Puerperal temperatures : reprinted from ninth volume of the 'Transactions of the Obstetrical Society of London', with additional diagrams and observations on diet and the use of chloroform and chloral / by William Squire.

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'TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON,'

WITH

ADDITIONAL DIAGRAMS

AND

OBSERVATIONS ON DIET
AND THE USE OF CHLOROFORM AND CHLORAL.

BY

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LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.
1871.

PUERPERAL TEMPERATURES.

It is to the careful study of the natural history of disease that medical science owes much of its recent progress; and some of its surest advances have been guided by the systematic use of the thermometer, in marking the variations of bodily temperature that accompany the ingress of disease, the persistence of morbid action, and the return to health. To the record of observations of this kind, taken during the puerperal state, the paper now submitted to the Obstetrical Society is chiefly devoted.

The instruments used were two sensitive mercurial thermometers, made for me by Newcombe and Symons, ten inches in length, graduated, on Fahrenheit's scale, into degrees and fifths of degrees from 80° to 110°; one of them is self-registering: in a good light it is not difficult in either of them to read off tenths of degrees, by noticing whether the mercury is at one of the marks, or midway between two. The instances here given are stated in degrees and tenths of degrees, all of them having been read off direct from the same instrument; the self-registering one (though obviously convenient for many of the observations obtained) not having been depended upon for those here recorded.

The axillary temperature affords reliable indications during the puerperal state. A very sensitive thermometer, made by Casella, afterwards enabled observations of this kind to be obtained without inconvenient delay. Subsequently Mr. Hawksley, of Blenheim Street, made for me an extremely

sensitive self-registering thermometer three and a half inches in length, graduated from 95° to 110° in the manner described above; this is safely worn in the waistcoat pocket, and seems to be as nearly perfect as possible; most of the additional observations appended to this paper have been made with this instrument. Very excellent thermometers are also made by Mr. Roberts, of Rydon Crescent. A good instrument, to be useful, must be sensitive as well as accurate; it should also be self-registering.

Some comparative observations on variations of temperature are first to be given, together with those normal to the state of pregnancy, as far as they have been noted. The different phases of pregnancy could not fail to be illustrated by a further investigation, but opportunities of conveniently making observations of this kind, that shall be in every way unexceptionable, are not frequent.

The temperature of the body is somewhat increased during pregnancy, at least in the latter months. The normal temperature may be taken at 98·75°, the temperature after the sixth month of pregnancy will frequently be found somewhat over 99°. A variation is to be observed in different persons, and in the same person in different states of health; the limits of this variation, as consistent with health, having been restricted in the cases I have noted, to one degree, viz., from 98·8° to 99·8°, its range being less than in women of similar age when not pregnant. Some remarkable oscillations of temperature, such as we need not expect to find in pregnancy, have occurred in a few cases that have presented themselves to me for notice, which tend to show that there is a considerable fall in temperature on the occurrence of the catamenia, and a variable rise shortly before: in one instance the vaginal temperature was found to be 99·8° on the day before the catamenial flow, and only 97·3° on the day after. No observation was obtained on the intermediate day; the flow was not very free, and was unaided by alcoholic stimulants, indeed, these had been abstained from for nearly a month, until this day, when they were resumed; three days afterwards the temperature was 98·7°, the period being then

over it had been in every respect normal, yet there was a fall of 2½ degrees in the first two days of its occurrence. In another case, where a vaginal operation was performed on the day preceding the expected period (which recurred with perfect regularity), the local temperature was 100·1°; eight days afterwards, though there was some persistent local irritation, the thermometer did not go beyond 98·7°. There may be considerable pain, tenderness, and sensation of heat, without the thermometer being much affected; in a case where these conditions were all present from the too free application of undiluted liquor plumbi to verrucæ of the labia minora and fourchette, the local temperature was only 98·9°, and even this was accompanied by a slight increase in the general temperature as taken in the axilla.

The difference between the vaginal and axillary temperatures will seldom be more than one third of a degree, and frequently only one fifth or one tenth, if in the latter situation all the requisite precautions to secure accuracy are observed. In this way 98·45° was obtained as the normal temperature in the axilla, and 98·75° in the vagina, where there were no disturbing circumstances; in a case of abortion at two months, the vaginal temperature on the ninth day was 98·4°, the axillary temperature 98°.

A comparison of these differences was made in the puerperal state; first, on the second day of delivery where slight perinæal fissure existed, the temperature there was 98·5°, in the axilla 98·3°; so that a local injury had not disturbed the usual relative temperatures: second, on the fifth day of delivery, where the breasts were very full and tender, the milk increasing, and the lochia decreasing, the axillary temperature had risen to 100·3°, the vaginal temperature was 100·7°; so that while in full activity the mammary gland does not, by its proximity to the axilla, unduly influence the results there obtained by the thermometer: in the third case, on the ninth day, a final application was required to complete the cicatrization of a perinæal fissure, the temperature there was 98·3°, that at the axilla 98·2°; in this latter situation there was probably now less difficulty in obtaining the true

temperature, on account of the process of lactation being in full activity.

The observations of puerperal temperatures, except in the instances especially noted, are all taken, as in ordinary illness, by placing the bulb of the thermometer in the axilla, being careful that it is in contact with both surfaces of the skin, that perfect contact is maintained for a sufficient time (*which should not be less than three minutes*), and guarding against the loss of heat that might be occasioned by evaporation from the surface, or from incomplete covering. There is not only no difficulty but considerable convenience in this method of watching progress through the lying-in state; the time occupied in other necessary inquiries, suffices for obtaining the required indications of the thermometer, which, when satisfactory, save further trouble and anxiety, and when not exactly as is to be wished and expected, give timely warning that precautions are needed.

The commotion and efforts of parturition itself, while confined within the ordinary limits of natural labour, cause but a slight elevation of temperature. In the twelve cases, of which tabulated diagrams accompany this paper, this point was made the subject of exact observation in Cases 1 and 9 In case No. 1, on the diagram, the labour was of short duration, but of some severity, with considerable agitation, heat, and perspiration, and the development of the passages proceeding rapidly; the axillary temperature could not be obtained at even the usual standard; there was, however, a progressive increase shown by the thermometer used in the vaginal examinations; the highest reading, obtained half an hour before delivery here, was 99·9°, in the axilla only 97·8°. In case No. 9, where the labour was more rapid, but much less severe, the temperature per vaginam, two hours after the commencement of labour, was 98·9°; in a similar observation. taken twenty minutes before the expulsion of the child, it was 99·1°, and ten minutes after, exactly 99°. Where labour is more prolonged the temperature is raised in proportion to the severity and duration of the muscular exertion demanded, so that a temperature from 100° to 101° is by no means in-

frequent, and a degree of 102 has been reached, and even exceeded, where the labour has been both protracted and severe.

The elevation of temperature thus occasioned, is maintained to the termination of labour; then commences a steady decline, which in most cases, if not all, has reached the normal line and in some has descended considerably below it. This subsidence always takes place in the first twenty-four hours; it may, however, be prolonged into the second day, as in Case 9, or be accomplished within the twelve hours, as occurred in Case 6. In this case delivery took place at 3 a.m. with some hæmorrhage, sleep followed and the mammary secretion was rapidly established. In Case 9, a short labour terminating at 11 p.m. with no loss of blood and followed by excitement rather than sleep, the lowest point was not reached until the second night, thirty hours after delivery. In Case 4, delivery at 7 a.m.; the temperature at 2 p.m. was 99·4°, she had not slept, had only taken gruel, she herself felt cool and rather faint; after sleep the temperature soon subsided to the ordinary degree. A difference is noticeable in following the line of temperature here, it is the only case of this series in which suckling was not attempted. In Case 1, the high temperature noted during labour had fallen four hours afterwards to 99·2°; the diagram in this case gives the simplest form of disturbance of temperature common to the puerperal state.

In all the cases here investigated, the most constant and most obvious disturbance of temperature is that which ushers in, and accompanies, the formation of milk. The commencement of this reaction is most regular; it attains a certain prominence forty-eight hours after the birth of the child. In only one of these twelve cases was this rise of temperature retarded, in only two was it accelerated. The termination of this reaction is most variable; the modification which the line of temperature now undergoes from the merest accidents, before it settles down into the normal line at the period of convalescence, fully warrants the care and watchfulness at this time traditionally conceded.

Where the secretion of milk is readily established, the rise in temperature necessary to its formation at once experiences a considerable fall; this is shown in Nos. 1, 3, 6, and 9, where a fall of at least one degree occurs within twenty-four hours, in the last three the temperature has in that time fallen to a point as much below the ordinary temperature as it had previously been above it. In these cases there was at the same time a very free flow of milk. When, instead of a free secretion of milk, there has been an abundant lochial flow, then, not only is there no corresponding fall in the temperature at this time, but a higher range is maintained throughout, than where lactation proceeds. This is well illustrated in the last diagram.

To obviate any sources of error due to diurnal oscillations of temperature, observations were taken in Case 2 twice every day between nine and ten o'clock morning and evening until the fifth day, at noon on some of these days, and in the afternoon on the subsequent days; these showed a uniform progression in the direction indicated, and it was not until the puerperal state was nearly over, and the convalescence well advanced, that the ordinary diurnal variations of temperature again became evident. This case was that of a younger person than those previously referred to, lying-in with her second child; the secretion of milk not so quickly elaborated; the tendency to a fall of temperature is shown on the fourth day, when it would probably have been completed had not constipation on that day occasioned a sudden rise of half a degree, with as sudden a fall upon its relief, unless, indeed, this rise (which was only to 99·1°) was necessary to the free establishment of the mammary secretion, and the cause rather than the consequence of the constipation.

In Case 4, where the mammary function was never excited into activity, the first rise in temperature is more gradual, hardly reaches the same height as the other cases, and subsides more slowly. There could not be a greater contrast than is shown by this case and the two others in the same diagram (Table II); in all three the ages, health, and general conditions were very similar, all had borne

several children, but Case 6 was the only one that had habitually given suck, and the rapidity of the usual changes of temperature in this case, has been before alluded to. A similar rapidity of subsidence with a still more marked reaction is noticeable in Case 5, in which a tedious labour with twins was terminated at 11 p.m., by turning the second child; sleep followed; an egg was taken at breakfast, and chicken for dinner; the temperature at noon was 98°, at night 99·9°; the secretion of milk was plentiful after the fifth day; both children were suckled and the case progressed favorably, but the high line of temperature (100·3° on the third and fifth days) shows the difference between recovery from a trial of this kind, and that from the more ordinary accidents of Case 6.

Cases 8, 10, and 11, were primiparæ; in all, the milk process was slowly settled. In Case 8 there was a less rapid recovery from the first low stage of temperature, which continued through the third day. Even in this case a slight rise of temperature on the second day seemed to indicate the occurrence of the expected phenomena, but a restless night was followed by another day of low temperature; the next night some brandy and egg procured sleep, aided the rise of temperature from 98·4° to 99·9°, and enabled the milk process to be actively carried on; this was not without some discomfort at first, and the temperature for two days continued high, it came down to 98·6° on the eighth day, and the mother eventually became a good nurse. In Case 10 the usual wave of temperature followed labour, but its subsidence was arrested by trouble in the breasts, the nipples cracked at first, afterwards fibrinous pellicles formed on the papillæ of the nipple, and once or twice there was fear of some of the ducts remaining obstructed: it was a question of management throughout whether the breasts should inflame or the milk be diminished; on the twelfth day the former alternative threatened but was avoided, the temperature at the same time running up in one afternoon from 100° to 102°, and coming down three degrees in the next two days; after this the milk was thin, and though not plentiful, would too

readily escape; at the end of two months it ceased altogether. In Case 11 the low stage was rather more marked than usual; delivery was at 3 a.m., followed by a slightly excitable state and no sleep; the temperature was slow in subsiding; at 2 p.m. it was still 99·4°; at noon next day it was lower by a whole degree; the rapidity and intensity of the subsequent rise is very notable; by 3 p.m. on the following day it reached 103·3°. On the eighth day it was 103·6°, it then fell a degree and a third, viz., 102·3°, only to rise the next day to 104·37°; it was not till the fourteenth day that it subsided from 103·3° to 100·8°, and the day after to 99°. The temperature was quite normal by the twenty-first day, and at the month's end the patient had become active and strong again, and was gaining flesh, and made a thoroughly good nurse. The possibility that a temperature so elevated should be maintained by the body for twelve days, without either function or organ suffering, is most remarkable.

Chloroform was given in these two last cases, but it could scarcely have influenced their progress, as in Case 11 only half a drachm was consumed, and in Case 10 it was of great service throughout the last two hours of labour, and neither sickness nor headache attended or followed its use; nor were its effects traceable in any of the subsequent conditions, unless a rigor fifteen hours afterwards could in any way be attributable to it. The temperature six hours after delivery in this case was high, 99·5°, but was down to 98·5° within the twenty-four hours.

Chloroform was given also to the same extent in Case 3, and there seemed to cause depression; the temperature six hours after labour was down to 98°, and in twenty-four hours was below 97°; its effects were also noticeable in an intermittent pulse to the third day, yet good progress was uninterrupted, and in no case was a more favorable and rapid recovery attained.

Alcoholic stimulants were given: in—

Case 1, on the third day with food and continued.

Case 2, not till the evening of third day.

Case 4, once on the third day, and not again till the seventh, when they were continued.

Case 5, no stimulant allowed till the eighth day.

Case 6, at noon on the third day and continued.

Case 7, was never discontinued.

Case 8, a little on the third day, and with meals on the fifth day.

Case 9 on the fourth day; no stimulants taken for many weeks before.

Case 10, stimulants taken up to and during labour, none after till tenth day.

Case 11, unaccustomed to stimulants; a little on ninth day and discontinued.

Case 12, abstains from stimulants altogether and trusts too much to farinaceous food and slops; a little wine was taken on the twelfth day, but it was said to check appetite; the rise in temperature on the fourteenth day was attributable to the commencement of active exertion under these circumstances; a freer diet and more careful rest, both contributed to the subsequent fall of temperature; nursing has now been continued nearly six months, with more ease than on former occasions.

Case 7 is, in many respects, the converse of this one, the fall of temperature was checked by brandy; the subsequent rise steadied and maintained by stout; on the sixth day some difference had to be made on account of heat, and pain of the left breast; suckling has since been easy, but the involution of the uterus was retarded, and coloured discharge occurred throughout the month.

In one case, the particulars of which were not recorded, where a high temperature continued after the flow of milk was free, the use of alcoholic stimulants resulted in abscess of the breast; in another case, where the same conditions existed, by withholding stimulants till the temperature subsided, a similar risk was avoided, and nursing was well performed afterwards. In such cases the thermometer is a safe guide, and should therefore be used in every case, if it were only for this one indication.

Where the secretion of milk is free and the temperature low, alcoholic stimulants are safe and beneficial as adjuncts to food:—their use may be serviceable and even advisable where the milk secretion is not free and the temperature still high, so long as no local mischief threatens in the breasts:—they are not suitable to the stage of low temperature which succeeds to labour; at this time warm diluents, and solid food best aid the expected reaction.

The state of the bowels as noted in these twelve cases is, that they acted naturally every day in only one case, No. 4; they acted without assistance on the second day in *two* cases, Nos. 7 and 12. An enema was used in Cases 2 and 3. Castor oil was given on the fourth day in Cases 6, 8, 9, and 11; in the first two of these only was its action beneficial, in Case 9 an enema would have been better; and in Case 11, an earlier use of it might have been serviceable: it was given on the third day in Cases 1, 5, and 10; in the first case its action only checked the flow of milk for that day; in Case 5 it acted rather freely and it was thought at the time injuriously; in Case 10 it is noted in the report of the case the day after, that "the oil has checked the secretion of milk, but has not reduced the temperature, an enema would be better."

The general conclusions offered to this Society as fairly deducible from these observations are—

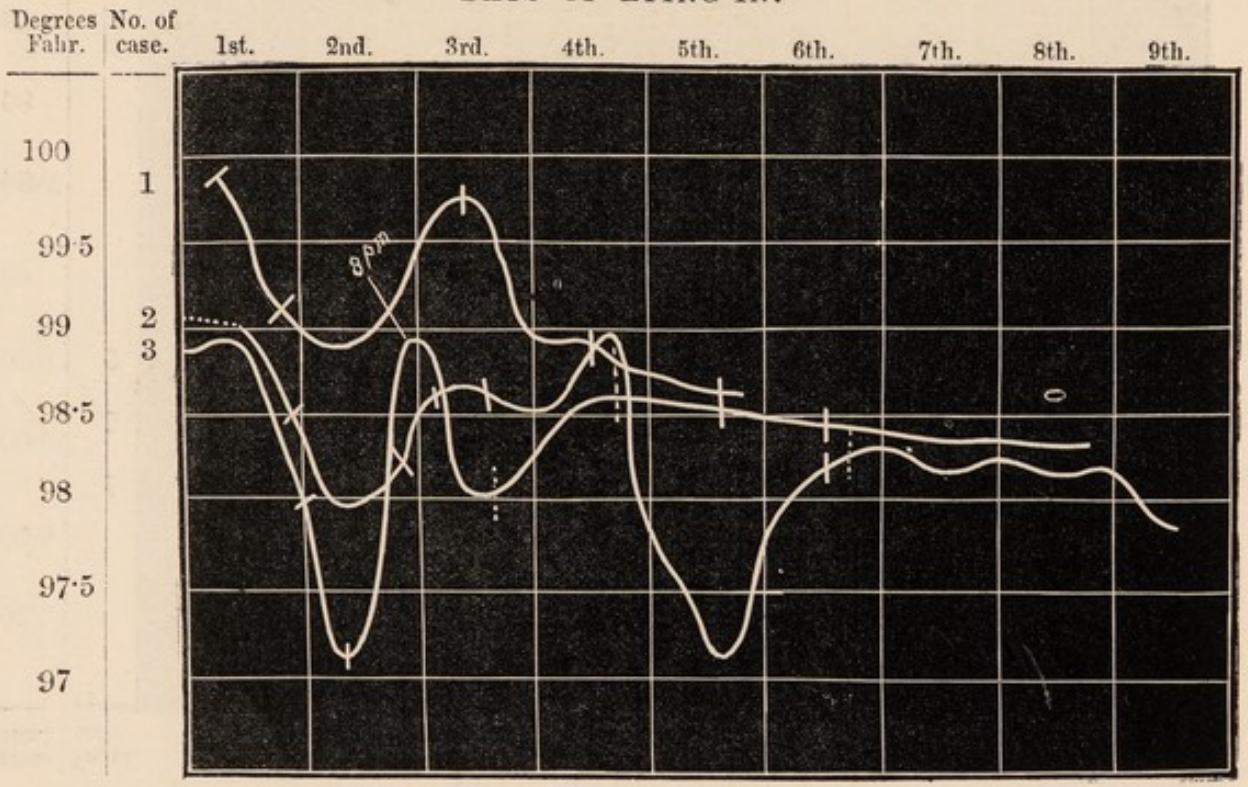
1st.—That some elevation of temperature arises in natural labour.

2nd.—That there is afterwards a considerable fall of temperature which is favoured by sleep.

3rd.—That there is a subsequent exaltation of temperature which has for its natural termination the secretion of milk.

4th.—That the bringing the method of observation here followed to the study of the puerperal state, would add an element of certainty to the principles and details of its management, and afford an additional guide for safe conduct through some of its complications.

TABLE I.



The transverse marks indicate the times of taking the observations: these are not in all cases given.

TABLE II.

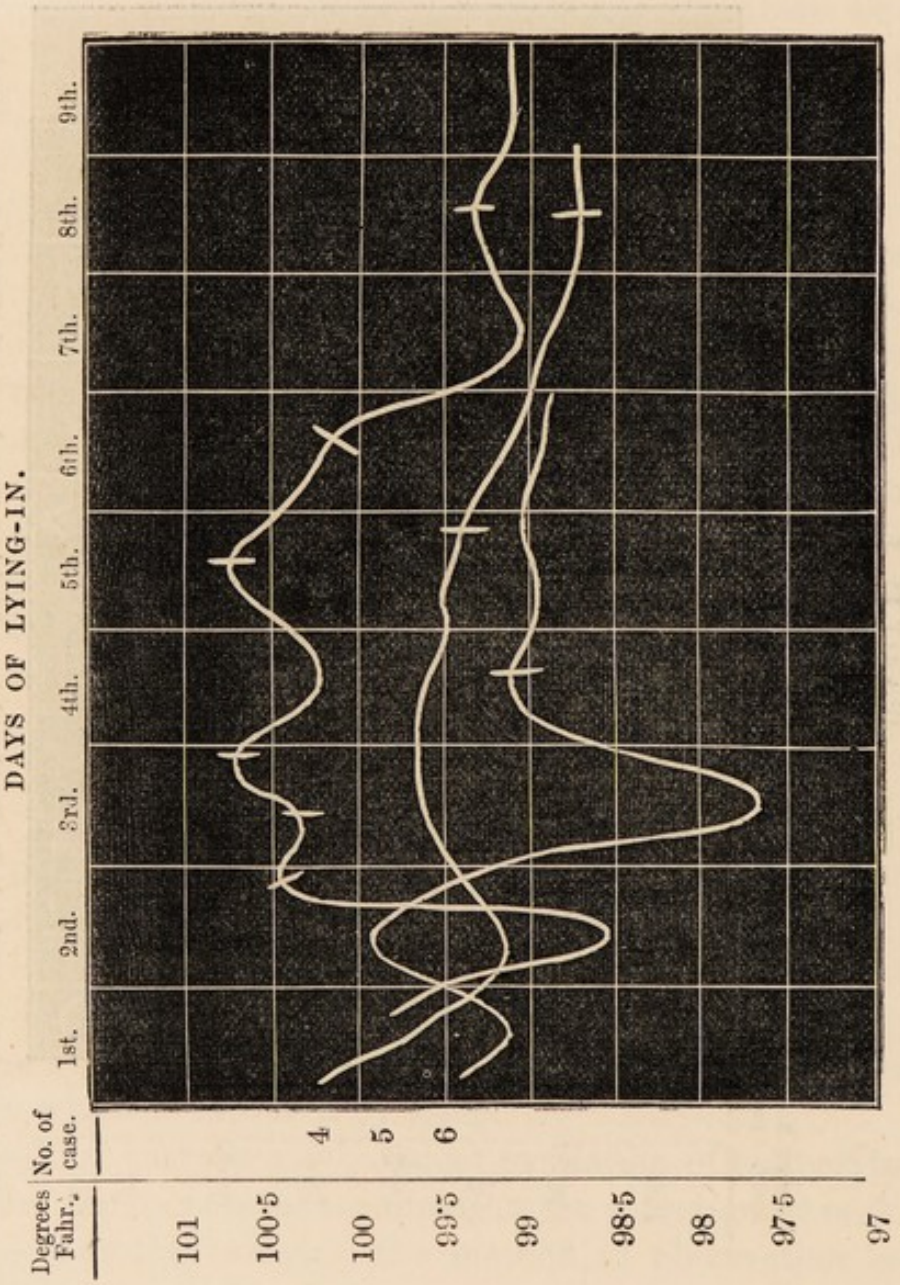

DAYS OF LYING-IN.
1st.
2nd.
3rd.
4th.
5th.
6th.
7th.
8th.
9th.
Degrees Fahr.
No. of case.
101
100·5
100
99·5
99
98·5
98
97·5
97
4
5
6

Table III.

DAYS OF LYING-IN.

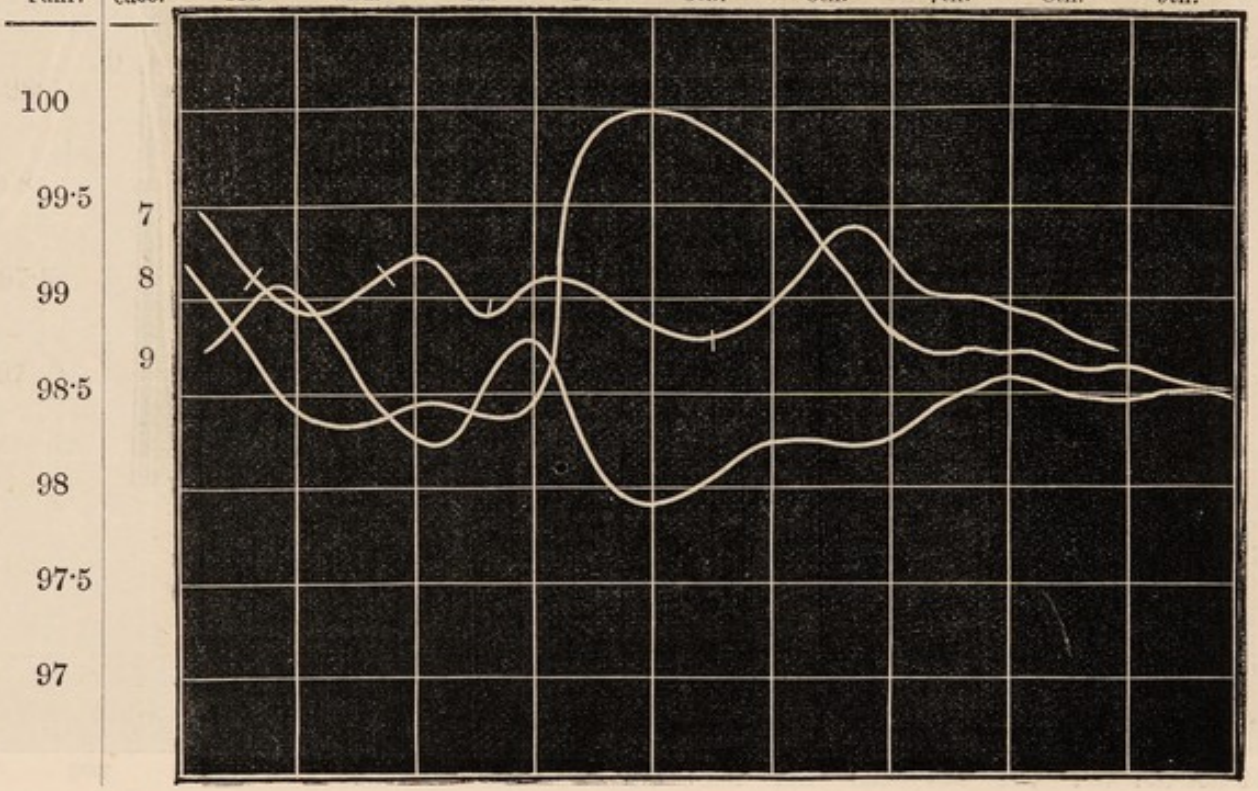


TABLE IV.

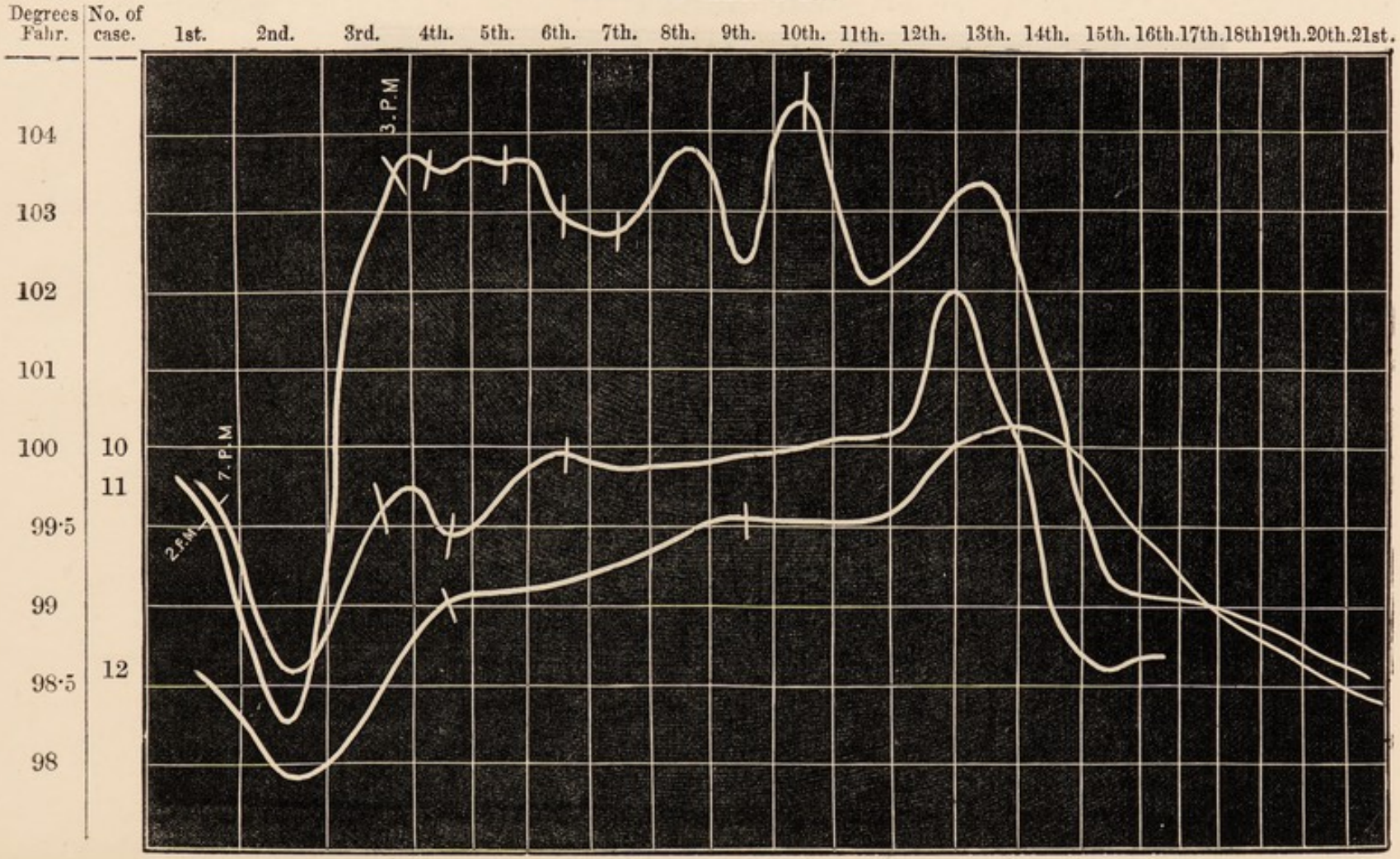

DAYS OF LYING-IN.
Degrees Fahr.
No. of case.
1st.
2nd.
3rd.
4th.
5th.
6th.
7th.
8th.
9th.
10th.
11th.
12th.
13th.
14th.
15th.
16th.
17th.
18th
19th.
20th.
21st.
104
103
102
101
100
99·5
99
98·5
98
10
11
12
3. P.M
7. P.M
2. P.M

TABLE V.

Cases I and II.

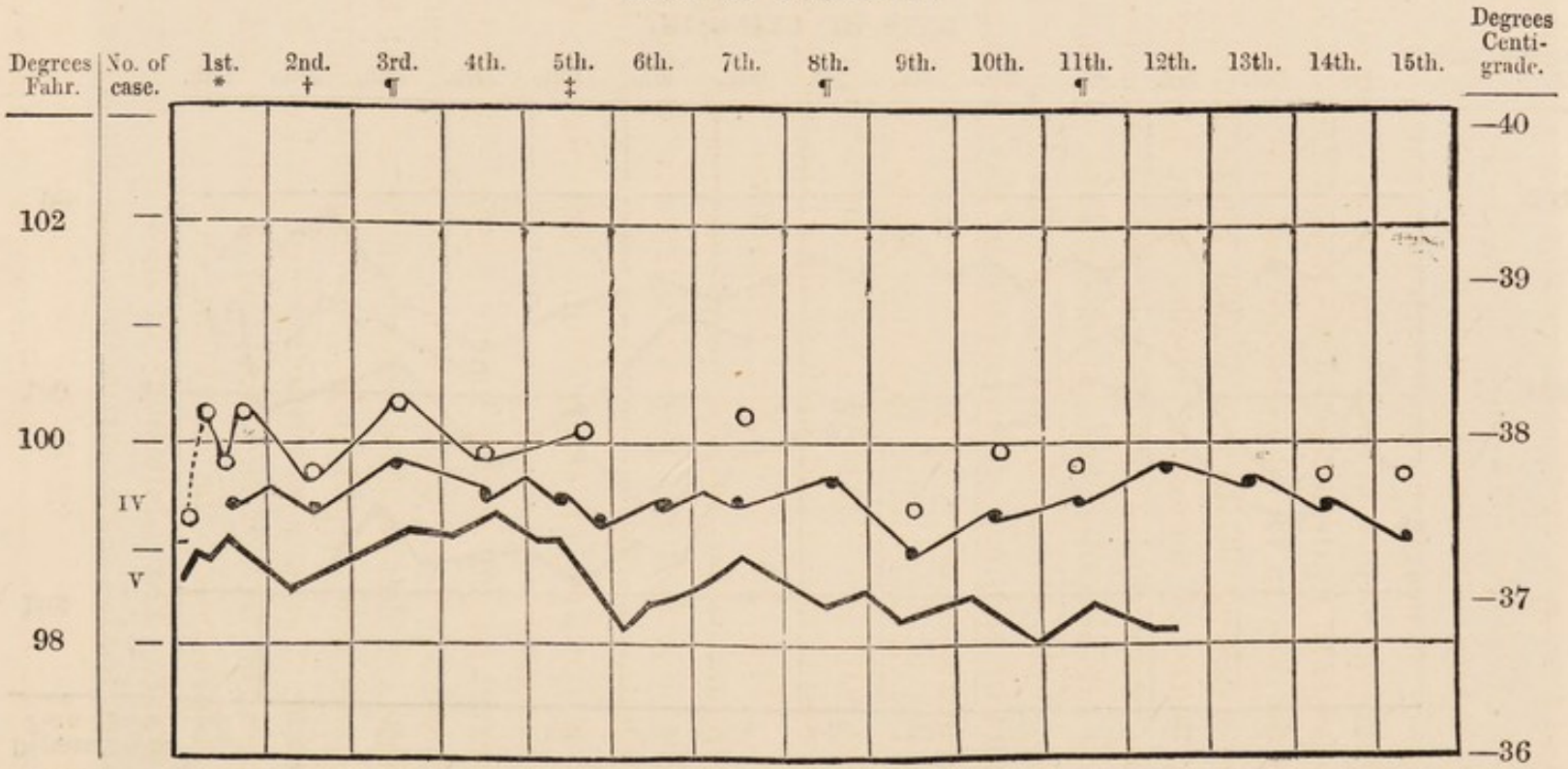
DAYS OF LYING-IN.

Case III.

DAYS OF LYING-IN.

TABLE VI.—Cases IV and V.

DAYS OF LYING-IN.



Pulse	80—100	100	84	80	80	80	80	72	76	80	76	72	72	74
Respiration	30—40	24	20	20	22	20	18	20	20	22	20	20	18	20

* Sleep. † Meat for dinner, with a little wine. ¶ Castor oil given.
‡ Alcoholic stimulant; perspiration followed.

The last diagram is illustrative of a method found to be convenient for recording the temperature changes and progress of any case under observation. Vertical lines for a series of days, are drawn across six or eight of the ruled lines of the notebook, or of ordinary ruled bath post paper, which serve to indicate degrees of temperature; of these the alternate lines are strengthened by drawing the pen horizontally along them, to guide the eye to the degrees 98° and 100°. Space is left above for marking off lines of higher temperature, for headings, or marks of reference. Below there is space for any comments or references that may be useful or necessary, the frequency of the pulse and respiration being entered immediately at the foot of the column for the day. In this way an abstract of each case is presented to the eye, most useful for reference and comparison.

While the elevation of temperature occasioned by parturition varies with the degree of effort required, it will be seen that the subsidence of temperature after labour is remarkably constant. This period of low temperature is an interval marked by nature for the administration of really good food; where this opportunity is neglected, not only is the period of low temperature prolonged, but there is afterwards a tendency to sudden increase of temperature, not always subsiding without danger.

This investigation, having for its original object the proper management of the puerperal state, had almost conclusively proved that the diet in child-bed should be substantial; some of the cases now added show that alcoholic beverages in moderate amount may be advantageously added to food; but that, while the food is essential, and should be looked upon as always necessary, the stimulant must be the subject of special order. The limitations of diet to "tea, toast, and farinaceous food," after parturition, and the directions for "simpler food, less in quantity," during the latter months of pregnancy, to be found in popular works on these subjects, are without warrant, either in science or practice; nor ought these articles of diet any longer to hold their place as principals in popular notions, but as accessories.

The first case represented in the diagrams now added is one bearing upon this question. This lady, thirty years of age, had not gone on well with her two previous pregnancies; the first child, born somewhat prematurely, died suddenly a day or two after birth; in her second confinement there was trouble in nursing, and she suffered from what was called puerperal hysteria, with fever, delirium, and albuminuria. On again becoming pregnant the first defect noticed was in the teeth; this was remedied, and mastication, hitherto imperfect, was rendered efficient; good food was taken well, and evidently was required; the health and strength improved; all traces of old delusion disappeared. After delivery an egg with half an ounce of brandy was given at night. Meat was taken next day and on every succeeding day, as well as two eggs and half an ounce of brandy. The secretion of milk began on the third day, but was not very free till the sixth. Castor oil was only given once on the fifth day, as the bowels had acted naturally before that, and continued to do so afterwards. At this time meat and vegetables were taken twice a day, and wine instead of brandy. On the seventh day stout was commenced, and tincture of quinine was given before both luncheon and dinner. Generally a short sleep was obtained early in the afternoon. The child was suckled efficiently; the mother was able to take exercise in the open air during the third week. On the seventeenth day, after being out a little too long, the axillary temperature, which for some days had been below 99°, was raised to 99·7°. Once on the twenty-third day this was found at 100°, not from going out, or from bodily exertion, but from the emotional effort required to reprimand and dismiss a servant.

In the next case (11) the patient was thirty-eight years of age; this was her third child; the labour was not severe; the depression of temperature to be remarked just after delivery, probably owing to slight hæmorrhage, was soon restored after taking a little gruel and obtaining a short sleep; she passed a good night, with some perspiration. Next day, observations, both axillary and vaginal, showed a real subsidence of general temperature; beer and cold mutton were taken at a midday dinner.

On the third day castor oil acted freely, a good dinner was enjoyed, the breasts were filling well, but there was not a very free flow of milk till the sixth day; the lochia were never very abundant. It may be noted here that the open dots in the diagrams indicate observations of vaginal, and the black dot of axillary temperatures. Upon first sitting up, on the tenth and eleventh days the temperature, now nearly down to the normal line, experienced a slight elevation; it was, however, found below the normal both on the twelfth and fourteenth days, and twice also in the third week, when the patient was down stairs and engaging in some household duties.

By reversing Table v the tracings of temperature in Case III can be followed. A primipara, twenty years of age; nursing prohibited from previous intention. Labour began early in the morning, and terminated favorably at half-past twelve; chloral-hydrate was given in two half-drachm doses at 8 and 10 a.m.; during this time the temperature continued to rise; it was 100° at the termination of labour, and had risen to 101° by night, when after good sleep, there was the normal subsidence. The pulse rose from 80° to 100° on the first day, and the respiration to 30 in the minute; on subsequent days these were generally 80° and 20 respectively, and sometimes less; sleeplessness, several nights before labour, had been satisfactorily obviated by chloral without any resulting headache, constipation, or loss of appetite. After labour the ordinary meals were taken every day, with perhaps less than the usual supply of farinaceous and liquid nourishment; the bowels were relieved by oil on the third and fifth days; no alcoholic stimulant was given. Though the breasts never became tense or painful, a very free secretion flowed from them on the fifth day, and continued to flow till the tenth and eleventh days; the lochia, never very abundant, had diminished considerably by the eighth day; wine was now added to the diet. On the tenth day the patient was up and about; she walked down stairs on the fourteenth day, and took stout; there was thus a slight rise of temperature occasioned, which subsided with more rest and less stimu-

lant. Soon after this, however, the patient was able to walk out.

The first case (IV) on Table vi may be usefully compared with the preceding. This lady, aged thirty years, was unable to suckle her infant, but not intentionally; her previous labour, seven years before, had been severe and the child stillborn; the fact of lactation having been thwarted then, might have something to do with the failure of that process now. Chloroform was given during the last two hours of labour; afterwards there was some slight hæmorrhage; the temperature was at the same time a little depressed; it was, however, restored by evening, and subsided in the night with sleep. The normal reaction took place on the third day, but resulted only in an abundant discharge of green waters. On the fifth day any tendency to fulness of the breasts seemed to be subsiding rather than increasing; the secretion of the milk was less, nor was it influenced by giving a little extra alcoholic stimulant in the middle of the day; indeed, this seemed only to cause perspiration and a subsequent lowering of surface temperature. On the eighth day a loaded state of the rectum was detected; there must have been some accumulation going on since the fourth day, though a partial relief had been each day obtained by the use of the enema; this of itself occasions a certain elevation of the temperature, and illustrates the necessity for the use of castor oil. The child was kept much near the breast, and occasional efforts at suckling were encouraged till the twelfth day, when they were discontinued with evident benefit to the mother's progress. The lochia, which had been abundant till the ninth day, now diminished: it is to be remarked how little the temperature changes are influenced by the varying amount of this secretion. The references and figures at the foot of the diagram belong only to this case.

Contrasting with the last case is the one, Case v, traced immediately below it in the diagram. Of the same age as the last patient, this one had already four children, and had been able easily to nurse them all. A free secretion of milk was established by the fifth day without discomfort. On the sixth

day the temperature was below the normal, the lochia being almost *nil*. The pulse and respiration, less disturbed at first, afterwards corresponded very closely with the observations recorded for the other case, and were exactly the same on the tenth and eleventh days, this patient being up while the other was in bed. In this case the rapid subsidence of temperature is seen to be closely connected with the ready formation of milk, while another illustration is here afforded of how little that subsidence is dependent upon the amount of the lochial discharge.

Chloral-hydrate was taken, in the last of these cases, at night when the pains were first felt; some mitigation of pain but no sleep followed; a further dose was taken four hours after, near the end of labour, too near, in fact, for it to have much effect on the pain then; but as after pains were expected, some good was anticipated; these were not prevented, but uterine contraction was good; a third dose relieved the pain, but did not at once cause sleep. The child seemed unaffected.

Chloral is a valuable addition to our means of relieving cough, restlessness, and some other discomforts of the latter stages of pregnancy; neither when given at this time, nor during or after delivery, has it been found to have any direct effect in depressing temperature. Too much reliance should not be placed upon this remedy for the relief of after-pain; it will surely induce sleep, and it does not interfere with the secretion of milk, but the frequent use of this medicine by the mother has sometimes seemed to cause slight sickness in the child. In other cases where this agent has been used to procure sleep after delivery no inconvenience has followed its use; the effect upon the child through the medium of the mother's milk being certainly less, than it has appeared to me to be through the medium of the maternal blood when largely administered to the mother for some hours before the child is born.

Hydrate of chloral has some effect in lessening the suffering from labour-pains without diminishing the power of uterine contraction. It would seem to be more suited to the early

than to the later stages of labour, when it could only be advantageously used in cases where a very small quantity of chloroform would answer the purpose. It is, moreover, worthy of remark that both these agents, when given largely, have a like injurious effect upon the child at the time of birth, weakening the pulsation in the cord, hindering, or even sometimes endangering the commencement of respiration, and often on the second day giving rise to troublesome sickness.

Chloroform when administered during labour does not interfere with the elevation of temperature then usual, and may even tend to its increase; so that in cases of first labour the full effect of the anæsthetic should not be obtained so soon, as it would probably have to be maintained longer, than in other cases. Chloroform has been largely inhaled by those who have previously borne and suckled children, and has in no wise interfered with lactation; yet two or three instances among primiparæ can be called to mind where after the use of chloroform nursing had to be relinquished. This result may in part be attributable to the chloroform; it must also have in great part been owing to the prolongation of labour, which in each of these cases was severe. Sometimes there has appeared to be a great increase of heat under chloroform, yet this results from the amount of effort exerted, and not directly from the chloroform, for upon giving it earlier in labour a very slight increase of temperature has been noted during the first hour of its employment, and a considerable elevation as much as half a degree in half an hour, during the second and third hour of its influence. In one such case, where the somnolency continued, the temperature quickly fell more than a degree after delivery. In other cases the ordinary subsidence has occurred. In Case IV the temperature continued to increase after labour was over; this also happened in Case III where the hydrate of chloral had been given in repeated doses. In administering chloroform during severe and prolonged operations some increase, or at least no dimunition of temperature, has been met with in the first part of the unconsciousness produced; afterwards, a considerable fall has

in some few instances occurred, in one of these, resection at the hip, the lowering of temperature seemed as much owing to loss of blood and the exposure of a large surface of the body, as to the special effects of chloroform.

Alcoholic stimulants are sometimes useful in aiding the subsidence of temperature immediately after labour; they may be absolutely necessary in many of the states of depression then met with, and are generally more likely to be required soon after labour than on the second or third day. In estimating the tendency to subsidence of temperature after delivery, allowance must be made for the hour of the day at which the labour terminates and the subsequent readiness to sleep.