Was able to dispense with crutch after two months, and a stick after three months; has since been able to walk freely. General health has been good. 11 wounds in the affected limb are all perfectly healed.



Case 90 - Primipara, aet.28.

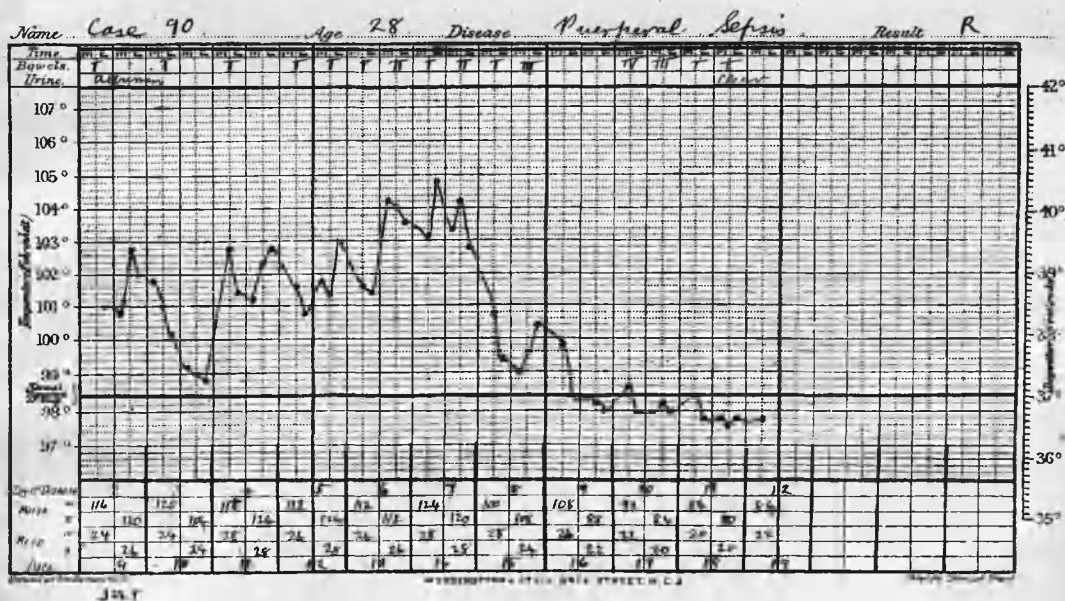
4-7-23 Normal confinement.

8-7-23 Onset of fever: one rigor.

9-7-23 Admitted. Condition good; tongue dry, heart and lungs normal; abdomen negative. Fundus 2" below umbilicus; perineum has three stitches; profuse discharge of pus.

15-7-23 Fall of temperature by crisis. Condition favourable. Discharge slight.

Recovery uneventful.



Case 119 - 11-para, aet.41.

9-9-23 Forceps delivery.

23-9-23 Onset (?) of fever: pain in right lower limb.

26-9-23 Admitted. Poorly nourished and very anaemic.

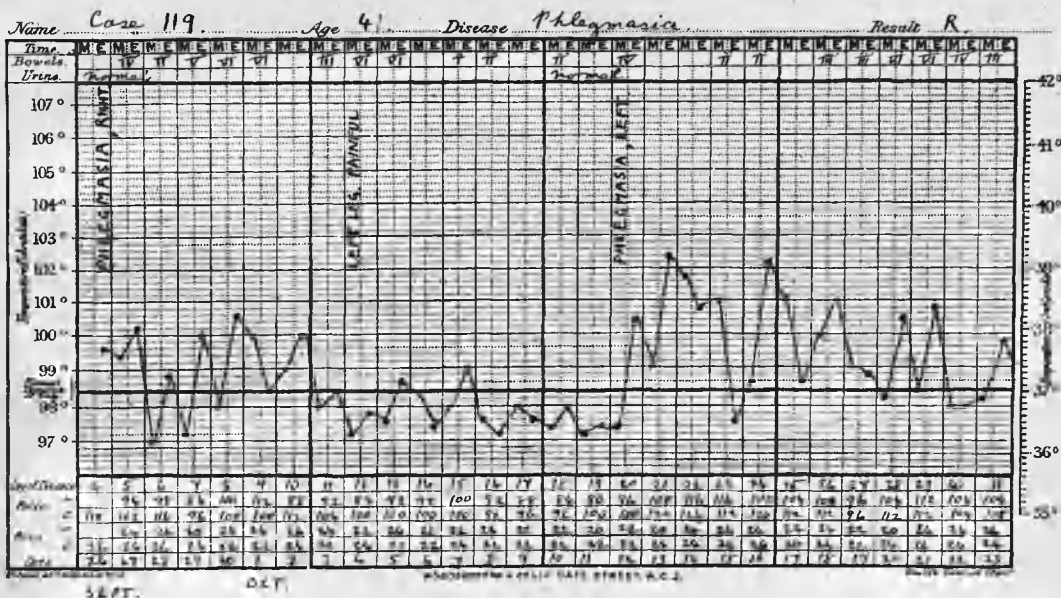
Tongue coated with white fur. Heart and lungs normal; slight tenderness in right lower quadrant of abdomen. Fundus not felt; discharge profuse, saneous; small perineal tear; slight bulging in right vaginal fornix. Some difficulty in passing urine, which is normal. Right lower limb swollen and tender from hip to ankle; no visible veins.

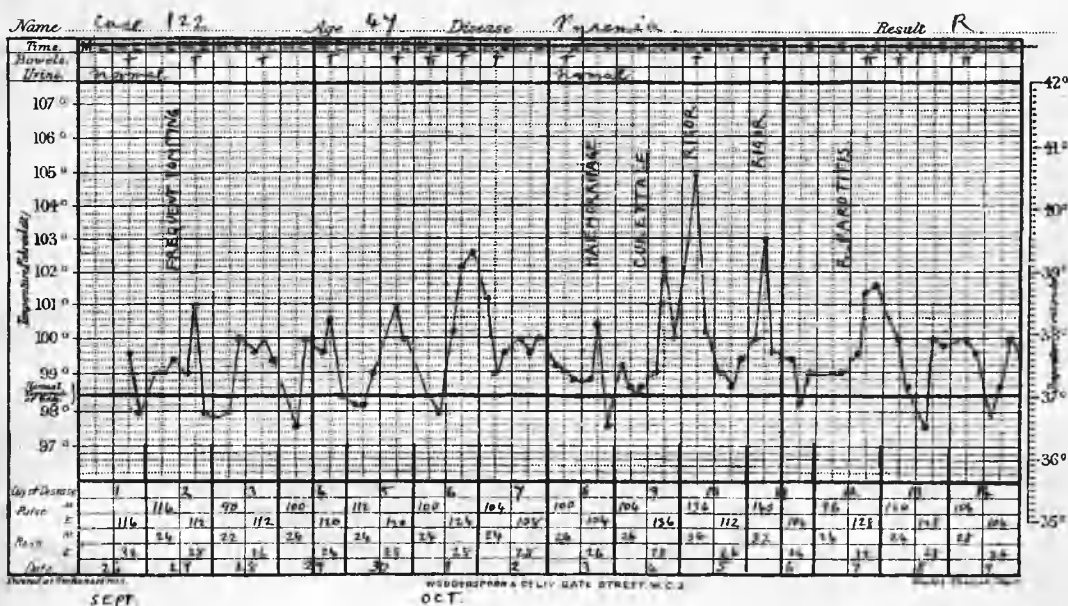
12-10-23 Signs of phlegmasia now in left lower limb, which has been painful for a week; relapse of temperature. Right limb beginning to improve. General condition better.

26-10-23 Pyrexia increases. A rigor today.

5-11-23 Temperature normal; right lower limb almost well; left still swollen, but softer and free of tenderness.

24-11-23 No recurrence of fever. Limbs normal. Patient dismissed.





Case 122 - 3-para, aet.47.

23- 9-23 Breech delivery at 7 months; placenta broken; profuse haemorrhage.

26- 9-23 Onset of fever: one rigor and frequent vomiting; pain in left leg.

Admitted same day. Appears comfortable and colour good. Tongue dry and hard; pulse good; heart and lungs normal. Abdomen considerably distended, with bulging of flanks; no tenderness; fundus uteri cannot be felt. Perineum and cervix torn; slight bulging and tenderness in right vaginal fornix; discharge scanty, sanious; rectal walls collapsed. There was vomiting after admission, and diffuse peritonitis was suspected. Considerable improvement, however, followed administration of pituitrin, calomel, and enemata.

4-10-23 There has been a little bleeding: uterus curetted and a piece of placenta removed; for subsequent slight haemorrhage vagina was packed.

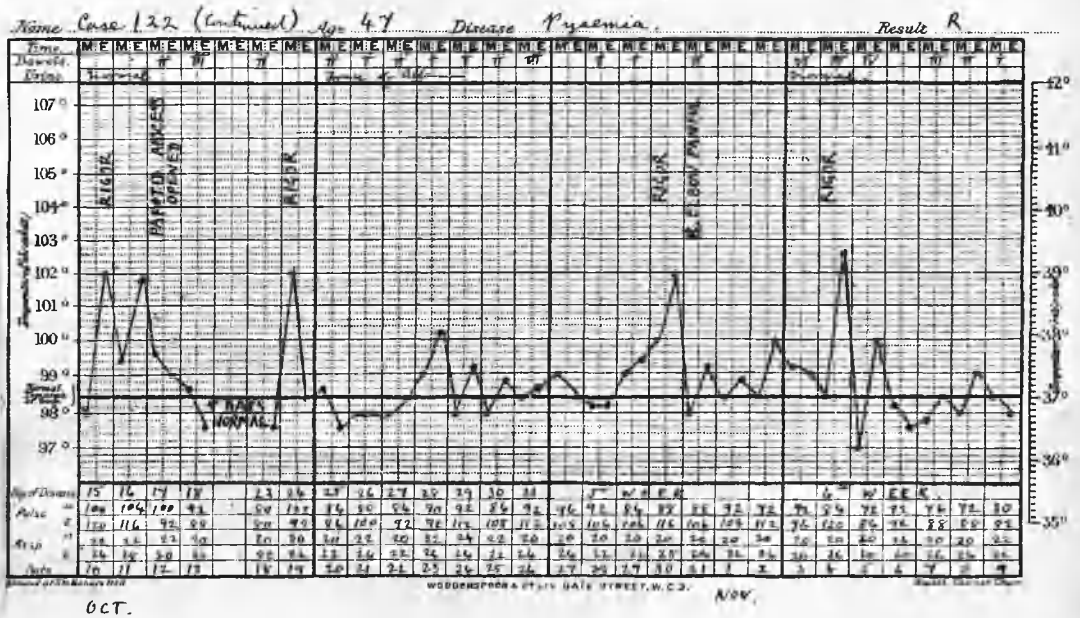
7-10-23 One or two rigors followed curettage. Today there is right parotitis.

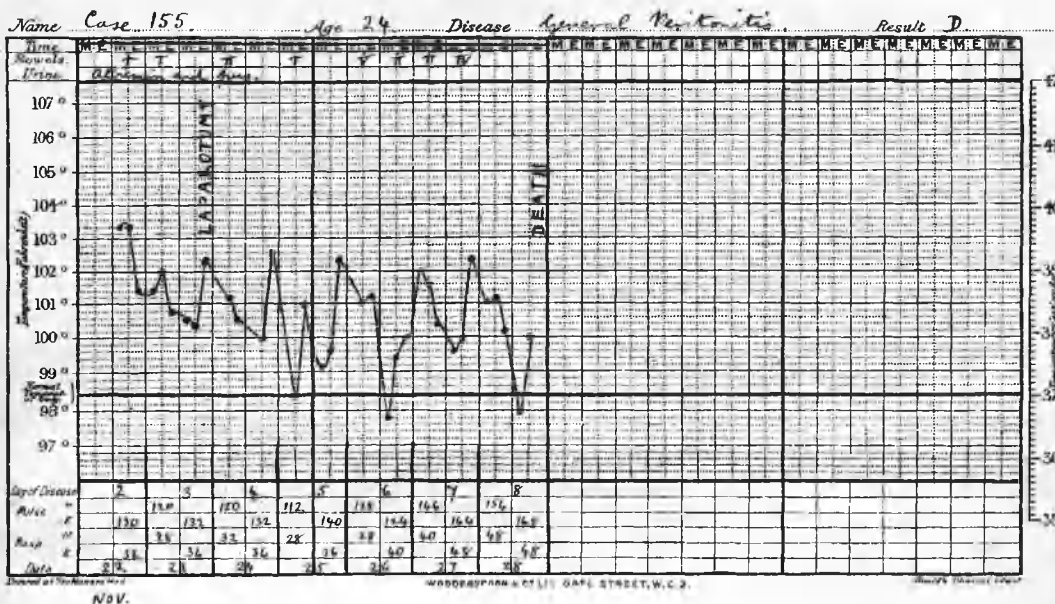
12-10-23 General anaesthesia: parotid abscess opened.

31-10-23 Temperature still unsettled, and occasional rigors. Right elbow swollen and painful; stiffness in left hip.

13-11-23 Much better; temp. normal; arm normal; face wound healed.

24-11-23 Hip-joint still slightly stiff. Otherwise patient is well, and anxious to go. Dismissed.





Case 155 - 2-para, aet.24.

20-11-23 Spontaneous abortion at two months of pregnancy; no nurse or doctor present.

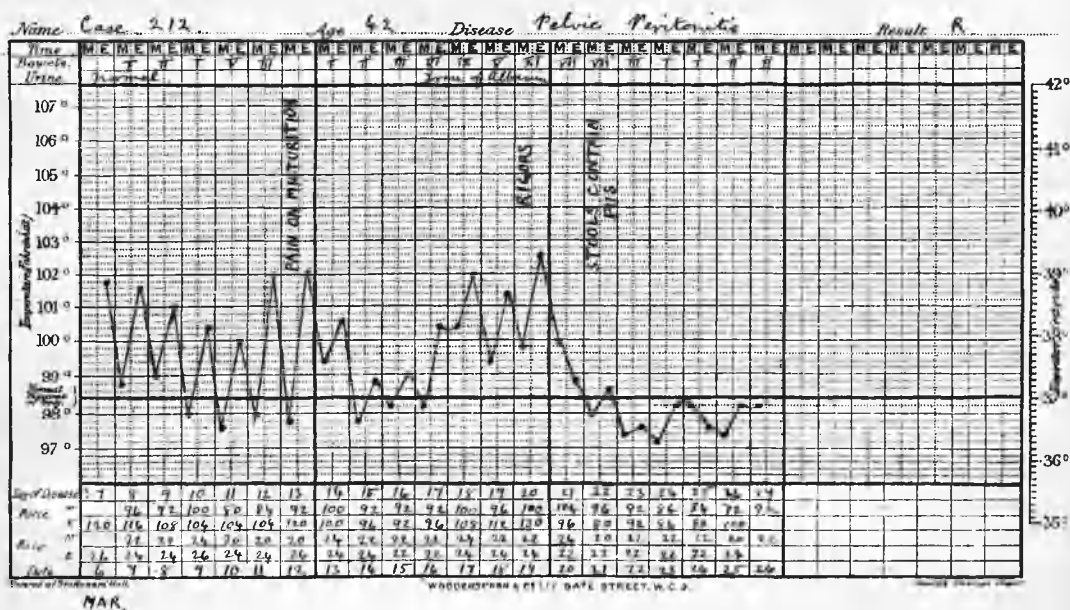
21-11-23 Onset of fever: severe abdominal pain and repeated vomiting.

22-11-23 Admitted moderately ill. Colour good; tongue furred and dry; heart and lungs normal. Abdomen slightly rigid and tender all over; no marked increase of pain on deep pressure, however, and nothing abnormal palpable through the abdominal wall. No distension. Uterus not felt; discharge scanty; slight bulging and tenderness in vault of vagina.

23-11-23 No improvement. Laparotomy and drainage of abdomen; pus considerable.

26-11-23 Condition is worse; marked abdominal pain; bowels loose. There is pain in right side of chest, with signs of commencing pneumonia.

28-11-23 Death. (No post-mortem)



Case 212 - 7-para, aet.42.

8-2-24 Forceps delivery.

29-2-24? Onset of fever: pain in right side of abdomen;
no rigor or vomiting.

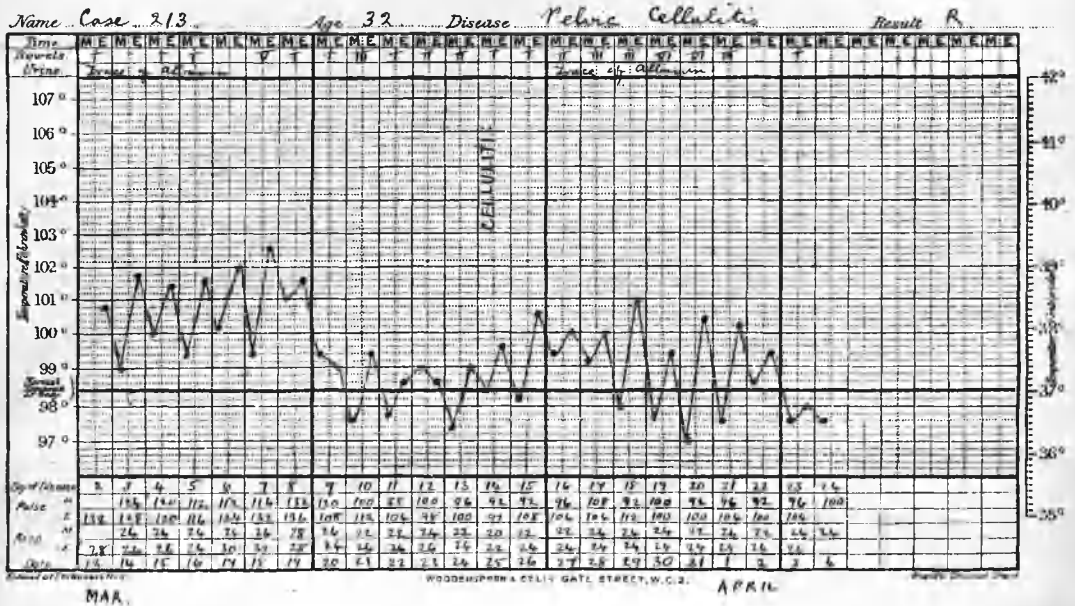
6-3-24 Admitted. Comfortable and of good colour; tongue moist but coated; heart and lungs normal. Abdomen slightly tender on right side below McBurney's point; no rigidity, nothing abnormal palpable. Fundus not felt; discharge scanty; os uteri displaced forward; in the posterior vaginal fornix a hard, very tender mass, non-fluctuant.

19-3-24 Two rigors today. There has been pain on micturition for some days; bowels very loose.

25-3-24 Temperature has fallen to normal and pain is quite absent. Stools after defervescence were noticed to contain pus; now normal. A pelvic abscess has obviously ruptured into the rectum.

Convalescence uninterrupted, save for a slight attack of rheumatism.

Nov.1925. Patient looks rather worn. For a year after going out was troubled with recurrences of pain such as she had in the ward; this year it has been absent save at some menstrual periods and when bowels move. Abdomen is normal.



Case 213 - Primipara, aet.32.

10-3-24 Forceps delivery; child still-born.

12-3-24 Onset of fever: Abdominal distension, slight pain, and difficulty of micturition. No vomiting or rigor.

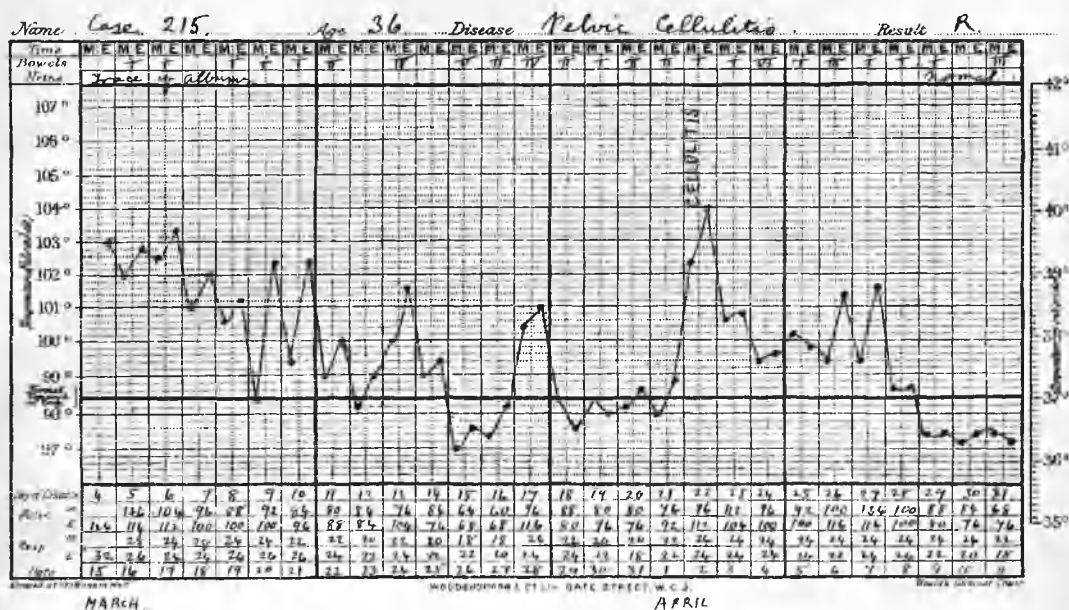
13-3-24 Admitted. Colour good; no pain; tongue dry, coated; heart and lungs normal. Abdomen considerably distended, but not tender; no evidence of pelvic inflammation. Discharge scanty; small tear of perineum; bowels sluggish; urine retained.

25-3-24 Urine was retained for a week, after which catheter was not required. Bowels free, and abdominal distension absent; tender mass now felt in each lower quadrant. Some pain complained of in the lower limbs, which appear normal.

3-4-24 Effusion has become very large and surrounds the cervix; not now tender. Limbs free of pain.

19-4-24 Swelling is small. Patient in good health and allowed out of bed.

Further convalescence uneventful.



Case 215 - 8-para, aet.36.

10-3-24 Normal delivery.

12-3-24 Onset of fever: one rigor, no pain.

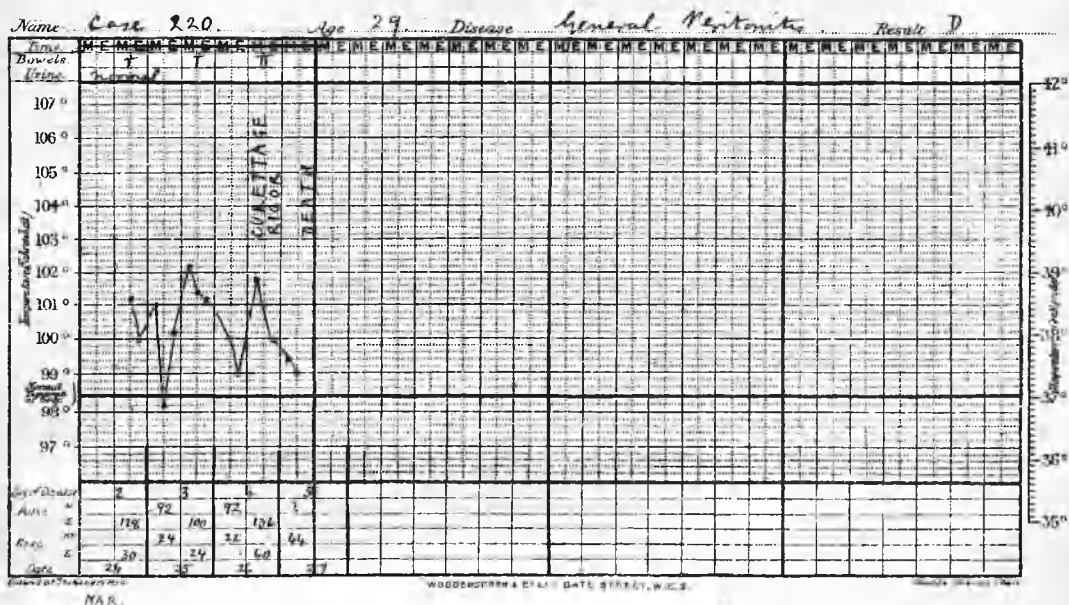
15-3-24 Admitted. Pale, but comfortable; tongue moist, coated. Heart, lungs and abdomen normal. Fundus 3" above symphysis; discharge scanty and purulent.

31-3-24 Temperature settled. Appears convalescent.

3-4-24 Relapse of temperature, with abdominal pain. A large, hard mass in left lower quadrant, slightly tender; also felt vaginally.

7-4-24 Temp. again normal; no pain.

24-4-24 No further relapse; mass almost gone. Dismissed.



Case 220 - 3-para, aet.29.

20-3-24 Incomplete five weeks abortion.

23-3-24 Onset of fever: frequent rigors; no sickness or pain.

24-3-24 Admitted moderately ill. Colour good; tongue moist, coated; pulse soft; heart and lungs normal. Abdomen soft and free of tenderness, save that deep pressure in the hypogastrium causes slight pain. Discharge profuse and foul; uterus slightly enlarged; os almost closed.

26-3-24 General anaesthesia: os dilated and uterus curetted; small fragments of chorion removed. Profuse foul discharge during operation came apparently from the anterior vaginal fornix.

27-3-24 Since operation condition has rapidly deteriorated; repeated vomiting of dark fluid, with great increase in the pulse-rate; slight abdominal tenderness, but no rigidity or distension. Death.

Post mortem: Marked general peritonitis, the abdomen being full of fluid. Uterus matted to surrounding structures, the posterior wall especially adherent; tubes covered with pus. Uterus very slightly enlarged and empty; a small perforation on its posterior wall just above the cervix. The tissues in front of the cervix were torn, making a free communication between vagina and peritoneal cavity.

Case 228 - 2-para, aet.28.

1-4-24 Forceps delivery.

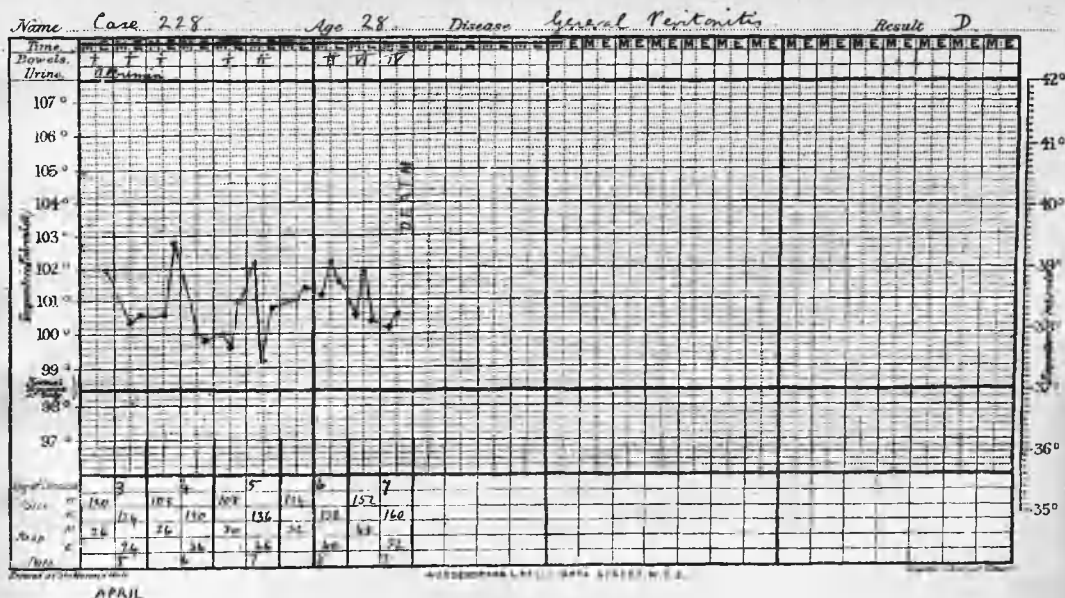
3-4-24 Onset of fever: abdominal pain, frequent vomiting, one rigor.

5-4-24 Admitted gravely ill. Severe abdominal pain and vomiting still present; face pale and drawn; tongue dry and hard; pulse very feeble; no abnormality in heart or lungs. Abdomen moves very little with respiration, and is not distended; upper half soft and only slightly tender; lower half tender on both sides, and slightly rigid. Signs of free fluid indefinite. Fundus 2" below umbilicus; vaginal vault bulging and tender; discharge scanty; bowels moved after an enema. Considered by Surgeon not suitable for operation.

8-4-24 Still grave, but some apparent improvement. Tongue slightly moist. Abdomen moves with respiration; pain very slight and tenderness much less. There is, however, pain in right side of chest, with signs of commencing pneumonia. Still vomiting and retching at intervals.

9-4-24 Death.

Post mortem: Heart slightly enlarged and fatty-degenerated, valves healthy; lungs congested, with early consolidation at right base; small amount of pus in each pleural cavity. General peritonitis, with much free pus in pelvis. Bowel greatly distended with gas; organs show septic changes. Uterus large, showing septic endometritis; no perforation of its wall; tubes healthy.



Case 230 - Primipara, aet.22.

6-4-24 Miscarriage at 8 months; considerable bleeding.

7-4-24 Onset of fever: slight abdominal pain only.

12-4-24 Admitted. Very anaemic and acutely ill; tongue dry; pulse very rapid. No abnormality detected in heart, lungs and abdomen. Fundus 2" below umbilicus; discharge profuse and watery; vaginal examination negative.

22-4-24 No improvement. Cough and signs of bronchitis present; uterus much smaller; anaemia still marked. Streptococcus found in blood.

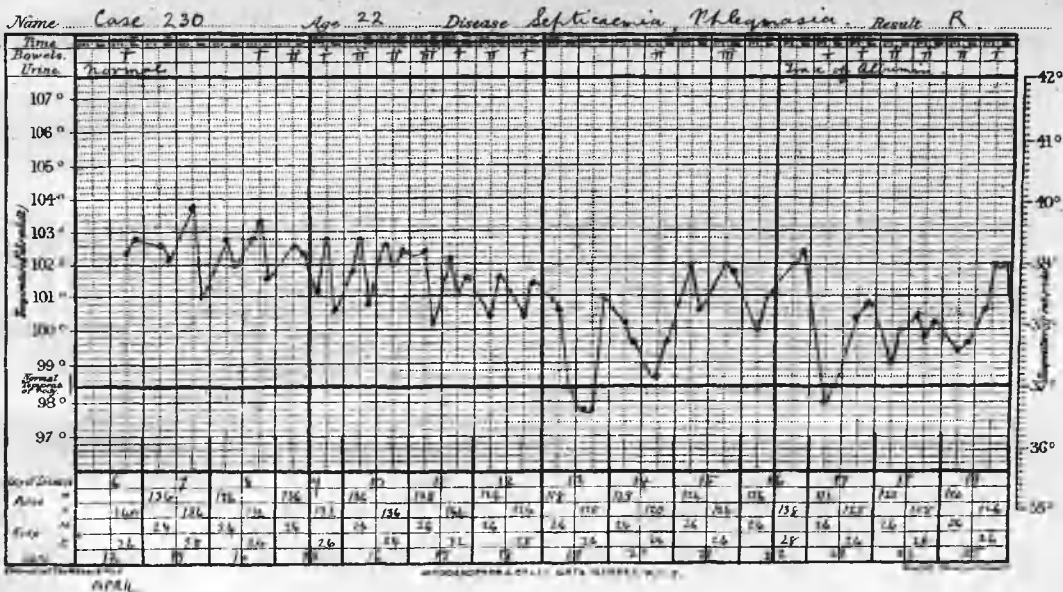
29-4-24 First dose of autogenous streptococcal vaccine given - 5 million organisms.

14-5-24 Condition a little improved, but fever continues. Cough is absent and chest clear. Vaccine has been given on alternate days - last dose, 200 million.

22-5-24 There has been no benefit from vaccine; temperature pyrexial for 6 weeks. Today phlegmasia of left lower limb, which is swollen from hip to ankle, and pits on pressure; pain slight.

2-6-24 Since onset of white leg, temperature has fallen gradually to normal. Condition is greatly improved.

30-6-24 No further fever; limb normal; condition very good. Dismissed.



Case 230 - Primipara, aet.22.

6-4-24 Miscarriage at 8 months; considerable bleeding.

7-4-24 Onset of fever: slight abdominal pain only.

12-4-24 Admitted. Very anaemic and acutely ill; tongue dry; pulse very rapid. No abnormality detected in heart, lungs and abdomen. Fundus 2" below umbilicus; discharge profuse and watery; vaginal examination negative.

22-4-24 No improvement. Cough and signs of bronchitis present; uterus much smaller; anaemia still marked. Streptococcus found in blood.

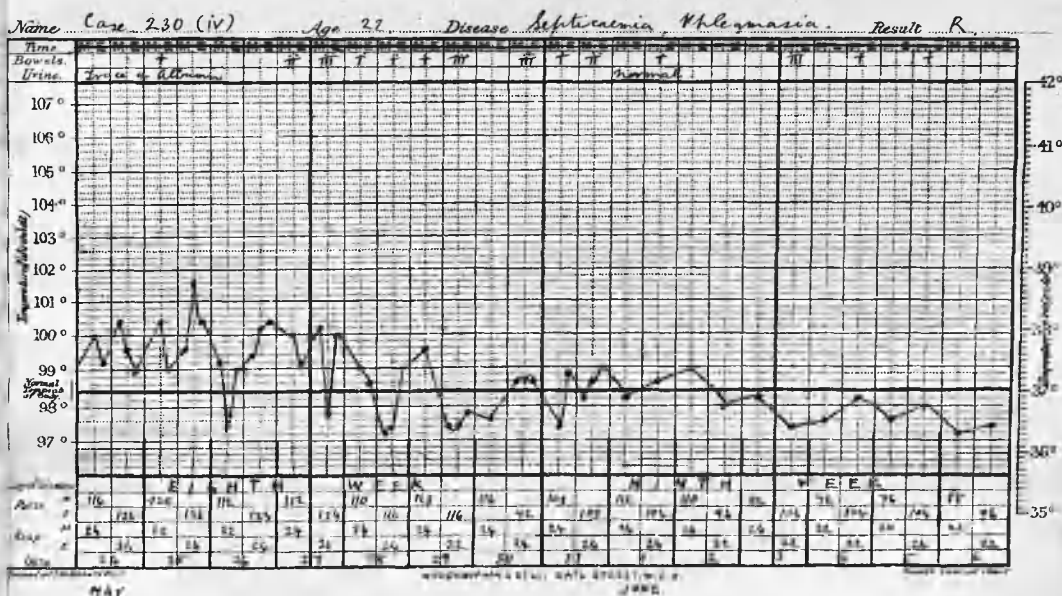
29-4-24 First dose of autogenous streptococcal vaccine given - 5 million organisms.

14-5-24 Condition a little improved, but fever continues. Cough is absent and chest clear. Vaccine has been given on alternate days - last dose, 200 million.

22-5-24 There has been no benefit from vaccine; temperature pyrexial for 6 weeks. Today phlegmasia of left lower limb, which is swollen from hip to ankle, and pits on pressure; pain slight.

2-6-24 Since onset of white leg, temperature has fallen gradually to normal. Condition is greatly improved.

30-6-24 No further fever; limb normal; condition very good. Dismissed.



Case 244 - 2-para, aet.36.

30-4-24 Forceps delivery; placenta removed manually.

4-5-24 Onset of fever: severe rigor, and pain at base of right thumb.

7-5-24 Admitted. Condition fairly good and colour satisfactory; tongue moist, furred. Chest and abdomen normal; some ^{sub}involution of uterus; profuse foul discharge. Base of right thumb, injured slightly before admission, is swollen and tender.

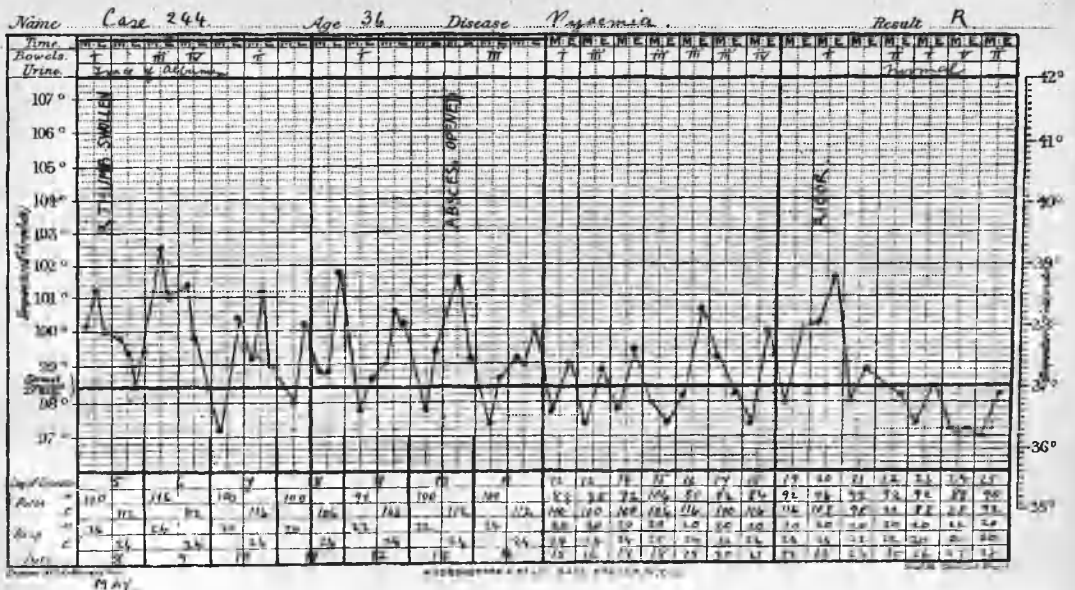
13-5-24 Fever continues; swelling and tenderness more acute and spreading into hand. Two incisions made under local anaesthesia released a fair amount of pus (streptococcal)

17-5-24 Hand much improved; thumb can be moved freely and painlessly; crepitus can be elicited between the proximal phalanx and first metacarpal bone. Temp. falling.

23-5-24 Relapse of temperature, with a rigor. Hand again painful and discharging pus.

19-6-24 General condition now good and patient not confined to bed. The hand shows no great improvement; still some purulent discharge, and tenderness of metacarpal bone; distal joint of thumb has little movement. Patient referred to Royal Infirmary.

Nov.1925. Wound healed about a month after dismissal. Patient in good health since. The joint is ankylosed.



Case 245 - 3-para, aet.40.

3-5-24 Instrumental delivery; child still-born. Onset of fever same day, with a rigor and slight abdominal pain.

7-5-24 Admitted, poorly nourished and very ill. Colour poor; tongue coated and dry; heart and lungs normal. Abdominal wall very thin, so that intestinal peristalsis is visible; slight distension, no tenderness. Fundus uteri at umbilicus; discharge moderate, purulent; a complete tear of the perineum into the rectum.

One rigor after admission. Fall of temperature by lysis. Uterus well retracted, discharge normal, and condition favourable within a few days.

Case 246 - 10-para, aet.44.

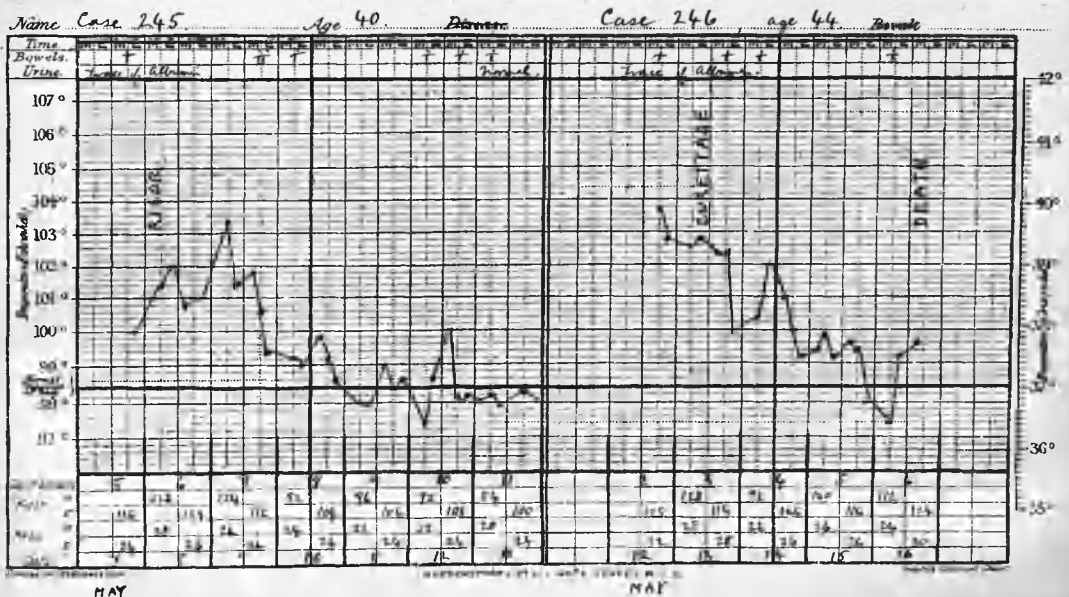
7-5-24 Incomplete 3-months' abortion; profuse bleeding.

11-5-24 Onset of fever: severe headache, backache, and vomiting.

12-5-24 Admitted acutely ill. Pain as above, and in abdomen; tongue dry, coated; heart and lungs normal. Abdomen slightly tender and rigid in lower half; uterus not palpable; os open and a large mass (ovum?) presenting. General anaesthetic: ovum and some debris removed; blunt curettage, followed by the douche.

16-5-24 Rapid deterioration since operation; temperature fell while pulse became more rapid and feeble. Abdominal tenderness now general, with distension since 14th. Bowels sluggish and occasional vomiting. Death.

Post mortem: Abdomen full of pus; stomach and bowel distended; uterus small and empty; tubes normal: no perforation. Nothing noteworthy in thorax.



Case 267 - a child of 14 years.

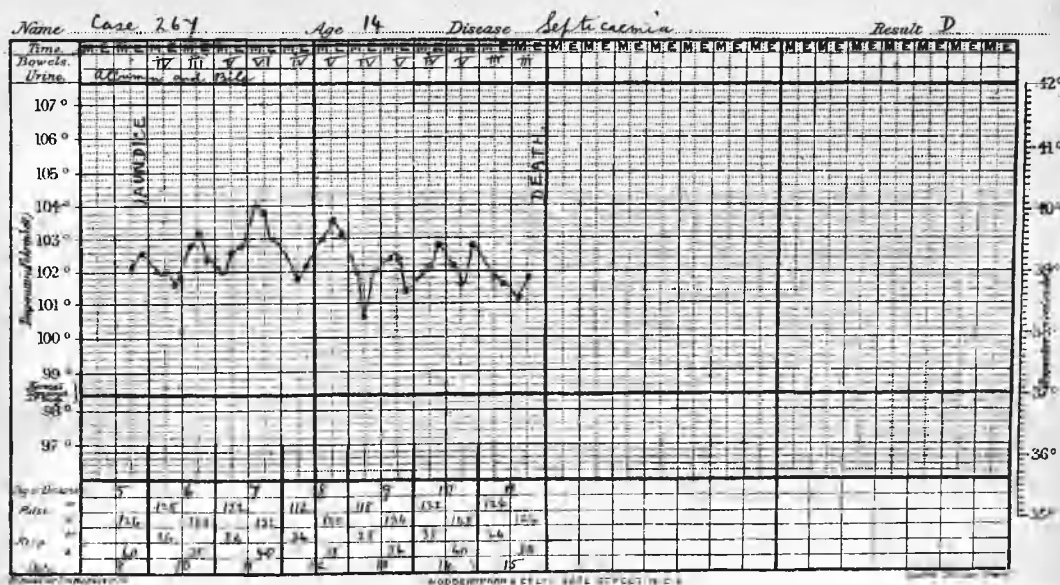
3-7-24 Induction of labour in Maternity Hospital, where patient was under treatment for eclampsia.

5-7-24 Child (8½ months) born dead; fever from time of delivery, unimproved by serum on 6th; jaundice noticed on 8th.

9-7-24 Admitted very ill. Mental condition slightly unbalanced, but questions answered readily. Anaemic; skin dry and deeply jaundiced; tongue raw and fissured. No abnormality observed in heart or lungs; systolic blood-pressure 160 mm. Hg. Abdomen somewhat tender in right upper quadrant; no enlargement of liver or gall-bladder. Fundus uteri 2" over symphysis, tender; discharge profuse, brown, foul; cervix torn, and posterior vaginal wall in a sloughing state; no sign of pelvic inflammation. Stools pale; urine: ½-part Esbach, bile present.

15-7-24 There was no improvement. Mental condition deteriorated; delusions and hallucinations caused extreme restlessness and attempts at getting out of bed. Jaundice less marked latterly. B. coli found in blood culture. Coma set in yesterday and today death occurred.

Post mortem: Heart large and fatty; valves healthy. No consolidation of lungs; a little fluid in left pleural cavity. Peritoneum healthy. Kidneys much enlarged and acutely inflamed; the right shows infarctions on its surface. Liver bile-stained; no atrophy. Spleen big and congested. Uterine wall in a necrotic condition; no perforation. Tubes healthy.



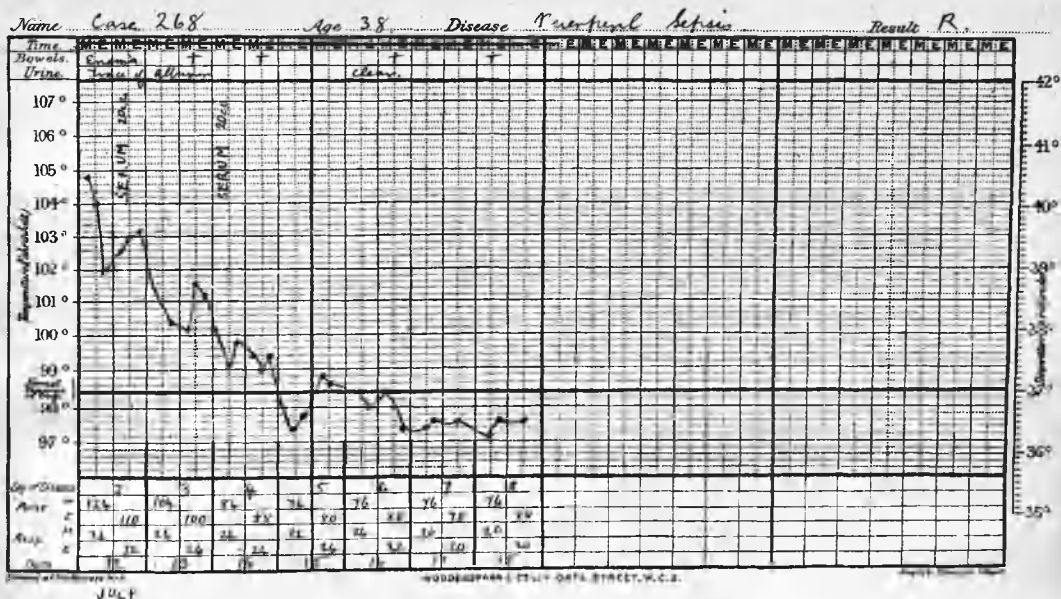
Case 268 - 9-para, aet.38.

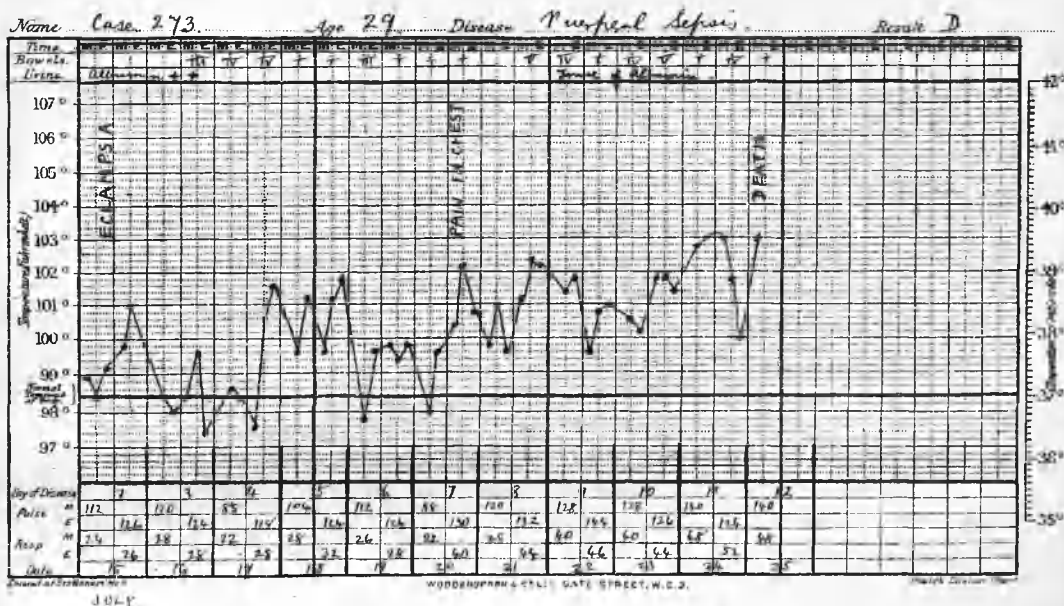
5-7-24 Breech delivery.

11-7-24 Onset of fever: one rigor; no pain or sickness.

12-7-24 Admitted, pale and sharply ill. Tongue furred and moist; pulse feeble; heart and lungs normal. Very slight tenderness in left lower quadrant of abdomen. Fundus uteri not palpable. Discharge profuse, purulent.

15-7-24 Following administration of 40 c.c. of serum, temperature fell to normal. Blood-culture was negative. Convalescence uneventful.





Case 273 - Primipara, aet.29.

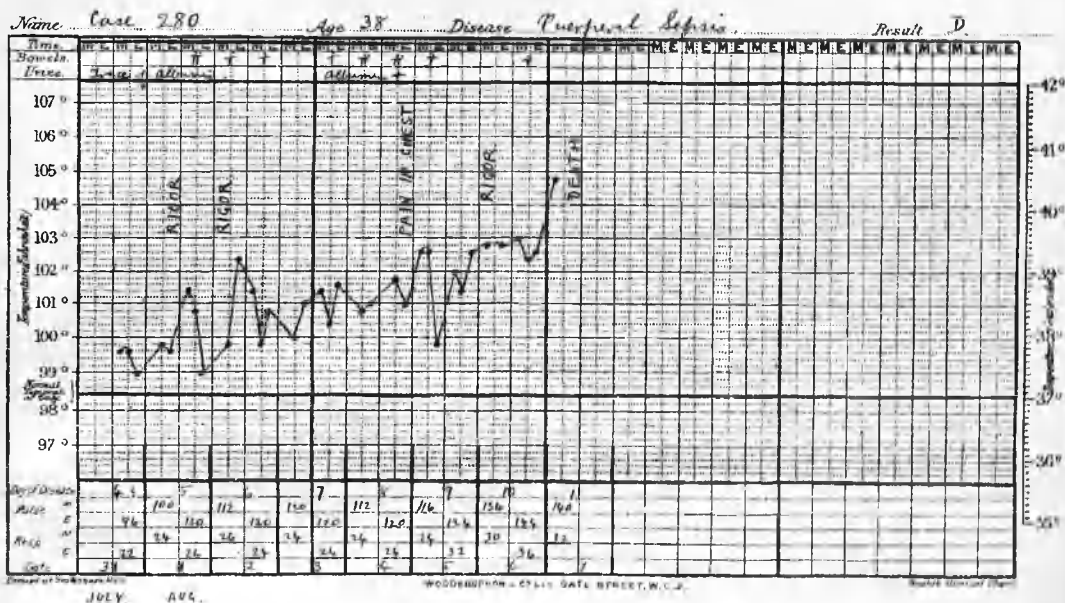
14-7-24 Forceps delivery. Onset of fever before confinement. Had several eclamptic fits.

15-7-24 Admitted delirious. Face pale and somewhat puffy; oedema of the lower limbs; tongue coated; pulse of small volume and fairly high tension: systolic blood-pressure 160 mm. Hg. Chest and abdomen negative; fundus 1" below umbilicus; discharge slight. Urine albuminous: 2½ parts Esbach; no blood, no casts.

17-7-24 Eclamptic fits continued after admission; controlled only temporarily by administration of chloral and morphia. Luminal, gr. 3, brought about prolonged sleep, from which patient awoke this morning feeling greatly improved. Temperature normal.

20-7-24 Condition worse; cough, and pain in right side, with pleural friction and early signs of consolidation of lung. No further convulsions.

25-7-24 Death from pneumonia. Blood contained streptococcus.. No post mortem.



Case 280 - 6-para, aet.38.

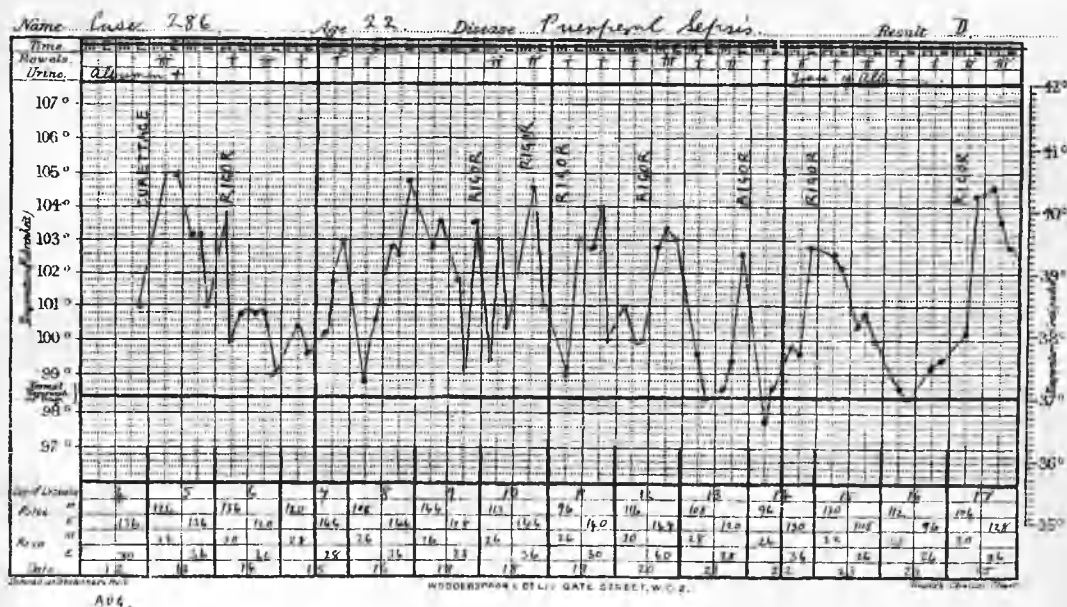
26-7-24 Ten weeks' abortion; uterus cleared out under anaesthesia. Had rigors and fever since; no pain.

31-7-24 Admitted. Appears comfortable; colour and nutrition good; tongue moist and coated; pulse moderately rapid, with occasional missed beats. Heart: apex-beat diffuse; left border of cardiac dulness in nipple-line; at apex a presystolic and a systolic murmur, also a soft diastolic murmur; 2nd sound faint; at base only a systolic murmur. Lungs and abdomen normal.

4-8-24 Condition less favourable. Severe pain in right side of chest. Streptococcus found in blood.

7-8-24 Became gradually worse. There have been several attacks of breathlessness. Death.

Post mortem: Heart much enlarged, with hypertrophy especially of the left ventricle; mitral and aortic valves considerably stenosed; pericarditis over right ventricle. A recent infarction at anterior border of upper lobe of right lung; pleura adherent there; no consolidation. Peritoneum healthy; liver and kidneys injected; spleen enlarged. Signs of septic endometritis present; tubes normal. Streptococcus found in the infarction.



Case 286 - Primipara, aet.22.

8-8-24 Normal confinement.

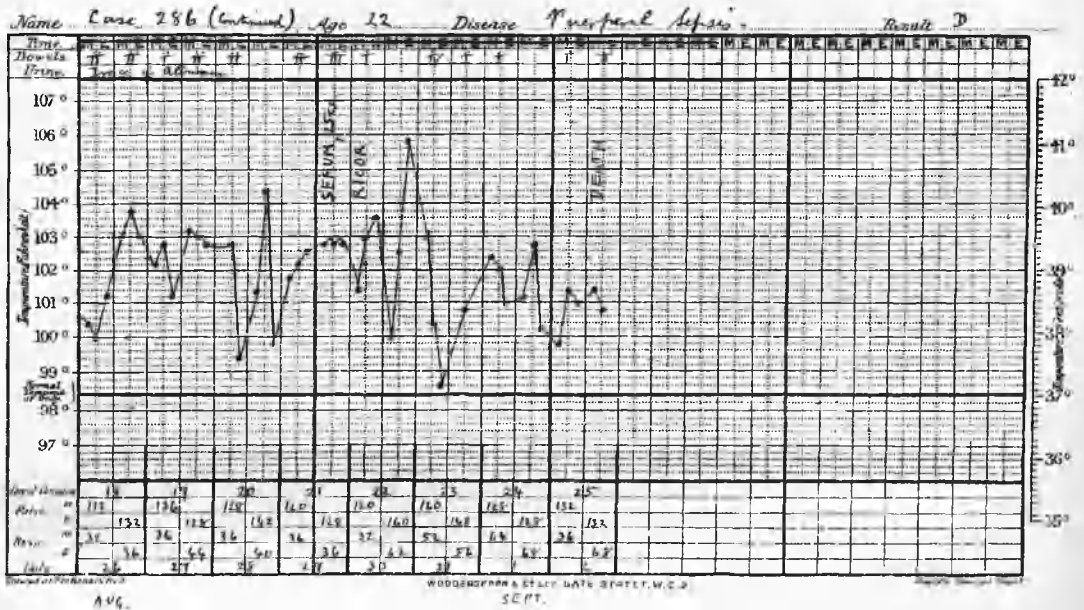
10-8-24 Onset of fever, with post partum haemorrhage. Bleeding recurred at intervals; there were rigors, no other symptom.

12-8-24 Admitted collapsed, bleeding slightly. Face blanched; tongue furred, dry; pulse very feeble. Chest and abdomen normal; fundus at the umbilicus; two stitches in perineum; vagina full of blood-clot.

General anaesthetic: uterus explored and emptied of clot; a very large mass of adherent placenta was removed and uterus douched.

17-8-24 Still gravely ill. Anaemia is profound; rectal and submammary salines in use. Discharge now profuse and foul.

2-9-24 Death ended a prolonged period of fever with many rigors, suggesting thrombophlebitis. No pelvic swelling or tenderness. Serum 25 c.c. had no effect. Post mortem not granted.



Case 286 - Primipara, aet.22.

8-8-24 Normal confinement.

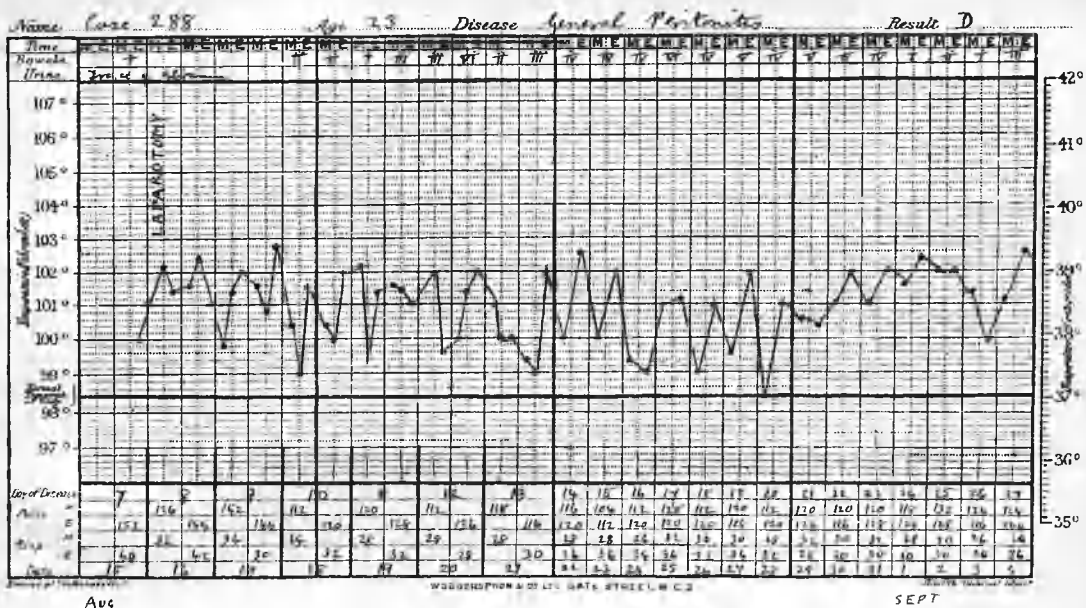
10-8-24 Onset of fever, with post partum haemorrhage. Bleeding recurred at intervals; there were rigors, no other symptom.

12-8-24 Admitted collapsed, bleeding slightly. Face blanched; tongue furred, dry; pulse very feeble. Chest and abdomen normal; fundus at the umbilicus; two stitches in perineum; vagina full of blood-clot.

General anaesthetic: uterus explored and emptied of clot; a very large mass of adherent placenta was removed and uterus douched.

17-8-24 Still gravely ill. Anaemia is profound; rectal and submammary salines in use. Discharge now profuse and foul.

2-9-24 Death ended a prolonged period of fever with many rigors, suggesting thrombophlebitis. No pelvic swelling or tenderness. Serum 25 c.c. had no effect. Post mortem not granted.



Case 288 - 4-para, aet.23.

31- 7-24 Spontaneous abortion at 8 weeks; considerable bleeding.

9- 8-24 Onset of fever: severe rigors; on 14th, acute abdominal pain, frequent vomiting, and constipation.

15- 8-24 Admitted very ill. Colour poor; tongue dry and raw; pulse very weak; heart and lungs normal. Abdomen slightly tumid, and very tender all over; rigidity moderate, and some movement of the abdominal wall with breathing. Uterus not palpable; vaginal examination negative; os nearly closed; enema gave very poor result.

Laparotomy: peritoneum filled with watery pus; rectal and intravenous salines.

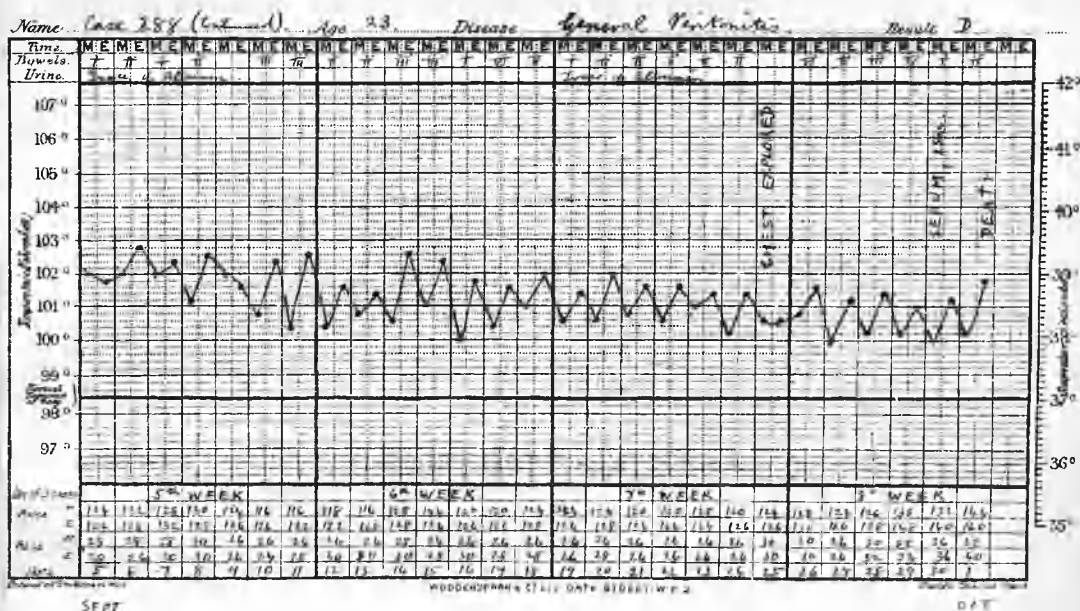
21- 8-24 Still very ill, but there is slight improvement. Pulse less rapid; wound draining well; no general abdominal tenderness; vomiting has recurred several times; bowels loose.

18- 9-24 Patient is now greatly improved, and feels quite comfortable. Wound beginning to heal; bowels still loose; no obvious reason for the continued fever.

26- 9-24 Not quite so well; slight cough and breathlessness; dulness at left base (explored with negative result); no pain; abdomen not tender and wound healthy. Blood shows secondary anaemia with leucocytosis.

1-10-24 Became suddenly worse; a petechial rash on abdomen; slight vomiting. Had serum on 30th. Died.

Post mortem: Abdomen full of foul, brown pus; all the abdominal contents matted together by adhesions; uterus small and empty. No perforation. Organs fatty degenerated. Pleural adhesions on left side. Streptococcus in spleen, etc.



Case 288 - 4-para, aet.23.

31- 7-24 Spontaneous abortion at 8 weeks; considerable bleeding.

9- 8-24 Onset of fever: severe rigors; on 14th, acute abdominal pain, frequent vomiting, and constipation.

15- 8-24 Admitted very ill. Colour poor; tongue dry and raw; pulse very weak; heart and lungs normal. Abdomen slightly tumid, and very tender all over; rigidity moderate, and some movement of the abdominal wall with breathing. Uterus not palpable; vaginal examination negative; os nearly closed; enema gave very poor result.

Laparotomy: peritoneum filled with watery pus; rectal and intravenous salines.

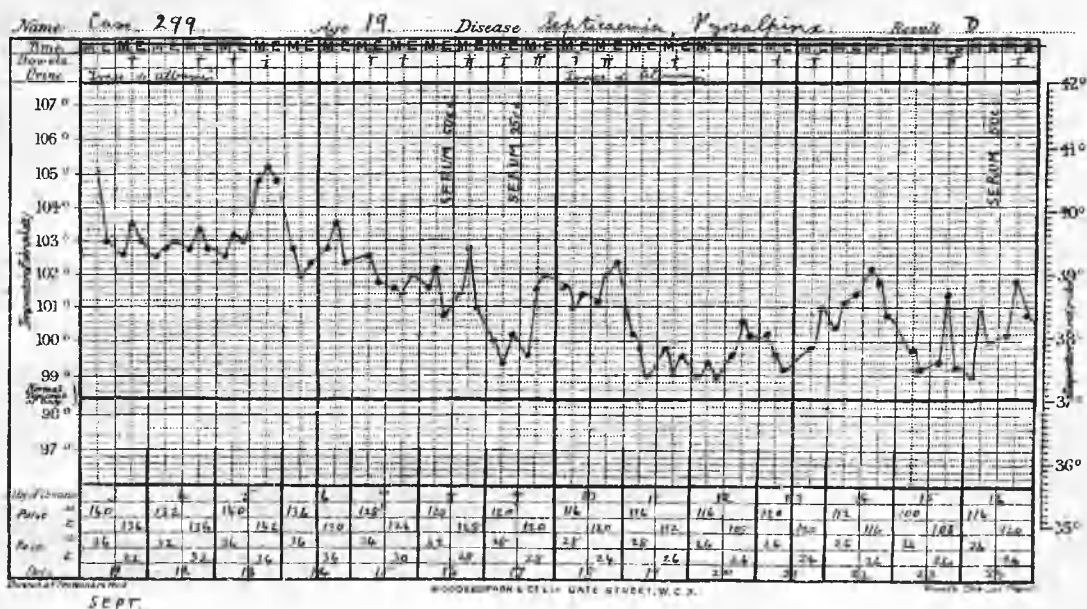
21- 8-24 Still very ill, but there is slight improvement. Pulse less rapid; wound draining well; no general abdominal tenderness; vomiting has recurred several times; bowels loose.

18- 9-24 Patient is now greatly improved, and feels quite comfortable. Wound beginning to heal; bowels still loose; no obvious reason for the continued fever.

26- 9-24 Not quite so well; slight cough and breathlessness; dulness at left base (explored with negative result); no pain; abdomen not tender and wound healthy. Blood shows secondary anaemia with leucocytosis.

1-10-24 Became suddenly worse; a petechial rash on abdomen; slight vomiting. Had serum on 30th. Died.

Post mortem: Abdomen full of foul, brown pus; all the abdominal contents matted together by adhesions; uterus small and empty. No perforation. Organs fatty degenerated. Pleural adhesions on left side. Streptococcus in spleen, etc.



Case 299 - Primipara, aet.19

5- 9-24 Normal delivery.

9- 9-24 Onset of fever: One rigor, vomiting, headache, foul discharge.

11- 9-24 Admitted very ill. Colour poor; tongue dry and coated; pulse soft, very rapid. Heart, lungs and abdomen normal; fundus 3" over symphysis; discharge profuse, watery.

17- 9-24 There is only slight improvement; frequent cough, mucopurulent sputum, and signs of bronchitis. Urine slightly albuminous, and contains streptococcus.

30- 9-24 Temperature has fallen gradually. General condition better, and chest almost clear. No benefit was derived from several doses of serum; B. coli subsequently found in blood.

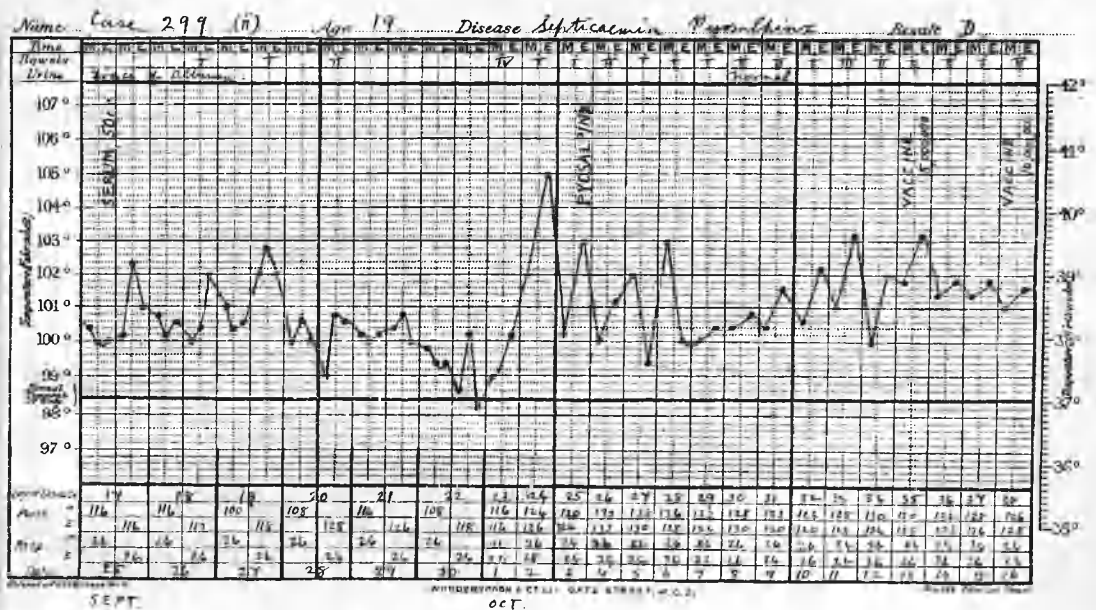
3-10-24 Relapse of temperature, with vomiting; no pain; abdomen quite negative.

17-10-24 Pyrexia continues. Blood culture, repeated: streptococcus. An autogenous vaccine is in use.

30-10-24 The vaccine has not helped. Patient is pale and thin, and vomiting is now present. Chest clear, urine normal. For a few days pain and tenderness in lower abdomen; swelling now felt in each iliac fossa; also palpable by vagina. Double pyosalpinx diagnosed - probably the cause of the relapse of temperature. Operation considered inadvisable by the Surgeon.

6-11-24 Swelling on right side larger and fluctuant. Under general anaesthesia abscess opened by vaginal route, and tube drain inserted. Much pus was released.

(Continued at foot of next page)



Case 299 - Primipara, aet.19

5- 9-24 Normal delivery.

9- 9-24 Onset of fever: One rigor, vomiting, headache, foul discharge.

11- 9-24 Admitted very ill. Colour poor; tongue dry and coated; pulse soft, very rapid. Heart, lungs and abdomen normal; fundus 3" over symphysis; discharge profuse, watery.

17- 9-24 There is only slight improvement; frequent cough, mucopurulent sputum, and signs of bronchitis. Urine slightly albuminous, and contains streptococcus.

30- 9-24 Temperature has fallen gradually. General condition better, and chest almost clear. No benefit was derived from several doses of serum; B. coli subsequently found in blood.

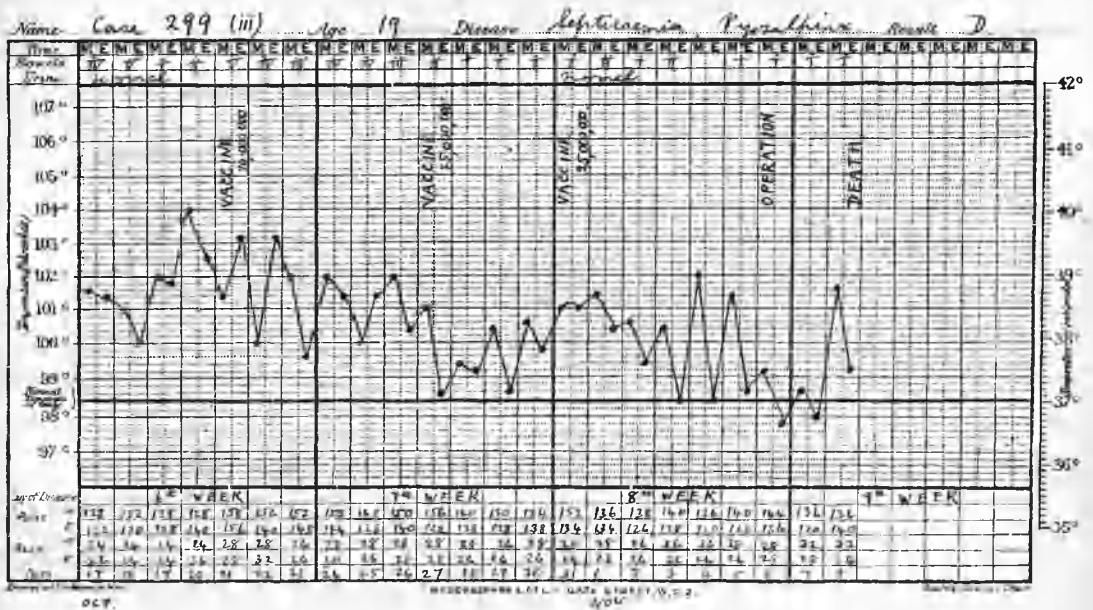
3-10-24 Relapse of temperature, with vomiting; no pain; abdomen quite negative.

17-10-24 Pyrexia continues. Blood culture, repeated: streptococcus. An autogenous vaccine is in use.

30-10-24 The vaccine has not helped. Patient is pale and thin, and vomiting is now present. Chest clear, urine normal. For a few days pain and tenderness in lower abdomen; swelling now felt in each iliac fossa; also palpable by vagina. Double pyosalpinx diagnosed - probably the cause of the relapse of temperature. Operation considered inadvisable by the Surgeon.

6-11-24 Swelling on right side larger and fluctuant. Under general anaesthesia abscess opened by vaginal route, and tube drain inserted. Much pus was released.

(Continued at foot of next page)



Case 299 - Primipara, aet.19

5- 9-24 Normal delivery.

9- 9-24 Onset of fever: One rigor, vomiting, headache, foul discharge.

11- 9-24 Admitted very ill. Colour poor; tongue dry and coated; pulse soft, very rapid. Heart, lungs and abdomen normal; fundus 3" over symphysis; discharge profuse, watery.

17- 9-24 There is only slight improvement; frequent cough, mucopurulent sputum, and signs of bronchitis. Urine slightly albuminous, and contains streptococcus.

30- 9-24 Temperature has fallen gradually. General condition better, and chest almost clear. No benefit was derived from several doses of serum; B. coli subsequently found in blood.

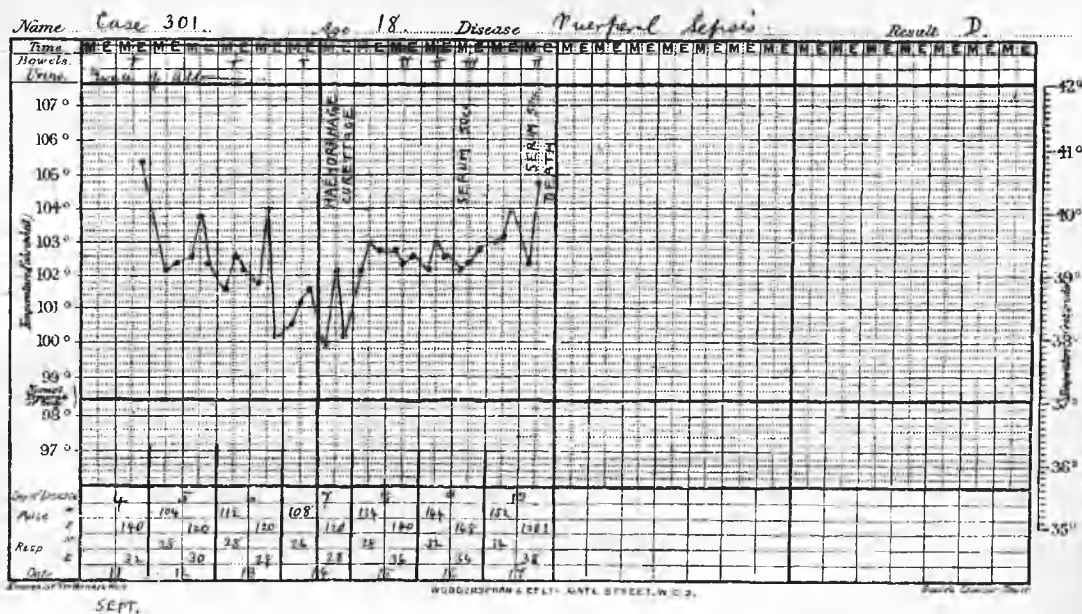
3-10-24 Relapse of temperature, with vomiting; no pain; abdomen quite negative.

17-10-24 Pyrexia continues. Blood culture, repeated: streptococcus. An autogenous vaccine is in use.

30-10-24 The vaccine has not helped. Patient is pale and thin, and vomiting is now present. Chest clear, urine normal. For a few days pain and tenderness in lower abdomen; swelling now felt in each iliac fossa; also palpable by vagina. Double pyosalpinx diagnosed - probably the cause of the relapse of temperature. Operation considered inadvisable by the Surgeon.

6-11-24 Swelling on right side larger and fluctuant. Under general anaesthesia abscess opened by vaginal route, and tube drain inserted. Much pus was released.

(Continued at foot of next page)



Case 301 - Primipara, aet.18.

7-9-24 Confinement; placenta removed manually.

8-9-24 Onset of fever: frequent rigors.

11-9-24 Admitted acutely ill. Nervous and excited, unable to give a clear account of herself. Colour fairly good; tongue moist, coated; heart, lungs and abdomen negative; fundus 1" below umbilicus; profuse saneous discharge; vaginal examination negative; os wide.

14-9-24 Following slight haemorrhage, uterus curetted with finger and douched.

16-9-24 Condition worse; delirious; pulse very feeble. Blood contains streptococcus. Serum given without benefit.

17-9-24 Death.

Post mortem: Heart fatty; lungs congested; pleurae normal. Peritoneum healthy; spleen big, congested; cloudy swelling of liver and kidneys; R. kidney capsule stripped with difficulty; miliary abscesses in the cortex. Uterus: septic endometritis; tubes normal. Streptococcus in spleen and abscesses.

Case 299 (Continued from previous page).

8-11-24 Became progressively worse and died.

Post mortem: Heart pale but valves healthy; lungs congested at bases; no pleural adhesions or exudate. No general peritonitis, but pelvic organs matted together by adhesions; on separating these pus welled up from both Fallopian tubes, which had been considerably distended. Uterus small and empty. Usual septic changes in abdominal organs. Streptococcus in spleen.

Case 306 - Primipara, aet.26.

16- 9-24 Normal confinement.

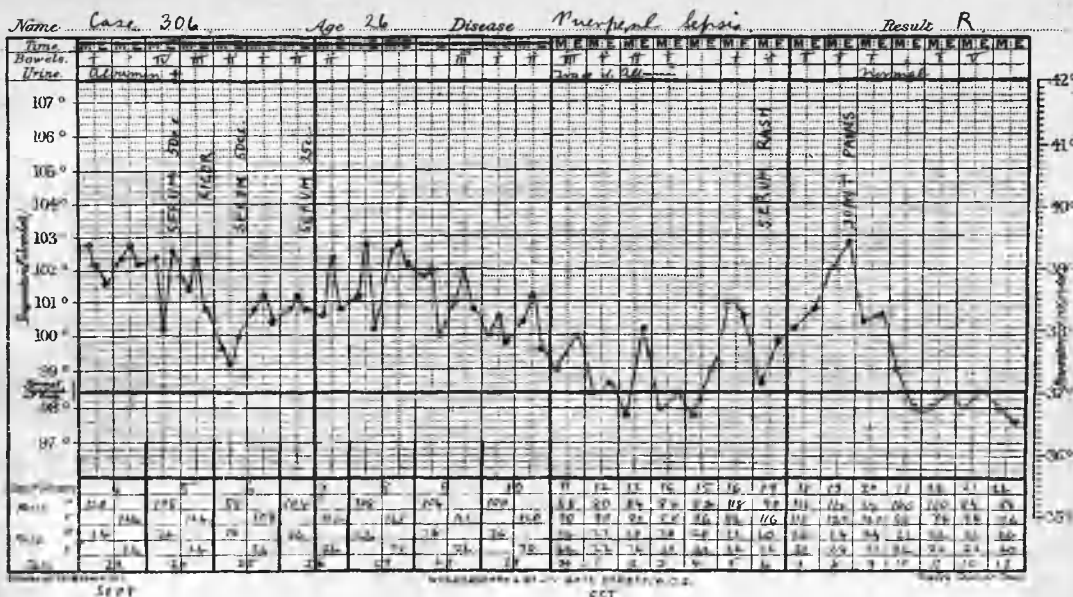
20- 9-24 Onset of fever: three rigors, no other symptom.

22- 9-24 Admitted. Comfortable, colour good; tongue coated; pulse soft, rapid; heart and lungs normal. Abdomen slightly distended; no tenderness. Fundus near umbilicus; discharge profuse and foul.

1-10-24 Following serum administration (125c.c.) there has been a gradual fall of temperature. Blood culture negative.

8-10-24 Pain in finger joints, with fever and rash - serum sickness.

Temperature soon fell and subsequent convalescence was uneventful.



Case 308 - 2-para, aet.25.

16- 9-24 Normal delivery.

20- 9-24 Onset of fever: severe abdominal pain and vomiting.

23- 9-24 Admitted acutely ill. Pain still present; colour fairly good; tongue dry and coated; no abnormality in heart or lungs. Abdomen much distended, moving only slightly with respiration; general rigidity and tenderness, more marked in the lower half. Fundus uteri impalpable; some fullness and tenderness in vault of vagina; profuse foul discharge. No result of enemas; rectal examination negative.

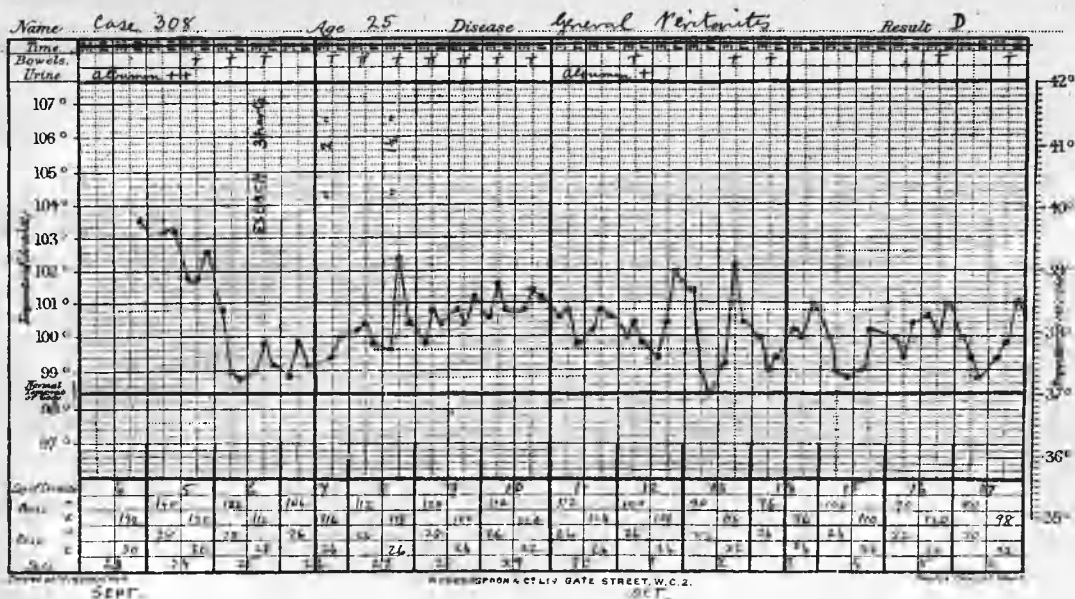
29- 9-24 Much improved. There was no vomiting, and abdominal rigidity and tenderness disappeared on the day after admission; some distension still present; bowels open; Urine albuminous, with blood and casts. Blood culture negative.

13-10-24 Nephritis more severe: urine scanty and highly albuminous; oedema of legs and back. Frequent sickness.

24-10-24 No improvement; nephritis still present; respirations faster, and moist rales in chest. Nothing pointing to abdominal mischief.

25-10-24 Death.

Post mortem: Heart small, otherwise normal; lungs congested, no consolidation; a little pus in both pleural cavities. Whole of abdominal contents matted together by dense adhesions; free pus in the cavity. Kidneys: signs of acute nephritis; liver and spleen: usual septic changes. Uterus small, its wall in an almost necrotic state. Streptococcus cultured from the pus.



Case 308 - 2-para, aet.25.

16- 9-24 Normal delivery.

20- 9-24 Onset of fever: severe abdominal pain and vomiting.

23- 9-24 Admitted acutely ill. Pain still present; colour fairly good; tongue dry and coated; no abnormality in heart or lungs. Abdomen much distended, moving only slightly with respiration; general rigidity and tenderness, more marked in the lower half. Fundus uteri impalpable; some fullness and tenderness in vault of vagina; profuse foul discharge. No result of enemas; rectal examination negative.

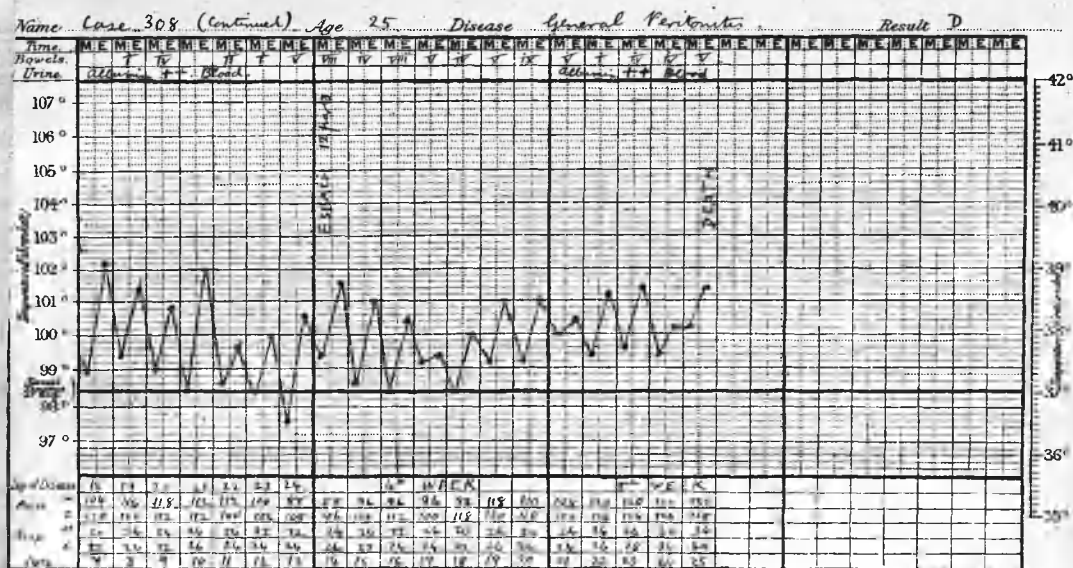
29- 9-24 Much improved. There was no vomiting, and abdominal rigidity and tenderness disappeared on the day after admission; some distension still present; bowels open; Urine albuminous, with blood and casts. Blood culture negative.

13-10-24 Nephritis more severe: urine scanty and highly albuminous; oedema of legs and back. Frequent sickness.

24-10-24 No improvement; nephritis still present; respirations faster, and moist rales in chest. Nothing pointing to abdominal mischief.

25-10-24 Death.

Post mortem: Heart small, otherwise normal; lungs congested, no consolidation; a little pus in both pleural cavities. Whole of abdominal contents matted together by dense adhesions; free pus in the cavity. Kidneys: signs of acute nephritis; liver and spleen: usual septic changes. Uterus small, its wall in an almost necrotic state. Streptococcus cultured from the pus.



Case 311 - 2-para, aet.27.

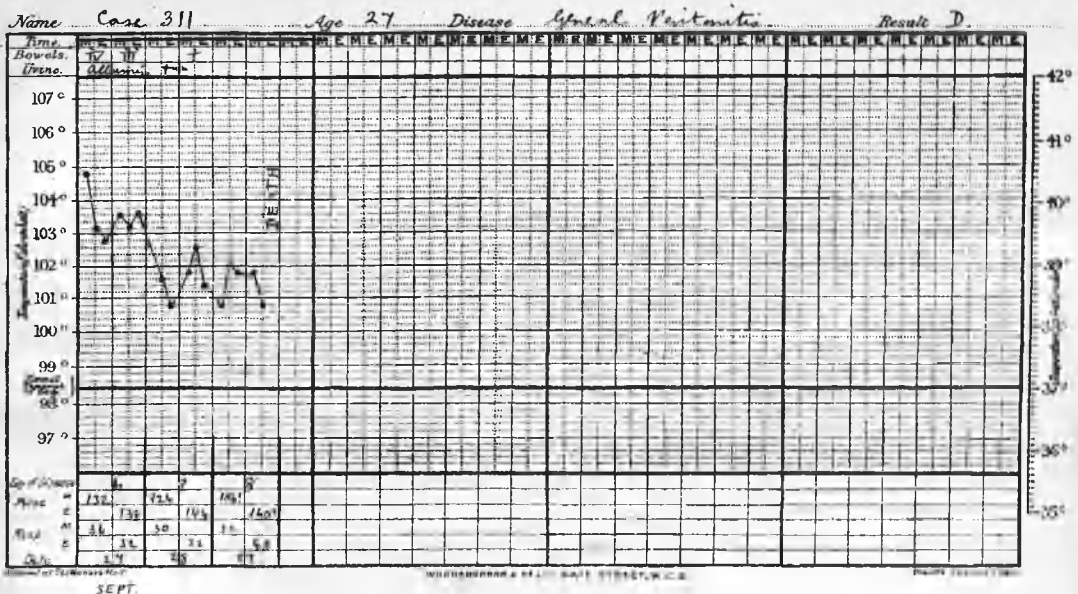
21-9-24 Confinement, normal as to 1st and 2nd stages; placenta removed manually.

22-9-24 Onset of fever: repeated vomiting; on 25th, severe abdominal pain, which has persisted; bowels loose.

27-9-24 Admitted gravely ill. Face pale and drawn; tongue coated and dry; pulse weak, very rapid; heart and lungs: no abnormality. General abdominal tenderness, not, however, very acute at any point; rigidity quite absent in upper abdomen, very slight in the lower; no distension, but some limitation of movement of the abdominal wall. Fundus 2" below umbilicus; profuse, foul discharge; no vaginal bulging or tenderness. Rectum negative; stools loose and fluid.

29-9-24 Became gradually weaker. There was repeated brown sickness, but abdomen became free of pain and could be examined without causing any discomfort. Death.

Post mortem: Heart fatty: the valves healthy. Congestion at base of right lung, with dense pleural adhesions. Abdomen full of watery pus; uterus large and empty; pus adherent to both tubes; no visible perforation. Streptococcus cultured from pus. (Blood culture negative)



Case 316 - Primipara, aet.24.

23- 9-24 Confined in Maternity Hospital at 8 months. Placenta praevia; child dead.

26- 9-24 Onset of fever: vomiting, and pain in left side of abdomen.

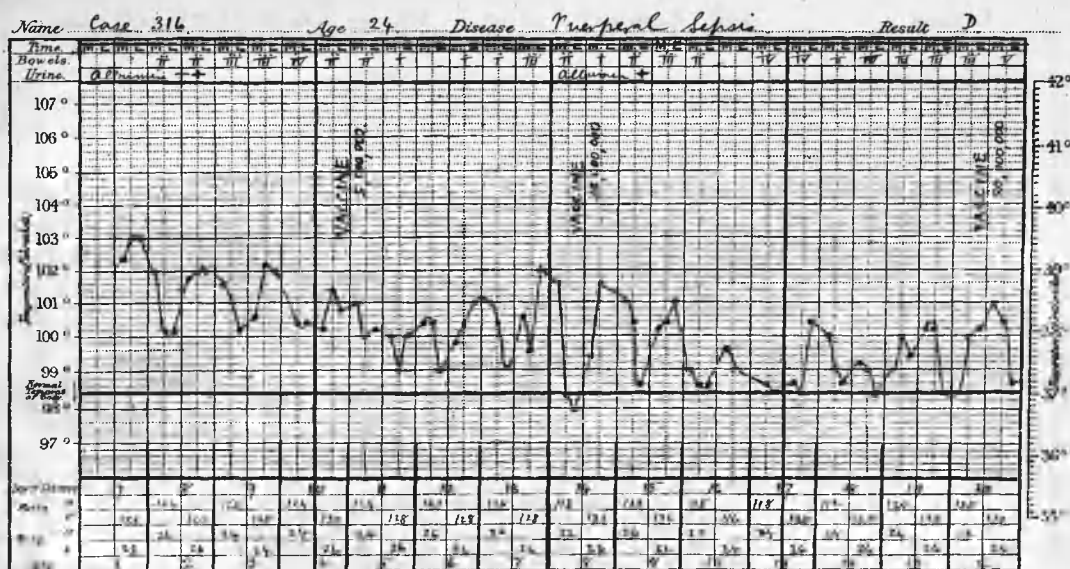
1-10-24 Admitted. Colour poor and tongue dry; pulse soft; heart and lungs normal; abdomen quite negative. Fundus uteri not felt; profuse purulent discharge; urine albuminous.

4-10-24 Streptococcus cultured from blood. Autogenous vaccine started - dose 5 million organisms.

13-10-24 No improvement. Signs of nephritis are present. Vomiting has occurred once or twice.

20-10-24 Condition worse. Vomiting more frequent. Pain in right side of chest, which is dull to percussion. A little watery pus (streptococcal) obtained on exploring.

24-10-24 Signs of pneumonia became more marked, and urine more albuminous. Death. Post mortem not allowed.



Case 316 - Primipara, aet.24.

23- 9-24 Confined in Maternity Hospital at 8 months.
Placenta praevia; child dead.

26- 9-24 Onset of fever: vomiting, and pain in left side of abdomen.

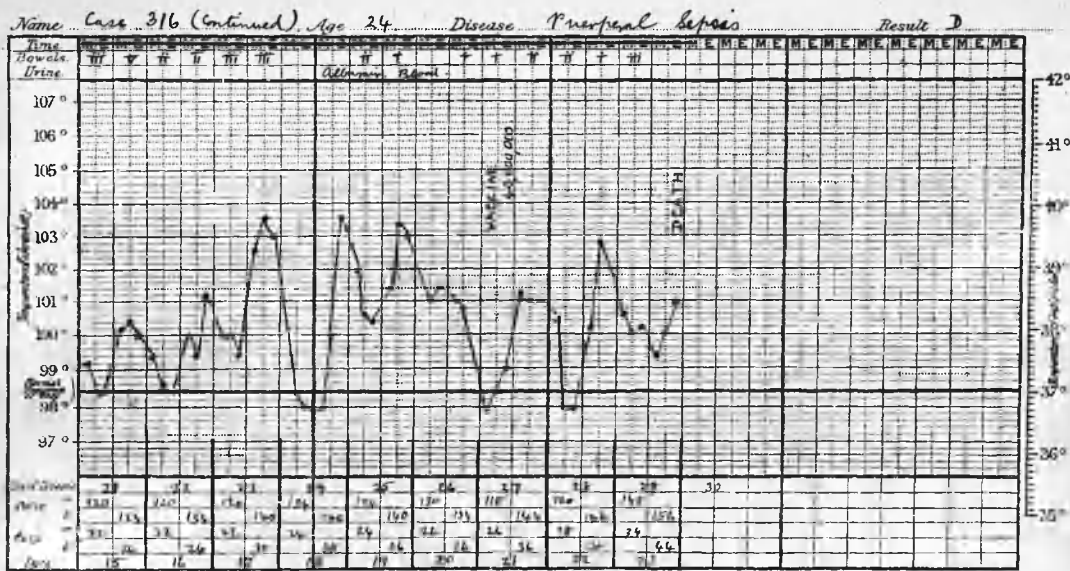
1-10-24 Admitted. Colour poor and tongue dry; pulse soft; heart and lungs normal; abdomen quite negative. Fundus uteri not felt; profuse purulent discharge; urine albuminous.

4-10-24 Streptococcus cultured from blood. Autogenous vaccine started - dose 5 million organisms.

13-10-24 No improvement. Signs of nephritis are present. Vomiting has occurred once or twice.

20-10-24 Condition worse. Vomiting more frequent. Pain in right side of chest, which is dull to percussion. A little watery pus (streptococcal) obtained on exploring.

24-10-24 Signs of pneumonia became more marked, and urine more albuminous. Death. Post mortem not allowed.



Case 331 - 2-para, aet.22.

17- 8-24 Normal delivery. Three weeks later, diarrhoea and vomiting. Has felt weak and been in bed practically ever since; occasional abdominal pain on left side.

31-10-24 Admitted pale and thin, with slight pain on left side. Tongue dry, free of fur; pulse soft; no abnormality in heart or lungs; abdomen quite negative; no discharge.

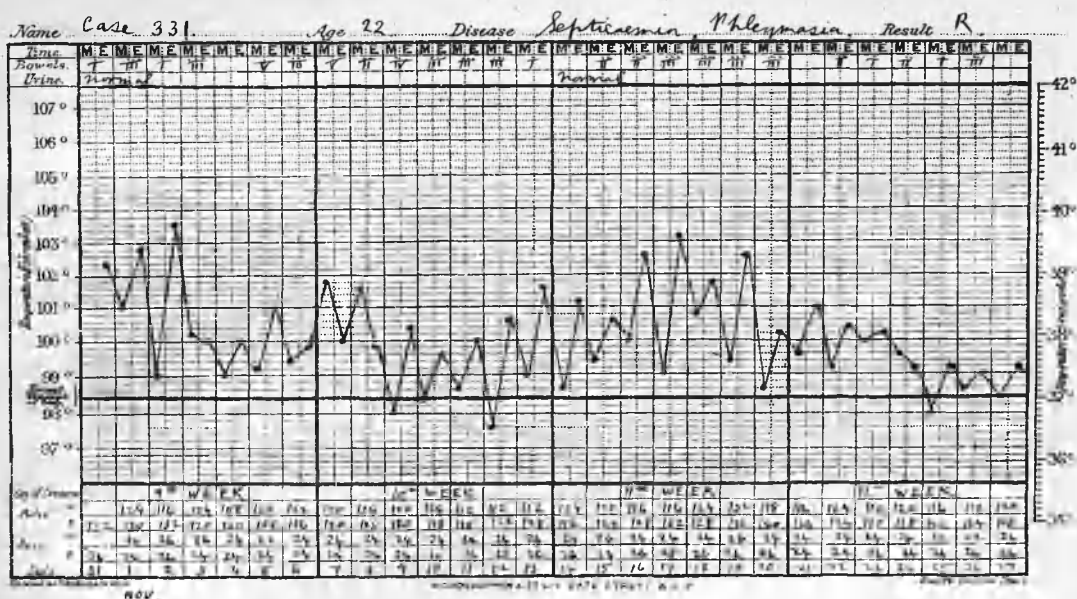
14-11-24 Some improvement, though pyrexia continues. Colour better; both ears discharging today. There is now a rough A.S. murmur at apex, followed by a softer V.S. murmur. Streptococcus in blood.

7-12-24 Patient has improved greatly on tinct. digitalis. Pyrexia less; heart murmurs fainter; lungs and abdomen normal.

28-12-24 A mild phlegmasia of the left lower limb has appeared. Temperature not yet settled.

10- 1-25 Phlegmasia seemed to bring about a general improvement: temperature normal; patient's condition much better.

26- 1-25 Patient in good health; colour good; cardiac murmurs not now audible. Lower limb very slightly swollen. Patient dismissed at her own request.



Case 331 - 2-para, aet.22.

17- 8-24 Normal delivery. Three weeks later, diarrhoea and vomiting. Has felt weak and been in bed practically ever since; occasional abdominal pain on left side.

31-10-24 Admitted pale and thin, with slight pain on left side. Tongue dry, free of fur; pulse soft; no abnormality in heart or lungs; abdomen quite negative; no discharge.

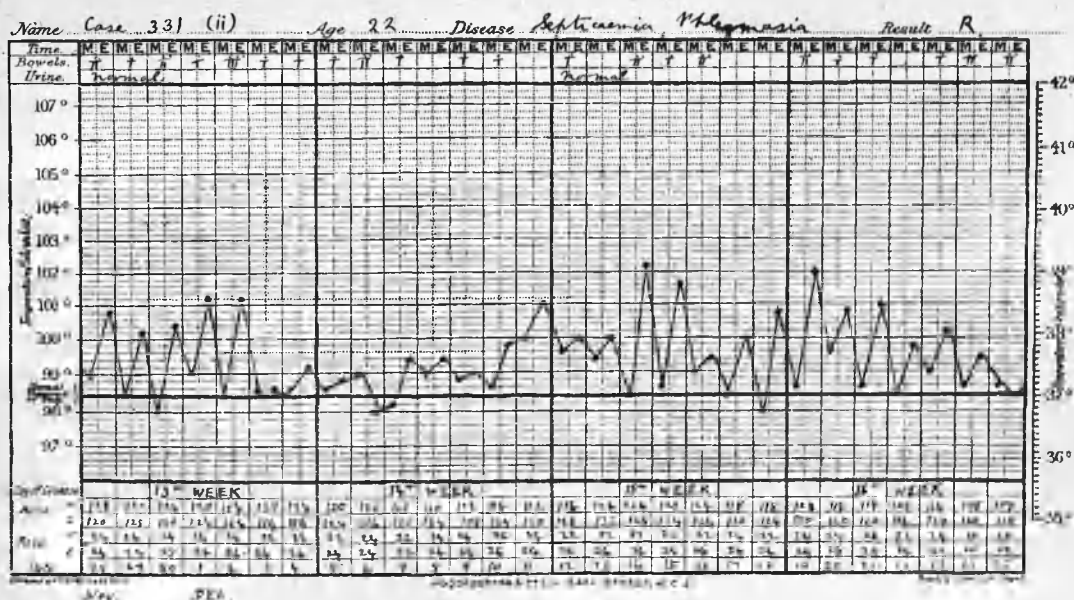
14-11-24 Some improvement, though pyrexia continues. Colour better; both ears discharging today. There is now a rough A.S. murmur at apex, followed by a softer V.S. murmur. Streptococcus in blood.

7-12-24 Patient has improved greatly on tinct. digitalis. Pyrexia less; heart murmurs fainter; lungs and abdomen normal.

28-12-24 A mild phlegmasia of the left lower limb has appeared. Temperature not yet settled.

10- 1-25 Phlegmasia seemed to bring about a general improvement: temperature normal; patient's condition much better.

26- 1-25 Patient in good health; colour good; cardiac murmurs not now audible. Lower limb very slightly swollen. Patient dismissed at her own request.



Case 331 - 2-para, aet.22.

17- 8-24 Normal delivery. Three weeks later, diarrhoea and vomiting. Has felt weak and been in bed practically ever since; occasional abdominal pain on left side.

31-10-24 Admitted pale and thin, with slight pain on left side. Tongue dry, free of fur; pulse soft; no abnormality in heart or lungs; abdomen quite negative; no discharge.

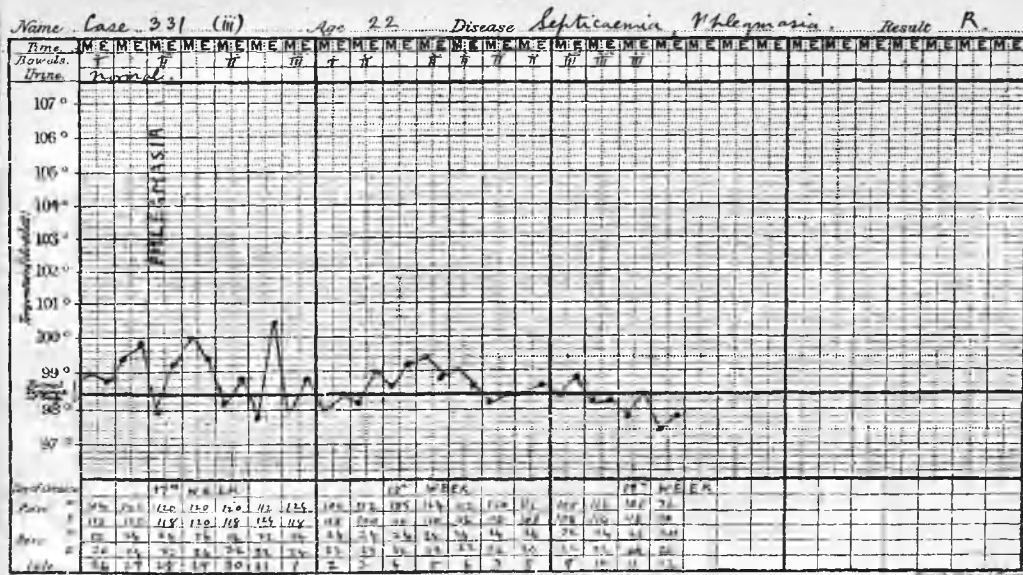
14-11-24 Some improvement, though pyrexia continues. Colour better; both ears discharging today. There is now a rough A.S. murmur at apex, followed by a softer V.S. murmur. Streptococcus in blood.

7-12-24 Patient has improved greatly on tinct. digitalis. Pyrexia less; heart murmurs fainter; lungs and abdomen normal.

28-12-24 A mild phlegmasia of the left lower limb has appeared. Temperature not yet settled.

10- 1-25 Phlegmasia seemed to bring about a general improvement: temperature normal; patient's condition much better.

26- 1-25 Patient in good health; colour good; cardiac murmurs not now audible. Lower limb very slightly swollen. Patient dismissed at her own request.



Case 332 - Primipara, aet.33.

22-10-24 Normal confinement.

28-10-24 Onset of fever: one rigor. On 31st, uterus explored under anaesthesia.

2-11-24 Admitted. Condition good; no pain; tongue thickly coated and fauces injected. Heart, lungs and abdomen normal. Fundus midway between umbilicus and pubis; profuse foul discharge; four stitches in perineum, which is torn almost into rectum.

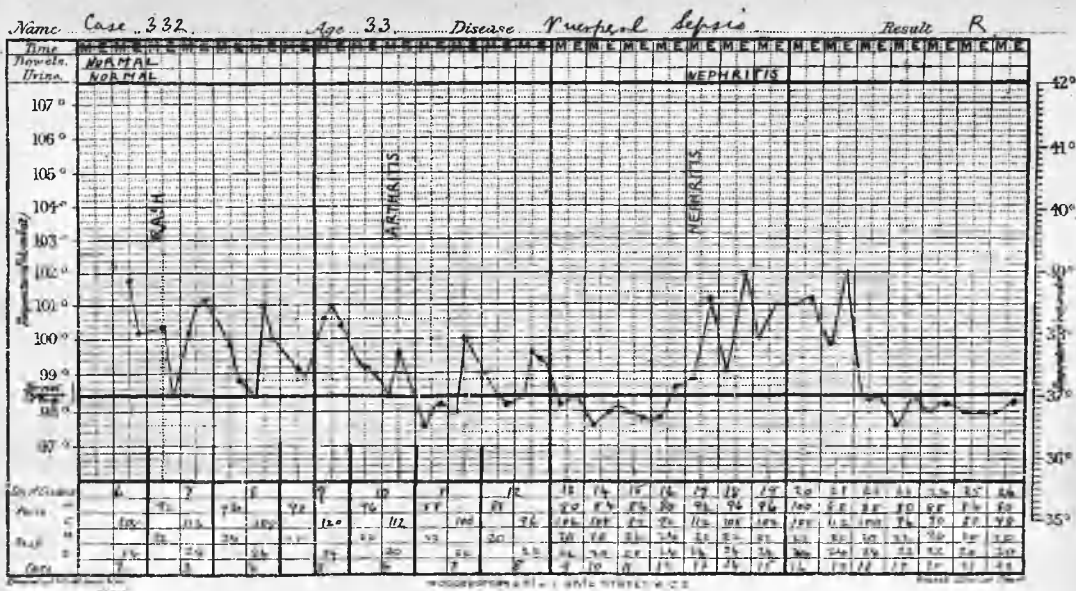
3-11-24 Scarlatinal rash on trunk and limbs; throat more congested and sore. Scarlatina diagnosed, together with Puerperal Sepsis.

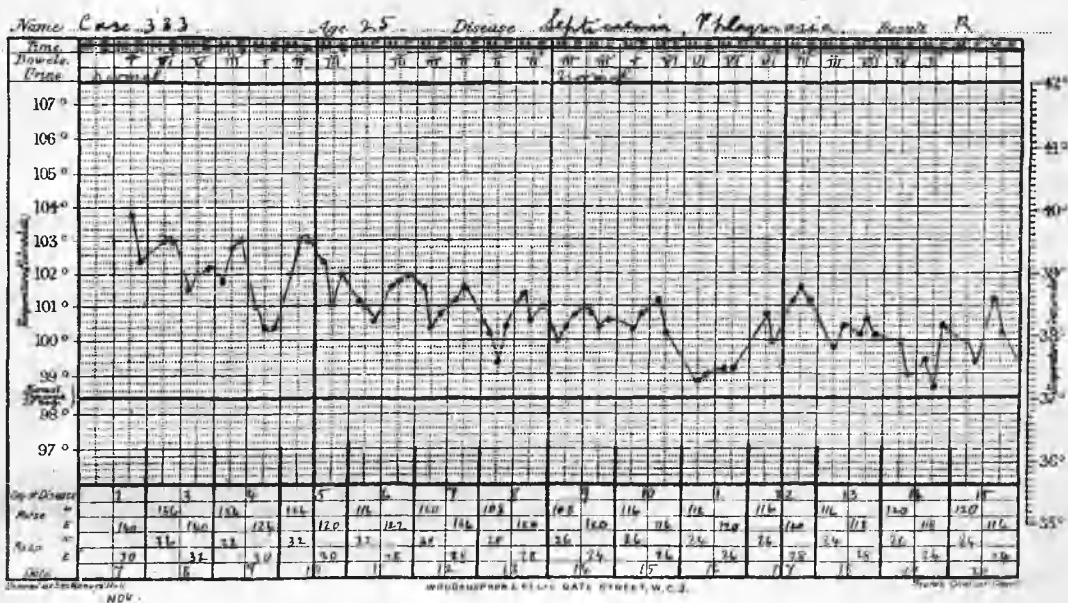
6-11-24 Finger joints stiff - scarlatinal rheumatism.

9-11-24 Desquamation observed. Patient is convalescent.

13-11-24 to 17-11-24 Pyrexia and signs of nephritis.

No further interruption of convalescence.





Case 333 - 5-para, aet.25.

4-11-24 Normal confinement; considerable bleeding.

6-11-24 Onset of fever: a rigor, abdominal pain, and headache.

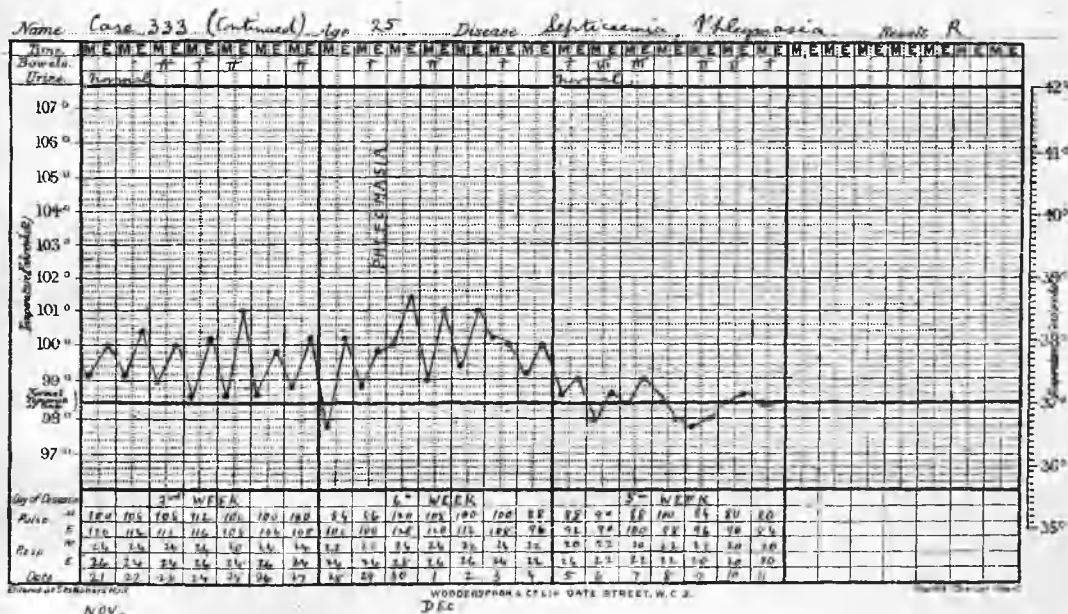
7-11-24 Admitted gravely ill. There is profound anaemia, and cough. Tongue furred and dry; pulse weak; heart normal; moist rales abundant throughout lungs. Slight general tenderness of the abdomen, which, however, moves with respiration and is not rigid. Fundus 3" over symphysis; os wide; no pelvic inflammation; discharge profuse and brown.

20-11-24 Some improvement in the general condition, but temperature still swinging. Discharge slight and abdomen normal. Cultures from blood and uterus yielded streptococcus.

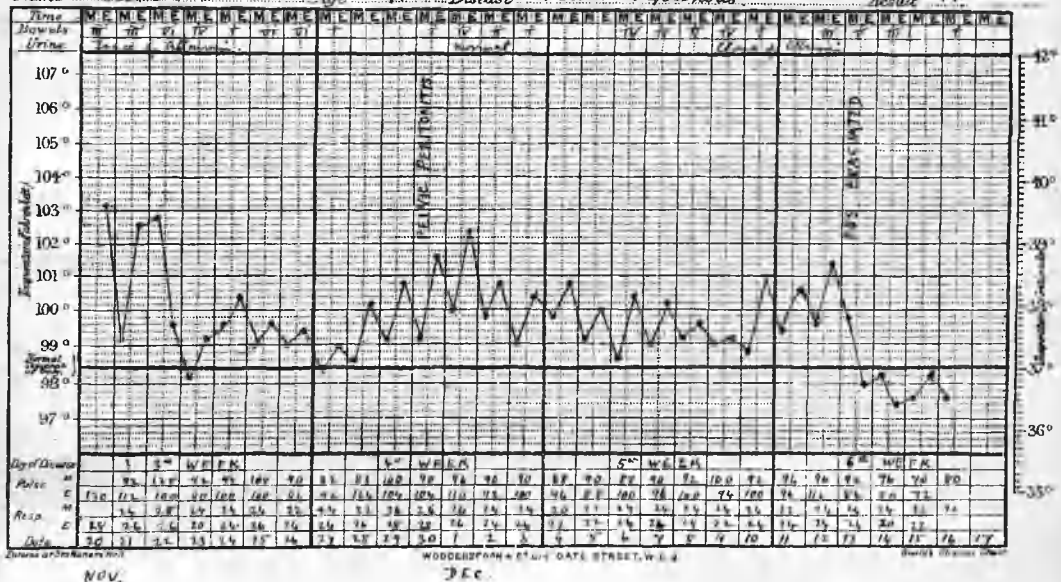
29-11-24 Phlegmasia of right lower limb: considerable swelling of thigh and leg.

9-12-24 Since onset of phlegmasia there has been a gradual defervescence. Condition greatly improved.

5-1-25 No further fever; limb normal. Dismissed well.



Name Case 340 Age 29 Disease Pelvic Peritonitis Result R



Case 340 - 3-para, aet.29.

26-10-24 Normal delivery.

5-11-24 Onset of fever; cessation of discharge and severe pain in left side of abdomen; no rigor. Was better after a few days.

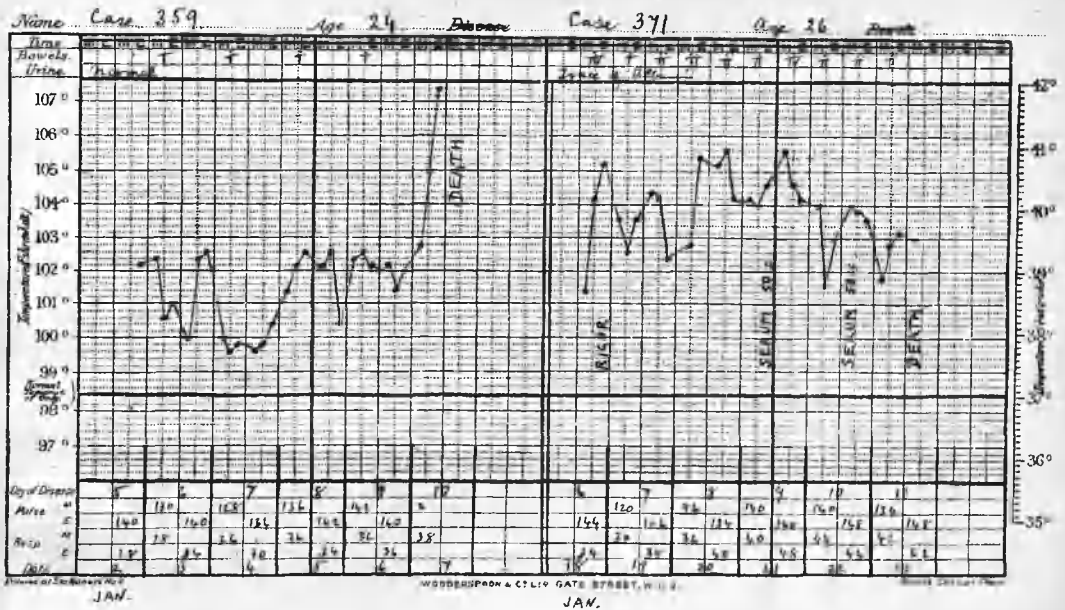
20-11-24 Admitted, on account of recurrence of pain, which, however, is almost absent again. Colour good; pulse soft, rapid; heart and lungs normal. Abdomen slightly tender in both iliac regions; no muscular rigidity, and nothing abnormal felt. Fundus uteri impalpable; discharge very slight; bowels loose.

30-11-24 Still fevered and ill. A rather tender mass in the middle line of abdomen, above the symphysis; can also be felt from vagina and rectum.

13-12-24 Mass bigger and more tender; general condition improved. Chloroform anaesthesia: incision in posterior vaginal wall, behind cervix; a large amount of pus released. Immediate fall of temperature.

Convalescence uninterrupted.

Nov. 1925. Been in excellent health since going out. No recurrence of swelling or pain.



Case 359 - Primipara, aet. 24.

26-12-24 Forceps delivery.

29-12-24 Onset of fever: no rigor, sickness, or pain.

2- 1-25 Admitted moderately ill. Colour good; tongue clean and moist; pulse soft and rapid. Heart, lungs and abdomen normal. Fundus 2" over symphysis; discharge scanty; perineum torn.

6- 1-25 Much more seriously ill; very excited and restless; physical condition poor.

7- 1-25 Delirium gave place to coma. Abdomen became distended and temperature hyperpyrexial. Death.

Post mortem: Fatty degeneration of heart; congestion and oedema of lungs. Intestines ballooned with gas; spleen large, pale; liver and kidneys fatty-degenerated. Uterus moderately large, with small abscess in anterior wall, and foul debris in interior. Streptococcus in spleen and abscess.

Case 371 - 5-para, aet. 26.

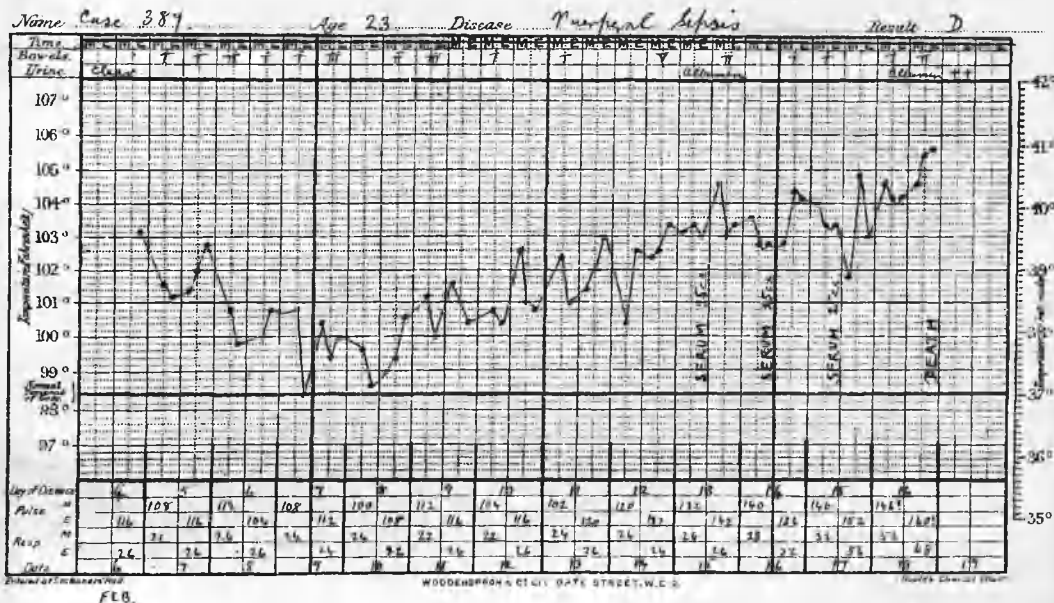
12-1-25 Spontaneous three months' abortion; placenta removed manually.

13-1-25 Onset of fever: a rigor and vomiting.

18-1-25 Admitted. Colour poor; tongue dry and fissured; pulse soft, very rapid; heart normal; lungs: moist rales abundant. Abdomen negative; uterus impalpable; discharge slight. S. pyogenes in blood.

23-1-25 Condition retrogressed in spite of serum, 100c.c. Cough and signs of pneumonia. Death.

Post mortem: Heart fatty; soft vegetations on mitral valve; effusion of clear fluid in pericardium. Lungs congested; early consolidation of left lower lobe. Uterus full of necrotic debris; 3 small abscesses in its wall. Cloudy swelling of liver and kidneys; spleen big, soft, pale. S. pyogenes in spleen and abscesses.



Case 387 - Primipara, aet.23.

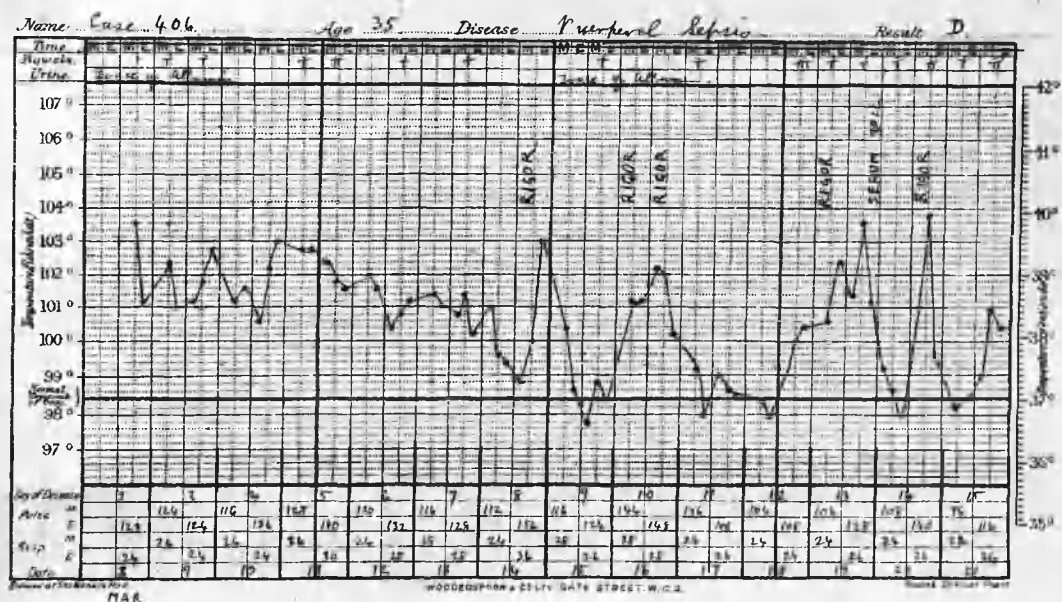
28-1-25 Normal confinement.

3-2-25 Onset of fever: a rigor and vomiting.

6-2-25 Admitted. Pale, but comfortable; tongue clean and moist; pulse soft, rapid. Heart: apex beat diffuse; left border of cardiac dulness at the nipple line; pre-systolic thrill and murmur, also systolic murmur, both conducted to back of chest (there is history of attacks of rheumatism). Lungs normal. Abdomen: slight tenderness in both iliac fossae; fundus 2" below umbilicus; profuse, purulent discharge.

15-2-25 Patient now gravely ill; has had no rigors or vomiting; lungs and abdomen negative. Streptococcus pyogenes in blood.

19-2-25 Three doses of serum had no effect, save that the last seemed to aggravate the infection. Death. Post mortem not granted.



Case 406 - Primipara, aet.35.

5-3-25 Forceps delivery in a nursing home; child still-born; placenta removed manually and perineum stitched; some post-partum haemorrhage.

7-3-25 Onset of fever: two rigors, and headache.

8-3-25 Admitted. Comfortable, but colour poor; tongue furred, moist. Heart: double mitral murmur, slight increase of cardiac dulness. Lungs clear; abdomen normal. Fundus nearly at umbilicus; a stitched perineal tear of 2nd degree; cervix and vagina extensively lacerated; profuse, saneous discharge.

16-3-25 Condition not improved; mental faculties somewhat clouded; several rigors have occurred. Urine has been retained for several days. Abdomen and pelvis negative; discharge still profuse. Blood culture negative; uterine smear, S. pyogenes.

25-3-25 Much better; temp. settling. Catheter not now required.

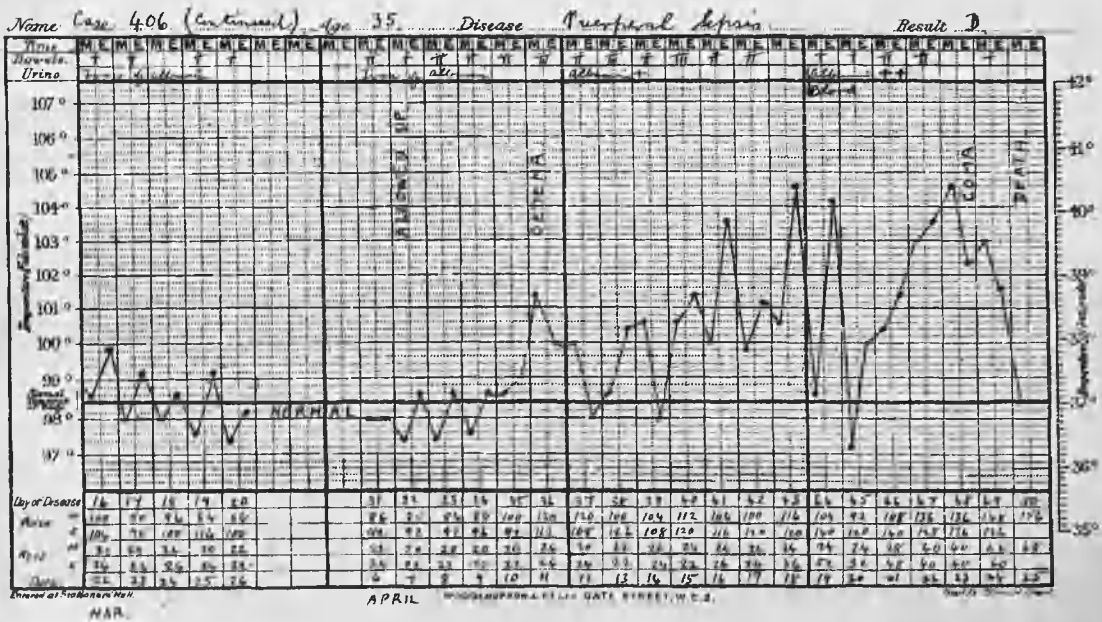
7-4-25 Further great improvement; no fever for 12 days. Allowed up.

11-4-25 Relapse: oedema of face and ankles; urine slightly albuminous.

20-4-25 Condition now grave; signs of acute nephritis, with drowsiness. Temperature swinging widely.

25-4-25 Became gradually worse; drowsiness deepened into coma. Death.

Post mortem: Heart: L.V.dilated but little hypertrophied; old vegetations on the stenosed mitral valve. Lungs emphysematous. Uterus small; wall smooth, cavity empty; appendages healthy. Spleen small, dark, firm; liver very fatty; kidneys: acute nephritis; small abscess in cortex of left.



Case 406 - Primipara, aet.35.

5-3-25 Forceps delivery in a nursing home; child still-born; placenta removed manually and perineum stitched; some post-partum haemorrhage.

7-3-25 Onset of fever: two rigors, and headache.

8-3-25 Admitted. Comfortable, but colour poor; tongue furred, moist. Heart: double mitral murmur, slight increase of cardiac dullness. Lungs clear; abdomen normal. Fundus nearly at umbilicus; a stitched perineal tear of 2nd degree; cervix and vagina extensively lacerated; profuse, sanious discharge.

16-3-25 Condition not improved; mental faculties somewhat clouded; several rigors have occurred. Urine has been retained for several days. Abdomen and pelvis negative; discharge still profuse. Blood culture negative; uterine smear, *S. pyogenes*.

25-3-25 Much better; temp. settling. Catheter not now required.

7-4-25 Further great improvement; no fever for 12 days.
Allowed up.

11-4-25 Relapse: oedema of face and ankles; urine slightly albuminous.

20-4-25 Condition now grave; signs of acute nephritis, with drowsiness. Temperature swinging widely.

25-4-25 Became gradually worse; drowsiness deepened into coma. Death.

Post mortem: Heart: L.V.dilated but little hypertrophied; old vegetations on the stenosed mitral valve. Lungs emphysematous. Uterus small; wall smooth, cavity empty; appendages healthy. Spleen small, dark, firm; liver very fatty; kidneys: acute nephritis; small abscess in cortex of left.

Case 408 - 4-para, aet.30.

11-3-25 Delivery at term; considerable ante-partum haemorrhage; placenta removed manually; patient collapsed.

13-3-25 Onset of fever: slight abdominal pain; no rigor.

14-3-25 Admitted. T.99.8, P.128, R.26 (first week of chart omitted). Colour poor; tongue furred, moist; pulse soft. Heart: a soft V.S. apical murmur; otherwise normal. Lungs clear; abdomen: slight tenderness in left lower quadrant; no sign of pelvic inflammation. Fundus at umbilicus; profuse, offensive discharge; small tear of perineum. Streptococcus in blood.

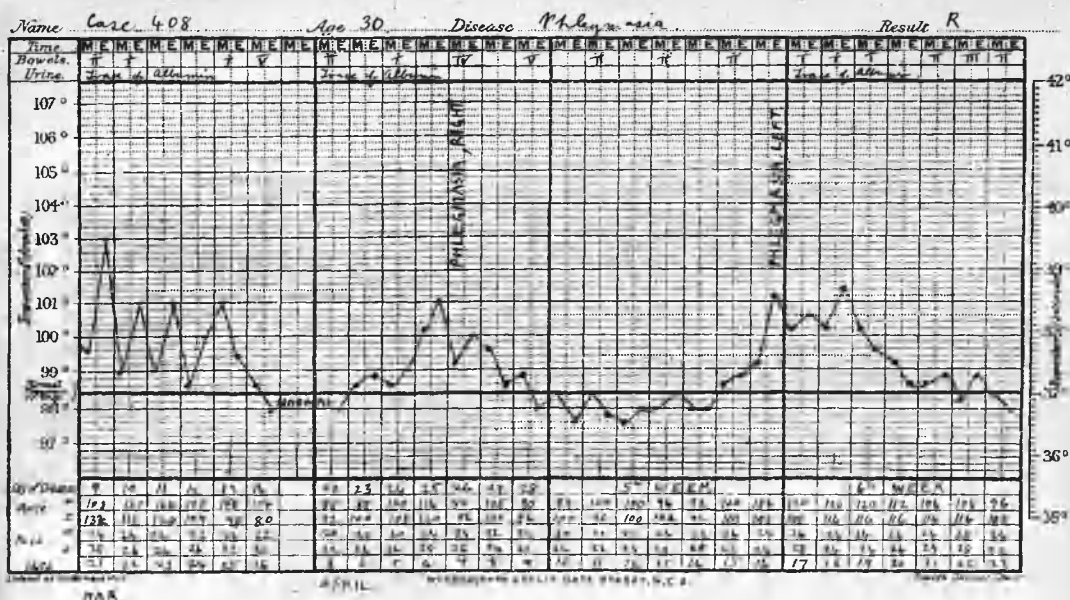
26-3-25 Much better; temperature normal.

7-4-25 Phlegmasia of the right lower limb, with return of fever. Patient was allowed up on 3rd.

16-4-25 Another relapse, caused by phlegmasia of the left lower limb; the right still swollen. General condition not very good: there is considerable anaemia.

1-5-25 Great improvement; temperature normal.

23-5-25 Condition good; both lower limbs normal. Dismissed.



Case 414 - 7-para, aet.40.

14-3-25 Normal delivery. Influenza late in pregnancy.

15-3-25 Onset of fever: headache and weakness; a rigor on 21st.

23-3-25 Admitted acutely ill. Colour poor; tongue coated; chest and abdomen negative. Fundus uteri $2\frac{1}{2}$ " over symphysis; os eroded; slight discharge of pus.

1-4-25 Fever continues; *S. pyogenes* in blood. Serum (50c.c.) had no effect. For 2 or 3 days there has been pain over right wrist, dorsum of left foot, and left zygoma; these areas, except the last, now red and fluctuant. Incisions released thick pus.

4-4-25 Abscesses over sacrum and in left forearm opened. General condition very poor.

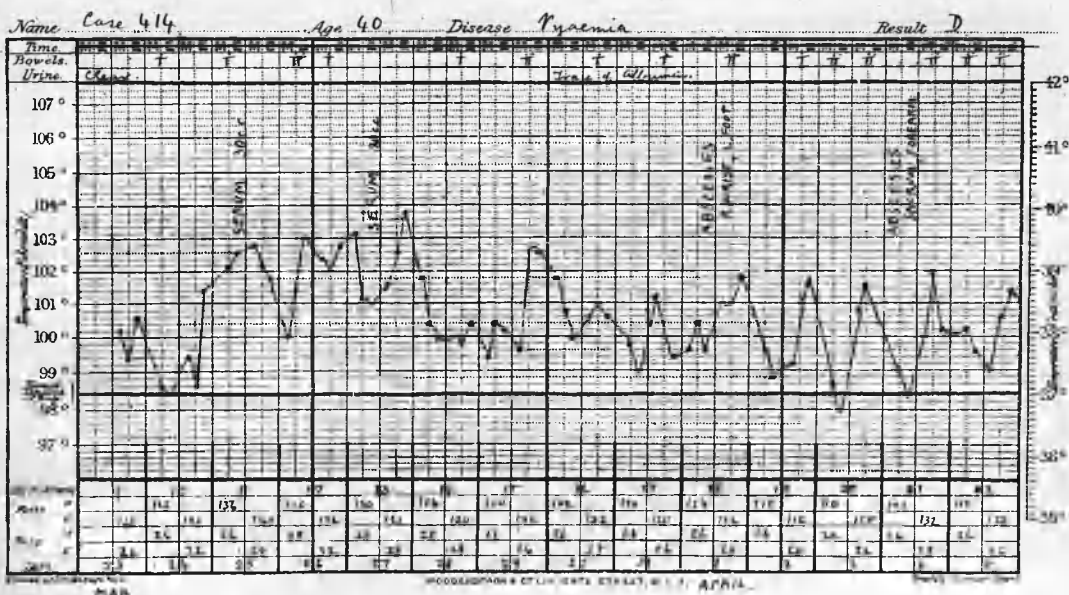
7-4-25 Abscesses over right clavicle and left deltoid opened. Treatment with autogenous streptococcal vaccine begun: initial dose, $2\frac{1}{2}$ million organisms.

10-4-25 Abscess, left forearm.

14-4-25 Pus in right knee-joint, which has been opened and drained. Abscess over clavicle involves the sternoclavicular joint. There are now 11 superficial metastatic foci. Patient is very pale and thin.

23-4-25 Parotid abscess opened. General condition worse; mental faculties clouded. Vaccine has been continued without benefit - last dose, 20 million.

24-4-25 Death. Post mortem not granted. All specimens of pus contained *S. pyogenes*.



Case 414 - 7-para, aet.40.

14-3-25 Normal delivery. Influenza late in pregnancy.

15-3-25 Onset of fever: headache and weakness; a rigor on 21st.

23-3-25 Admitted acutely ill. Colour poor; tongue coated; chest and abdomen negative. Fundus uteri $2\frac{1}{2}$ " over symphysis; os eroded; slight discharge of pus.1-4-25 Fever continues; *S. pyogenes* in blood. Serum (50c.c.) had no effect. For 2 or 3 days there has been pain over right wrist, dorsum of left foot, and left zygoma; these areas, except the last, now red and fluctuant. Incisions released thick pus.

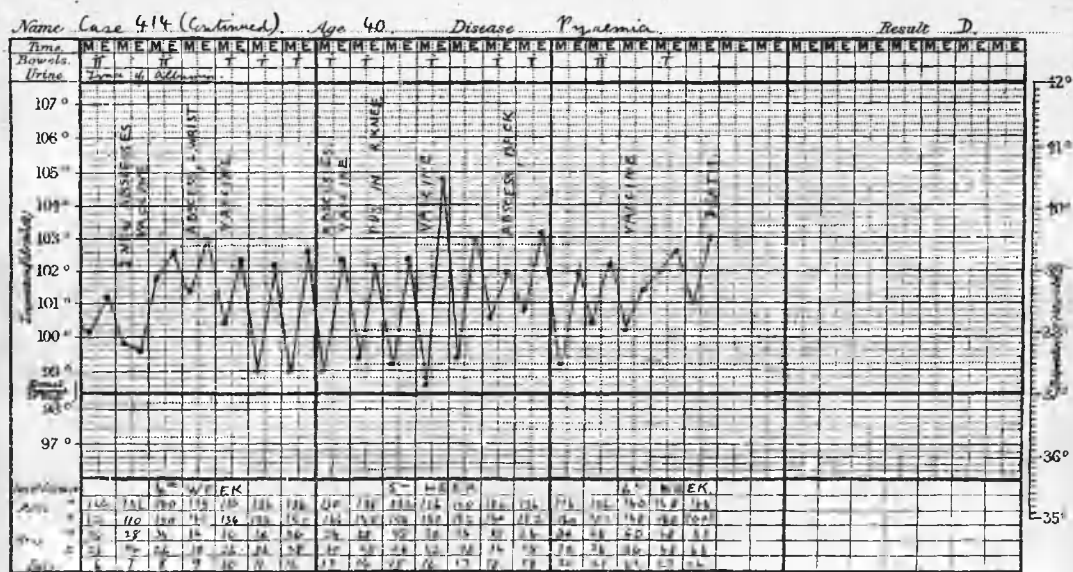
4-4-25 Abscesses over sacrum and in left forearm opened. General condition very poor.

7-4-25 Abscesses over right clavicle and left deltoid opened. Treatment with autogenous streptococcal vaccine begun: initial dose, $2\frac{1}{2}$ million organisms.

10-4-25 Abscess, left forearm.

14-4-25 Pus in right knee-joint, which has been opened and drained. Abscess over clavicle involves the sterno-clavicular joint. There are now 11 superficial metastatic foci. Patient is very pale and thin.

23-4-25 Parotid abscess opened. General condition worse; mental faculties clouded. Vaccine has been continued without benefit - last dose, 20 million.

24-4-25 Death. Post mortem not granted. All specimens of pus contained *S. pyogenes*.

Case 415 - 6-para, aet.34.

9-3-25 Normal delivery. On 10th day, got up, feeling well.

21-3-25 Onset of fever: severe rigor, vomiting, pain in the back, limbs, and abdomen.

26-3-25 Admitted, free of pain, but pale. Tongue coated; heart and lungs normal. Abdomen soft, and slightly tender in the lower half, where nothing abnormal can be felt. Fundus 2" over symphysis; profuse, purulent discharge; no lacerations. Streptococcus in blood and uterus.

2-4-25 Much better. Definite improvement after serum (30 c.c.). Uterus well retracted; no tenderness.

7-4-25 Temp. not settled; today pain in left iliac region, with slight tenderness and thickening of tissues.

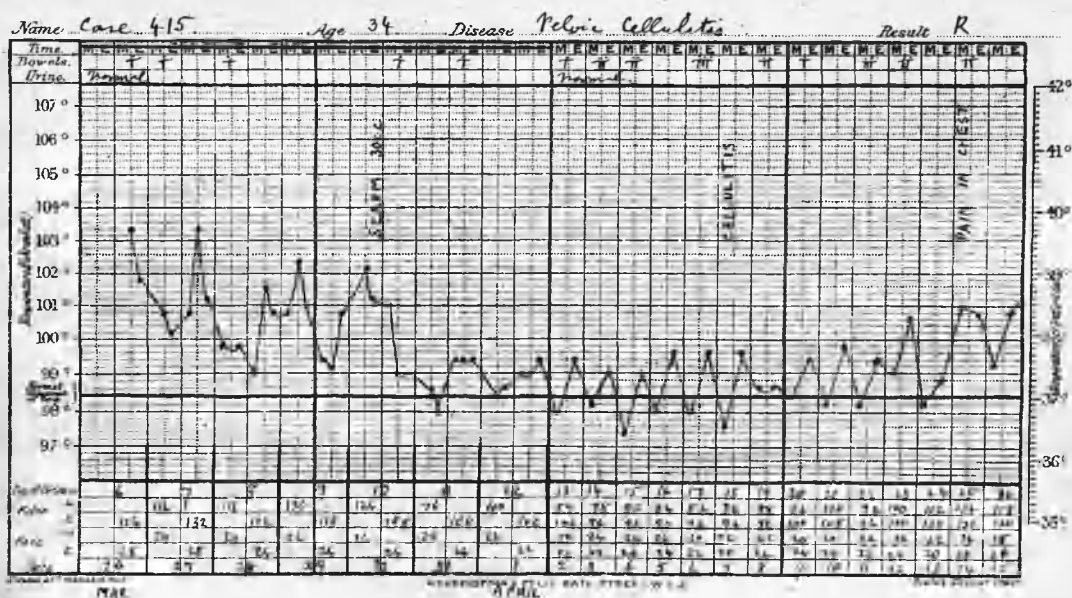
14-4-25 Sudden severe pain in left side of chest; cough, no sputum; percussion note a little impaired over left lower lobe - pulmonary infarction.

23-4-25 Improved, but considerable anaemia. Pain absent and chest clear; still a firm swelling in left iliac region.

5-5-25 Temperature normal; mass smaller.

18-5-25 Abdomen normal. Great general improvement. Dismissed.

Nov.1925. Patient has felt well since going out, save for slight "weakness" on the left side; never pain. Abdomen is normal.



Case 415 - 6-para, aet.34.

9-3-25 Normal delivery. On 10th day, got up, feeling well.

21-3-25 Onset of fever: severe rigor, vomiting, pain in the back, limbs, and abdomen.

26-3-25 Admitted, free of pain, but pale. Tongue coated; heart and lungs normal. Abdomen soft, and slightly tender in the lower half, where nothing abnormal can be felt. Fundus 2" over symphysis; profuse, purulent discharge; no lacerations. Streptococcus in blood and uterus.

2-4-25 Much better. Definite improvement after serum (30 c.c.). Uterus well retracted; no tenderness.

7-4-25 Temp. not settled; today pain in left iliac region, with slight tenderness and thickening of tissues.

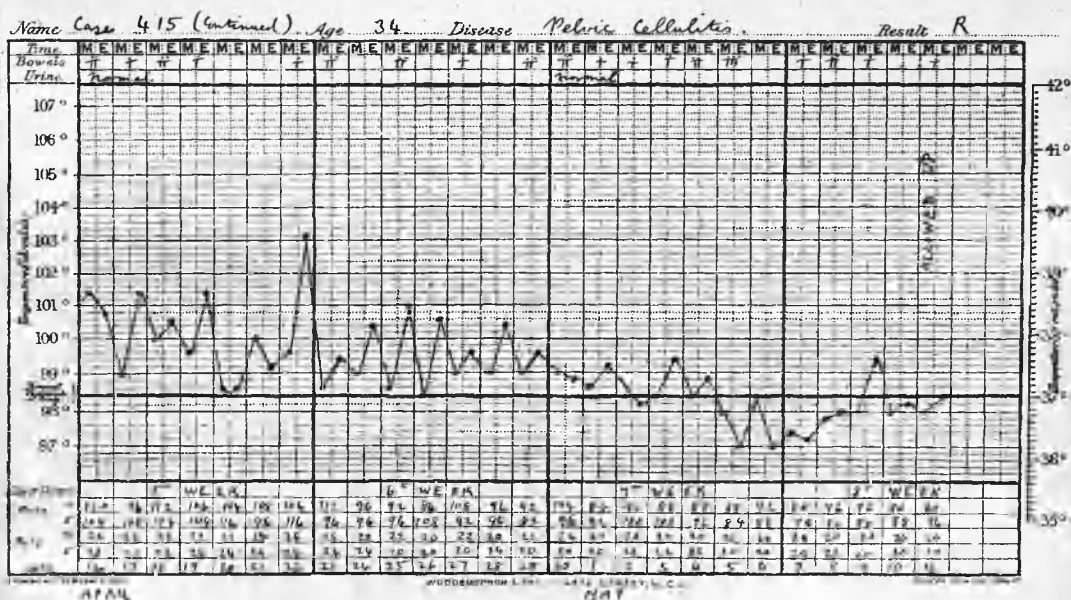
14-4-25 Sudden severe pain in left side of chest; cough, no sputum; percussion note a little impaired over left lower lobe - pulmonary infarction.

23-4-25 Improved, but considerable anaemia. Pain absent and chest clear; still a firm swelling in left iliac region.

5-5-25 Temperature normal; mass smaller.

18-5-25 Abdomen normal. Great general improvement. Dismissed.

Nov.1925. Patient has felt well since going out, save for slight "weakness" on the left side; never pain. Abdomen is normal.



Case 420 - Primipara, aet.21.

24-3-25 Confinement: "a difficult forceps case"; four stitches inserted in perineum.

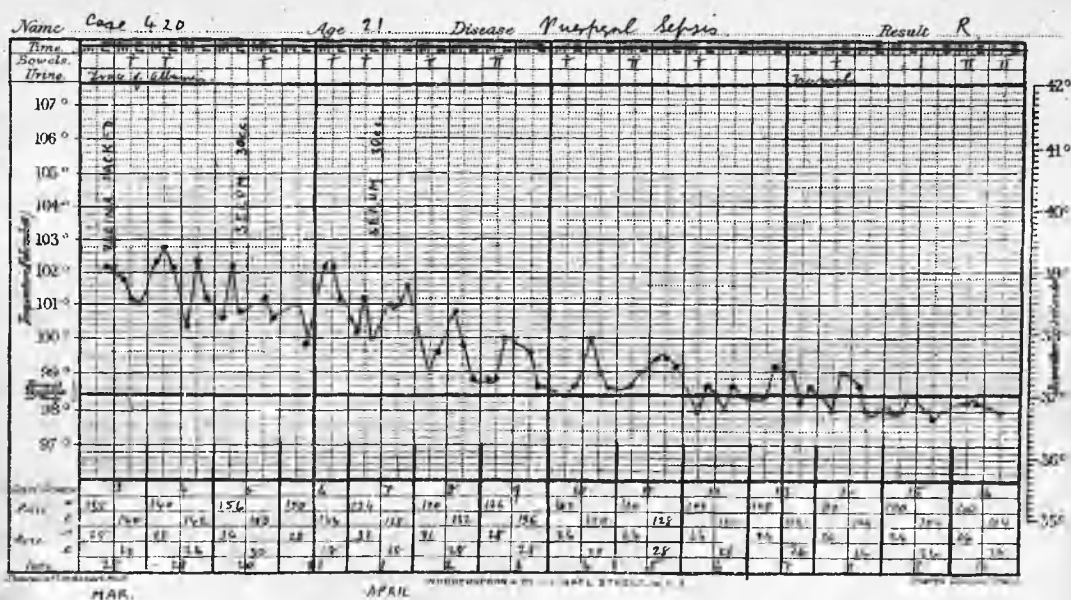
26-3-25 Onset of fever: slight abdominal pain; no rigor or sickness.

28-3-25 Admitted gravely ill. Considerable pallor; tongue dry; some bronchitis present; heart and abdomen negative; fundus midway between umbilicus and pubis. Local condition the worst in my experience: a complete tear of perineum into the rectum; vaginal walls terribly lacerated, and covered with thick, yellow exudate; cervix literally in ribbons; a profuse, foul discharge, coming mainly from the vagina. Vagina douched and iodoform packing inserted. Blood culture negative; in swab, *S. faecalis*.

4-4-25 Temperature falling, general condition much better. Serum has been given. Local condition also vastly improved, the vaginal walls beginning to granulate.

17-4-25 Temp. normal. Vaginal walls healthy.

4-5-25 Lacerations healed, with considerable contraction of vagina from scarring. Dismissed well.



Case 424 - 7-para, aet.41.

31-3-25 Aborted. Duration of pregnancy unknown.

2-4-25 Onset of fever: frequent rigors and vomiting.

11-4-25 Admitted acutely ill. Face flushed, respirations hurried, slight cough. Tongue moist, free of fur; pulse soft, rapid; heart normal; lungs give evidence of bronchitis. Abdomen somewhat full, and rather tender on deep pressure. Uterus small; discharge thin and watery; no tears. no sign of pelvic inflammation.

16-4-25 Slight improvement; has had two doses of serum. blood-culture negative.

22-4-25 Much worse: frequent rigors, marked cyanosis; chart suggests thrombophlebitis. Today severe pain in left side of chest; cough more troublesome and painful; no abnormal physical signs.

27-4-25 Condition grave; rigors continue, with, today, vomiting. Pain now in right side of chest, where slight pleural friction is audible. Abdomen and pelvis quite negative.

30-4-25 Turpentine $1\frac{1}{2}$ c.c. injected into flank.

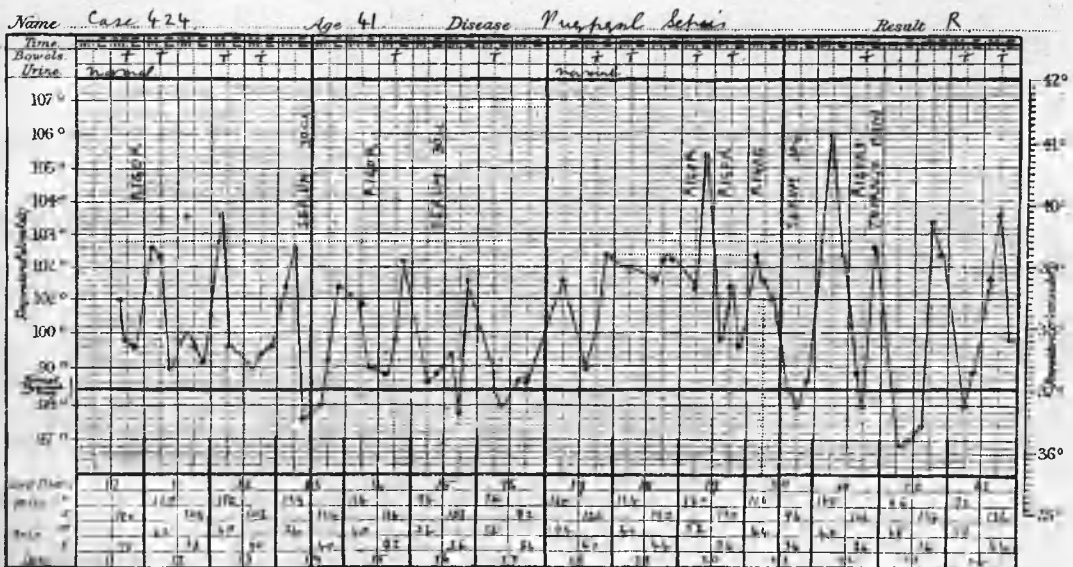
4-5-25 Slight improvement: only one more rigor, no pain. There is considerable anaemia. Signs at R. base are now those of pleural exudate.

11-5-25 Great improvement: temp. settling and no further rigor. Fixation abscess opened: 2 - 3 ounces of thick, curdy pus liberated.

18-5-25 R. base still dull: aspirated today, 1 oz. clear fluid obtained.

27-5-25 Improvement continues. Chest practically clear.

10-6-25 Dismissed well.



Case 424 - 7-para, aet.41.

31-3-25 Aborted. Duration of pregnancy unknown.

2-4-25 Onset of fever: frequent rigors and vomiting.

11-4-25 Admitted acutely ill. Face flushed, respirations hurried, slight cough. Tongue moist, free of fur; pulse soft, rapid; heart normal; lungs give evidence of bronchitis. Abdomen somewhat full, and rather tender on deep pressure. Uterus small; discharge thin and watery; no tears. no sign of pelvic inflammation.

16-4-25 Slight improvement; has had two doses of serum. blood-culture negative.

22-4-25 Much worse: frequent rigors, marked cyanosis; chart suggests thrombophlebitis. Today severe pain in left side of chest; cough more troublesome and painful; no abnormal physical signs.

27-4-25 Condition grave; rigors continue, with, today, vomiting. Pain now in right side of chest, where slight pleural friction is audible. Abdomen and pelvis quite negative.

30-4-25 Turpentine $1\frac{1}{2}$ c.c. injected into flank.

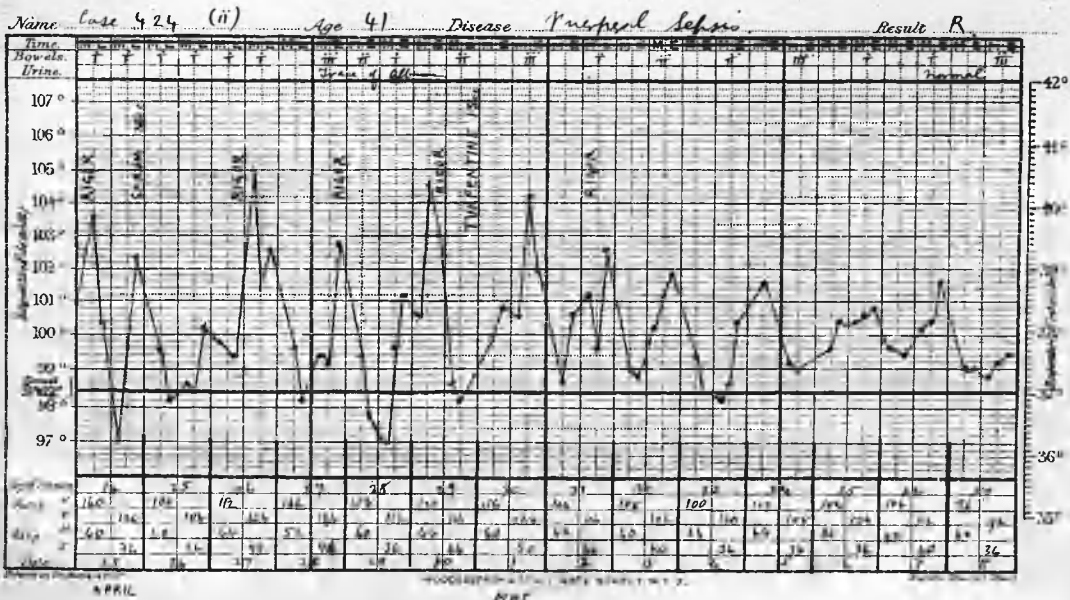
4-5-25 Slight improvement: only one more rigor, no pain. There is considerable anaemia. Signs at R. base are now those of pleural exudate.

11-5-25 Great improvement: temp. settling and no further rigor. Fixation abscess opened: 2 - 3 ounces of thick, curdy pus liberated.

18-5-25 R. base still dull: aspirated today, 1 oz. clear fluid obtained.

27-5-25 Improvement continues. Chest practically clear.

10-6-25 Dismissed well.



Case 424 - 7-para, aet.41.

31-3-25 Aborted. Duration of pregnancy unknown.

2-4-25 Onset of fever: frequent rigors and vomiting.

11-4-25 Admitted acutely ill. Face flushed, respirations hurried, slight cough. Tongue moist, free of fur; pulse soft, rapid; heart normal; lungs give evidence of bronchitis. Abdomen somewhat full, and rather tender on deep pressure. Uterus small; discharge thin and watery; no tears. no sign of pelvic inflammation.

16-4-25 Slight improvement; has had two doses of serum. blood-culture negative.

22-4-25 Much worse: frequent rigors, marked cyanosis; chart suggests thrombophlebitis. Today severe pain in left side of chest; cough more troublesome and painful; no abnormal physical signs.

27-4-25 Condition grave; rigors continue, with, today, vomiting. Pain now in right side of chest, where slight pleural friction is audible. Abdomen and pelvis quite negative.

30-4-25 Turpentine $1\frac{1}{2}$ c.c. injected into flank.

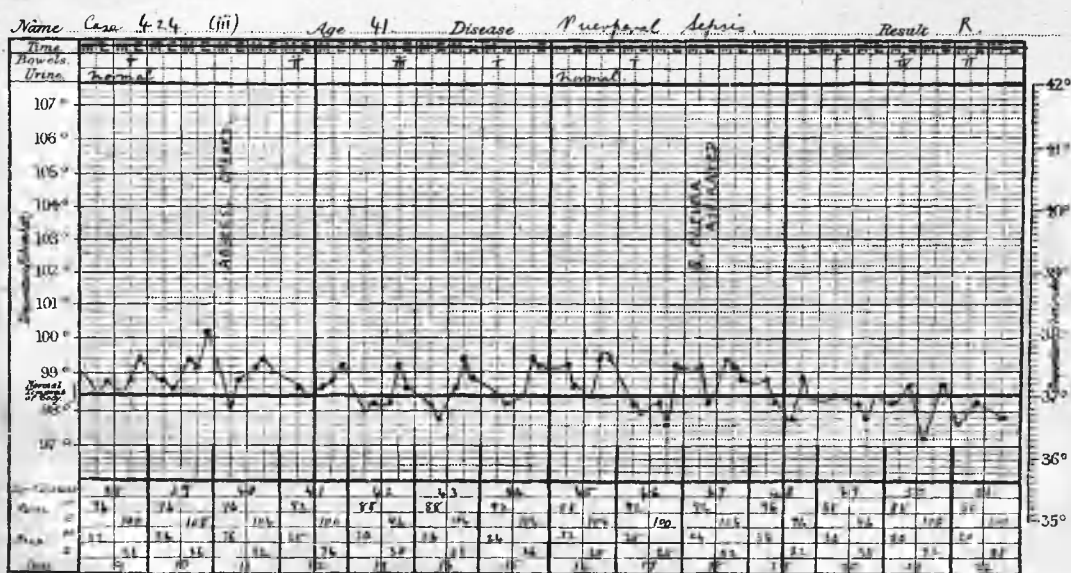
4-5-25 Slight improvement: only one more rigor, no pain. There is considerable anaemia. Signs at R. base are now those of pleural exudate.

11-5-25 Great improvement: temp. settling and no further rigor. Fixation abscess opened: 2 - 3 ounces of thick, curdy pus liberated.

18-5-25 R. base still dull: aspirated today, 1 oz. clear fluid obtained.

27-5-25 Improvement continues. Chest practically clear.

10-6-25 Dismissed well.



Case 427 - 2-para, aet.25.

29-3-25 6½ months' miscarriage: no attendant present. Retained placenta removed manually in Maternity Hospital. Onset of fever then, with headache, rigor, and vomiting.

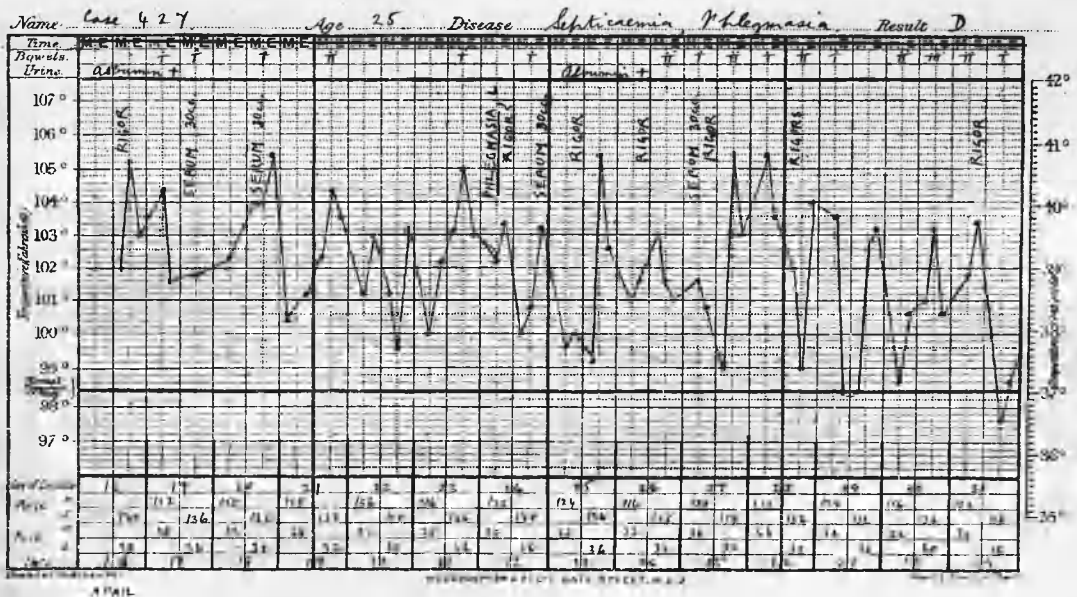
16-4-25 Admitted, pale and acutely ill. Tongue dry and glazed; pulse soft and rapid; heart: faint apical V.S. murmur, no other abnormality. Lungs and abdomen normal. Fundus 1" over symphysis; no sign of pelvic inflammation; very little clear discharge. Cultures from blood and uterus - streptococcus pyogenes.

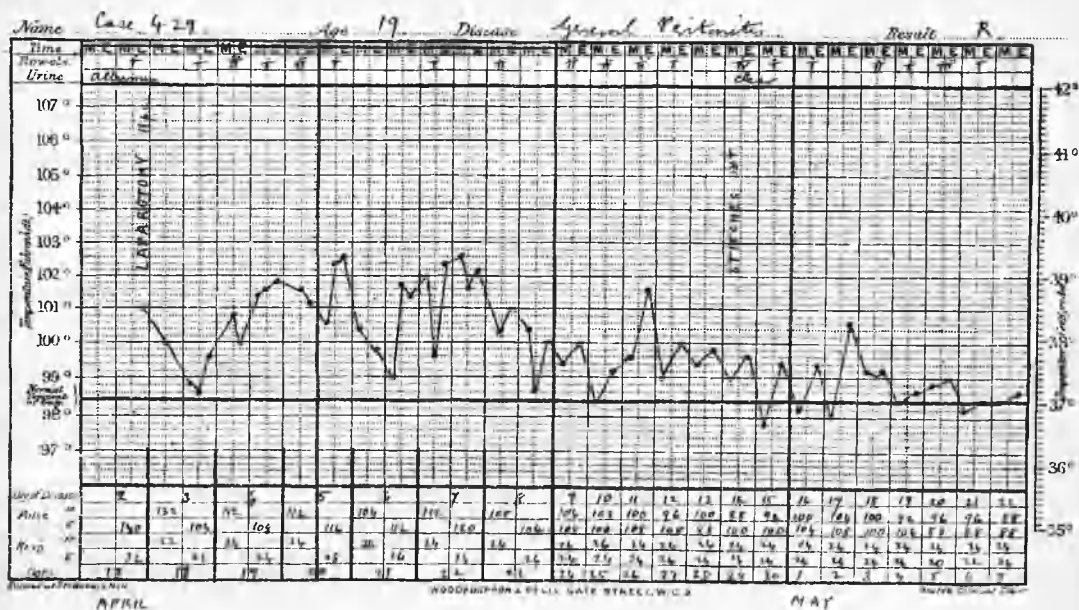
22-4-25 Condition very poor; deep anaemia; rigors frequent. Serum has been given without benefit. Today there is commencing phlegmasia of the left lower limb.

4-5-25 Still gravely ill; rigors continue. Moist rales throughout chest; cardiac murmur as before; abdomen negative. Today phlegmasia of the right lower limb; left still very swollen.

8-5-25 There was gradual deterioration. Breathlessness and signs of pneumonia appeared; temperature subnormal latterly; died this morning.

Post mortem not granted.





Case 429 - Primipara, aet.19.

26-3-25 Instrumental delivery. Patient got up, well, on 14th day.

16-4-25 Onset of fever: sudden, severe abdominal pain, rigor, and vomiting.

17-4-25 Admitted very ill. Colour poor, tongue coated and dry, heart and lungs normal. Abdomen moves very slightly with respiration; tenderness is general, but most acute at McBurney's point; right rectus rather more rigid than the left. Uterus not palpable from abdomen; discharge slight; tenderness in vaginal vault. Streptococcus in blood and uterus.

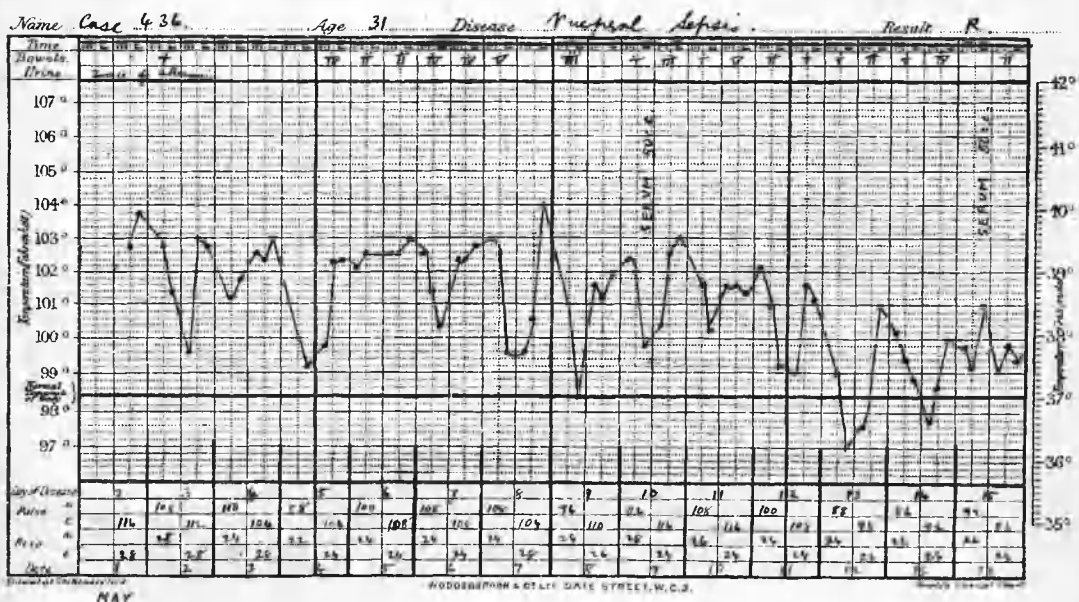
Laparotomy: General peritonitis; pus most abundant in pelvis; appendix inflamed, but obviously not the cause of illness, which appears to arise from tubal infection; uterus big. Appendix removed and pelvis drained.

29-4-25 Great improvement: fever still present but pulse rate falling. Wound draining well; packing substituted for tube and stitches removed.

18-5-25 Wound healed. Allowed up.

8-6-25 Dismissed well.

Nov.1925. Patient has been very well since going home. Abdomen feels normal and wound is firm.



Case 436 - Primipara, aet.31.

19-4-25 Forceps delivery. Got up on 7th day.

30-4-25 Onset of fever: headache and offensive discharge.

1-5-25 Admitted. Comfortable and of good colour.

Tongue moist, coated; pulse good; heart, lungs, and abdomen normal. Fundus midway between umbilicus and pubis; discharge profuse and purulent; no tear of cervix or perineum, but vaginal wall lacerated behind the cervix.

11-5-25 Still sharply ill; some delirium at night. Uterus retracted and discharge less. Cultures from blood and uterus - *Streptococcus pyogenes*.

16-5-25 Has appeared to benefit from serum, 100 c.c. Temperature settling.

20-5-25 Rash, joint-pains, and fever - serum sickness.

1-6-25 Condition good. Allowed up.

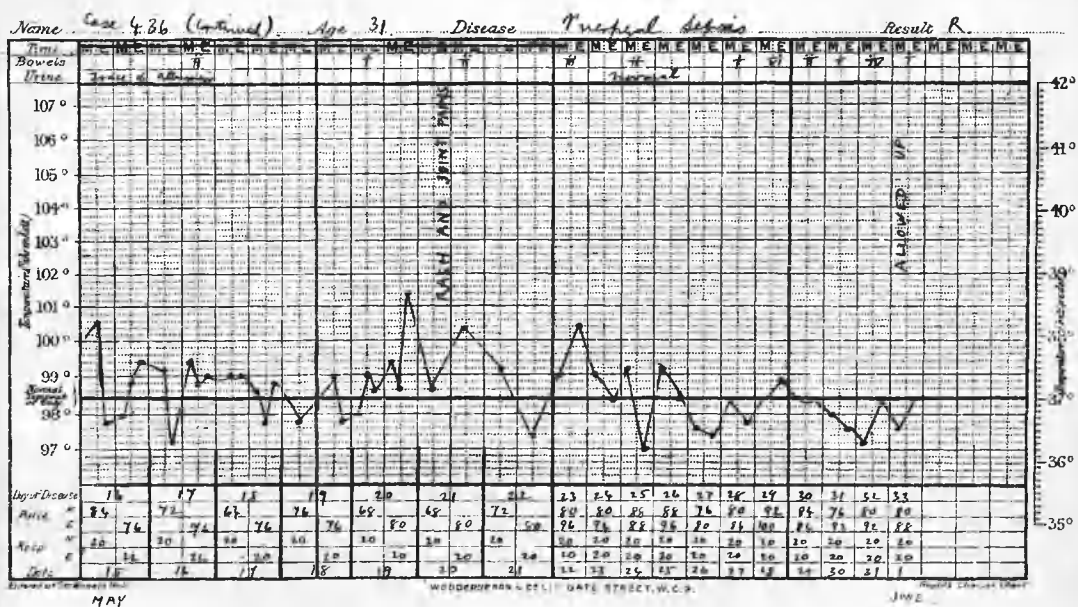
Further convalescence uneventful.

12-5-25 Very much improved. No more fever.

50 c.c. dose of serum appeared to be beneficial.

18-5-25 Slight erythema on face and neck.

27-5-25 Dismissed well.



Case 436 - Primipara, aet.31.

19-4-25 Forceps delivery. Got up on 7th day.

30-4-25 Onset of fever: headache and offensive discharge.

1-5-25 Admitted. Comfortable and of good colour.

Tongue moist, coated; pulse good; heart, lungs, and abdomen normal. Fundus midway between umbilicus and pubis; discharge profuse and purulent; no tear of cervix or perineum, but vaginal wall lacerated behind the cervix.

11-5-25 Still sharply ill; some delirium at night.

Uterus retracted and discharge less. Cultures from blood and uterus - Streptococcus pyogenes.

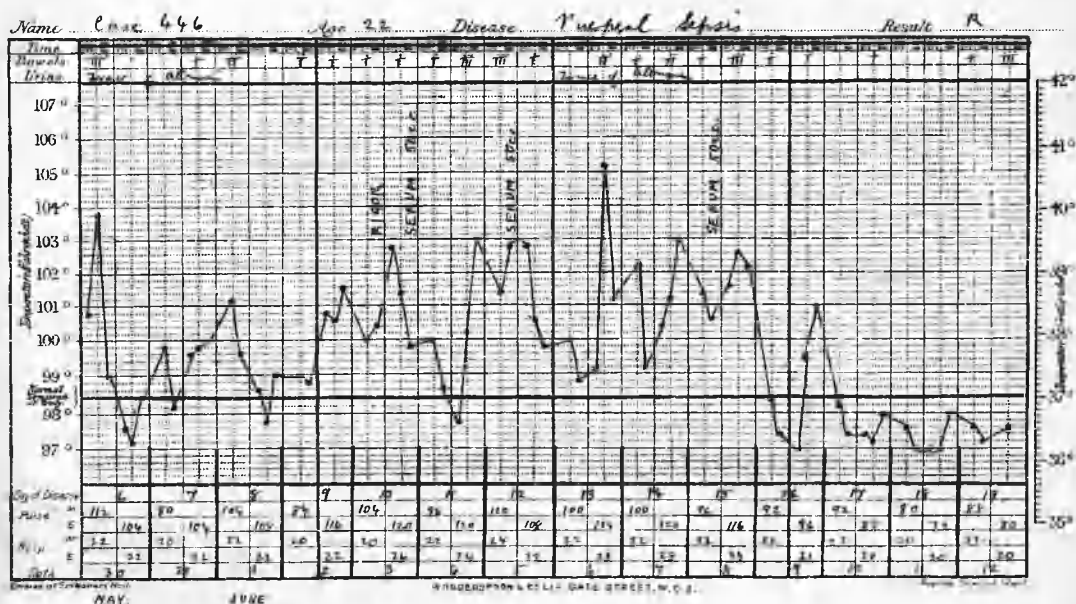
16-5-25 Has appeared to benefit from serum, 100 c.c. Temperature settling.

20-5-25 Rash, joint-pains, and fever - serum sickness.

1-6-25 Condition good. Allowed up.

Further convalescence uneventful.

18-6-25 Very much improved; temp. normal, pulse third 50 c.c. dose of serum appeared to be beneficial.
18-6-25 Slight morbilliform rash seen.
27-6-25 Dismissed well.



Case 446 - 2-para, aet.22.

24-5-25 Normal delivery. Placenta retained and removed manually.

25-5-25 Onset of fever: no pain, vomiting, or rigor.

Admitted same day. Comfortable but distinctly anaemic. Tongue moist and coated; pulse of fair quality; heart, lungs and abdomen normal. Fundus uteri at umbilicus; no tears; a piece of membrane protruding from the open os. General anaesthesia: uterus explored; a large piece of placenta felt, but attempt at its removal failed, on account of firm adhesions; uterus douched. (First 5 days of chart omitted)

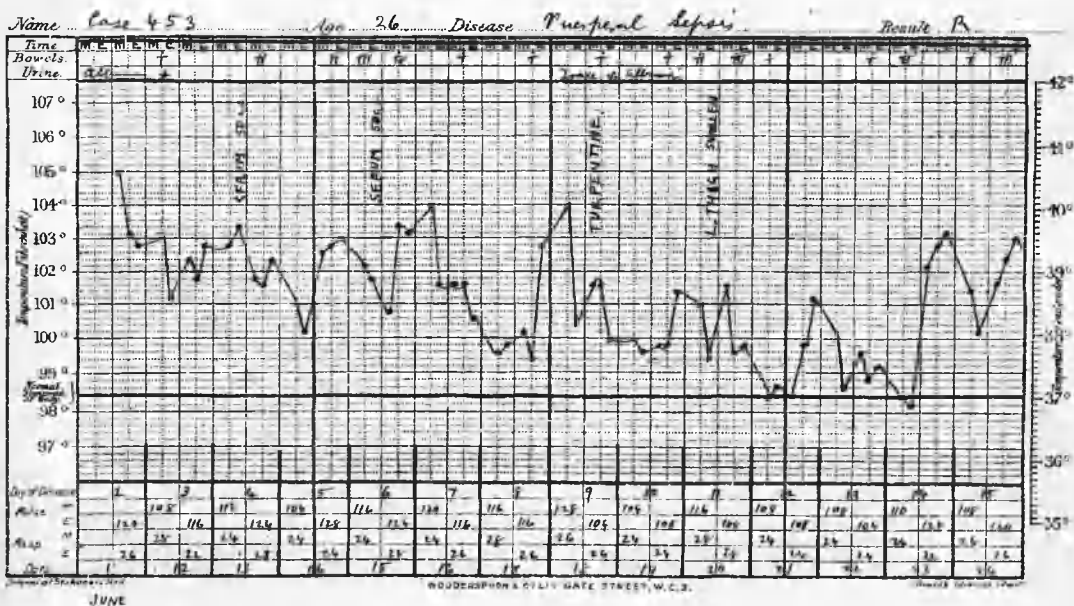
30-5-25 Pyrexia and profuse purulent discharge since operation. Streptococcus in blood and swab. Today uterine pain and expulsion of the retained portion of placenta.

5-6-25 Still fevered. Discharge less and uterus well retracted.

12-6-25 Very much improved; temp. normal. The third
50 c.c. dose of serum appeared to be beneficial.

18-6-25 Slight morbilliform serum rash.

27-6-25 Dismissed well.



Case 453 - Primipara, aet.26.

8-6-25 Forceps delivery; perineum stitched.

10-6-25 Onset of fever: rigor and slight sickness.

11-6-25 Admitted, comfortable but of poor colour. Tongue dry and furred; pulse soft, rapid; heart, lungs, and abdomen normal. Fundus at umbilicus; discharge profuse and saneous. A stitched perineal tear of 2nd degree was healthy, and stitches not removed.

18-6-25 No improvement, in spite of 100 c.c. serum.
Streptococcus pyogenes in blood and swab. 1.5c.c. turpen-
tine injected into the flank.

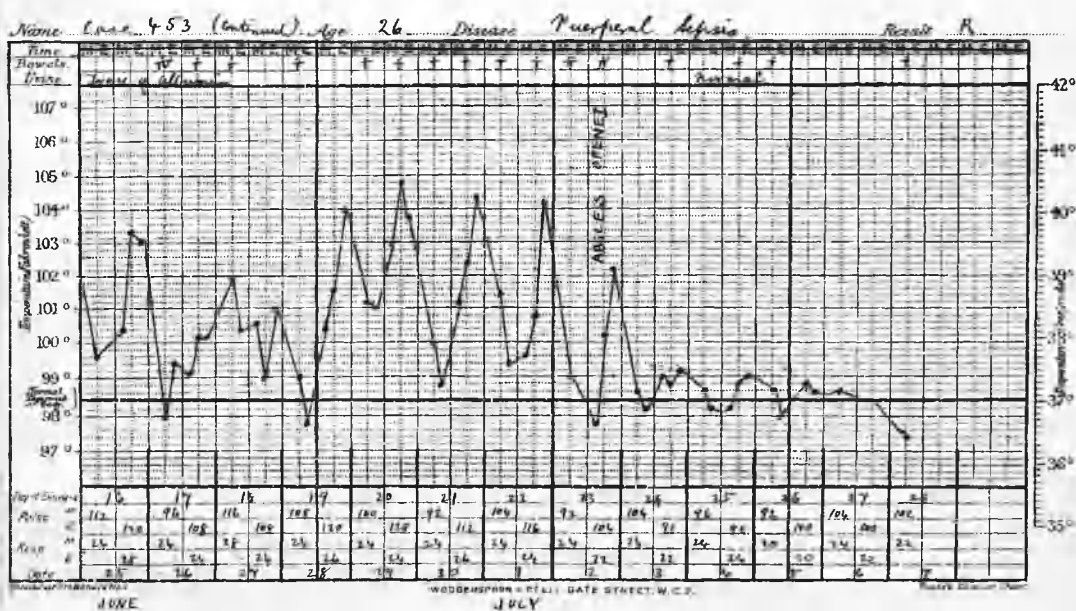
20-6-25 Left thigh considerably swollen and tender at site of serum injection.

27-6-25 Flank was swollen and sore for a day or two, but area of induration now small and not tender. Left thigh, however, more swollen and fluctuant: through a small incision, 2 oz. pus obtained from it.

2-7-25 Fever continues. Incision widened and abscess cleared out more thoroughly.

19-7-25 There was no further fever. Condition now very good. Wound almost healed.

Further convalescence uneventful.



Case 453 - Primipara, aet.26.

8-6-25 Forceps delivery; perineum stitched.

10-6-25 Onset of fever: rigor and slight sickness.

11-6-25 Admitted, comfortable but of poor colour. Tongue dry and furred; pulse soft, rapid; heart, lungs, and abdomen normal. Fundus at umbilicus; discharge profuse and saneous. A stitched perineal tear of 2nd degree was healthy, and stitches not removed.

18-6-25 No improvement, in spite of 100 c.c. serum.
Streptococcus pyogenes in blood and swab. 1.5c.c. turpen-
tine injected into the flank.

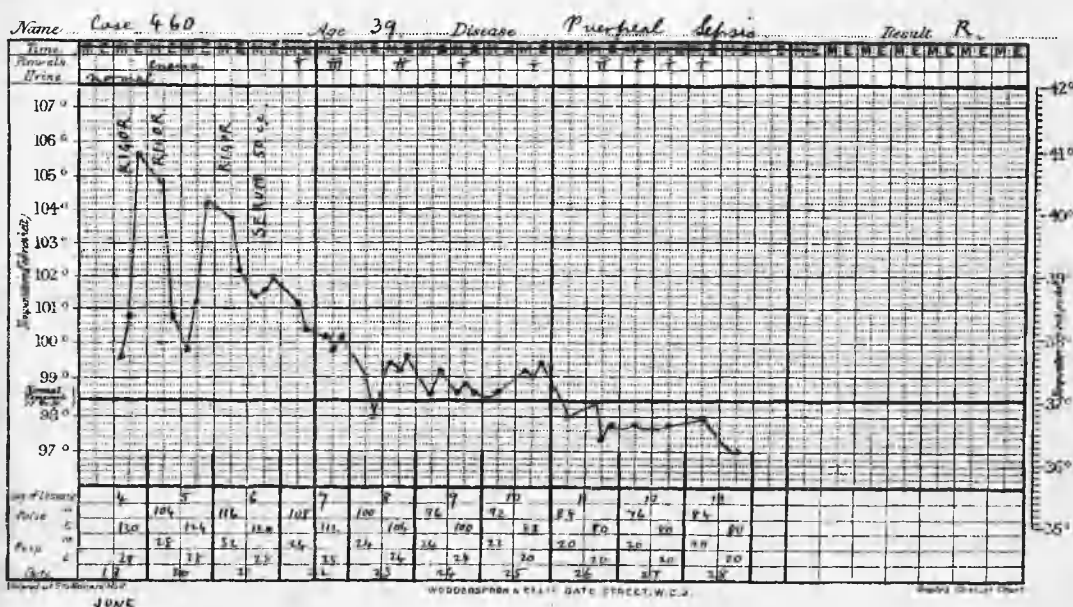
20-6-25 Left thigh considerably swollen and tender at site of serum injection.

27-6-25 Flank was swollen and sore for a day or two, but area of induration now small and not tender. Left thigh, however, more swollen and fluctuant: through a small incision, 2 oz. pus obtained from it.

2-7-25 Fever continues. Incision widened and abscess cleared out more thoroughly.

19-7-25 There was no further fever. Condition now very good. Wound almost healed.

Further convalescence uneventful.



Case 460 - 8-para, aet.39.

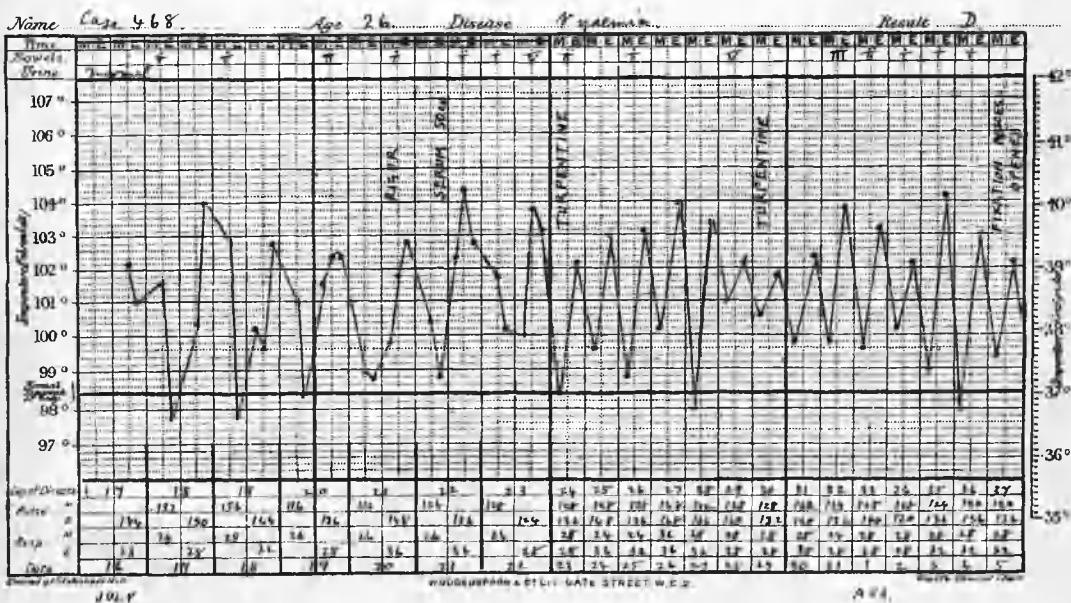
14-6-25 Instrumental birth, at 8 months of pregnancy. Placenta removed manually.

16-6-25 Onset of fever: repeated rigors; no other symptom.

19-6-25 Admitted, pale and ill-looking, but free of pain. Tongue glazed and dry; pulse very soft; heart, lungs and abdomen negative. Uterus of moderate size; copious discharge of pus; no lacerations. Blood culture - negative, swab - Staph. albus.

26-6-25 Rigors continued for 24 hours, then temperature fell steadily after 50 c.c. serum. Condition good; no further fever.

Convalescence uninterrupted.



Case 468 - Primipara, aet.26.

19-6-25 Normal delivery.

30-6-25 Onset of fever on getting up: pain all over, and foul discharge. Rigors on 14th and 15th July.

16-7-25 Admitted pale and thin, but comfortable. Tongue coated; chest and abdomen normal; no sign of pelvic inflammation. Uterus small; os nearly closed; discharge very slight; no tears.

23-7-25 Temperature swinging widely, but only one rigor. Streptococcus^x in blood. Serum (50 c.c.) given without benefit. Today 1.5 c.c. turpentine injected.

29-7-25 Turpentine had no effect; repeated in same dose. Patient very ill.

5-8-25 A large abscess has formed; overlying skin red and tender. Incision: pus copious and thick.

7-8-25 Right wrist very tender, especially at lower end of radius; explored - no pus. General condition not improved; faint apical murmur follows first sound of heart.

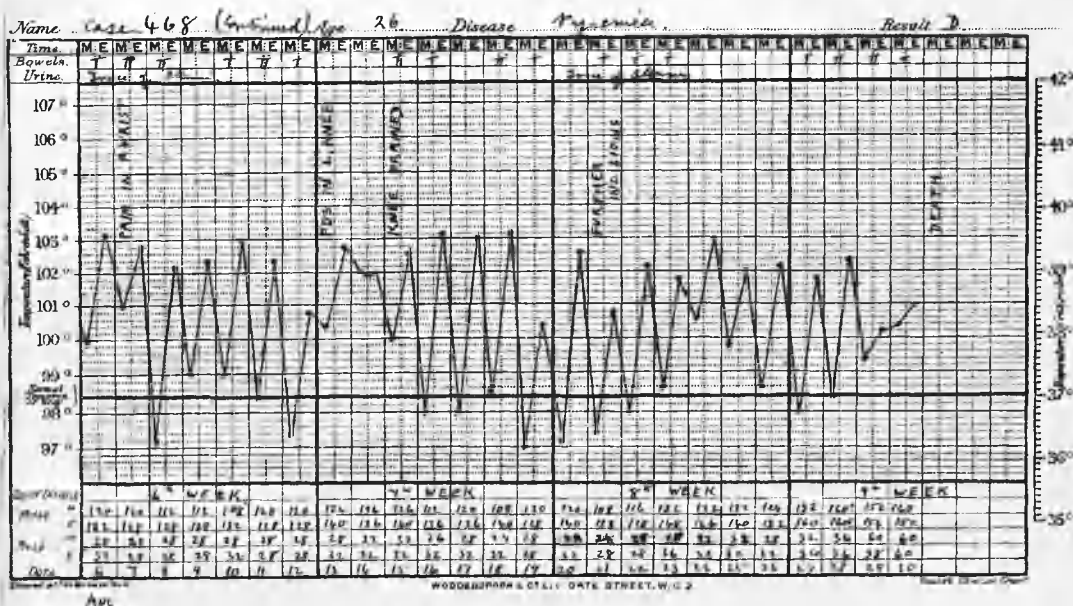
15-8-25 Pus has formed in right knee-joint: today opened and drained under general anaesthesia; posterior splint applied to counteract flexion. Wrist now free of pain. Wounds in flank (from turpentine) beginning to heal.

21-8-25 Knee still swollen and very tender; drainage not satisfactory. Two further incisions made under CHCl₃; a Thomas's splint applied. A sacral abscess opened. Heart murmur more audible. Streptococcus^x in pus.

27-8-25 Very gravely ill, excited and delirious. No further septic foci. Signs of commencing pneumonia.

31-8-25 Death. No post mortem.

^x S. pyogenes.



Case 468 - Primipara, aet. 26.

19-6-25 Normal delivery.

30-6-25 Onset of fever on getting up: pain all over, and foul discharge. Rigors on 14th and 15th July.

16-7-25 Admitted pale and thin, but comfortable. Tongue coated; chest and abdomen normal; no sign of pelvic inflammation. Uterus small; os nearly closed; discharge very slight; no tears.

23-7-25 Temperature swinging widely, but only one rigor. Streptococcus* in blood. Serum (50 c.c.) given without benefit. Today 1.5 c.c. turpentine injected.

29-7-25 Turpentine had no effect; repeated in same dose. Patient very ill.

5-8-25 A large abscess has formed; overlying skin red and tender. Incision: pus copious and thick.

7-8-25 Right wrist very tender, especially at lower end of radius; explored - no pus. General condition not improved; faint apical murmur follows first sound of heart.

15-8-25 Pus has formed in right knee-joint: today opened and drained under general anaesthesia; posterior splint applied to counteract flexion. Wrist now free of pain. Wounds in flank (from turpentine) beginning to heal.

21-8-25 Knee still swollen and very tender; drainage not satisfactory. Two further incisions made under CHCl₃; a Thomas's splint applied. A sacral abscess opened. Heart murmur more audible. Streptococcus* in pus.

27-8-25 Very gravely ill, excited and delirious. No further septic foci. Signs of commencing pneumonia.

31-8-25 Death. No post mortem.

* S. pyogenes.

Case 471 - 3-para, aet.24.

1- 8-25 Normal delivery.

3- 8-25 Onset of fever: a rigor, pain in abdomen and limbs.

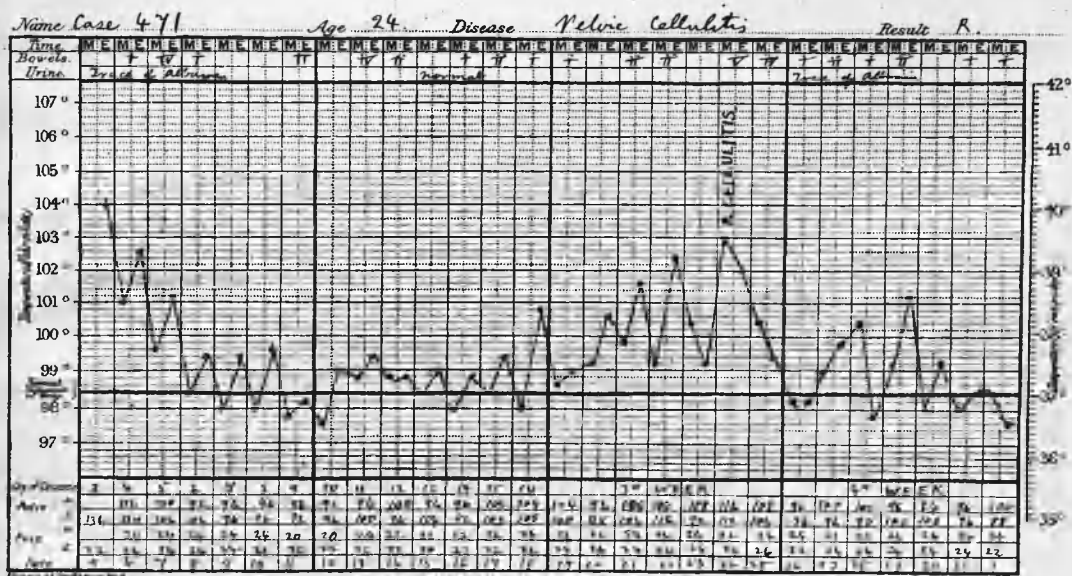
5- 8-25 Admitted. Colour rather poor but condition favourable. Tongue moist, coated; pulse good; heart and lungs normal. Abdomen soft and free of tenderness; fundus 1" below umbilicus; small tear of perineum; discharge profuse, purulent. Blood culture negative; swab, B. coli.

24-8-25 After a subfebrile period (see chart), temperature is again swinging. There is now a hard swelling typical of cellulitis in right lower quadrant of abdomen. General condition remains good.

22-9-25 Relapse of temperature after a normal period of nearly a fortnight. Swelling remained prominent, and is now tender, soft, and fluctuant.

27-9-25 General anaesthesia: incision parallel to Poupart's ligament; several ounces of thick pus (streptococcal) released; cavity packed with iodoform gauze.

5-11-25 Wound drained for a few days; now perfectly healed. General condition excellent. Dismissed.



Case 479 - 2-para, aet.21.

23- 8-25 Forceps delivery at 8 months; child still-born. Onset of fever same day: abdominal pain; no rigor.

26- 8-25 Admitted (at night). Pale and acutely ill; breasts painful; tongue thickly coated; pulse very soft. Heart, lungs and abdomen normal; fundus at umbilicus; no tears; profuse, blood-stained discharge.

30- 8-25 Rigor and relapse of temperature, after three days of improvement.

4- 9-25 Turpentine 1.5 c.c. injected.

9- 9-25 No sign of abscess formation, and little, if any, improvement in the general condition. Blood culture (on two occasions), Staph. aureus. Turpentine repeated in bigger dose - 4 c.c.

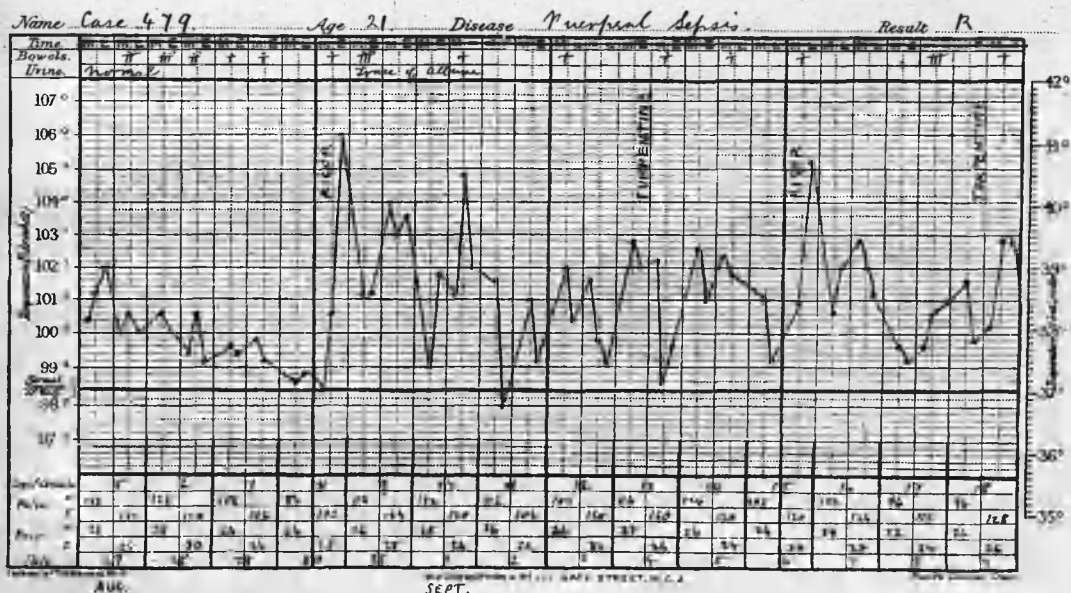
16- 9-25 There is now slight improvement. Abscess has formed, but is small and diffuse: incision, about 1 oz. pus expressed.

29- 9-25 Temperature still swinging; abscess wound healed. Heart, lungs and abdomen negative. Given eusol intravenously: some sickness and vomiting an hour later; no appreciable benefit.

3-10-25 Pus has again accumulated at site of turpentine injection; on incising, a large amount of thick pus came away.

6-10-25 Temperature has fallen to normal, and general condition is good.

13-11-25 There was no further fever. Abscess continued to discharge for some time. Patient dismissed in excellent health.



Case 479 - 2-para, aet.21.

23- 8-25 Forceps delivery at 8 months; child still-born. Onset of fever same day: abdominal pain; no rigor.

26- 8-25 Admitted (at night). Pale and acutely ill; breasts painful; tongue thickly coated; pulse very soft. Heart, lungs and abdomen normal; fundus at umbilicus; no tears; profuse, blood-stained discharge.

30- 8-25 Rigor and relapse of temperature, after three days of improvement.

4- 9-25 Turpentine 1.5 c.c. injected.

9- 9-25 No sign of abscess formation, and little, if any, improvement in the general condition. Blood culture (on two occasions), Staph. aureus. Turpentine repeated in bigger dose - 4 c.c.

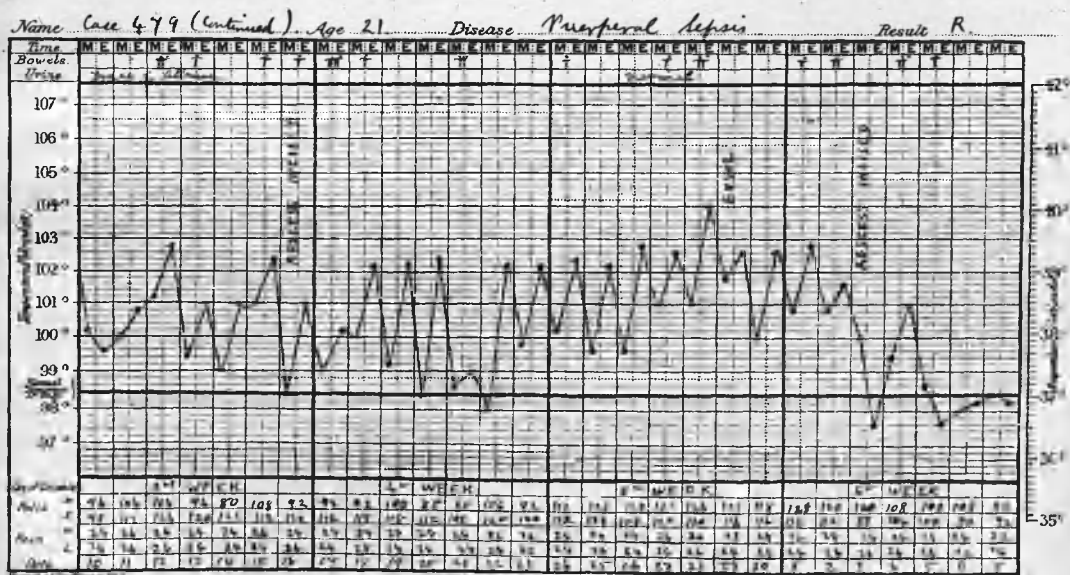
16- 9-25 There is now slight improvement. Abscess has formed, but is small and diffuse: incision, about 1 oz. pus expressed.

29- 9-25 Temperature still swinging; abscess wound healed. Heart, lungs and abdomen negative. Given eusol intravenously: some sickness and vomiting an hour later; no appreciable benefit.

3-10-25 Pus has again accumulated at site of turpentine injection; on incising, a large amount of thick pus came away.

6-10-25 Temperature has fallen to normal, and general condition is good.

13-11-25 There was no further fever. Abscess continued to discharge for some time. Patient dismissed in excellent health.



Case 483 - 2-para, aet.27.

25- 8-25 Normal birth; child dead.

27- 8-25 Onset of fever: no symptoms. A severe convulsion (eclamptic?) just before admission.

1- 9-25 Admitted unconscious, but soon revived, and had no subsequent fits. Colour poor; tongue coated; pulse rapid; systolic blood-pressure, 140 mm. Hg. No abnormality in heart, lungs or abdomen. Fundus 2" over the symphysis; discharge profuse, saneous. Urine highly albuminous; no blood or casts. Blood culture - negative. T. 101.2, P. 112, R. 26. (About 30 days of chart omitted).

12- 9-25 An abscess has formed in right buttock: opened today under local anaesthesia. Staph. aureus in pus.

21- 9-25 A large amount of skin and connective tissue over the sacrum has sloughed; abscess draining. General condition is much better.

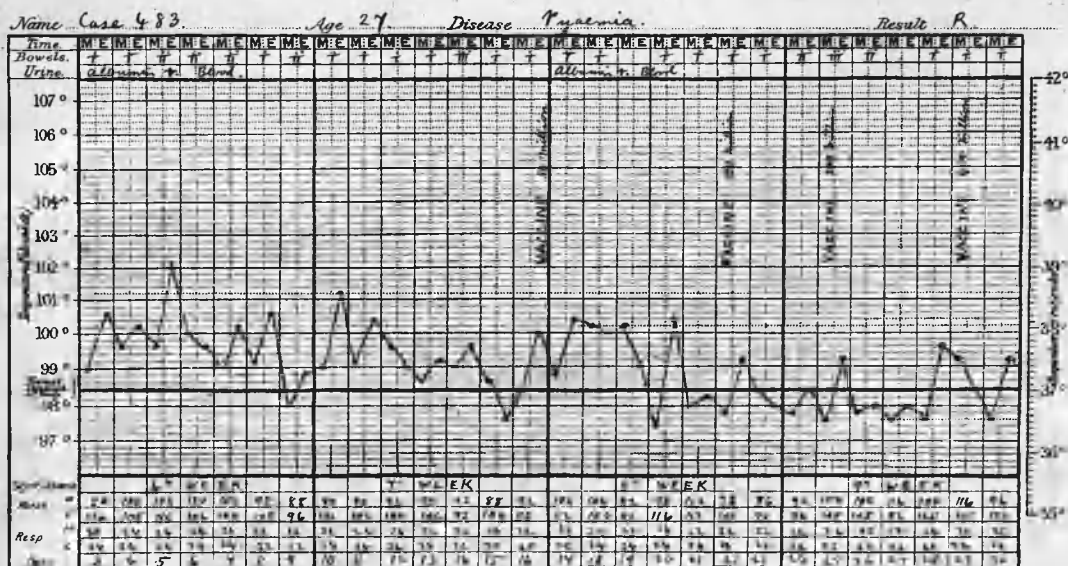
6-10-25 Pyrexia continues. Urine contains more albumin, and also blood. Pus from buttock very copious.

16-10-25 Unimproved. Given autogenous staphylococcal vaccine - 50 million organisms.

18-10-25 Suppurating area is spreading: left buttock incised today. Pus extends very deeply under the gluteal muscles.

18-11-25 Vaccine has been repeated in gradually increasing doses. Temperature has fallen to normal, and both local and general conditions are greatly improved.

23-12-25 Wounds healed. Convalescence uneventful.



Case 483 - 2-para, aet.27.

25- 8-25 Normal birth; child dead.

27- 8-25 Onset of fever: no symptoms. A severe convulsion (eclamptic?) just before admission.

1- 9-25 Admitted unconscious, but soon revived, and had no subsequent fits. Colour poor; tongue coated; pulse rapid; systolic blood-pressure, 140 mm. Hg. No abnormality in heart, lungs or abdomen. Fundus 2" over the symphysis; discharge profuse, sanaceous. Urine highly albuminous; no blood or casts. Blood culture - negative. T. 101.2, P. 112, R. 26. (About 30 days of chart omitted).

12- 9-25 An abscess has formed in right buttock: opened today under local anaesthesia. Staph. aureus in pus.

21- 9-25 A large amount of skin and connective tissue over the sacrum has sloughed; abscess draining. General condition is much better.

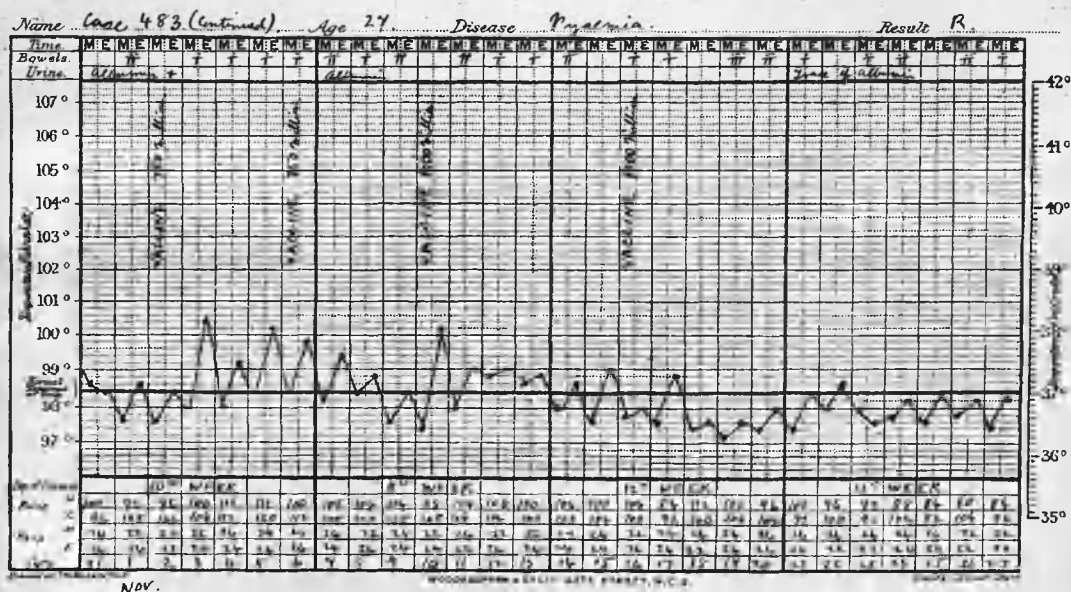
6-10-25 Pyrexia continues. Urine contains more albumin, and also blood. Pus from buttock very copious.

16-10-25 Unimproved. Given autogenous staphylococcal vaccine - 50 million organisms.

18-10-25 Suppurating area is spreading: left buttock incised today. Pus extends very deeply under the gluteal muscles.

18-11-25 Vaccine has been repeated in gradually increasing doses. Temperature has fallen to normal, and both local and general conditions are greatly improved.

23-12-25 Wounds healed. Convalescence uneventful.



Case 484 - Primipara, aet.18.

1-9-25 Complete three months' abortion, preceded by two days' bleeding. Onset of fever then: no rigor or pain; vomiting on 3rd and 4th.

5-9-25 Admitted, pale and poorly nourished. Tongue dry, coated. Heart and lungs normal. Abdomen considerably distended, but muscular rigidity not marked; tenderness in both iliac fossae, where nothing abnormal can be felt; uterus impalpable. Bowels open; rectal examination negative; profuse purulent discharge.

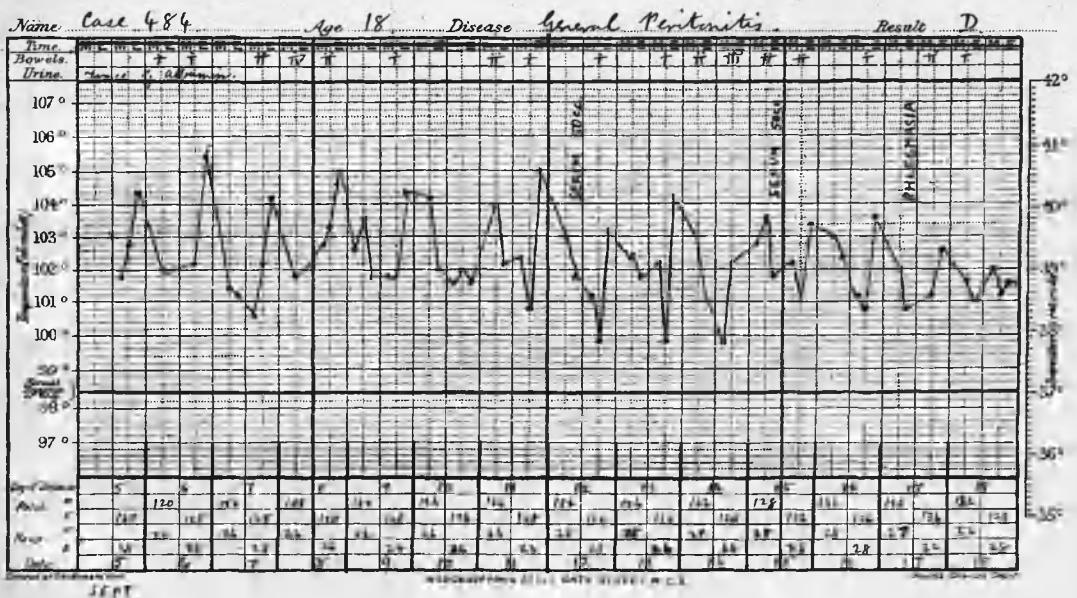
7-9-25 Abdomen still distended and condition unchanged. Streptococcus pyogenes in blood and swab.

17-9-25 Pyrexia continues; 100 c.c. serum had no effect. Abdomen less distended and not tender. Occasional vomiting. Today phlegmasia of left lower limb.

21-9-25 Abdomen now negative, and no further sickness. Phlegmasia of right limb. Heart: reduplication of 1st sound at apex; second sound faint; cardiac dullness to nipple-line. Given eusol intravenously.

26-9-25 Following injection there was temporary fall of temperature. Next day, pain in back of chest, and cough; sick on 25th. Percussion note impaired over right lower lobe; breath sounds and vocal resonance diminished. Rapid deterioration in last 24 hours. Death.

Post mortem: Heart fatty but valves healthy; a large infarction of lower lobe of right lung. Abdomen full of pus and matted with adhesions. Liver large and very fatty, kidneys fatty, spleen small and dark. Uterus small, empty; tubes, no abnormality.



Case 484 - Primipara, aet.18.

1-9-25 Complete three months' abortion, preceded by two days' bleeding. Onset of fever then: no rigor or pain; vomiting on 3rd and 4th.

5-9-25 Admitted, pale and poorly nourished. Tongue dry, coated. Heart and lungs normal. Abdomen considerably distended, but muscular rigidity not marked; tenderness in both iliac fossae, where nothing abnormal can be felt; uterus impalpable. Bowels open; rectal examination negative; profuse purulent discharge.

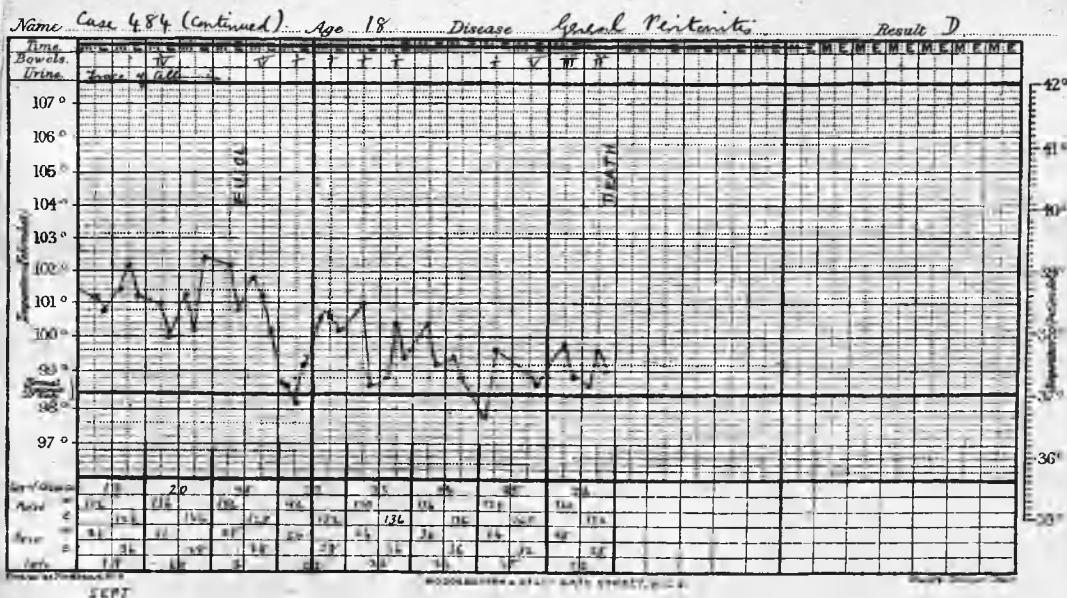
7-9-25 Abdomen still distended and condition unchanged. Streptococcus pyogenes in blood and swab.

17-9-25 Pyrexia continues; 100 c.c. serum had no effect. Abdomen less distended and not tender. Occasional vomiting. Today phlegmasia of left lower limb.

21-9-25 Abdomen now negative, and no further sickness. Phlegmasia of right limb. Heart: reduplication of 1st sound at apex; second sound faint; cardiac dulness to nipple-line. Given eusol intravenously.

26-9-25 Following injection there was temporary fall of temperature. Next day, pain in back of chest, and cough; sick on 25th. Percussion note impaired over right lower lobe; breath sounds and vocal resonance diminished. Rapid deterioration in last 24 hours. Death.

Post mortem: Heart fatty but valves healthy; a large infarction of lower lobe of right lung. Abdomen full of pus and matted with adhesions. Liver large and very fatty, kidneys fatty, spleen small and dark. Uterus small, empty; tubes, no abnormality.



Case 490 - 2-para, aet.30.

12- 9-25 Normal delivery.

15- 9-25 Onset of fever: one rigor.

22- 9-25 Admitted. Condition and colour fairly good; no pain. Tongue moist, coated; pulse of moderate rate. Chest and abdomen normal; fundus just over the symphysis; profuse discharge of pus; small healing perineal tear.

27- 9-25 Two injections of eusol have had no apparent effect. Blood-culture - streptococcus pyogenes.

10-10-25 General condition less favourable: pyrexia continues, and rigors are occurring. Serum has been given without benefit. No sickness; abdomen normal. Given today injection of turpentine, 4 c.c.

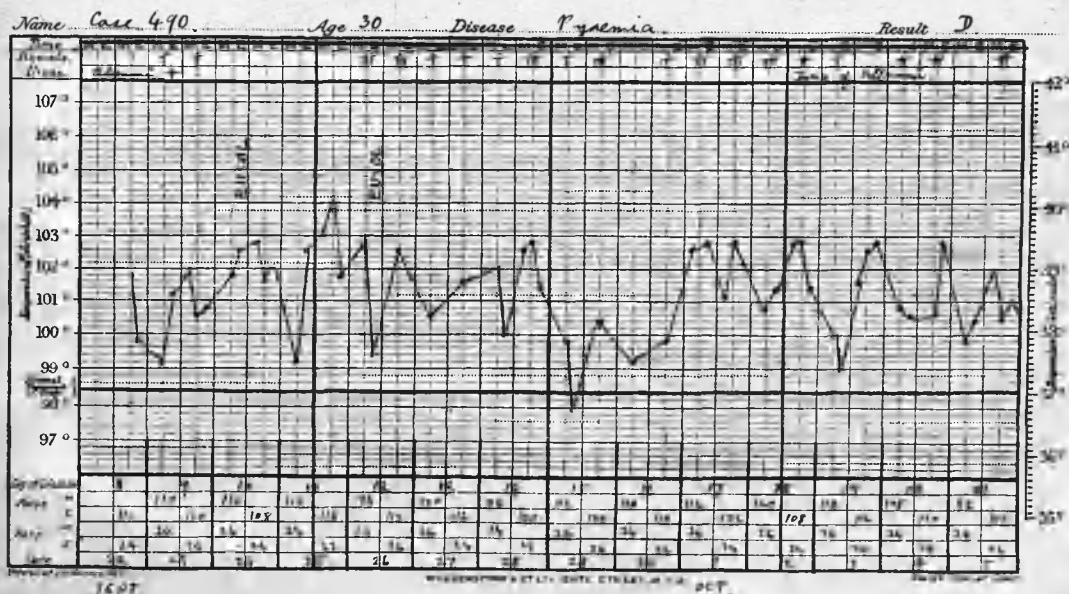
18-10-25 Now gravely ill. Fixation abscess has not developed. Pus exuding from a sore over the sacrum. Abscesses over right shoulder and elbow opened.

21-10-25 Left shoulder has been stiff and sore for a day or two; now very tender, oedematous, and immovable. General anaesthetic: joint opened by an anterior incision; pus copious.

26-10-25 Condition slightly improved after operation: pain much less and passive movements possible. Several sloughing points over the sacrum and hips. Fixation abscess has now formed: opened today; much thick pus.

1-11-25 Has deteriorated rapidly. Further sloughing occurred at the sacrum, and abscesses appeared on left leg and forearm. All samples of pus streptococcal. Death.

Post mortem: Heart large and fatty; vegetations on mitral cusps. Lungs slightly emphysematous; pleurae normal. No peritonitis. Uterus, small, contained a little debris; tubes and ovaries normal. Pelvic veins thrombosed. Few tiny abscesses on surface of kidneys; liver and kidneys: fatty degeneration; spleen pale, slightly enlarged.



Case 490 - 2-para, aet.30.

12- 9-25 Normal delivery.

15- 9-25 Onset of fever: one rigor.

22- 9-25 Admitted. Condition and colour fairly good; no pain. Tongue moist, coated; pulse of moderate rate. Chest and abdomen normal; fundus just over the symphysis; profuse discharge of pus; small healing perineal tear.

27- 9-25 Two injections of eusol have had no apparent effect. Blood-culture - streptococcus pyogenes.

10-10-25 General condition less favourable: pyrexia continues, and rigors are occurring. Serum has been given without benefit. No sickness; abdomen normal. Given today injection of turpentine, 4 c.c.

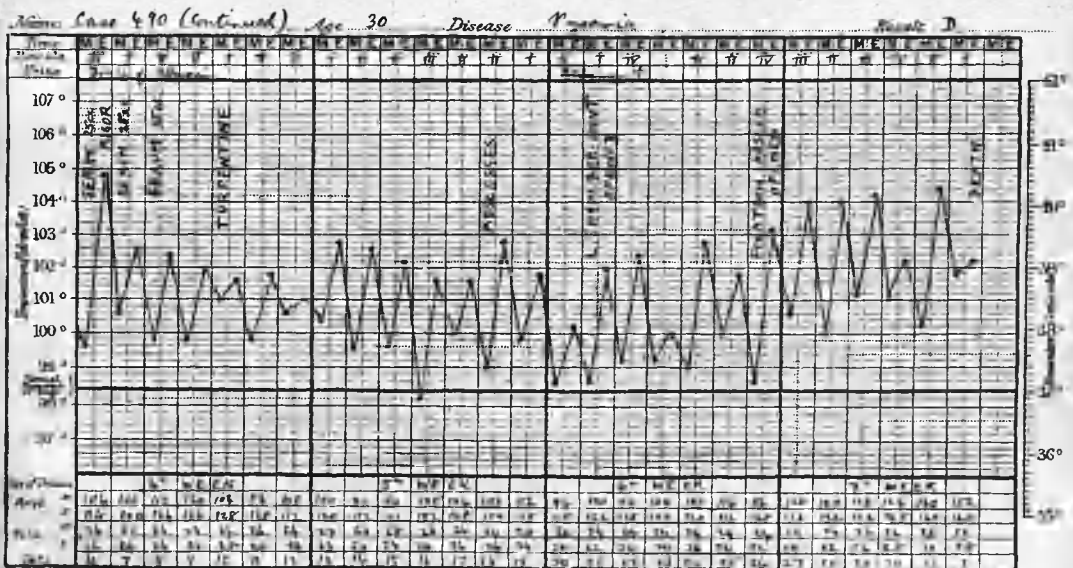
18-10-25 Now gravely ill. Fixation abscess has not developed. Pus exuding from a sore over the sacrum. Abscesses over right shoulder and elbow opened.

21-10-25 Left shoulder has been stiff and sore for a day or two; now very tender, oedematous, and immovable. General anaesthetic: joint opened by an anterior incision; pus copious.

26-10-25 Condition slightly improved after operation: pain much less and passive movements possible. Several sloughing points over the sacrum and hips. Fixation abscess has now formed: opened today; much thick pus.

1-11-25 Has deteriorated rapidly. Further sloughing occurred at the sacrum, and abscesses appeared on left leg and forearm. All samples of pus streptococcal. Death.

Post mortem: Heart large and fatty; vegetations on mitral cusps. Lungs slightly emphysematous; pleurae normal. No peritonitis. Uterus, small, contained a little debris; tubes and ovaries normal. Pelvic veins thrombosed. Few tiny abscesses on surface of kidneys; liver and kidneys: fatty degeneration; spleen pale, slightly enlarged.



Case 500 - 3-para, aet.22.

11-10-25 Forceps delivery: twins.

13-10-25 Onset of fever: headache the only symptom.

14-10-25 Admitted comfortable and in good condition.

Colour rather poor; tongue moist; pulse of moderate rate. Heart, lungs and abdomen negative. Fundus uteri at umbilicus; discharge profuse and purulent; extensive tear of perineum, in an unhealthy state.

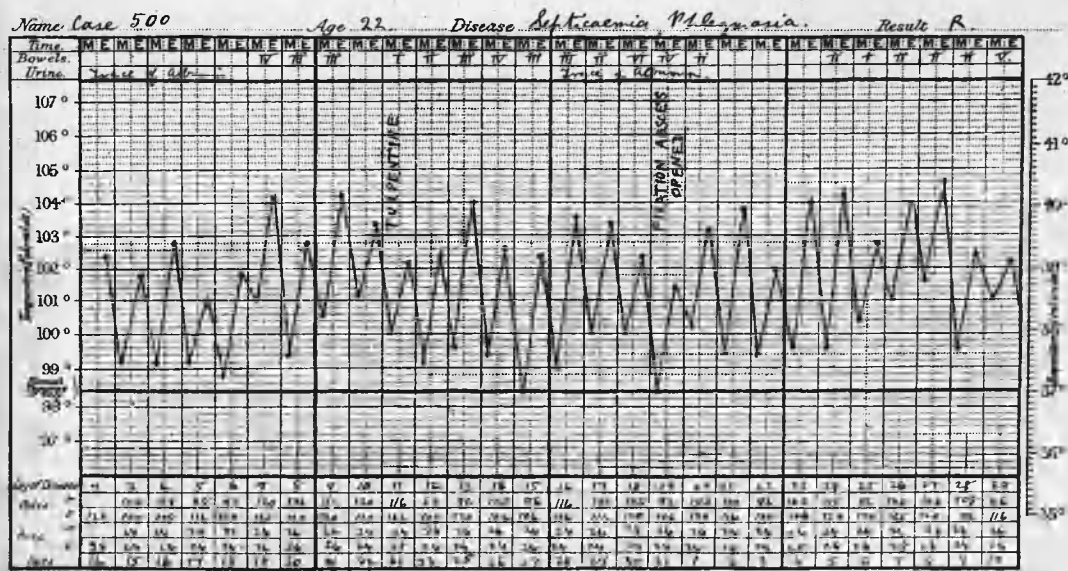
23-10-25 Condition less favourable; temperature swinging since admission. *S. pyogenes* in blood and uterus. Given turpentine, 4 c.c., for fixation abscess.

31-10-25 Slight improvement, though bowels have been loose. A large fixation abscess has formed in the flank; swollen area slightly tender: opened today at two points 8" apart, and drainage tube inserted; pus abundant.

12-11-25 Condition remains unchanged, pyrexia persisting. Wounds nearly healed. There is now commencing phlegmasia of left lower limb. Patient is remarkably well, considering the long fever. Chest and abdomen remain normal.

1-12-25 There has been a gradual defervescence.

21-12-25 No further fever; limb normal. Dismissed.



Case 500 - 3-para, aet.22.

11-10-25 Forceps delivery: twins.

13-10-25 Onset of fever: headache the only symptom.

14-10-25 Admitted comfortable and in good condition.

Colour rather poor; tongue moist; pulse of moderate rate. Heart, lungs and abdomen negative. Fundus uteri at umbilicus; discharge profuse and purulent; extensive tear of perineum, in an unhealthy state.

23-10-25 Condition less favourable; temperature swinging since admission. *S. pyogenes* in blood and uterus. Given turpentine, 4 c.c., for fixation abscess.

31-10-25 Slight improvement, though bowels have been loose. A large fixation abscess has formed in the flank; swollen area slightly tender: opened today at two points 8" apart, and drainage tube inserted; pus abundant.

12-11-25 Condition remains unchanged, pyrexia persisting. Wounds nearly healed. There is now commencing phlegmasia of left lower limb. Patient is remarkably well, considering the long fever. Chest and abdomen remain normal.

1-12-25 There has been a gradual defervescence.

21-12-25 No further fever; limb normal. Dismissed.

