open country; some at high atmospheric pressures, others at low. Discrepancies are also observed in regard to foods and beverages and sensory impressions. In the case of the well-to-do, a suitable climate and locality can generally be obtained, and the patient should begin, when possible, a systematic course of respiratory exercises. The lungs must be properly ventilated. A regulated amount of hill-climbing is an excellent form of pulmonary exercise. Marcet has a high opinion of the value of cycling as a training for the respiration, as it increases chiefly the depth of breathing, carrying the tidal air through the lungs. I have often advised swimming as an ideal form of exercise for asthmatics, since it not only serves to increase the depth of the breathing, but it also brings into play the accessory muscles of respiration, and so improves their functions, which become disorganized by the asthmatic attacks. It is likewise a tonic to the nervous system. These various exercises also, by improving the pulmonary circulation, tend to correct the peculiar anaemia which is a feature in most sufferers from this disease. There is undoubtedly an asthmatic "cachexia," which must be reckoned with. There is a form of anaemia visibly present, which we may designate "pulmonary anaemia," and there is a defect of metabolism, the burden of which comes to be thrown on the lungs. A careful regulation of the various excretory functions is therefore of paramount importance. This is chiefly to be obtained through careful dieting, by spa treatment, and especially by promoting elimination through the skin, which is not infrequently affected in asthma, as though the toxin sought an outlet there. The Turkish or electric light baths, regularly employed, may effect a surprising amount of good. In regard to diet, the "acarbonizing" system of Hare—that is, an adequate restriction of the carbonaceous intake—is to be carefully considered, and the same applies to the purins. Generally speaking, the directions as to diet given by Cullen cannot very well be improved upon—namely, "none of them bear a large or full meal, or any food that is slow and difficult of solution in the stomach, but many of them bear animal foods of the lighter kinds and in moderate quantity. The use of vegetables which readily prove flatulent is always very hurtful. Water or cool, watery liquors are the only safe and fit forms of drink, and all liquors ready to ferment and become flatulent are hurtful. Few asthmatics can bear any sort of strong drink." In addition to these measures, the avoidance of worry and the preservation of a tranquil and cheerful disposition are most helpful.

The medicinal treatment of the asthmatic patient is of high importance. Most cases receive great benefit from iodide of potassium, which is often prescribed in association with arsenic. I have had excellent results from the iodide with Peruvian balsam, and in emaciated patients exhibiting a marked bronchitic element the balsam with cod-liver oil is an excellent remedy.

Mention has been made of the peculiar anaemia which characterizes the asthmatic diathesis, and for this a prolonged course of iron, either alone or with arsenic, is attended with the greatest benefit. The value of iron was recognized by Bree and also by Laënnec, but it is not used as it deserves to be. Certain of these remedies may be alternated with quinine and strychnine, both of which are highly beneficial. The action of adrenalin in the attacks might seem to indicate its employment as a specific tonic and alterative, but it has been found to be useless.

Lastly, some medical men in America have recently recommended the diphtheria antitoxin, both as a remedy in the attack and also as a cure. It is given in full doses, up to 4,000 units. At present it is being tried here, and the results certainly justify an extended investigation. These, however, are probably due to the horse serum; that is a question which remains to be decided.

When the disabling effects of prolonged asthma are regarded, there is no disease of which it may with greater truth be affirmed that it requires to be consistently and watchfully treated. Fortunately or unfortunately, there is no one plan of treatment applicable all round. Each case must be individually studied, and the various functional or organic defects considered in their correlative aspects. It is thus only that you can hope to grapple successfully with an affection having so inscrutable an origin, so erratic a course, and so firm an attachment to its host.

PYREXIA DURING THE PUERPERIUM.

By LEONARD B. CANE, M.B., B.C.CANTAB.,

M.R.C.S.ENG., L.R.C.P.LOND.,

ASSISTANT PHYSICIAN TO THE PETERBOROUGH INFIRMARY.

PYREXIA is a symptom common to a number of conditions, some of which it would be misleading to describe as morbid, whereas others are amongst the most serious with which we have to deal.

It is the most frequent accompaniment of puerperal infection, to which references are found in many of the earliest medical works, and which still occupies a considerable space in the professional press of to-day.

Under the title "puerperal fevers," the textbooks even of our fathers described a number of distinct diseases, which had nothing in common beyond their frequent occurrence in puerperal women. "Milk fever," "ephemeral fever or weed," "intestinal fever," "miliary fever," and others, each had its chapter, with description of symptoms, diagnosis, and treatment. Since, however, the close analogy between puerperal and surgical fever was pointed out, and more rational methods for the prevention of wound infection were introduced, the etiology and treatment of this group of diseases has been greatly simplified.

My object in this paper—which is based upon the examination of 1,196 cases of childbirth attended during twelve consecutive months by the extern midwifery department of St. Bartholomew's Hospital—will be to show, as far as possible, the frequency, origin, and course of all abnormal rises of temperature noted during that period.

Not every rise of temperature is abnormal; considerable variation within certain limits may occur even in a perfectly healthy individual, quite apart from the puerperal state. Mental and physical activity tends to increase the body temperature, which therefore, except in night-workers, attains its maximum during the day, and its minimum at night.

During gestation the temperature is usually the same as in the healthy non-pregnant state. During labour the unusual muscular activity increases the temperature, which, usually normal at the beginning, gradually rises as labour progresses. As might be expected, the temperature is somewhat higher in primiparae than in multiparae, higher in difficult and protracted than in short easy labours, especially when the second or expulsive stage is unduly prolonged.

After the end of labour there is normally a slight steady rise, followed by a gradual fall. Dr. Chalmers Cameron has stated that this maximum is normally reached in primiparae in twelve hours, and in multiparae in six or seven hours, the gradual fall occupying about ten to twelve hours in both cases.

From the limited number of normal cases in which I have had the temperature taken almost every hour during the first day, I have been unable to find any such definite period for the maximum and minimum in multiparae and primiparae respectively. It appears, however, that this rise and fall after labour is modified by the usual diurnal rise and fall, so that the actual temperature in any given case is really the resultant of these two. It is evident, therefore, that the normal temperature of the first day hinges upon the time when labour terminated. If this slight rise after labour coincides in point of time with the normal daily rise, the resultant temperature may run up to 100°, or possibly 101° F.; but, if counterbalanced by the daily physiological ebb, there may be little or no observable elevation of temperature. In a general way it may be said that normal births during the night are generally followed by little or no rise in the first twenty-four hours; those during the day by a marked rise, though within the limits regarded as normal.

As to the limits of a normal puerperium, great difference of opinion still exists, and there is no uniform standard of morbidity in general use in the various maternity hospitals of the kingdom.

At the annual meeting of the British Medical Association at Leicester in 1905 a special committee was appointed "to inquire into the matter." A schedule of questions as to their standard of morbidity was sent to maternity

hospitals in the United Kingdom and abroad. From a summary of the twenty-nine answers received it was found that "the main criterion of septic morbidity was considered to be:

The temperature alone, by fifteen.

The pulse alone, by three.

A combination of temperature and pulse, by several.

Bacteriological examination of the lochia, by four."

Among institutions which took the temperature as the criterion, varying degrees of pyrexia were named as indicative of morbidity; the majority, however (twenty-three) considered that any temperature of 100° F. or more should be regarded as an indication of sepsis unless another perfectly satisfactory explanation could be adduced.

The committee then recommended as "a criterion of morbidity" a temperature which "reaches 100° F. on any two of the bi-daily readings, from the end of the first to the end of the eighth day after delivery."

It appears, therefore, that most institutions regard pyrexia as the chief criterion of an abnormal puerperium.

For this paper I have taken an even more rigorous standard than that adopted by the British Medical Association. It is that in use at Queen Charlotte's Hospital, which, although arbitrary, has the great merit of being exceedingly simple. The 100° line on the temperature charts is specially marked, and every case in which the temperature goes above that line, accompanied or not by a rise in the pulse-rate, is reckoned as morbid.

Under these stringent conditions the morbidity-rate will necessarily appear high, but the simplicity of this method renders it more universally applicable than the more complicated standards in use at the Rotunda and some other institutions.

In this inquiry I have given special attention to the following points:

1. The number and percentage of cases of pyrexia, with the relative frequency in multiparae and primiparae.
2. The usual time after delivery at which the normal limit is passed.
3. The duration of pyrexia from all causes; and of those cases clearly due to sapraemia.
4. The range of temperatures in multiparae and primiparae respectively.
5. The more common causes and their relative frequency.

1. Pyrexia from all Causes (St. Bartholomew's Hospital—Extern).

Total deliveries, 1,196 ...	...	{ Multiparae, 1,022 Primiparae, 174
Total morbidity, 171 ...	...	{ Multiparae, 135 Primiparae, 36
Percentage of deliveries, 14.3 ...	...	{ Multiparae, 13.2 Primiparae, 20.7

TABLE A.—Showing Morbidity.

Month.	Total Deliveries.	Multiparae.		Primiparae.		Total Pyrexia.	Percentage of Deliveries, Morbid.
		Deliveries.	Pyrexia.	Deliveries.	Pyrexia.		
March ...	99	85	14	14	1	15	15.0
April ...	106	90	11	16	4	15	14.0
May ...	112	98	14	14	4	18	16.0
June ...	70	60	6	10	0	6	8.5
July ...	84	70	12	14	2	14	16.6
August ...	93	78	9	15	5	14	15.0
September ...	113	96	13	17	2	15	13.3
October ...	90	79	12	11	3	15	20.0
November ...	105	92	12	13	2	14	13.3
December ...	104	89	12	15	3	15	14.4
January ...	102	85	14	17	3	17	16.6
February ...	118	100	6	18	7	13	11.0
Totals ...	1,196	1,022	135	174	36	171	14.3
		13.2 per cent.		20.7 per cent.			

Table A shows the number of instances of the occurrence of pyrexia in the series of 1,196, and I give for purposes of comparison the corresponding percentages obtained during 1907 at Queen Charlotte's Hospital.

Queen Charlotte's Hospital.

Percentage of deliveries, 20.0 ... { Multiparae, 15.3
Primiparae, 23.4

This apparently higher morbidity-rate at Queen Charlotte's Hospital is influenced considerably by two factors:

(a) In the hospital more primiparae than multiparae are delivered; for instance, during 1907, 921 primiparae and 721 multiparae. The morbidity-rate among primiparae has been shown to exceed that among multiparae; thus,

Multiparae ...	...	...	13.2
Primiparae ...	...	...	20.7

in my series, or in proportion of, roughly, 2 in 3.

Hence the total morbidity-rate in hospital is certain to be higher than that in the district, where the great majority of the women attended are multiparae (174 primiparae, 1,022 multiparae).

(b) All temperatures at Queen Charlotte's Hospital are taken three times a day—at 8, 2, and 8 o'clock—and in severe cases four-hourly. (Many of the transient rises are noticed in the early afternoon.) Hence a considerable number of slight cases are noted which would be missed altogether had the patients to be visited in their own homes, at necessarily more irregular intervals, and, as a rule, only once in the day.

2. The Day of Occurrence of Temperature Above 100°.

As is shown by Table B, more than half (56.4 per cent.) the cases of pyrexia occur on the second, third, or fourth days. Of these the greater number appear on the third day (24.36 per cent.), though many (18.6 per cent.) occur a day earlier.

TABLE B.—Showing Day of Occurrence.

Month.	Day after Delivery.										Total.
	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	
March ...	3	2	5	2	1	—	—	—	—	—	13
April ...	1	2	2	3	1	—	2	3	—	—	14
May ...	3	1	7	4	1	—	1	—	—	—	17
June ...	—	3	1	—	2	—	—	—	—	—	6
July ...	3	1	—	3	1	—	—	1	—	2	11
August ...	—	3	3	2	1	1	1	—	1	—	12
September ...	2	1	1	2	3	3	—	—	—	—	12
October ...	2	3	4	—	1	—	—	—	2	1	13
November ...	1	5	3	—	—	2	1	—	2	—	14
December ...	1	5	3	1	—	—	3	1	1	—	15
January ...	1	2	5	1	2	1	4	1	—	—	17
February ...	—	1	4	3	1	1	1	—	—	1	12
Totals ...	17	29	38	21	14	8	13	6	6	4	156
Per cent. ...		18.6	24.36	13.46							

From the *Rotunda Hospital Reports* a similar result can be calculated, 51.5 per cent. of all morbid cases appearing on one of these three days, the third being the most usual (20.15 per cent.).

3. Duration of Temperature.

(a) *Pyrexia due to all Causes.*—Table C shows that of the 171 cases of pyrexia from all causes, 60 per cent. (104 cases) lasted only a single day; and in less than 20 per cent. was the temperature abnormal for more than two days.

TABLE C.—Showing Duration of Pyrexia from All Causes

Month.	One Day.	Two Days.	Three Days.	Four Days.	Five Days.	Six Days. +	Total.
March ...	8	5	1	—	—	1	15
April ...	10	3	1	—	1	—	15
May ...	11	4	1	—	—	2	18
June ...	5	—	1	—	—	—	6
July ...	7	2	1	2	—	2	14
August...	6	4	1	1	1	1	14
September ...	11	2	1	1	—	—	15
October ...	9	1	2	1	—	2	15
November ...	9	3	—	1	—	1	14
December ...	9	4	1	—	—	1	15
January ...	11	6	—	—	—	—	17
February ...	8	1	1	1	—	2	13
Totals ...	104	35	11	7	2	12	171
Percentage of all pyrexial cases	60.8	20.47	6.43	4.0	1.1	7.0	—

TABLE D.—Showing Duration of Sapræmia Cases.

Days ...	1	2	3	4	5	6+
Cases ...	14	10	3	3	1	10

(b) *Pyrexia due to Sapræmia.*—From Table D it is seen that of the 41 cases of pyrexia due to sapræmia the great majority were transient rises lasting two days or less.

4. The Range of Temperatures.

In 56 per cent. (96 cases) the temperature at no period reached 101°. It is apparent that there is a close approximation between these 96 cases and the 104 cases in which the pyrexia did not last longer than one day. In the vast majority of these cases only a single elevation of the temperature above 100° was noticed.

If the mean of these two figures is deducted from the total number of morbid cases, as from the practical standpoint they might very well be, it is interesting to note that what might be called the true morbidity-rate is only 6 per cent. of deliveries.

$$\frac{171 - 100}{1196} = \frac{71}{1196} = 6 \text{ per cent.}$$

In Table E, will be found the detailed analysis of ranges of temperature in primiparae and multiparae respectively.

TABLE E.—Showing Range of Temperature.

PRIMIPARAE.					
	100°-101°	101°-102°	102°-103°	103°-104°	104° +
Number of cases...	19	7	7	3	0
Percentage of total pyrexia in primiparae ...	52.8	19.4	19.4	8.3	—
MULTIPARAE.					
	100°-101°	101°-102°	102°-103°	103°-104°	104° +
Number of cases...	77	23	20	8	7
Percentage of total pyrexia in multiparae ...	57.0	17.0	14.8	5.9	5.2

5. The More Common Causes and their Relative Frequency.

The etiology of puerperal fever has until comparatively recent times been in some confusion. Dr. J. Whitridge Williams says :

The ancients regarded the affection as the result of retention of the lochia, and for centuries this explanation was universally accepted.

In the early part of the seventeenth century Plater showed that it was essentially a metritis, and was followed in the next century by Puzos with his milk metastasis theory.

From the time of Plater until Semmelweis proved its identity with wound infection and Lister demonstrated the value of anti-septic methods, all sorts of theories were suggested concerning its origin and nature.

Before the discovery of pathogenic organisms a number of different "fevers" were described due to a variety of causes. Of these, the most common was, perhaps, "ephemeral fever," or "weed," the "paroxysms of which were completed generally within twenty-four, and always within forty-eight, hours." Dr. John Burns in 1814 wrote as follows :

This disease, which in its simplest form is very much of a nervous nature . . . may be excited by exposure to cold, irregularities of diet, fatigue, exhaustion, passions of the mind, or want of diet. . . . It is distinguished from symptomatic fever arising from local inflammation by the absence of the particular pain and other specific symptoms, which attend those fevers, whilst in them the pulse is usually at first not so rapid as in the ephemeral fever.

The next most common "fever" was perhaps that known as "milk fever." In the words of the author just cited, "the secretion of the milk is usually ushered in with a slight degree of fever . . . sometimes attended with a smart febrile fit, preceded with shivering, and going off with a perspiration."

It is clear, then, that "milk fever was in pre-antiseptic times regarded as a normal phenomenon" (W. Williams). Other authorities considered milk fever to be "identical with what is otherwise described as ephemera or weed" (Wm. Leishman, M.D., 1880).

Miliary fever, intestinal fever, fever due to inflammation of the breasts, and others were also described as distinct diseases in connexion with the puerperium.

At the present day careful clinical and histological examination has shown that the great majority of these rises of temperature are due to the activity of pathogenic organisms. "With the exception of nervous influence," writes Dr. Hastings Tweedy, "whenever the temperature of a puerperal woman rises above 99°, excepting the first twenty-four hours of the puerperium, she is in some way infected, either by microbes or by the products of retained lochia."

The condition of a woman after delivery is in many respects favourable to these bacteria. Not only is her general resistance to infection too often lowered by exhaustion or loss of blood, but the lochia, blood clots, or retained pieces of placenta form a ready medium for the growth of any organisms that may find entrance, and at the same time the mucous membrane of the vagina and cervix is so bruised and lacerated that it is no longer an efficient barrier to infection. It would therefore appear probable that in practice thorough examination would show sapræmia to be the most frequent cause of pyrexia.

At Queen Charlotte's Hospital, for instance, this is found responsible for 30 per cent. of all cases of morbidity, and in the present series of 1,196 cases, 24 per cent. could definitely be traced to some degree of uterine, vaginal, or perineal sapræmia.

In a large proportion, however, of the records that I have been able to investigate, no such definite indication of sapræmia was noted, though in more than a third (36 per cent.) of the morbid cases, there was constipation. In many of these cases to which no other cause of pyrexia than this had been assigned, I have no doubt that the constipation was accompanied by sapræmia.

That sapræmia is so commonly met with is probably due to some extent to the imperfect drainage of lochia from the vagina, owing to the recumbent position commonly assumed by civilized women after delivery. The lochial discharge, particularly after the perineum has been

extensively sutured, tends to collect in a pool in the floor of the upper part of the vagina, and unless the woman sits up to defaecate and pass water, or gets up to resume her occupation, there is thus provided an excellent medium for the growth and multiplication of any bacteria that may find entrance.

With the many varieties of organisms responsible for puerperal pyrexia it is not my purpose here to deal. The subject, though most important from its bearings upon treatment and prognosis, has been exhaustively worked upon and dealt with at considerable length by almost every modern writer on puerperal infection.

Suffice it to mention that the forms most commonly found are:

Streptococci,
Staphylococci, and
Bacillus coli communis.

Krönig and others state that the gonococcus is an important cause (28 per cent. in Krönig's series), but great difference of opinion exists on this point. The gonococcus was not found once in 54 cases examined by Victor Bonney and A. G. R. Foulerton, and only in 5 per cent. of Whitridge Williams's series.

Infection takes place in almost every case by the introduction of organisms from without, by examinations, manipulations, or instruments, or by contamination from the rectum or anus.

TABLE F.—Showing Causes of Pyrexia.

Month.	Sapraemia.	Intestinal.	Reaction.	Breasts.	Respiratory Organs.	Thrombosis.	Urinary.	Dental.	Nervous.	Doubtful.	
March	4	6	2	1	1	—	—	—	—	1	15
April	3	5	1	3	1	—	—	—	—	2	15
May	3	10	1	3	—	—	—	1	—	—	18
June	—	4	—	2	—	—	—	—	—	—	6
July	4	1	3	1	—	1	—	1	—	2	14
August	1	6	2	1	—	1	—	—	1	2	14
September	5	2	3	—	3	—	—	—	—	3	15
October	5	5	2	1	—	—	—	—	—	2	15
November	6	4	—	3	—	—	—	—	—	1	14
December	2	10	—	3	—	—	—	—	—	—	15
January	4	6	—	1	1	—	1	—	—	4	17
February	4	4	1	—	3	—	—	—	—	1	13
Totals	41	63	15	19	9	2	1	2	1	18	171
Per cent. of pyrexia ...	24	35.8	9	11	5.2	—	—	—	—	—	—
Per cent. of deliveries	3.4	5.2	1.25	1.6	0.8	—	—	—	—	—	—

The second great cause of puerperal pyrexia, perhaps in untreated cases the most frequent cause, is undoubtedly constipation. It is frequently difficult to decide whether a rise of temperature is due primarily to this or to sapraemia, since so often the two conditions coexist.

In a general way it may be said that if in a case of constipation there is any marked increase in the pulse-rate there is probably some toxæmia, of which the cause should be found and removed as soon as possible. In 36.8 per cent. of morbidity cases in this series I found intestinal disturbance, generally constipation, to be the most prominent symptom, whereas at Queen Charlotte's Hospital 20 per cent. was assigned to this cause. Sapraemia and constipation together are responsible for considerably more than half the morbid temperatures during the puerperium.

Other less common causes are the following:

	Cases.	Percentage of Pyrexia.	Percentage of Deliveries.
"Reaction"	15	9.0	1.25
Breasts	19	11.0	1.6
Respiratory organs	9	5.2	0.8
Thrombosis	5	2.9	0.4
Urinary			
Dental			
Emotional	1	0.6	0.08

"Reaction" Temperatures.

By a "reaction temperature" is understood a transient rise, unaccompanied by any corresponding rise of the pulse-rate, which occurs only within the first twenty-four hours after delivery and rapidly falls again to the normal. This "reaction" temperature is found chiefly in primiparae, and is more common in summer than in winter. Its exact cause has not been determined.

It certainly is not dependent on the duration of labour, perineal or other lacerations, the use of forceps or of anaesthetics (*Queen Charlotte's Hospital Reports*).

It is exactly comparable to the rise of temperature which often takes place after a simple fracture or a surgical operation which subsequently runs an apyrexial course (Longridge).

This is responsible in my series for 9 per cent. of the morbidity (1.25 per cent. of all deliveries); but where more constant attention to the temperature is possible, as at Queen Charlotte's Hospital, its occurrence has been shown to be more than twice as frequent (24 per cent. of morbidity; 6.7 per cent. of deliveries).

The Breasts.

In 19 cases—11 per cent. of total morbidity—the pyrexia was directly due to some affection of the breasts. This took one of three forms:

(a) *Inflammation (mastitis)*, ending in suppuration, and almost always secondary to cracked or injured nipples.

(b) *Acute engorgement of the whole breast*, either from hypersecretion or more frequently from inability of the child to sufficiently empty the breast. This form occurs during the first few days of lactation.

(c) *Flushed breast*, a peculiar form of inflammation which occurs about the middle or towards the end of the second week. The temperature suddenly rises to 102°, 103°, or even higher, and pain in the breast is complained of. The chart usually shows a very characteristic curve—about the ninth to twelfth day a sudden rise from a previously normal temperature, followed in most instances by an almost equally sudden fall on the next day.

On the breast a wedge-shaped flush, with its apex at the nipple, may be seen over one quadrant—usually the lower—the underlying tissue being somewhat hard and tender.

Suppuration rarely occurs, and the inflammation yields rapidly to purgatives and hot fomentations, with irrigation of the uterus if signs of sapraemia are present.

The etiology is uncertain. I have made cultures from the milk and examined fluid drawn off with a needle from the inflamed breast, but in no case found any organisms excepting *Staphylococcus pyogenes aureus* or *albus*. The shape of the inflamed area and its position on the breast makes it probable that the lacteals or lymphatics have become infected. If the lacteals, then the condition would not essentially differ from other forms of mammitis. But from these it presents the following points of distinction: The onset is sudden and unexpected; the inflammation is limited to the superficial structures, very sharply outlined, and of short duration, and rarely ends in suppuration. The signs, then, are more those of a superficial lymphangitis than of a glandular infection. Very often there has been no evidence of any sepsis, and the lochia have been normal throughout.

The possible sources of infection are many, but all, with one exception, exist both before and after the second week of the puerperium. There is but one condition present at this time, and absent before and after—the lochia serosa. In the opinion of Dr. Ralph Vincent, the infection is "con-

veyed to the nipple by a nurse whose hands are contaminated by the lochial discharge." Obvious decomposition of this discharge may be a predisposing, though "certainly not an essential factor," since the normal lochial discharge at the end of the second week is itself capable of producing the infection.

Respiratory Organs.

Disease of the respiratory organs, chiefly bronchitis or influenza, was the cause of pyrexia in 9 cases. There was 1 case of acute laryngitis.

Thrombosis.

Thrombosis occurred in 2 cases, in both of which the left internal saphena was the vein affected. In 1 case the pyrexia appeared on the third day, in the other at the end of the second week.

Urinary Organs.

There was 1 case of cystitis in which a single elevation above 100° occurred on the third day after delivery.

Dental.

In 2 cases abscess from carious teeth caused the pyrexia.

Septicaemia.

No case of septicaemia occurred during the twelve months.

Doubtful.

In 18 cases there was in the notes insufficient data as to the cause of the pyrexia.

Nervous, or "Emotional" Temperatures.

At Queen Charlotte's Hospital, on several occasions I have seen a rapid unexpected rise of temperature for which no definite physical cause could be found follow some sudden emotion.

In the extern district of St. Bartholomew's Hospital during the year only one such case has been noted. This I had not the opportunity of seeing personally, but the notes state that the woman, a primipara, was found on the sixth day very excited about some letter she had received, and with a temperature just over 100°, which at the next visit had fallen again to normal.

"Emotional" temperatures are reported with greater frequency from lying-in hospitals, where they occur most often upon visiting days. They are more common in primiparae and especially in unmarried women. The temperature may run up suddenly as high as 104°, as in a case reported by Dr. J. C. Cameron, in which it was due to the non-receipt of an expected letter.

The fever may be high whilst the patient is awake and fall during sleep; its recurrence is very rare, and depends solely upon the persistence or recurrence of the cause; in most cases there is but a single rise.

A remarkable case of nervous high temperature, accompanied by temporary glycosuria, is reported in the *Montreal Medical Journal* for January, 1889:

The patient was a 2-para, aged 22, with a "capricious, violent temper." Labour short, easy, and puerperium normal for eight days. Then the woman began to fret about some letter she was expecting. The temperature rose during the day and fell during sleep, and at the same time glycosuria (5 per cent.) appeared. As the temperature subsided the sugar slowly diminished in quantity, and by the eighteenth day had entirely disappeared from the urine. A few days later she again began to fret and became feverish, but without any return of the glycosuria. The range of temperature was remarkable, rising during her waking hours and falling during sleep, with no corresponding variation in the pulse-rate. The tongue remained throughout fairly clean, the appetite moderate, bowels regular, and lochia normal.

Slight elevation of temperature from emotional causes is probably more frequent than would appear from the number of recorded cases. It is, as a rule, of very short duration, and may easily be overlooked.

Other causes of abnormal temperature may occasionally be found. It should be remembered, too, that pregnancy does not protect a woman from any infectious disease to which she may be exposed, nor from any of the common causes of fever quite apart from the puerperal state. Very few of these have been included in the above analysis, but the possibility of such a cause should be borne in mind in every case of pyrexia during the puerperium.

The results obtained from the analysis of these 1,196 consecutive cases may be briefly summarized as follows:

A standard of morbidity has been taken which, from its simplicity, is as readily applicable to confinements in private practice as to those in a maternity institution.

Based upon this standard, an attempt has been made to determine the percentage of morbidity, the usual time of occurrence after delivery, the average duration and range of temperature in such cases; and the factors most commonly found responsible for the pyrexia, with their relative frequency.

Detailed analytical tables are appended, together with a list of the principal writings consulted during the preparation of this paper.

All reference to treatment has been omitted and many details of factors directly or indirectly responsible for an abnormal puerperium have been very imperfectly described, since it is manifestly impossible within the limits of a single paper to deal adequately with a subject of such complexity as pyrexia during the puerperium.

BIBLIOGRAPHY.

- W. F. Victor Bonney and A. G. Foulerton: Primary Infection of the Puerperal Uterus by *Diplococcus pneumoniae*. *Obstetrical Transactions*, vol. xlv. An Investigation into the Causation of Puerperal Infections, *Obstetrical Transactions*, vol. xlvii.
 Boxall: The Mortality of Childbirth, *Lancet*, 1893.
 John Burns, M.D.: *Midwifery Textbook*, 1814.
 J. Chalmers Cameron, M.D.: *Elevation of Temperature during the Puerperal Period*.
 William Leishman, M.D.: *Midwifery Textbook*, 1880.
 Queen Charlotte's Hospital Reports, 1905-6-7.
 Rotunda Hospital Reports, 1905-6-7.
 Report of Committee on Puerperal Morbidity, BRITISH MEDICAL JOURNAL, SUPPLEMENT, May 19th, 1906.
 James Y. Simpson, M.D.: *Obstetric Memoirs and Contributions*.
 E. Hastings Tweedy, F.R.C.P.I.: *Rotunda Practical Midwifery*.
 Ralph Vincent, M.D.: *Lymphangitis Mammariae*, *Obstetrical Transactions*, vol. xlv.
 J. Whitridge Williams: *Obstetrics Textbook*.
 G. A. W. Woodforde, M.B., B.S.: Report of Three Months' Work in the Extern Midwifery District, *St. Bartholomew's Hospital Reports*, vol. xliii.
 C. N. Longridge, M.D.: *The Puerperium*.

Three Demonstrations ON MALFORMATIONS OF THE HIND END OF THE BODY.

GIVEN AT THE ROYAL COLLEGE OF SURGEONS, ENGLAND.

BY

ARTHUR KEITH, M.D., F.R.C.S.ENG.,

CONSERVATOR OF THE MUSEUM AND HUNTERIAN PROFESSOR.

III.—ECTOPIA VESICAE AND ALLIED CONDITIONS.

FOR the purpose of this demonstration it is convenient to divide the specimens at our disposal into four groups: (1) Ectopia vesicae in the male; (2) ectopia vesicae in the female; (3) ectopia vesicae combined with fistulous condition of the intestine; (4) epispadias.

GROUP I.—ECTOPIA VESICAE IN THE MALE.

There are 3 specimens of this condition in the College museum and 16 in the museums of the metropolitan schools, making 19 altogether. Of the 19, 10 are from adults; the others are from infants, ranging in age from birth up to 3 years. All the specimens show the same lesion; the description of the one shown in Fig. 17 may serve for the rest. The mucous membrane of the bladder and urethra, from urachus above to meatus below, is spread out on the surface of the hypogastrium, and becomes continuous with the skin of the belly wall at its margin. Four areas may be recognized in the exposed mucous surface—especially in specimens where the vessels and capillaries have been successfully injected. (1) The 'upper' area, crescentic in shape, is really skin in which the superficial layer of epithelium has not undergone a corneous change. This crescentic area may be named the hypogastric fold, for, like the fourchette of the vulva, it serves as a bridge for the fusion of the embryonic tissues out of which are formed muscular, bony and connective structures in the mid-line of