Old Mause.
Thatheven.
Oct 15, 1885

I hereby certify that this
Thesis on "Puerperal Pyrexia"
was composed by me

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Revised

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Puerperal Pyrexia.

This paper will deal mainly with that complex group of febrile diseases, which occur in connection with the puerperal state, and to which the misleading, and as many think, quite erroneous term of "Puerperal Fever" has been for so long applied. The designation "Puerperal Pyrexia" is used here as it is intended to take some notice of simple Inflammatory and other varieties of pyrexia, which, although not coming strictly within the class of Puerperal Fevers as generally defined, still, so often manifest symptoms of a like nature, and so often accompany those diseases, that it is highly inconvenient & unsatisfactory to consider them apart. Even a stronger case may be made out in favour of looking at those Inflammations in the closest conjunction with the class of Fevers if, it can be shown that they not only occur as a complication of them but actually in some cases are mainly instrumental in originating them. We know that the opinion of

the French School upholds the idea that Puerperal Fever proper is merely, in the first instance, a local inflammation & surely the bare existence of such a belief is sufficient reason for considering the two classes of disease together. Those Inflammatory affections then will be treated, not so much by a general consideration of them, as by trying to elicit what truth there is in this expressed opinion of the American and Continental schools, to try, in fact, to discover if these diseases have any right to the claim made for them that they can originate a case of true Puerperal Fever.

But if we use the term of "Puerperal Pyrexia," and intend to give an account of the different conditions to which it is due, something will require to be said of those instances of high temperature which, while frequently met with, are usually of too evanescent or mild a nature to particularly arrest our attention; such as ephemera and those peculiar cases where the rise in the bodily heat seems to arise from nervous influences.

The opinions to be expressed have been formed

as the result of observation in a pretty extensive midwifery practice carried on for the past nine years. During that time 1145 births have been recorded or a little over 127 per annum on the average. The conduct of this practice has not resulted in the high standard to which some obstetricians have attained, when they can record 1000 consecutive confinements, not only without a death from any cause, but without even a serious case of Puerperal Fever. Neither do my results show quite so low a mortality, in so far at least as the febrile group is concerned, as do the Registrar-Generals returns for the whole country, but of this more later on. In the meantime I may only say that this particular department of my practice has given very little anxiety if the post-partum fevers be excluded. Like many other practitioners I have, not only, been brought into contact with many grave examples of those affections, but I have had to pass through — personally — the anxious sort of fever resultant therefrom, and I must say I feel very envious of those whose experience enables

them to state that those fevers give them no trouble.

In order to understand the results of this obstetric practice a short account may be given of the general condition and surroundings of the people amongst whom it has been carried on. The district included is mainly agricultural; but, within it, there is a small manufacturing town, a smaller mining town and several villages. It comprises the whole of two parishes and part of other four. Of the births 40 per cent occurred amongst the country people and 60 p. c. amongst the townspeople. I propose to divide the women into these two groups on account, in the first place, of the difference in their health standard, and in the second place on account of the differences they show at the time of parturition. The first group is mainly composed of the wives of farmers who tenant holdings of small acreage. Their position is anything but a sinecure. Not to speak of domestic management, their duties are pretty much those of dairymaids in larger farms, their work necessitates much

muscular exertion & is in many cases very laborious. This however is combined with quiet rural habits, abundance of fresh air and an unexciting routine life. Couple this with a tolerably easy position as to money matters and we get, what might have been expected, a healthy, muscular & well developed class of women favourably situated physically & mentally to undergo the hardships and withstand the dangers of childbed. A few belong to a class a stage higher in the social scale being connected with farms of bigger dimensions, conducted on the sheep rearing principle. These however, differ little from the others except that they lead less active lives &, as a consequence, are more wanting in muscular vigour. There are also included in this group the wives of ploughmen, who, mostly townbred, have spent their teens in farm service and ended by marrying men of their own station. They lead very active lives, often engaging in out door work and always well nourished on a cheap, substantial & abundant dietary, into which flesh meat only enters at rare

intervals, as a luxury. These are the women that give the least trouble and the best results of any in my practice. In Ugard to the diseases which prevail amongst this group, I may say, in the first place, that the type is almost invariably sthenic. Acute inflammatory affections, in most cases due to exposure, make up the bulk of the cases I am called upon to treat; deaths from acute Pneumonia & Pleurisy being common. As a consequence of this, active anti-phlogistic measures are usually indicated and often successful. Except in a very few cases, where individual habits have broken the constitution, stimulating remedies are not called for. The diseases, whose prevalence or the reverse is usually taken as an index of the sanitary condition of a locality, are conspicuous by their almost entire absence. I am at present in attendance on a case of typhoid, the first I have seen about a farmhouse for many years. I fear however that this is more the result of the strong resisting power of the people, of their almost constant contact with fresh air not only outside, but inside, their houses,

these being managed on a primitively airy principle. At any rate, the sanitation of many farmsteadings is not of a very approved description, notwithstanding the operation of the Dairy and Cowsheds act. Seeing, as we frequently do, collections of farm filth and stagnant wash in proximity, not only to the dwelling house, but to the water supply; which is nearly always from wells, & considering that the milk is in most cases stored in a part of the building only separated from the dwelling house in name, it is, in the first place, truly surprising this absence of enteric &c and I think only to be explained on above hypothesis &, in the second place, it is impossible to avoid the conclusion that the above enactment is enforced in a very loose manner. Erysipelas is often met with especially in the autumn coincident with wet westerly winds, an atmospheric condition the opposite of what is usually accepted as an etiological factor in this disease. Diptheria is much commoner than typhoid & exhibits endemic features about some particular farm houses. The exanthematous fevers have only

twice, during the last 9 years, attained to the magnitude of an epidemic

Coming to the town population, while the members of the upper class are few the lowest class is almost entirely absent, the great bulk of the births occurring amongst a happy medium composed of tradespeople and working men's wife in the proportion of one to three. The former are mostly in easy circumstances & are not to be compared to their country neighbours in muscularity and general healthiness. The latter are mostly the wives of hand loom weavers who lead frugal but not precarious lives & are a cleanly class of people. Their existence is a very evenly one, they are strangers alike to luxury & want. Their habits are not active & consequently they are slender, toneless and deficient in muscular power. Into this group also enters a good many miner's wives, a class diametrically opposed to the foregoing, bearing here, as they do everywhere else, a character of not over cleanliness and leading lives which subject them to the most marked extremes. The diseases met with amongst this town population are not

* Pneumonia of a low type, accompanied by weakness & often due to bad Sanitary conditions.

of so marked a zymic type as in the country people. Phthisis is very common & typhoid, although oftener seen than in the country, is — considering the condition of matters to be presently described — surprisingly rare. Diphtheria is very prevalent & Scarlet Fever & Measles often bad. Creeping pneumonia* is often met with.

As regards the sanitary aspect of this town, it is simply deplorable. Abundance of fresh air, free from the tainting influences of public works, is the one and only favourable sanitary element with which the inhabitants are provided, and it is simply because it has been provided without their intervention that it exists. The drainage & the water supply of a place depend for their excellence on the exertions of the people themselves, and they are here simply shameful. The former is little more than a name, what actually does exist being a source of danger from the false security it engenders, & this too in a place naturally well situated for establishing an easy and efficient system of drainage. As regards the water supply

* Dr Clark of Glasgow. Since this was written other four samples have been examined. 3 contained much organic matter + were described as unsafe + 1 was spoken of as tolerable.

the people here have been from time immemorial imbibing simply diluted sewage & this too, at least in recent years, with their eyes wide open to the fact. The supply is derived almost entirely from wells, which, when opened during the late cholera scare, were in a leaky & filthy condition. Much money was then spent in putting them right, as it was thought, a righting which has just received a sad shock from scientific analysis. Out of 5 different samples of the water in use only one has been pronounced by Dr Mills as safe & that one likely to become unsafe in times of much rain. The extraordinary thing about all this is, that the people actually boast of their fine water & their healthy town, and recommend this place as a resort for their less favoured city friends who may be in search of health. Again the slaughter houses are conducted and located just as private individuals think fit, without limitation or restriction, and living in the midst of all this is a Sanitary Committee, responsible to the central board for the health conditions of this place. Surely there is some argument here against the present system of

* The figures have been taken from the Registrar-General's returns and from the books of our local Registrars.

Sanitary control in such places as this. I am not the medical officer to the above committee, but I have lately published some facts & figures, which I fancy will originate a movement likely to lead to a state of matters more in accordance with modern ideas. So much for the Sanitary state of this town now let us turn to its results as shown by the Vital Statistics. *

During the last 10 years (1875–84) the death rate per 1000 living has been 22·8. | 26·4. | 19·2. | 21·9. | 21·9. | 19·6. | 16·3. | 19. 2. | 19. 6. | 16·9. giving an average for the 10 years of 20·38. For the 9 months of this year which are past the rate has been 22.

Now the average rate for the whole of Scotland during the last 10 years is 20·36 – very much the same, but surely this place, from its natural health aspect, ought to show a very different figure. Nor is this high death rate coexistent & dependent on a high birth rate for, while the latter over the whole of Scotland is 34·19, for Avendale it is only 28·06.

Separating the country from the town, we find, taking 3 years average, that the latter gives a rate of 20·5 & the former 14·21. In the first

quarter of 1885 the country shows a mortality of 13·33 the town 25. with no epidemic disease in existence. Looking at the rate here alongside the rate in the neighbouring parish of Stonehouse, which is efficiently drained, we see that, while in Avendale it is 20·38, in Stonehouse it is only 17·17.; the latter having a much larger birth rate. Taking the last quarterly return of the Registrar General we find that the rate here has been 30·92 (no epidemic) in the next parish, Glassford 8·25. Kilbride 18·11. Lesmahagow 12·40. Muirkirk 17·6. Loudon 17·4. Glasgow 25 Scotland 19·3 & the Mainland Rural districts 16·7. From this it will be seen that Avendale occupies quite a notorious position, and this too, in spite of the fact that the birth rate here is lower than in any of the districts named. Finally the illegitimate births are at the rate of 4·5 per cent of the total deliveries, as compared with 8·8. for Scotland & 6·9 for Lanarkshire. This seems favourable to this parish; but were it not, that most of the servant girls (amongst whom these births principally occur) leave for their homes in neighbouring towns on

becoming pregnant, I fear the figure would be much higher.

The conclusions to be drawn from what has been said about these women are, that while 40 per cent of them are in every way particularly well situated, the remaining 60 per cent are, as regards their hygienic surroundings, particularly badly circumstanced to undergo the process of parturition.

Coming to what we actually find in practice I wish to notice 1. The duration of the labours. The country women are healthy and muscular & consequently their labour pains are strong and well sustained, and the power of aiding parturition by voluntary muscular action is very decided. Tedious labour, as a result of weak vis a tergo, is a rare condition. On the other hand this very healthiness & muscular toneicity brings with it, in many cases, a marked vis a fronte so that tedious labours, especially in primiparae, from rigidity of the soft parts & some want of width in the osseous structures, is not uncommon. It is, in fact, really surprising how often, in attending a tall,

muscular primipara who has probably never had a day's illness to weaken her constitution, the accoucheur, after waiting through a tedious first stage & into a vigorously expulsive second, finds that the progress is not commensurate with the power expended and has in the end to apply the forceps. With multiparae the case is very different, the expulsive power is very marked while the resisting agencies are not so strong and, as a result, the deliveries are very rapid almost precipitate, an ending which, were it not for the powerful uterine contractions, would not be free from danger. My experience amongst this class of women has been, that, in multiparae, the labours are of very short duration & are in very many cases past before my arrival, this being partly due to the long distances to be travelled and the slow unexcitable nature of the people. In primiparae the labours are not under the average duration, the contrast between the two classes I believe being more marked in a practice such as this. One other point that has struck me in connection with the duration

of labour has been the extreme rapidity of the process in very young women. I lately attended a primipara, aged 15, who completed the delivery in 2½ hours.

The townswomen have in my experience longer labours. The expulsive power is not so strong and well sustained as in the other class, and I have especially noticed, that if any obstruction exist, the pains, which may have been good in the early part of the process, soon become irregular and weak. On the other hand, rigidity and a tendency to the masculine type of pelvis, are not so frequently met with. Lastly, the contrast between primiparae & multiparae is not so decided. Taking the average of my recorded cases I find the duration of labour in countrywomen to be 6 hours and that of the townswomen 10 hours. The fixing of the beginning of the process lying entirely in the woman's sensations.

2. In the next place I wish to notice the number of cases in which the forceps were used.

The tendency of obstetric practice in recent years is veering more & more in the direction of a pre-

quent use of the forceps & in this, as in other departments of the medical art, there is just a danger of our getting into the region of extremes. Putting what I have read of the subject & what I have seen in my own practice together, I have come to the conclusion that, in many quarters this extreme has already been reached. We must remember that, in the vast majority of cases, nature can complete the process herself. As to whether her slow method or the quicker one of art is most to the advantage of the mother & child opinions differ. My experience has taught me that that it is a safe rule to exercise a great amount of patience where progress is being made, however slow, and to believe, that this very slowness is in many cases a wise provision of nature against some possible mishap. Working as I do in a country practice, where a lingering labour not only disarranges other work, but frequently clashes with other confinements, it is very tempting sometimes to bring about a rapid delivery. In such a contingency I have often left one case to attend on another & on my return to the former I have always

had the satisfaction of finding that delivery has been effected in a manner more in accordance with nature's intention than if I had given assistance. I have used the forceps in barely 4 per cent of my cases, & the proportion in the two classes of my patients has been much the same. Speaking of labours in which the first stage is tedious I believe it to be rarely good practice to deliver instrumentally. I have twice done so, but I have never been quite sure that the proceeding was called for in the interests of either mother or child. At any rate I have seen many exactly similar cases completed, to my entire satisfaction, without any help. I believe that the forceps are often needlessly used in deference to the wishes of the friends; but the latter ought never to be allowed to interfere with our own judgment. The practice of extending the use of the forceps from being an extractor of the foetus, to being a dilator of the os may be safe in the hands of an expert; but I consider that its admission into General practice would be fraught with very grave danger. When the os is fully dilated

and the head stationary in the pelvis we can approach this forceps question with less restrictive views. The head may be [redacted] Kept back from deficient vis a tergo, it is likely to be uncompressed & freely moveable. In such a case if the pains have been from the first irregular, short & weak and if the woman's pulse is [redacted] good, we ought to wait patiently & try ergot if we interfere at all. I have twice adopted a more active course and I have twice had to regret it. When however the pains have been good in the early part of the labour and have only left gradually as the woman became exhausted I give ergot, not as an alternative to, but as a safe guard before the application of instruments. On the other hand the head may be [redacted] detained owing to the existence of some obstructive agency, this latter coexisting with good expulsive power, in such a case it is simply a question for the accoucheur's judgment whether nature or the forceps will accomplish delivery with the least damage to mother & child. I believe that in most of such cases it is best to have recourse to art. At the outlet I make it a rule,

especially in primiparae, to leave the delivery entirely to nature if at all possible. If however, the head has stuck & the pains are incompetent some cautious assistance is indicated. Where the forceps have been used in intra pelvic cases I consider it a good plan to allow perineal delivery to be effected naturally & in all forceps cases to delegate to nature entire charge of the birth of the child's body where evidence of foetal vitality is manifest.

In regard to the subject of haemorrhage, I have never had a bad post partum case in those country women & this in spite of the fact that many of them get over the birth and lie with undelivered placentae for hours before my arrival. The uterus is then found in good contraction & the afterbirth generally in the vagina. This system of expectancy I consider a very good policy on the part of the attendants infinitely safer than that of the meddlesome, self confident midwife which prompts her to effect a speedy completion of the process.

In my town's practice I have had fourteen serious cases of post partum haemorrhage

two of which were only two evidently due to a recourse to the forceps in women of a toreless character with weak uterine action - cases in fact that had better been left severely alone. I have never had a death in a forceps case, and, as regards morbility, only one woman delivered instrumentally was attacked with puerperal fever. As regards the mortality over all my confinements there have been 5 deaths, 2 primiparae & multipara from febrile disease, one from neglected ante-partum haemorrhage & one from eclampsia out of 3 cases of this disease.

I have had to deal with 28 cases of post-partum fever, omitting those of a mild nature whose presence in conjunction with a series of infected cases proved them to be instances of that disease. Of the 3 deaths which resulted all were in the towns, of the 28 instances of the febrile affections only 6 occurred in the country.

Before entering upon the subject of pyrexia I may notice the results arrived from an extended observation of the temperature in apparently healthy puerpera. For some time all the women who have been confined have had their temperatures taken twice daily for seven and in some cases 10 days. The observations were confined to those in the town, the country women being too far removed. The natural heat of the human body is marked in our thermometers at 98·4, but it must not be inferred from this that every variation from this point shows a departure from health. Our temperatures follow a pretty uniform cyclical course throughout the 24 hours. I find that at 8 a.m. my own temperature stands higher than at any other hour of the 24. The degree indicated then is usually 99: During the forenoon this is pretty well maintained, but after 3 p.m. a fall commences which reaches its lowest point about bed time i.e. 11 or 12 o'clock. Towards morning the gradual rise to 99° commences. The lowest reading is usually a little over 97° so that rather

less than 2° represents the range of this cycle. I have found that in young boys the range is greater, 99·5° being a common morning temperature with an evening one often under the 97°. With older people on the other hand, say over 50, the range is more limited seldom more than 1°. As exercise has always the effect of raising the temperature the above readings were all taken in times of rest. From what we know of the production of animal heat in the abstract, these conclusions are just what might have been expected. The heat is the direct result of the chemical processes going on in the body, a process mainly represented by the oxidation of nitrogenous material and this is chiefly regulated by the skin. To any one thinking on the subject it seems extraordinary, that, while external circumstances so much affect the loss of heat by the skin, still our temperatures remain within the narrow limits above indicated. In explanation of this we have to look to the nervous system which presides over the combined processes of heat production and heat

escape and maintains a due relation between them. This is the state of matters as regards healthy temperature. Whenever the thermometer marks a point above 99·5° we have a state of fever, and, in explanation of the immediate cause of this rise, there are two theories which have been put forward. The Bio-chemical explains pyrexia by saying that there is increased production of heat, or, in other words, augmented + accelerated tissue change. The Neuro paralytic explains the rise of temperature on the supposition that there is lessened escape of heat from the body. The former is the one on which we must place most reliance, clinically speaking we see much in its favour, whereas, considered from the same standpoint, the latter gets no support. Thus, in Rheumatic Fever we especially notice, that, while there is greatly increased escape of heat from the body, there are still met with in that disease some very high temperatures. Here the hyperpyrexia cannot be due to defective heat escape + must therefore be a result of augmented production. In all fevers, in fact, more heat escapes from the surface

than in health, whether the thermometer rises falls or is stationary. But the nervous system has undoubtedly a close connection with heat production. The fact that the temperature of a paralyzed limb is always less than the sound one of the same person, & the further fact that electricity has the power of raising the heat of the palsied one proves the existence of such a connection, if not with actual production at least with the distribution of heat. Nervous excitement also causes a rise of temperature local or general. The power of the nervous system to alter the capacity of the bloodvessels & through this the volume of the blood supply itself affords an explanation of many of these cases, but it must also be granted that that system has an indirect influence on the processes by which heat is actually produced. This being the mode of production & regulation of animal heat it is not surprising that there is such a cyclical daily course as has been indicated. The quantity of waste matter in our blood and the condition of our nervous systems vary at different times, under different circumstances are quite consistent with perfect health

Still confining ourselves to the healthy subject, let us turn from the non-puerperal to the puerperal woman. And firstly, are there any peculiarities of her condition likely to influence the temperature? Undoubtedly there are. Her blood is greatly altered, not only from what it was when she was non-pregnant, but from what it was during the months preceding delivery. During these months there has been going on in the system of the pregnant woman a wonderful process of building up of new tissue against the time when the critical act of parturition will make heavy demands on her energies. The blood has been the carrying agent of the building material as it has also, to a smaller extent, been the carrier away of refuse stuff which is a necessary accompaniment of all building operations. The balance of traffic during this process of construction is centrifugal. A period of repose follows delivery, then the process of demolition begins consisting of the taking down & away of the new tissue which has served its purpose. The lochia carries off much by the short route of the vaginal tract; but as regards the great central

organ of the act of parturition – the uterus – its minute tissue, after going through a preparative process of fatty degeneration + atrophy, is taken into the circulation + thrown off by the ordinary excretory channels. This organ is reduced from over 20 ounces to 2 in a very short time, a feat which must imply very decided changes in the normal functions of the system. The balance of osmosis is here centripetal + the blood is loaded with effete material. During pregnancy the blood is hyperinotic, with diminution of red corpuscles + increase of watery constituents. The haemorrhage, which always to some extent follows delivery, makes these characters more marked. This pregnant blood then with its peculiarities somewhat more accentuated and with the waste stuff added is that of the puerperal woman. In this then we have one factor which may alter the temperature from what we find it in healthy non-puerpera. Look for a moment at the state of the genital tract. Supposing that the labour has been even of the easiest there is always present bruising of the tissues of the vagina &c. + in many cases more marked

damage, evidenced by laceration of greater or less severity. Look at the internal surface of the uterus with its torn bloodvessels & general ragged appearance from the structures left behind, & with all this remember that the lochial discharge, which, even when normal, causes dangerous fever when injected into the circulation of animals, is continually trickling over & bathing these parts, up to at least the 9th day, when reparation & closing of the injured surfaces is far advanced. Here is another factor likely to influence the temperature of those women. For such an amount of injury to be followed in non-puerpera by some rise in bodily heat would not be surprising & far less should it be so in the cases of which we are speaking. Finally as regards the nervous system. During labour there is extreme nerve tension. At the critical struggle this is aggravated and after it is over a condition of calm repose supervenes.

These 3 peculiarities of the puerperal woman, with the further ones of the establishment of lactation & the usually existent constipation, go to make up a state of matters which, even in

perfectly normal cases, produces changes in the temperature of an interesting nature.

The conclusions arrived at from the temperature taking may be formulated thus.—

1- A rise of temperature, above the healthy non-puerperal standard, is normal in puerpera from the 2nd to the 7th day inclusive.

2- The evening reading is higher than the morning one.

3- Laceration is a cause of rise of temperature especially in primiparae.

During labour, except when it is lingering & the woman exhausted, the temperature is above normal. Considering the condition of violent muscular exertion & nervous excitement which exists at this time the rise is just what might have been expected. Immediately after birth the temperature falls, a rigor being not of uncommon occurrence & if haemorrhage is present to any extent the fall is most marked. I have frequently taken a reading of 96° under such circumstances & the cases did perfectly. This low temperature is what we might expect from the condition of repose which then exists and is exactly analogous to the low reading of mid-

night in other circumstances. We know that fatigue is followed by decrease of temperature and often predisposes to a state of chill. The calming down of the nervous system & the quieting of the circulation seem to be the determining agencies here. During labour the circulation is subjected to rythmical spurts, seemingly the result of the labour pains. Owing to this the blood is sent over the body at a quicker rate than it is later on, when these pains have given place to quiet restfulness & hence the higher temperature in the one case than in the other. After Delivery the pulse may be rapid, but this is generally found in conjunction with diminution of the volume of blood from loss & in this case the temperature is low because the effect of the latter condition overbalances that of the former. Although the current is more rapid its actual volume is less. Again while during labour the nervous system is in a state of tension, after labour exhaustion is present & this also tends to lower the temperature. After some hours the thermometer shows a return to the normal reading from which,

in easy labours, it may never have departed. This has continued in most of my cases till the 3d day; but the rise in many has been noted as early as the 2nd. I presume that little or nothing is done in the process of involution during the two first days after delivery and from this we would argue that there is no danger of self empoisonment, as it is called, before the 3d day (I omit for the present the question of absorption from wounds in the genital tract) From this time onward to the 7th day disintegration is active & becomes an important factor in the consideration of the temperature. So far as I have observed the 3d is the day on which the highest reading was most frequently taken, and this was seldom over 99°5, with an uninterrupted recovery. On this day the breasts are usually found shooting with milk, feeling somewhat hard & hot, and the bowels, in most cases, will have been unmoved for 4 8 hours or more. (in conjunction with the loaded blood.) These facts, are sufficient to explain the occurrence of the highest temperature on this day. The fourth day was

the next most frequent with the top temperature, and the same explanation may be taken to hold good here as with the 3d day. But curiously the 3d most frequent day for finding the highest reading was back at the 2nd day. and especially was this noted in severe labours attended with more than usual injury. In severe haemorrhages also the reaction which follows this complication seemed to operate on the temperature about the 2nd day. At any rate I have 3 cases, marked severe haemorrhage, in otherwise natural deliveries, where the 2nd day gives the highest reading. The seventh day is usually the last on which the temperature is raised in puerpera with good recoveries, & in some the reading is normal before this day.

We have already noted the fact that in healthy non puerpera the morning temperature is higher than the evening one. In most febrile diseases, on the other hand, the opposite is the case. During the first seven days after delivery I have found it almost a constant observation that the evening reading was the higher of the two. In this respect then the process of

DISEASE.

Notes of Case.

Name

Age

Diet

Case Book N°

Temperatures taken at 9 a.m & 11 p.m in a woman during first week of childbed (normal) & during a week 2 months after, when in her ordinary health.

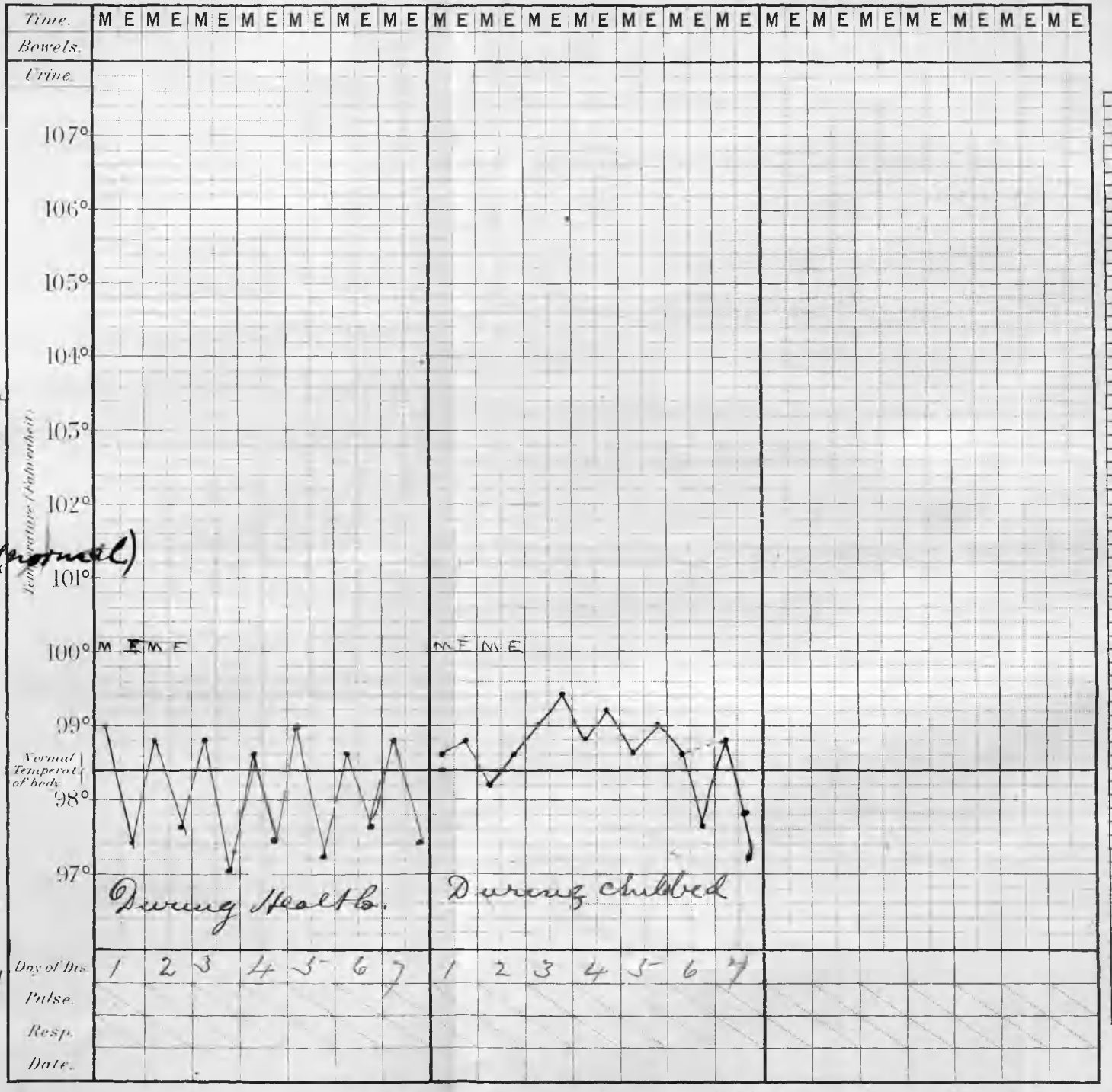
The readings were all taken in bed.

average Temp. in childbed } 98·10

average Temp. in ordinary health } 97·9

Date of admission.

Result



Entered at Stationers Hall Printed and Published by Wodderspoon & Co. 7 Seely Street Lincolns Inn Gould's Clinical Chart

recovery from childbirth takes more after the diseased than the healthy condition. The difference between the two varies from half a degree to a whole, being more often the former than the latter.

From what has been said then it would seem that in all normal puerpera there is a rise of temperature above that of healthy non-puerpera. That this rise exists from the 2nd to 7th day, that it is higher in the evening than in the morning and lastly that the limit of this rise is 99·5°.

Picking the cases of instrumental delivery (of which only 5 were under observation) and those where damage graver than usual was sustained by the soft parts, and comparing their temperatures with the others, are there any points of interest to be noted? It is rather difficult of course to exclude other factors in such a comparison and not easy to lay any difference, which may be found to exist, at the door of the forceps &c still, if the details show that the average temperature was higher in cases where the above injuries were present than when they

were absent, it seems quite justifiable to attribute that rise to them. In the same way although the general propositions above laid down in connection with all puerpera (healthy) were not supported by every case brought under observation, still the preponderance of cases in which they were, was so great, that they are entitled to be considered true deductions.

In the class of cases above referred to, the first point to be noted is the difference between Primiparae & Multiparae, the former being evidently more susceptible than the latter. The use of the forceps had no tendency to raise the temperature unless they had caused evident injury to the soft parts. This was undoubtedly the case with multiparae, but was not quite so clearly shown in primiparae. but the cases watched were too few to give any reliable results. I have a case on hand at present in which forceps were used 5 days ago, no laceration resulting & the thermometer has not yet got below 99° & there have been 5 readings of 99°5°. Now this is a primipara and the average temperature for the 7 days will be

above what I usually find in non-forceps cases.

Laceration of any great extent always raises the seven day average in Primiparae not always in Multiparae. Severe laceration is of course much more commonly met with in primiparae than in multiparae, but I have had 2 cases of deep tearing in the latter without any augmentation of the average temperature.

Before passing to the actual febrile cases, where rise of temperature is present as only one of many symptoms of fever I wish to notice 3 cases, two of which occurred during the above course of temperature taking. They support the idea that hyperpyrexia of short duration may be due directly to nervous impressions × may exist without any other grave symptoms × may not in the least hinder recovery.

The first was under thermometric observation and had passed the first 7 days and made normal progress. The temperature on the morning of the 7th day was 98·5° × I was not to see the woman again. On the evening of the 8th day however I was sent for

on account of a sudden attack of abdominal pain. On my arrival I found the woman suffering from pain in the region of the stomach, with a temperature of 105°, but no other febrile symptoms & no pelvic symptoms at all. This woman had, in her previous confinement, passed through a sharp attack of Puerperal Septicaemia during which pain was a prominent symptom. She was of nervous temperament, and at the time of my visit was in a very excited state, thinking that this pain was to be the forerunner of an illness similar to her last. I was so surprised at the temperature that I took it a second time with the same result. I gave the woman 10 grains Dovers powder, & assured her that she would soon be well, still I felt anxious till I saw her next morning when the temperature was back to normal & her fear gone.

The second case was one in which the woman gave birth to her first child with cleft palate & lip very much deforming its appearance. The unfortunate condition was kept from her until the 3d day when

she became suspicious and I showed her the child explained about putting it right. She was very much depressed but did not say much. She became later on very excited and her temperature on the 3d day at night was 102½°, against a morning one of 99°. A reading taken next morning gave 102°. & that night the reading was down to 99°. This woman had no symptoms whatever, the discharge was natural, & she had no complaint.

The 3d case was not under thermometric observation, but as it occurred at a later date than the other two, they suggested the idea of trying the temperature when I became aware of the nervous excitement. The originating cause was the sudden death of the woman's father, from an accident. After she was apprised of the sad event her temperature was 106° & continued over 104° for 30 hours when it suddenly fell to normal. She made a perfect recovery

I have seen some other cases where rise in temperature seemed to be due to nervous influence but where the causation was not so clear & uncomplicated as in these 3. We have al-

ready noted the influence of the nervous system on the production of animal heat, and, from a theoretical point of view, we would be quite prepared to admit the assumed causation as the correct one in the above class of cases, and when we further meet with such cases in actual practice it is impossible to avoid the conclusion that the nervous system is in some way responsible for the rise in temperature. We know that a like observation has been recorded in non-puerpera, so that it is not a result of any peculiar condition of the lying in woman. Whether the nervous excitement is the direct or only the indirect cause of the symptom is undecided. It is a generally conceded point that this system exercises a very important influence on the state of uterine contraction. This is, I believe, the accepted explanation of the frequency of septic absorption in cases of illegitimate births. May this not be the mode of origin of the cases under consideration? Against such an explanation there is the sudden onset of the pyrexia, without rigor, its short duration, its sudden falling away

and its non-infectious character. If the case were septic it ought to present features like to what we find in other septic cases. We would in such a case expect to find a rigor preceding the pyrexia, we would expect the pyrexia to last longer, disappear more gradually & finally give rise to like symptoms in other women. But there is a form of absorption from uterus, specially named Sapraemia, which comes nearer to explaining these cases. In this putrid intoxication, the symptoms begin whenever the poison enters the blood & cease whenever the supply is cut off. Now suppose the uterus becomes relaxed under nervous influence, the inroads to the system are thrown open and putrid matter is absorbed. In such a case the symptoms will come on at once — with rigor — probably and when the excitement goes off, & thus allows a return of firm uterine contraction, the supply will be stopped quickly & the pyrexia as quickly. Although however we come nearer an explanation with sapraemia than with that other form of septic poisoning where the noxa is a living

organism which can not only live in the blood but reproduce its like there, still, it does not fully meet the case, and from what I have seen of such cases I should incline to believe that the pyrexia is due directly to nervous influence on heat production, or heat distribution without any septic element.

Having considered the condition of the temperature in normal puerpera, and having noticed those intermediate cases where the temperature rises to the febrile area for only a short time & without being accompanied by any other symptoms of inflammatory action or fever, where recovery is unhindered, we may now take up that important group of fevers which are a source of grave danger, not only to the woman herself, but, in many cases, to those in a like position who may be brought into connection with her. Whenever the temperature rises to 100° with a pulse also above normal we have a state of fever if not Puerperal Fever at least fever in the puerperal state. The case may be one where inflammation in the region of the pelvis is the

most noticeable feature, a case in fact where the fever is symptomatic of the local mischief. On the other hand, we may have to deal with a much more complicated state of matters where the fever is the result of the introduction into the system of poisonous material, and where if inflammation is present, it is so only as a concomitant of the general disease. Of the possible existence of these two separate classes of cases there can be no doubt, but as to the frequency of the former cases & as to their power of originating the second class opinions differ widely. While some believe that those inflammations cannot give rise to the more general disease, others maintain that, they not only can, but often do so in practice. Again, it is held by many that the bare existence of the first class of cases is very doubtful & by others that they are frequently met with, per se. At any rate there is no doubt of the fact, that, whatever part these inflammations are capable of playing in the development of post partum fevers, (other than the purely inflammatory) and with whatever frequency they are met with

per se, they are present at some time during the course of the vast majority of post partum fevers. At the very entrance to this complicated subject it may be stated that throughout this paper the existence of a specific Puerperal Fever, in the sense that we speak of a specific Scarlet fever, is not recognised. My experience has brought me into contact with the set of symptoms to which we attach the name "puerperal fever" in too many instances where the originating agents were totally different, to admit of a belief in any specific element. There are some who still argue in support of the existence of such a fever, but it is a remarkable fact that the very evidence they adduce can very often be used against them. At the present time the great balance of opinion is decidedly against attaching any specific character to the cases of which we are speaking. The class of specific fevers have very definite & constant symptoms developed in a regular & uniform sequence and are the direct result of a special contagium vivum for each class, without which they cannot originate.

all this cannot be said of the disease or rather diseases with which we are dealing. Great variety is noticed in different cases, even in the same series, not only of comparative virulence, but of actual symptoms. These symptoms follow each other in no definite sequence, nor do they bear any constant relation to the development of the disease. Cases which it was impossible to diagnose from so called puerperal fever have been known to give rise to specific diseases in other persons, and have been themselves traced back to the same affections which they cause. But it is argued by those specivists that they admit all this, they admit that there are other fevers & diseases which, when they attack a puerperium, are so altered by the peculiar field in which they are working that they take on a likeness to the specific disease. They say we have puerpuerperal Scarlet Fever, puerperal septic fever &c but that we have also a special defined fever apart from all these. Then they ought to be able to show us a distinct & definite set of characteristics by which we may know this

true fever when we meet with it, and so be able to separate it from those, which notwithstanding the similarities which they have derived from their special field of culture, are still not the same as the real & truly Puerperal Fever. No one would uphold the specificity of Scarlet Fever if it could not be shown that some of its especial features are truly special in that they are met with in no other disease, or, if so met with, that they are so related to the other symptoms as to time & that they derive a specific character from this relation. A disease undistinguishable from this puerperal fever is known to follow Scarlet Fever infection, but no disease undistinguishable from the latter was ever known to follow from any infection but its own. The fact is that the fever met with in puerpera is an indefinite fever, inconstant in its causation symptoms & course, the only thing constant about it being the condition of the person attacked. The disease is in reality a complication of the normal puerperal process & may be induced by many & various agencies. When dealing with this group of

diseases it is of the utmost importance to keep in view the peculiarities of the puerperal woman. We must always bear in mind that, as Farmer remarks, every day is bringing to light some new part of the system which has undergone alteration in view of the great processes of child development childbearing & childrearing, We must remember that the uterus has advanced in 9 months from being a comparatively unimportant part of the organism to a position, for a time, the most important in it & that after that time is over it has to fall back to its former humble place in the economy & that also in a wonderfully short time. To effect this it becomes suddenly emptied of its contents, it is left in a partially abraded condition & a vast quantity of useless material within itself and in its immediate neighbourhood has to be excreted. The blood current which for so long has been directed towards it has to diverge into other channels, while before, it was carrying a surplus of useful building material, it now contains an excess of useless destructive matter. We must further keep before us the dan-

aged parturient canal, the nervous shock & withal this the exposure of the puerperal woman, while in this predisposed state, to many contamminating influences & surroundings. When we do remember all this there will be no difficulty in understanding why the puerperal process is sometimes dis-arranged, why this is followed by fever and why the characters of that fever should vary with the particular dis-arranging agent. There is rather more difficulty in understanding why so many cases run the gauntlet of these dangers and emerge unscathed. In the following pages then the post partum fevers will be looked at in the light of so many complications of the puerperal process, and the pathology of them will resolve itself mainly into an examination of the agents capable of bringing about such complications. When the term puerperal fever is used it will simply mean a state of fever in the puerperium quite indefinite in its nature. As regards the question of nomenclature while I believe that the time will come when Puerperal Septicaemia will be

generally used to designate those diseases, (excluding simple Inflammatory & Involution fevers) I am at the same time of opinion that the terms "Puerperal fevers" & "Post Partum fevers" best accommodate themselves to the exigencies of the present state of the subject. Although it may be said that these two terms fail entirely to enlighten us as to any thing in the intimate nature of the disease, they at any rate do not express any ideas in advance of our knowledge of the subject,

The many interesting points in connection with the subject of Post Partum fevers will be arranged for consideration under the followings heads —

1. Derangements in the process of absorption and elimination of Involution material,
2. Inflammatory Fever & what it may lead to.
3. Complications arising from the introduction into the system of the puerperal woman of some specific contagium.
4. Puerperal Septicaemia and
5. Treatment.

We have already noticed that a great amount of waste stuff is absorbed into the blood for

sometime after delivery. In the normal process this material ought to undergo a preparative change prior to its becoming mixed with the blood, & when so mixed it should be excreted by the kidneys &c. in quantities duly proportioned to the amount absorbed, so as to prevent the blood being overcharged. When these necessary conditions are not forthcoming fever is the result, and this is what is variously designated Involution fever or Endosepsis. The possibility of such a febrile state occurring in the course of involution is undoubted, but its existence per se is unlikely. Seeing that all the actual exciting causes of those post partum fevers are certain, in their operation, to derange the balance between absorption & elimination. It is most likely that there will be an element of involution fever in all of them. That many other diseases that may attack the woman at this critical time will tend to put this process out of gear is one mode of explaining her peculiar sensitiveness at this time, a sensitiveness which makes every affection, however trivial, of more moment to us than at any other time.

We may pass from this theoretical sort of fever to one of a more tangible nature & while we do so it may be remarked that this tendency to the existence, in any one case, of more than one variety of fever is of usual occurrence.

In dealing with the inflammatory affections it is not intended to enter into a general consideration of them. They will merely be looked at in their relation to those cases which are more usually classed under the name "Puerperal Fever," although of course the one is as much a Puerperal Fever as the other. We know that fever attends all acute inflammations, what is called inflammatory fever, but this a very ordinary disease with no tendency to take on contagious properties. Now in puerpera although the first part of this statement is correct, it is not so evident that the latter part is. The type of Inflammatory fever in the puerpera often changes in its course & becomes to all intents & purposes the same as Septic Fever. I am quite sure that I have seen the following happen, a woman after delivery is subjected to exposure, or she has undergone a severe labour - & as a conse-

quence of one or both of these agencies she develops an inflammation in the uterus or its immediate neighbourhood, she passes through a severe illness during which the type of disease changes, she recovers or dies; but into the practice of whoever attended her there has been introduced a contagious factor and as a result that attendant has a series of more or less severe cases immediately following this original case. The following is an instance in point. —

Mrs C, was delivered of her first child early on the morning of the 15th October, after an easy and uncomplicated labour of 7 hours duration. The placenta came away without any assistance and was complete. I was not present at the birth & never made a vaginal examination, in fact no one examined her. On my arrival immediately on the completion of the 3d stage I found the woman on her knees, out of bed where delivery had taken place. the uterus was in good contraction, there had been little loss, she was a strong healthy Country woman, & seemed in every way likely to make a rapid recovery. There was no

suspicion of any infectious agent having been brought near the woman, I had had no bad recovery lately & the attendants were all free from infection. The house was a good one as regards sanitation. The weather was very cold & frosty & the woman was lying in a room near the roof, of the house where cold was extremely well felt, the bed had been unslept in lately & fires had not been in regular use. During the day of the birth Mrs C. felt cold, in fact she said she never had become quite warm since she entered the bed. She had no rigor however & was unconcerned until during the night, when she became aware of pain in the abdomen. I saw her early in the morning & found her suffering very acute pain on the right side of the pelvis & constant in character. The woman was hard & tender, there was no peritonitis pulse 130 hard & bounding, temperature 103°, face flushed. discharge perfectly normal. Free leeching, with tinct. aconite internally, gave relief to pain & brought down the pulse to 110 & temperature

to 101°. Pain nearly gone & lochia still normal. This was her condition on the evening of the second day & it continued so during the 3d & 4th days. On the 5th the temperature & pulse rose to 104° & 140 respectively after a rigor & the discharge dried up. Peritonitis commenced was treated with belladonna internally, with opium in large doses & relieved. I need not go into details of the case further than to say that the woman recovered from a very severe illness, bearing all the usual symptoms of puerperal fever & lasting 24 days. The change of type was very marked after the rigor, the pulse became very weak, Diarrhoea set in, & abdominal distension was great. The temperature was at one time 106° & the pulse uncountable & the case seemed hopeless. This was accompanied by delirium & was treated by ice cloths, Quinine & opium. The temperature was in this way reduced to 103° & the remainder of the illness was one long fight with debility & metastatic inflammations in pleura &c. The lochia was absent for 14 days & then was purulent till recovery supervened. During this woman's illness seven labours were attended, with every conceiv-

able precaution. The first suffered only from simple inflammatory fever lasting 6 days. She took ill on the 4th day after confinement. The second was subjected to a fever like the first originating case only not so severe, The pyrexia began on the 3d day & lasted 16 days. The third & fourth cases did perfectly well. The fifth took ill on the 3d day & passed through a sharp attack of Septicaemia lasting 21 days. The sixth did well & the seventh was the worst of all. The woman in this case took ill also on the 3d day & her illness lasted over a month. During her labour I never made a vaginal examination. After this case I gave up attending confinements.

Now it is not possible to be absolutely certain in any case that no contaminating influence was brought to bear on the woman. So far as I could discover there was no outside infection of Mrs C. Again there was no evidence of retention being the cause of the first symptoms. These latter appeared too early at any rate to admit of their being explained in this way. When clots &c are retained in utero

we would expect after pains - there were none in this case. Being a primipara there was less danger of retention. Again when the uterus is not properly emptied after the expulsion of the secundines we do not find the lochia continuing fresh normal for a time & then suddenly ceasing as in this case, it rather becomes foetid & grumous & ceases gradually. I consider that the primary inflammation in this case was unconnected with septic absorption. I believe that it was the result of chill and that it originated septic contamination later on, by deranging the normal puerperal process. We must inquire how a simple inflammation can originate septic contamination. We know of course that those inflammations of uterus which are due to absorption quickly develop into infective diseases, if they are not so even from the very first; but I wish to speak at present only of inflammatory action due to injury or exposure, where septic influence has no existence in the early part of the case. We know that acute metritis in a non puerperal person is rare. but that it may occur

especially at the time of the menstrual molimen. Now if this monthly peculiarity of a woman increases her liability to this form of inflammation, it is surely not too much to suppose that the puerperal peculiarity - which is of a much more striking nature — will increase that liability to a much greater extent. Again, although we speak of the womb as one organ, it, like many others, has many different tissues entering into its composition - tissues moreover which differ very much as to their proneness to take on inflammatory action such a mucous membrane, veins &c. These tissues may get into an inflamed state solely from chill &c. Then again there is injury, this may cause inflammation in uterus, as it may any where else. Although by some it is believed that there can be no inflammation anywhere without the presence of germs, the general belief is, that although these latter are necessary for the spreading of the inflammation, they are not for its primary origination. We see inflammation, in fact, arise in many situations to which germs cannot find an entrance. As regards peritonitis it is a more common

form of inflammation in non-puerpera than metritis. It is one of those diseases which are usually met with as a result of some deep seated mischief in the abdomen, cases arising purely from cold being not very common, but here again, with the changed state of matters in the puerperium, it may more often own such an origin than in other subjects. Allowing that we have such an inflammation it will, in the majority of cases, no doubt, be amenable to treatment if applied early & pass on to a rapid convalescence. But in many cases it does not do so, it, in fact, very often takes on a malignant type & death or recovery follows only after symptoms undistinguishable from those met with in cases that have been septic from the first. Now, if a woman recovers in the early stages of such a course, there is no infection; but my experience has shewn me that whenever that stage is past & whether death follows or not the case must be looked upon as one that may generate others. How does this transformation from a mild non infectious into a serious contagious disease occur? It is certainly not merely an accentuation

* Lectures on "Inflammation":
in Lancet, April 8. 1882.

† On "The infective product of acute inflammation"
in Medical & Chirurgical Transactions
Vol. lvi, p. 345

of the virulence of the inflammatory symptoms, it is the result of a new development which takes place in the course of the illness, the development in fact of the septic poison. What then are the steps in this process of development? In connection with this subject it becomes necessary to notice the remarkable experiments & deductions of Dr Burdon Sanderson* & others on inflammation. Dr Sanderson has laid down the following propositions.

1 A normal inflammatory exudation is never infective.

2 No organisms with the power of producing inflammation exist in the air or liquids with which our bodies ordinarily come into contact.

3. Whenever an inflammation becomes infective it owes that power to a change produced in its exudation, & for this change the presence of these organisms is necessary.

In proof of the 1st statement it is shown by experiment, that the introduction of inflammatory exudation into the circulation does not extend the inflammation beyond the limits of the injury of which it was the physiological

of a bone
result. The medullary cavity can be injected
with the strongest caustics & if antiseptic pre-
cautions are taken, the resulting inflammation
spreads no further than the seat of injury. But
if septic organisms are introduced into the blood
by putrid food being taken then the inflam-
mation becomes infective & spreads.
The 2nd statement is that bacteria have no
phlogogenic power. By injection of air & water
charged with these organisms into the peritoneal
cavity no inflammation is set up except
— & this is important — so much be injected that
stagnation occurs, from absorption not being
able to cope with it rapidly enough.
Coming to the 3d proposition Dr Sanderson
tells us that he injected a chemical irritant,
which, not only contained no living bacteria,
but was incompatible with germ life, this
induced peritonitis which was always infect-
ive. This was taken to mean that the exud-
ation was not removed quickly enough, that
formed ferments got into it from the alimentary
canal & thus led to the formation of the
septic poison. Before applying these con-

clusions to our subject, we must notice the question of where these bacteria are found. They exist plentifully in the air, in the soil, and in water, on the surface of our bodies, in the mouth, anus & lower part of the bowel. As to the disputed question of whether they exist in the interior of healthy organs the experiments of McCheyne, recorded in Lancet. May 7. 1879, seem to decide the point in the negative and the same may be said of healthy blood, although in diseased states of the system they find there a pabulum on which to live. This is analogous to the botanical observation, that while a fungus may grow on a fern frond weakened by cold it cannot live on healthy fronds.

Bringing these deductions to bear upon the subject in hand, we have a case of normal & consequently non-infective peritonitis in a puerperium, throwing out an exudation still non infective & likely to be absorbed into the circulation as it exudes & do no harm. Then we have quantities of non-phlogogenic particles in the neighbourhood, in fact in the alimentary canal. The state of matters is really the same

as that produced artificially by D^r Sanderson with his syringe & irritant fluid, except that in our case the exudation fluid is absorbed as it forms & thus does not become stagnant. But we know that the absorbent system in this region is particularly well employed at this time in carrying on the process of involution. What therefore is more likely than that on this account the exudation remains unabsorbed, becomes stagnant & is thus converted into a very suitable nidus for these bacteria to work in & elaborate the infective poison. & thus set up Septicaemia, undistinguishable from the same disease arising in another way

Looking next at metritis it is generally believed that here the inflammation usually attacks the veins. Now in non-puerpera there is such a thing as idiopathic phlebitis, the result of cold, usually attacking the veins of the lower limbs in subjects especially predisposed by nervous or vascular excitement, or depression, by unhealthy conditions of the blood, by epidemic influence, by season, in fact, by the conditions which predispose

to lower diffuse forms of inflammation, to which this phlebitis & the kindred disease of diffuse peritonitis belong. As a result of phlebitis coagulation occurs in the vein independent of any septic action. Here we have another suitable field prepared for bacteria to work in, as before a septic poison is formed, the clot is broken up, the poison disseminated throughout the system & pyaemia with its characteristic set of symptoms results. This uterine phlebitis is usually met with where the labour has been severe, but whatever be its exciting cause the results are the same. Again the feverish state which results from one of these pelvic inflammations is very likely to derange the flow of the lochia leading to stagnation in utero. To this stagnant material bacteria find their way from the bowel as before with like results. When the damaged cervix gets inflamed as the result of injury, there also, the septic poison may be elaborated & find an inlet into the system. The vaginal tract is in exactly a similar condition, some of its connective tissue elements have been devital

iged by the bruising, its surface will exude fluid & bacteria find there way on to it from the air or bowel & produce their baneful results. Whenever these organisms attack a wound they hinder the healing process, thus preventing the formation of granulations which are so powerful a barrier against absorption. Finally, we may just mention here the results of Dr Sanderson's experiments in connection with the injection of simple peritoneal inflammatory exudation into the peritoneal cavity of a pig. Here he found that each successive inoculation became more active until the simple case of peritonitis became one of virulent septicaemia. This is an important observation as bearing on the question of puerperal septicaemia being developed out of a case of simple pelvic inflammation in the puerperium. We thus see how it is possible on paper to explain the change from a simple non-infective disease to one of a much graver nature & undoubtedly infectious as well as infective. and I believe that such cases frequently occur in practice. I believe

* as regards the disease becoming infective
+ infectious.

that the predisposed puerperal woman may be attacked by pelvic inflammation from an ordinary exciting cause, and, that

1 The inflammation may so alter the normal puerperal process as to lead to an accumulation of the discharge & subsequent formation of septic material, or

2. That the peculiar condition of the puerperium so alters the normal course of the inflammation as to lead to the accumulation of its exudation & the generation in it of the septic poison.

We have simply, in fact, to deal with two conditions, which, ~~when they occur separately, have exactly to be treated,~~ when they are met with in conjunction ~~they~~ are apt to react upon each other to the detriment of the woman, & other puerpera in contact with her.* I have stated in an early part of this paper that a good proportion of the patients I have to deal with are subject to diseases of an acute Sthenic type. The almost invariable cause of my being sent for to a post partum woman is acute inflammatory pain over the uterus, accompanied by a rapid bounding pulse and

* I have frequently noticed, that, not only in inflammatory, but other forms of puerperal fever the pyrexia commenced suddenly after a perfectly normal labour + without any signs heralding its approach. I mention this as many writers express the opinion that in the majority of these diseases the appearance of the woman betokens their approach. In my experience the illness appeared as a surprise in most cases.

this too in women who have had no suspicious symptoms at the preceding visit.* The almost invariable treatment in such cases is profuse leeching + in the majority of cases this is successful; the disease seems to be checked in the bud, as it were, and recovery is little kept back. But I have noticed often that one of these cases did not follow this course, although the inflammatory symptoms seemed at first to be checked, a condition of pyrexia continued which further deranged the excretion from the womb, set up more inflammatory action and the recovery was slow. after such a case all went well with the future puerpera, it was either not infectious or what I believe to be more likely it was prevented from exercising the power. On the other hand I have seen just such a case originate a series of bad recoveries. In one series the originating case was that of Mrs C. already detailed. In another series the first case was very similar to Mrs C's. The woman very stupidly got out of bed on the second day and changed herself

without help. She felt chilly, had uterine pain when I saw her on the evening of the 2nd day she was very feverish. She passed through 22 days illness before the temperature kept permanently below 100°. At first the pain & tenderness was in the uterus until the 5th day when peritonitis commenced with change in the pulse &c to the asthenic type. The lochia dried up on the 5th day was absent, my notes say, till the 14th when it was yellow & foetid. There are two points I wish to notice in connection with the course of these inflammatory cases. The first is that the temperature, so long as there is not septic element in them is not nearly so high as where there is. Even in apparently very bad cases I have not found the temperature just at the beginning, over 103°, often less. In 3 or 4 days however when the disease is getting complicated 105° is a common reading. When however a sharp septicaemia result from outside infection the thermometer often marks 105° very early. In the second place most of the cases that have appeared to

me to be primarily non septic have had the inflammaction most usually confined primarily to the uterus, the peritonitis coming with the septic contamination later on, while on the other hand, primarily septic cases of a malignant character from the first show perktonitis as an early symptom.

The case mentioned above as originating a second series happened on January 12th 1880. Of the 6 following confinements only 2 had good recoveries. 3 of the other four took ill, but recovered, the 4th proved fatal & I then gave up work. This last case was immediately preceded by the 2, good recoveries, and further than completing the 3d stage of labour I came little into contact with the woman. I only made two vaginal examinations during the whole illness. She was a primipara and had an ordinary labour. On the 4th day septicaemia set in with peritonitis. Great abdominal distension, extremely bad pulse & temperature very high from the very beginning. Death ensued on the 7th day after the illness commenced. The extraordinary point about

this case was that an unmarried sister, who helped to nurse her, was laid down with pelvic peritonitis. She was altering at the time had a rigor, then the menses ceased. She complained of great pain & tenderness deep in the pelvis, greatly aggravated by micturition & defoecation. Rigors & sweatings alternated for 15 days, with a pulse & temperature varying greatly at one time up at 130 & 105° at another as low as 100 & 100°. Owing to this, I more than once predicted a rapid recovery the only unrelieved symptom at these times being the deep pelvic pain. The case was not cleared up till the 17th day when a quantity of pus came away per vaginam and recovery followed very slowly. This was an instance of pelvic abscess opening into the vagina, but whether its origin had any connection with the girls proximity to the case of Septicaemia I am not prepared to say. At any rate no other evident cause was known, the girl was not exposed to wet or cold, she was particularly robust, while on the other hand it must be noted that the contact between the

two was very close. extending to the girl giving her sister vaginal injections.

It would seem then that pelvic inflammation in the puerperal state may pass into a severe form of Puerperal septicaemia & that the latter may spread from one woman to another. Have other diseases commonly met with in general practice any tendency to lead to a like result when they attack a puerperal woman? The specific infectious ailments may be passed over at present as they will be dealt with later on. The only remark that need be made about them here is that they may attack the puerperal woman & do her no injury, in other words they may coexist with the puerperal process and not derange it. The same remarks apply to non infectious diseases. I have frequently seen instances of such a coexistence without harm accruing to the woman. But I have also had to deal with such a complication where the recovery was not favourable. I once attended a woman for Rheumatic fever when close to her confinement, in this case the fever brought on labour.

after which the Rheumatic ailment seemed to change its course, became, in fact, less a case of of this fever than of puerperal septicaemia. The regular course of the involution process became altered, abdominal pain with distension supervened, the lochia ceased and the woman passed through a long illness, towards the end of which joint suppuration pointed to the pyaemic element in it. No infection was traced from this case to other lying in women. A case recorded lately in the Lancet shows that this same coexistence may occur without any bad result following. The only other instance, bearing on this subject, which I have met with was one of catarrh with much debility & low feverish condition occurring in a woman previous to confinement. After the labour the catarrh & the weakness continued, but they were complicated on the 4th day with high septic fever. This continued for some weeks, but as I have no record of the case I cannot give details, at any rate the woman recovered & I had 3 unsatisfactory recoveries coming

immediately in the wake of this illness. As has previously been mentioned, I consider the class of post partum fevers more as complications of the puerperal process than as diseases per se. Now we know that it is the tendency of all acute febrile diseases to derange the functions of excretion + secretion in non puerpera. + the same holds good I doubt not in lying in women, so that there is some possibility of these acute diseases actually being the primary causal factor (in cases such as the two given above) in the production of puerperal septicaemia. at any rate we must admit that the supervention of any acute disease at this critical time will very much enhance the risk of septicaemia developing.

III

The next division of our subject relates to the connection, if any, which exists between the specific zymotic fevers and post partum fevers. The type of the former which will be made use of here will be scarlet fever, it being the only one of which I have any experience. Erysipelas, not being in my opinion a member of the group + being even more in-

timately related to these puerperal fevers than the zymotic diseases, will be spoken of separately. Although every one admits some connection between these two classes of disease the nature and extent of it is very variously estimated. The two prevalent opinions on this subject are 1- That Scarlet Fever is as true to its nature in puerpera as in non non puerpera, that is, it is capable of only producing its like, it breeds true, even admitting some modification from the peculiar state of the woman. and 2. That scarlatinal virus in the puerperum causes puerperal septicaemia. Before examining these opinions we may glance at the allied disease of surgical scarlet-fever. It has been frequently noticed that within a few days after a surgical operation symptoms develop resembling the onset of septicaemia; but which the appearance of the boiled lobster rash later on stamps as of scarlatinal nature. This has been especially noticed in young persons & those who have not previously had the zymotic fever, and the coincidence often occurred when there was no epidemic of it about. Now by some it is considered that this disease is a form of septicaemia, and when we know that such an eminent sur-

geon as M. Trelat has been unable to say which disease he had to deal with until the rash appeared, we must admit much similarity in the symptoms of the two affections. To make the likeness even closer it may be noted that septicaemia is sometimes attended by cutaneous manifestations resembling the scarlatinal rash. The generally accepted opinion however is that the disease is really scarlet fever & that its appearance along with the operation is a mere coincidence. That this is the correct interpretation has been proved by subsequently exposing the patient to scarlet fever contagion without any result. The zymotic poison has probably been in the system of the patient before the operation, and would likely have remained inactive either for a time or permanently if the constitution had not been weakened by the operation. In this disease the incubation period has undergone shortening as in puerperal scarlet fever, the course is abnormal, & it has the effect of vitiating the secretion of the wound & retarding its healing as Septicaemia has. It is common with some to compare the condition of the parturient woman

to that of a patient who has undergone an amputation & to liken the uterine surface from which the placenta has been separated to the stump in the latter case. although the latter part of the analogy is entirely fanciful, the constitutional state in the two cases bears some likeness. If the performance of a surgical operation renders the subject of it more likely to be affected by specific infection, we would expect a similar liability in the puerperal woman, as in the former case the incubation period is lessened & the course of the disease subjected to some abnormality we are justified in assuming that the same will be the case in the latter. Further, as surgical scarlet fever has been with difficulty diagnosed from surgical septicaemia, so likewise would there be difficulty in separating scarlet fever in the puerperium from septicaemia under like circumstances. Lastly as the zymotic virus tends to retard healing & to vitiate the discharge in surgical wounds, so probably would it act on the injured tissue which is a constant attendant on even normal labour in most cases.

In dealing with the question of the relation of the zymotic diseases to the group of puerperal febrile diseases we must bear in mind as before the peculiar condition of the woman. This is undoubtedly the most important factor in this connection. If the patient were a non-puerperum she would simply escape the infection or she would take the specific disease and there would be an end of it. But with puerpera the case is very different and much more complicated and so is the resultant disease more likely to be. In the first place then, we may look at what actually results in practice from the contact of a puerperal woman with the contagion of Scarlet Fever.

1 No result follows at all. The woman takes neither one disease nor another. Her recovery is the same as if no contact had taken place.

2 The woman is attacked by Scarlet Fever and neither the latter nor the puerperal process is in the least altered.

3. The woman is attacked by a grave febrile disorder the nature of which is undecided.

With regard to the first class of cases there

is no reason to suppose that the puerperal woman is less protected by a former attack of Scarlet Fever than her non-puerperal neighbour. There is every reason to suppose that those women who escape as set forth in the 1st group have already passed through an attack of the specific disease. But even if unprotected the infectious influence may fail to obtain a hold on her system just for the same reason that it fails with unprotected non puerpera, who are exposed to it, the resisting power may be too strong or the virus may be too weak. It must however be admitted that the danger is much greater in puerpera, & this may be explained by remembering that the puerperal blood is in a loaded condition & excretion is finding sufficient work carrying off the involution material. As a consequence the colytic action of the blood is weakened & so the specific virus escapes destruction in the circulation & being there it may not be so easily thrown out owing to the overworked state of the excretory functions. I have only once seen an instance of a non protected puerperum

brought under the influence of specific infection & escape the fever or something worse. I have often seen a protected puerperium recover in the ordinary way, even when the contact was close and the precautions comparatively inefficient. I have even read of an instance where the medical man introduced his arm into the uterus while the former was covered with Scarlatinal rash, & no harm resulted, but we must notice that it is not stated whether the woman was protected or not and in what stage of its development the rash happened to be. This man must have been possessed of some boldness & probably also of some strong opinions as to the harmlessness of Scarlet fever contagium on the puerperium. It reminds one of Dr Klein's feat with the cholera bacillus; but I am afraid the former would not be so scientifically certain of the result before commencing as the latter seemed to be.

2. Taking the second class of cases, no lack of instances are on record where the disease that followed infection passed through the ordinary course of Scarlet fever without notice-

able feature, but, here again, the chances are all the other way, they have certainly been so in my practice. I have in fact only once seen Scarlet Fever run its usual course in a puerperium while I have often met with cases referable to the 3d group, and I believe this will be the experience of most accoucheurs.

3 It has already been stated that the two principal opinions in regard to the nature of the grave febrile disease, which so frequently attacks lying in women after exposure to contagion of Scarlatina are,

1 That it is really puerperal septicaemia. +

2 That it is really Scarlet-fever modified by the state of the woman's system.

Amongst those who call the disease Septicaemia are some, who argue that it is not actually the specific contagium which sets up the disease, but a septic poison elaborated in the person from whom the infection came, as in the throat. In this way the disease resolves itself simply into an ordinary case of Septicaemia. This theory however will not stand very close examination. If we deny that there is any element of Scarlet Fever in the disease

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how are we to explain the pathognomonic rash which frequently accompanies the illness; & how about the setting up of Scarlet fever in the attendants? There are others again, who, still designating the disease septicaemia, say that the effects of the specific organism of Scarlatina become transformed, in the womans system, into puerperal septicaemia. As bearing on this point there is an interesting case published in the Lancet* for December 7th, in which a child in the course of whooping cough developed a pleuritic effusion, which became purulent and resulted in fatal septicaemia. Dr B. Yeo, who records the case, throws out the opinion that the septic element was introduced by the whooping cough contagium acting on the effusion. If this is really the explanation there can be no difficulty in understanding how the scarlatinal contagium may exert a similar power in puerpera, the uterine excretions taking the place of the exudation. Those who consider this disease to be really scarlet fever describe its symptoms as quite dis-

tinct from those of puerperal septicaemia. This has not been my experience. In a case which I attended 5 years ago, where the causation could be easily traced to scarlet fever infection, I was unable to appreciate any difference between the symptoms & those met with in puerperal septicaemia. I had under my care a boy with malignant scarlet-fever in the house of a lady who was within a month of her confinement. She had been nursing him until I advised her to leave the house, She had not suffered from scarlatina, she was very frightened so she acted on my advice removed to a house 2 miles off. Six days after her arrival at her new abode labour came on, and she had an easy confinement. On the morning of the 2nd day (having been perfectly well the day before) I was sent for and found her very feverish, with severe pain over the uterus and no lochia. There were present in the course of an illness of 4 weeks duration all the usual septicaemic symptoms, peritonitis with distended abdomen, Diarrhoea, vomiting, sleeplessness & later on pleurisy evidently pyaemic. There were not present,

with the single exception to be presently noted, any of the usual signs of scarlet fever, and I had difficulty in making myself & the friends believe that I had not done the woman an actual injury by getting her removed; the illness by them being attributed to worry & the influence of fear engendered by the removal. On the 5th day of the illness however the pathognomic rash appeared and set all doubt as to the etiology of the disease at rest. This case did not prove its contagion either of scarlet fever to attendants or of puerperal septicaemia to other lying in women, of whom I attended many during its course, always of course with the most stringent precautions. In two other cases however, which I have had to deal with, I have not been so lucky in the after consequences. The symptoms in these two cases were similar to those given in my first case, except, that in one a severe sore throat supervened. After one of these cases I had scarlet fever in child (fatal) and septicaemia in subsequent puerpera the source of infection being only too evident. In the infected puerpera (2 out of 14 confinements)

no symptoms of Scarlet fever are spoken of in my notes, they are simply tabled as septicaemia due to this fever. After the other case 3 women were laid down out of 4 confinements, and only one Scarlet fever symptom is noted + that in only one of the 3 women. This was rash with desquamation during convalescence.

Looking back at the cases that have occurred to me where a puerperum has been attacked with this grave febrile disease after contact with scarlet fever infection + bearing in mind the disadvantages under which the woman has to meet that infection I believe that in its intimate nature the disease is a combination of the zymotic disease + puerperal septicaemia. That it is modified Scarlet fever is undoubted, but then according to the above view the very essence of the modification is the presence of the septic poison however originated. That there is an element of Scarlet fever in these cases is shown by the presence in many of them of the characteristic rash, in some of the sore throat or other scarlatinal symptom + by their power of producing this disease in other persons. That there is a sep-

ticaemic element is shown by the occurrence of the same set of symptoms are as met with in this disease, when it owns another causation. & by its producing septic disease in other puerpera. It is much easier to prove the scarlatinal element simply because its symptoms are much more characteristic than those of septicaemia. Still the occurrence of symptoms which so many agree are undistinguishable from those of Septicaemia &, at a later period, in some cases, of the very characteristic ones of Pyaemia are sufficient to warrant us in calling the disease a septo-zymotic puerperal fever. That most of such cases are accompanied by local manifestations of disease in the neighbourhood of the uterus points to the latter as the field in which, most likely, the septic poison is elaborated. That the specific zymotic organism has the power of originating the septic poison by working in this peculiarly adapted field is borne out by what has already been said about septicaemia, by the case quoted from Dr B. Yeo & by analogy with what occurs in surgical scarlet fever, where the latter vitiates the discharge from the wounds. The phenomena of ulcer-

* Of the 3 cases that have occurred to me where Scarlet Fever infection was traced to be the cause of puerperal fever, only one had ~~not~~ previously had the Zymotic disease, and, in this case one of the symptoms of the post partum fever was sore throat. The fact that this woman had had the specific fever is no proof that the post partum fever did not arise from the Zymotic virus. Seeing that it is an oft recorded observation, that, in houses where Scarlet fever exists, other members of the family, who have had the disease, are often attacked with sore-throat &c which must be the disease in an aborted form. And again there are cases on record where Scarlet fever has attacked the same person twice in its usual form.

ative endocarditis which lead up to pyaemic symptoms may also be mentioned in this connection. When we look at the different results which follow the contact of the puerperal woman with zymotic infection the interesting point arises — why in one case the result is ordinary Scarlet fever, while in another it is this septo-zymotic fever? An important & undoubtedly determining factor in this connection is the exact time as regards delivery when the specific poison entered the woman's system. If the poison were present in the blood prior to the commencement of parturition it would likely bring on that process — thus explaining the short incubation period — and it would be well situated to vitiate the discharge at an early period of the case, before in fact the closing of the fresh absorptive wounds was completed, & such an accident would likely result in a septo-zymotic case. & so virulent. If on the other hand the contagium entered the blood later on, when the channels of absorption were closed to the vitiated discharge, then no septic element would be present and so ordinary scarlet fever would result. *

In regard to the relation between erysipelas puerperal septicaemia, we must admit at the outset that it is very close, so close in fact, that many look upon the poison in the two diseases as identical, and not without some reason. In the first place, it is an established fact that the diffuse or low forms of inflammation such as phlebitis & peritonitis can cause erysipelas and be caused by it. In the British Medical Journal for August 29, 85 a series of cases is reported in support of this. A servant girl was attacked by erysipelas of the face. In the same house, 5 weeks later, a woman, aged 18, a virgin, contracted peritonitis & died in 36 hours. Shortly after this a brother of the last patient had an attack of erysipelas of the arm, and 2 weeks later a second sister, also a virgin, & aged 20, died also of peritonitis in less than 2 days. In the peritoneal cases the post-mortem failed to reveal any local cause for the affections. and the appearances found were identical with those found after puerperal peritonitis. These cases support the idea of the interchangeability of these two classes of dis-

ease in non puerpera, in fact in virgins, & bearing in mind the predisposition of the lying in woman, it is safe to assume that the same may occur with her. This however needs no assumption as the occurrence has been noticed in practice. Those who look upon erysipelas as merely a skin disease & minutely detail its cutaneous manifestations fail to appreciate the true nature of the disease. The skin inflammation is in fact altogether absent in some cases, during hospital epidemics, while the identity of the symptoms (General) with those in the surrounding cases proves the disease to be erysipelas. Looked at in proximity to the class of specific infectious fevers erysipelas also shows marked signs of difference. While the former nearly always exhaust themselves by one attack, we find, that the latter does the very opposite, it in fact, selects those who have already had the disease for future attacks. When again, we look at erysipelas along with the class of septic diseases, we will at once see a very close connection between them. These septic affections result from the in-

troduction into the circulation of the septic poison and this may originate in ordinary putrefaction or in infective inflammation. They arise under circumstances favouring the development of septic influences. Erysipelas also arises under like conditions although it is often met with independent of them. From this fact as to prevalence & from the many similarities of the two conditions, some surgeons class Erysipelas with Septicaemia Pyaemia &c under the genus Septic Disease. If we admit erysipelas as one of this class we must remember that although the poison of Pyaemia & Septicaemia seems to be identical, that of erysipelas is different, specific in so far that it seems to be generated under special septic influences although the method of production is similar. This is proved by the fact that in hospitals one class will prevail at one time & another at another. They do not run into each other & are not interchangeable. My experience of the effect of erysipelas in the puerperal woman is limited to two cases. In the first, the usual septic fever resulted without any cutaneous manifestations of ery-

sipelas. The infection was traced to a neighbouring house where a woman had erysipelas of the head and between the two women there was intercommunication. The lying in woman took ill on the 3d & died on the 10th day. The peritoneal symp being very pronounced. I did not attend any confinements for some time afterwards & had no evidence of the infectiousness of this case. I have seen another case where phlegmonous erysipelas of the leg coexisted with the puerperium & led to no bad result. The erysipelas continued during recovery and after it and followed its usual course, without any uterine symptoms. Instances such as this, which have been from time to time recorded, rather negative the idea that the poison of erysipelas is identical with that of puerperal septicaemia. We can hardly admit this identity & at the same time believe that the common poison is present in the woman's system without setting up the puerperal septicaemia. I incline to the opinion that erysipelas occupies much the same position in relation to the post partum fevers as the other septic diseases.

IV

The next division of our subject deals with the septic poisons as the originating cause of post partum fevers, to the exclusion of those cases where the initatory phenomena were due to some other cause where septicaemia only developed at a later period. The particular class of cases here indicated have already been spoken of.
Septicaemia roughly speaking is the outcome of putrid absorption. But in these days of bacteriological research such a definition is quite inadequate. The word septic means literally putrefactive, but it is well known that we may have septicaemia without any putrefation. There are in fact two forms of this disease, the one due to the introduction into the blood of a chemical toxa, resulting from ordinary putrefaction, the other, due to the introduction of a micro-parasite. The two varieties show important differences. In the first the virulence of the resulting disease depends on the amount of the poison taken into the system, the blood and tissues of the infected person do not possess any infective power during life or immediately after death, and lastly the

effects of the poison begin immediately on its introduction. In the 2nd variety, on the other hand, the smallest quantity of the virus produces a like effect with the largest, the blood and tissues are infective, and there is a period of incubation before the symptoms commence. In the first disease the poison cannot live, far less multiply in the blood, it is simply a chemical product. In the second, on the other hand, it can, not only live, but multiply and produce organisms like itself. That both these varieties of septicaemia occur in puerperal women the results of midwifery practice amply prove. The first class would coincide with what Dr Duncan has called saprae-mia. When absorption of putrid matter is going on from the uterus it has been noticed that stoppage of the supply is at once, or very soon, followed by dis-appearance of the existing symptoms. On the other hand when true septicaemia, or what Dr B. Sanderson calls specific septichaemia, has once begun it will run its course in

spite of uterine washings to prevent further absorption. The mere admission that such a disease, as this specific septicaemia, occurs in puerpera may appear at first sight a virtual belief in a specific puerperal fever. But such is not the case, this specific blood poisoning not being peculiar to lying in women, but occurring as a form of septicaemia in ordinary surgical practice. I quote from Erichsen's Surgery Vol I Page 680. "When, as is undoubtedly frequently the case, the poison giving rise to the disease (Septicaemia) is something specific it is carried from one patient to another, either by the atmosphere which has become impure, or by dirty instruments &c"

There can be no doubt that the vast majority of post partum fevers are cases of puerperal septicaemia wholly or partially. If some other influence has originated the fever there is great danger of a septic element being engendered, unless a rapid cure be effected. In surgical practice in hospitals one half of all deaths after oper-

ations are due to this disease. The blood is loaded with effete material and only a small wound need exist, if the patients discharges are unhealthy, to set the fire ablaze. If a simple wound be too accurately closed up, so as to imprison the exudation, fever soon shows itself, and passes into septicaemia if the conditions are favourable. Applying these surgical considerations to our class of patients, it needs little thought to convince us that the puerperal state is eminently fitted for the production of septicaemia in either of its forms. According to the views of Dr Burdon Sanderson already quoted the two necessary factors are inflammatory exudation, or devitalized tissue, or stagnant organic matter on the one hand, and bacteria on the other. The latter working in the former elaborate the septic poison which then only requires a wound of recent date - an unsealed wound - to give it access to the system, there to produce the dire results with which we are only too familiar. That we have, in even a normal labour,

bruising of the vagina & cervix, and as a result devitalized tissue & subsequent exudation goes without saying. That in many cases we have note serious injury, such as laceration is also evident. That at least part of this cultivating field is exposed to the contact of air, and that bacteria abound in the air are all facts beyond dispute. The exact conditions are present as in a case of artificial cultivation, and the result is the same, the septic poison is generated, it finds its way into the circulation, and symptoms follow just as when the artificially grown poison is injected with the experimenters syringe. These symptoms are fever, shivering, gastro-intestinal irritation &c The mode of development of the poison may be somewhat varied, the nidus is the same - a bruised wounding tract, or stagnant organic matter, in utero - but the bacteria come, not from the outer air, but from the intestinal canal, as we have seen they can in peritonitis produced by an irritant, and the results

are the same. These cases are called by some autogenetic; but they are only so in so far as the virus is concerned, the bacteria being introduced from without, either directly or by way of the rectum. We have seen that in the healthy blood these organisms find no living resting place; but that in this fluid, in diseased states of the system, they can live: so that, if the latter condition exists, they may even reach the wounds in this way — through the circulation.

But there are other cases where the septic poison is wholly generated outside the woman's system, and is introduced by various agencies which need not be detailed here. The poison may come from some surgical ailment. I have seen a case where no doubt existed but that the virus came from a whitlow, an inflammation by the way, in which the erysipelatous features are well marked. The septic poison again may proceed from the dead body, or from a drain, and in many cases it comes direct from a pre-existing case of puerperal septicaemia.

There is an important point which may be noted here and which supports the idea that there is something specific about puerperal septicaemia as compared with ordinary surgical septicaemia. It is that the danger of carrying infection from the former to a lying in woman is very much greater than in the case of the latter. A medical man may be in attendance on a surgical case of a septic nature, and may, with very ordinary precautions, go on attending confinements without fear of the latter becoming complicated. Of puerperal Septicaemia no one would be justified in believing a similar absence of danger. All experience goes in fact to support an opposite conclusion. Does this furnish any evidence that the poison in puerperal Septicaemia is a more highly developed product, as regards contagion, than that of ordinary septicaemia. Has the passage of the poison through the system of the puerperum converted it into a more dangerous virus. It would almost seem so. When one woman in childbed is infected from a

previous case of puerperal septicaemia, and when another is infected from some ordinary surgical septic disease, is the infecting agent identical in the two cases? We have seen, that, although erysipelas & Septicaemia are by some classed as in the same genus, they are still distinct species with different poisons or organisms. Now the poisons of these diseases may take on, in the body of the puerperal woman, a higher grade of development, attended by more virulent infective power. In this connection we may notice the experiments of Doleris, carried on, under the eye of Pasteur, with the view of determining whether or not there is a specific organism at the bottom of puerperal septicaemia. He has been led to believe that there is a special organism, of an anaerobic character, seldom met with at the vulva, often higher up, never in healthy lochia, always in foetid, and disseminated through the whole body where death has resulted from puerperal septicaemia. The researches of Ferrari & Masini put this organism as a vesicular body

constantly found in the blood of patients with this disease. The latter however believes that this organism is not peculiar to this affection, and with this Chauvaux agrees. The latter has succeeding in producing Septicaemia in rabbits, by inoculation from a human puerperal case, but the extraordinary thing is, that the same result was attained whether the rabbit was pregnant or non pregnant, male or female, young or old. He also found that in 3 animals that recovered from the induced disease, it was impossible to bring on a second attack. That this protection holds good in the human subject does not at present appear to be the case, unless, as some assert, the instances in which a woman has undergone more than one attack are to be explained by saying that she has been the subject, not of two ouselts of the same fever, but of one each of two different kinds.

So much for the actual existence of these organisms. We have spoken incidentally of the transformation of one poison or virus

* Quoted in the B. M. Journal July 19. 84 & G. F. Dowdeswell in his experimental researches into contagia.

into another. Is there any evidence in support of such a change being possible, or?

* Dr Hans Buchner's experiments are on record, showing how the harmless hay bacillus can be transformed into the virulent anthrax bacillus, with however an admitted contamination in the cultivation. The wonderful series of inoculation experiments, undertaken by Pasteur with the view of procuring a mild virus whereby protection from some dangerous disease might be obtained, is also in favour of a mutability, if not of these organisms morphologically, at least of their virulence. These are a few results of experimental inquiry into the intimate nature of the poison of puerperal septicaemia. It is the general opinion of the German school of thought that this disease is simply surgical septicaemia, occurring in the puerperal woman, and, from what I have seen of the disease, I am inclined to agree with this opinion, subject to the proviso that some process of transformation of the virus occurs in the lying in woman's sys-

tem, whereby its contagious power is enhanced. We have already said that several different affections enter into the class of septic disease and, that although the poison in each seems to be generated by similar methods, it is not identical in the several species. From these considerations, and from the fact of our including Erysipelas in the septic group, we would prefer employing the generic name of Puerperal Septic Diseases, in preference to the more limited one of Puerperal Septicaemia. The former would include all forms of septic disease occurring in the puerperium such as Septicaemia, Pyaemia, Erysipelas &c, Each of these again would admit of subdivision according to the nature of the case or its originating cause. Thus under the first head we would have Saprasemia, & Specific septicaemia. in either case the exact cause may be discovered in Emanations from a foul drain, from a foul wound &c While however this German method of simplifying this complicated subject has found

many supporters, There are still many authorities who believe that puerperal septicaemia bears, on the face of it, characteristics of a different kind from what we find in simple surgical septicaemia. They in fact see something specific about it, and believe that the organism which causes it is also specific. So far as experimental research has gone it has failed to produce this specific organism, at least it has failed to produce an organism found in this disease & no other. The fact that Chauveau's experiments caused the disease in rabbits, not only non-pregnant, but of the male sex: the fact that a disease identical with puerperal septicaemia has resulted from the injection of erysipelas in a virgin: & the further fact that operations performed on the unimpregnated uterus have set up a fatal disease indistinguishable from this same septicaemia, all militate against the specific idea. These last cases may be explained on the supposition that the

operator carried the specific poison to the woman on whom the operation was performed, but this again involves the belief & admission that the special organism can act similarly and as powerfully in the non-puerperium as in the puerperium. an admission which negatives the idea of the poison being a specific puerperal organism at any rate. The fact again that so many different poisons have the power of setting up puerperal septicaemia is not in favour of the latter having anything specific in its nature. The malignant variety of the disease met with in hospital epidemics & to which many writers ascribe a specific character is not, to my mind, different from the ordinary sporadic case, at least in its intimate nature. Extreme malignancy is one of the main features in these epidemics; but this is quite in keeping with what we find during epidemics of all septic diseases. If we admit that the erysipelas of ordinary practice is the same disease as the erysipelas that attacks the

majority of the wounded at certain times during a great war, we must also allow that ordinary sporadic puerperal septicaemia is the same as the more virulent epidemic variety.

We have seen that puerperal septicaemia may arise solely or partially from conditions present in the woman's system, that is, that the poison may find the essentials for its development entirely within her own body, and also that the poison may be brought to her in an already developed state. Under the latter head we noticed that the poison entered the system through the damaged tissue of the uterovaginal tract. We must now ask, can the formed septic virus be inhaled with the atmosphere, & cause puerperal septicaemia? can infection in fact take place minus a wound? One of the propositions laid down in the theory which finds support in Germany is, that the septic poison is never absorbed through the intact skin, or mucous membrane, or through the lungs or intestinal canal. Another proposition is that it is not

even likely to be carried to the wound by the atmosphere, direct application being, according to this theory, necessary. The words of Schroeder are "that there is no cogent reason for assuming that the atmosphere can carry the virus." Taking the case of erysipelas, which we have admitted to the septic group, and which Schroeder says is the same state as puerperal septicaemia, it is an undoubted fact that its virus can enter the system without a wound. In the first place this fact has been noticed in practice, the instance given at an earlier part of this paper, where erysipelas caused fatal peritonitis in two virgins, is a case in point. In general practice many cases are met with where no known wound of entrance existed for the virus. In the 2nd place the constitutional symptoms often precede the local manifestations. The latter in fact may be entirely absent. and 3dly antiseptics have less effect in preventing this form of septic poisoning than the others. Such being the case with erysipelas we may take it as quite possible that

+ Lancet May 7. 1898.

the same may result in septicaemia, It is generally admitted that the dissection poison does not require a wound in order to enter the system. It may gain an entrance at the hair follicles, or at the roots of the nails, and further, we know that contact with a body dead of septic disease may produce serious results without the existence of a wound in the sufferer. In ordinary surgical septicaemia it is generally admitted by surgeons that the septic poison may not only reach the wound through the agency of the air; but that it may even be inhaled & affect the wound by reaching it through the blood. In a late series of experiments conducted for Mr Lister by Mr Cheyne + to explain the presence of bacteria, under thoroughly antiseptic dressings, the latter came to the conclusion, that, in certain weakened states of the system, they may reach the wound by the roundabout way of the blood. Now if we admit as much for bacteria we can hardly refuse a similar admission for the septic poison, especially when we remember that the

former are not only concerned in the elaboration of the latter, but are probably its carriers when elaborated. This indirect mode of infecting the puerperal woman must almost in fact be admitted before we can explain what we see in practice during a series of cases of puerperal septicaemia. It is well known that in many such series it is only possible to stop the onward march of infection, in a midwifery practice, by giving up work ~~at~~ altogether. In my own case the most stringent measures of antisepticism have failed, parts of the body brought into contact with the woman have been subjected to powerful antiseptics of many kinds, the whole body has undergone a carbolic bath, and still bad recoveries occurred. Cases have been attended during the existence of such infection, where no examination was ever made per vaginam * Still the woman was infected. The clothes have been subjected first to chlorine vapour, and then to that of iodine, a fresh suit has been used, fresh down to the usual-

+ This occurred in 1880. I attended the last of a series of Septic cases on January 25th. I then ceased work until March 3d and my very first case was infected as before. I again left off work until April 13th when all went well.

lest detail and still the infective power was potent. Attendance was given up for weeks and in as aseptic a state as could be ~~contrived~~ contrived another delivery resulted in another septicaemia and necessitated another stoppage of work.† During all this trouble no similar cases occur with other practitioners in the same district, and a younger brother who took my work was successful with every case. Here surely is sufficient evidence in support of this being a contagious disease. Those who explain such occurrences, as are above detailed, by referring them to epidemic influences cannot surely maintain that this influence *could show itself only in the practice of one man.

Further some of the incidents support the belief that the septic virus may be carried by the air to the wound and further that it may even enter the system without such a wound at all. In cases where no contact occurred between the hands of the medical man and the woman's vagina, and where infection resulted all the same, it is plain

that we must, either admit infection by one of these methods, or say that the case was one not dependent on the previous cases at all, one in fact which was going to come at any rate. When the following occurs in practice I think we are justified in believing that contagion can be carried to the woman in the ways indicated. A medical man, being in close attendance on a suppurating knee joint, finds that 3 cases of confinements, occurring at the time, make bad recoveries. As great care was taken in the 3d case to thoroughly disinfect the hands &c. suspicion fell on the clothes as being the septic carrier. In a 4th case the medical man attended only to give chloroform while another delivered with forceps, but sharp septicaemia ensued. In the 5th case the clothes were changed and the recovery was normal. Now here the septic virus must either have passed from the clothes to the atmosphere and then to the wound, or to the atmosphere and then become inhaled & set up the septicaemia, the

† Since writing this I have become aware that this mode of infection is at the present time upheld by some, and my own experience leads me to believe in its occurrence.

latter being in my opinion fully as probable as the former. I am putting aside, as improbable, the opinion that the 4th case had no causal relation to the 3 preceding ones. I have heard it said that there was a belief prevalent at one time, that the virus, with which we are dealing, had even a more subtle mode of getting at the puerperal woman, than any above indicated. This was, that it could actually be carried about within the medical man's own system, and be breathed out by him on his patients. + I have no remark to make upon this belief, further than that many medical men have by experience arrived at the conclusion that the contagion of this disease is sometimes so subtle & so tenacious as to elude the most drastic treatment of their exterior, and to succumb only to the purifying influences of time. I have more than once found myself unable to make myself safe to be brought into contact with a lying in woman, and with such an experience it sounds strange to hear others stating

that they have had no trouble with contagion in those diseases. I am afraid those who speak so mildly of this infectivity have yet to come across one of the virulent cases. During 6 months midwifery work in the north of England, I thought nothing of this matter, I had never had a case of septicaemia & I feared no ill. I have since had long intervals of the same happy immunity, which have almost succeeded in making me forget the anxious times when infection was rife; but every hurried summons to a puerperum on the 3d or 4th day recalls my attention to them. I dont mean for a moment that every case of febrile attack gave rise to contagion, far less to this tenacious form of it. In many cases, likely to be producers of infection, I have had no trouble; but I have entirely failed to discover any characters, in a particular case, which would enable us to prophesy a series of infected cases or the reverse. Some writers say that only those cases owning a zymotic causation are infectious or at least very infectious. This has not been my experience.

Treatment.

Coming to the treatment of post partum fevers, only a short and general consideration of it will be given. When we know the broad highway on which we ought to proceed, when we have a clear appreciation of the results to which we wish to attain, we have achieved half the cure, and can suit our means to our ends. We must further consider the treatment not as a mere matter of therapeutics, into which the various powers of the various drugs enter as so many competing agents; but more as a matter of management directed towards the prevention, & if that be beyond our power, at least to the lessening of the danger from, the many baneful agents to which, we have seen, the puerperal woman is exposed.

Looking back at what has already been written, we take it that the great and constant factor pervading the whole subject is the peculiar & remarkable condition of our patients. In dealing with the treatment of the puerperal fevers in its widest sense this local & constitutional peculiarity of the women

must be kept as prominently in view as in dealing with any other division of the subject. We must ever bear in mind the peculiar openness of the system to deleterious influences, and the suitable field offered by that system for their development when introduced, or even for their origination entirely within the system itself. With a due appreciation of these important points we must try to enable our patient to run the gauntlet of the many dangers before specified. We must make her strong + the deleterious agents weak in order to give her the best chance of a good recovery. We consider the Treatment under two heads

1 Prophylactic. T
2 Curative.

The first begins at a time prior even to the act of parturition. In many cases we are not so situated as to influence the case thus early; but if we should be a careful consideration ought to be given to the patients surroundings as well as to her personal health. a recent royal instance showed the importance of the former point.

Any bad hygienic conditions must be removed or the woman removed from them. The general health must be maintained at as high a standard as possible by the administration of proper & abundant nutriment, mere underfeeding being put by some as a cause of febrile onset (Braily Hewitt). The woman again must be shielded from nervous influences & where these already exist they must be mitigated to the utmost of our power. We have seen in speaking of puerpera who had good recoveries that a strained condition of the nervous system was able to raise the bodily heat, and we may also just allude here to the effect which this also has on uterine contraction.

A great amount of care must be bestowed on our own persons to keep them in a state in which they may be brought into contact with our patient without danger to her. There can be no doubt, that, if all the cases that occur in a given time were tabulated as to causation, the medical attendant would have to account for the

majority. and these would be mainly cases in which the infection was carried from a previous one of puerperal septicaemia. It is in this part of our subject that antiseptics play such an important part. Rigid cleanliness combined with the free use of antiseptics can do much to render our manual contact with a puerperal woman safe during times when we are in attendance on a seemingly contagious childbed, but this can not do all. Abstention from vaginal examination whenever possible can also effect much, but not all. Even with more drastic precautions it is possible to carry the contagion, when the only resort open to us is to give up our engagements. by placing them in the hands of a freshman; when the very first case will prove not only the contagiousness of this disease, but also the success of this strict measure of prophylaxis. My experience has shown me the impossibility, with our present knowledge, of putting our fingen on that case or this saying that it is or is not infectious.

The mere fact whether or not the case originated from a zymotic disease is totally inadequate to settle this question. I have before stated that cases have occurred to me, that subsequent labours have proved to be infectious, cases in fact, which, so far as could be made out, owned an inflammatory origin. I have sometimes observed that in a series of these infected cases a mild one, with characters indistinguishable from a simple inflammatory case, would turn up just before or just after a very sharp septicaemia. Looking at this mild case occurring in such close relation to the other severe ones it would be hardly safe to assume its non contagious character. The best and only safe rule is to look upon all cases, whatever their virulence or etiology, as possibly infectious, & to use precautions accordingly. We must use antiseptics at every confinement, and use them in sufficiently strong solution to be effectual. The little vial of carbolic acid, from which a few drops are poured into a basin full of water, is an

adhesion merely to the letter and not to the spirit of this form of treatment. I have tried all forms of antiseptics and place most reliance on carbolic acid, in a 1 to 20 solution for the hands, used with a nail brush, and carbolic oil for the examining fingers. Fumigation of the clothes &c is most successfully done with iodine vapour generated by heating the drug in a saucer. The use of a finger stall, or a tissue glove, and of a coat kept specially for accouchements, are plans to avert infection I have tried with seeming success. Except in cases where I am called in suddenly I never always make preparations. I thoroughly clean my hands with antiseptic water & put on clothes kept for the purpose - that suit never appears at any cases of abnormal recovery and is regularly fumigated. If I have any suspicious cases on hand I always use a finger stall which is kept in permanganate of potash solution. I wash my hands in a freshly made carbolic solution before and after each examination & keep the examining

hand soaked with carbolic oil. I make as few digital examinations as possible during labour & keep the labia in a cleanly state by antiseptic washing, and I avoid contact, if at all possible, after the child is born. All this means a good deal of trouble, trouble however which has been amply rewarded in my practice - for I have not had a case of bad pyrexia for 3 years. We have seen, how, the more the maternal bruising & laceration, the more inroads & breeding grounds are established for the septic organisms. We have seen that even in the normal puerperium deep laceration is followed by a rise in temperature. We must therefore minimise these conditions as far as lies in our power by a judicious use and avoidance of the aids to delivery which we possess. The birth of the child being accomplished we come to what is undoubtedly the pons asinorum of normal parturition. While in the vast majority of cases, the child can be born as safely & as certainly without our active aid as with it, this I fear cannot be said of the placenta. The rule in my

+ a condition of tonic contraction is more
usual than relaxation.

practice is not for the secundines to be expelled by the two or three pains succeeding delivery, but rather for help in the way of expression to be called for. Very many plans are advocated for conducting this 3rd stage and under names too such as Credè's method, & the Dublin method which are pretty much distinctions without a difference. We may dismiss the expectant method as being impracticable & unsafe. While the child is being born it is good practice to follow down the uterus in its contraction & I consider that after the birth the medical attendant is better engaged attending to the state of that organ, than in tying the cord an operation which can be safely delegated to the nurse. The woman should now be turned on her back. In this position a more correct appreciation of the size & position of the uterus can be obtained, a better grasp of it can be got & the direction in which we wish to press can be better gauged. With the hand on the womb, it is usually the case, that, after a short period of firm contraction, that organ is felt to become somewhat relaxed &

This condition should be allowed to exist, the hand merely supporting the organ. Any attempt to excite clonic contraction at this particular period, is, in my opinion, a fertile source of irregular uterine action + consequent retention, and shows a want of appreciation of the laborious work which the uterine muscle has just been engaged in, a work which it seems to be nature's intention to follow by a short period of repose. Whenever, however, the hand detects the commencement of a self originating contraction in the organ we should, by grasping it in our hand, help to expel the placenta by pressing downward in the axis firstly of the brim then of the outlet. In this way the secundines are forced, in most cases, into the vagina, from which removal is easy. If the above proceedings however prove futile, say in from 20 minutes to half an hour 3 different conditions may be present and prevent expulsion. If, by introducing the fore finger, we can reach the insertion of the cord, if the latter be distended with blood, and if the uterus be of an evenly round shape

we may infer that the completion of this stage of labour is due to a closing of the os to a size which prevents a probably large & distended placenta from getting out. In such a case we should cut the cord to promote bleeding & thus reduce the size of the placenta, then with firm pressure by left hand on the womb, & by widening the os with the right hand fingers, delivery is usually effected. If again, the shape of the uterus is irregular, usually elongated, & if we cannot feel the cord's insertion, & if there has been the usual discharge on the completion of the second stage, we may infer that the condition is one of retention from irregular uterine contraction. Here the hand must be introduced carefully beyond the placenta & the latter pushed out. If lastly we cannot feel the insertion of cord, & if no discharge has so far come away, we may fear adhesion & act accordingly. After the completion of the 3d stage the walls of the vagina fall together & it becomes pretty much a closed passage. Remembering this, we should avoid doing anything likely to further the entrance

† Lancet Sept 2. 1882.

of air into it. Washing out the vagina is not commendable & carries some amount of risk with it — the risk of introducing something worse than what we seek to remove. Lacerations should be treated with carbolic oil, & the edges of wounds brought into close apposition. Dr Sloan of Glasgow sometime ago advocated a principle of antiseptic prophylaxis involving the introduction of Eucalyptus pessaries up to the os, to keep the lochia sweet, or where it is already foul to lessen its baneful influences*. These I know have great power in sweetening a bad lochia, and, although it is not advisable to use them in all cases, for the same reason that vaginal injections are objected to, they are of value where, as after instrumental delivery, the discharge has a tendency to be foul. They should then be used after labour & continued night & morning. The application of the antiseptic napkin & the binder, with large pad under it, completes the case for the time. It is believed by some that the binder is merely a relic of the past and ought to be done away with. This I am

sure is an erroneous opinion, apart from the comfort the binder gives to the woman and the consequent difficulty, I had almost said impossibility, there would be in persuading the British matrons to give it up. I can hardly imagine an easier or more effectual method of promoting good uterine contraction, and supporting the organ during involution. The further care of the case lies mainly with the nurse whose recent nursing history ought to be inquired into, so as to exclude her as a mischief carrier. I had lately to put my veto on a woman who came to a patient of mine straight from a puerperal pyrexia. My midwifery practice is conducted on strictly teetotal principles, with morning & evening labial antiseptic washings, & aseptic cloths. In those days, when we find so many of the old ideas of disease causation vanishing before the germ revelations of the microscope, it is not surprising, that, in the diseases with which we are dealing, chill should be put down as a minimum quantity as regards Etiology; but here I fancy modern

opinion is tending towards extremes. I have seen many cases where chill was the cause of those ailments as shown by 1- the early period after delivery when the symptoms began this excluding self empoisonment. 2- The pain & other symptoms preceding the foulness of the lochia. I am quite aware that the lochia may be sweet and still septic organisms be forming & setting up the fever; but- I take it that this is more a fact taken from the laboratory of the experimentalist, than from the case book of the clinical physician. Although, in the majority of cases, the foetid lochia precedes and is the cause of the fever, I have had instances where the feverishness antedated the putrescence of that discharge & seemed in fact to be the cause of it. In the 3- plan I believe that the temperature at the onset of a case due chill is not nearly so high as when septic absorption is the cause. and lastly, the cases of which we are speaking occurred under circumstances which appeared to exclude heteros-infection. We ought in all cases to protect our patients

from draughts &c as not only a likely direct cause of those fevers, but as being often the exciting cause where predisposition exists. We have seen that one of the most fruitful sources of the septic poisons is stagnation or retention of organic matter in utero-vaginal tract. This must be kept moving on by uterine excitation by 1st kneading the organ. 2nd by firm pad under the bandage & 3d by ergot internally. A practice which has been adopted for some time, seems to do good in preventing lodgement, is allowing the woman to sit up a part of each day after the first. What has been said so far mainly refers to the prophylaxis of so called auto-infection. As regards hetero-infection it may be noted that a pathology always brings a treatment in its train, so that, we find that as a wider adherence is being given to the septicaemic theory of the post partum fevers, so the onward march of puerperal antiseptics is more rapid. The more sanguine of the septic theorists have even predicted the stamping out of puerperal fever

altogether through the agency of antiseptics.
An attempt at Listerism during and after
delivery has been tried in Germany, and something
of the same has been practised in the British
Lying-in hospital + Dr Barnes tells us, that not
only the mortality but the morbility is de-
creasing each year, I once attended an unpro-
tected woman who was confined in an adjoin-
ing bed to one which contained 3 sharp scar-
let fever cases, and where an attempt at Lis-
terism was tried. and although all through
the first seven days close communication ex-
isted between the members of the family no
bad results followed. I believe that an
antiseptic naso-oral respirator played an
important part in shielding the woman
from danger. So far, results from the use
of partial Listerism have been encouraging,
and give some hope, that in the future such
completeness in the process may be reached
as shall clear the field of most of the
septicaemic cases and leave behind a
very diminutive list indeed.

When our prophylactic measures have failed the curative treatment begins. When we are actually brought face to face with one of those fevers we try, firstly, to destroy or remove the influence to which the disease is due, and, if this be beyond our power, we simply manage the patient through the illness. Taking the simple inflammatory fever first, the treatment must suit itself to the character of the symptoms & to the constitution of the patient. My experience has taught me that in nearly all cases active antiphlogistic measures are demanded. When the disease begins with acute uterine pain & tenderness when the pulse is fast & incompressible & when the constitution is robust, or rather unless it is very feeble, free leeching always does good. Early treatment is here of the most supreme importance, not only so as to succeed in checking the inflammatory action, but to check it before it gives rise to symptoms of a different & more dangerous nature. After or with leeching aconite has seemed to me the most useful remedy; but it is imperative that the

drug should be given at an early stage of the case. I once had a severe case of this disease where 14 minim doses of Tinct. aconite were given by mistake, where the pulse became extraordinarily fast and the woman just escaped being poisoned, but the inflammation was cured in a remarkable manner. The aconite should be given in moderate doses at short intervals till it slows the pulse. A dangerously large dose quickens the heart's action. For the pain & sleeplessness there is no prescription equal to Belladonna & Opium. Half a grain of the former, 1 grain of the latter, with 3grs of Hyd. c creta, in pill every 4 hours, till the throat becomes dry, exhilarating delirium supervenes & the woman says she is comfortable. Turpentine stuping is the best form of counter irritation although in peritoneal cases I favour blistering. To promote the flow of the lochia ergot should be given and the uterus kneaded frequently. Those inflammations tend to dry up the discharge at an early period of their progress, and unless they are cured quickly they are apt

to pass into the septic group. If the lochia is absolutely nil permanganate of potash (which is so much in vogue for Amenorrhoea) in grain doses every 4 hours sometimes reestablishes the flow. When I mention turpentine in yolk of egg with peppermint for the tympanites, I have named the remedies which I have found of most value.

In dealing with the septic cases it is necessary to make a broad distinction between the two forms of septicaemia. If the case be one of absorption merely of the chemical noxa of putridity we make a bold attempt at a cure, in the true sense of the word. The condition is one in which owing to retention of organic matter, putrefaction ensues, sepsin is formed, & passes into the circulation. This sepsin sets up fever, but, as it is soon destroyed by the colytic action of the blood, it is evident that the fever will quickly subside if we can stop further absorption. These are the cases where, if ergot & uterine expression fail, we must wash out the womb with antiseptics.

*Mrs Beattie a primipara was confined on the 2nd May 1892. after an easy labour of 9 hours duration. Progress was good until the 3d day when fever commenced, with headache, flushed face, pulse 130, temperature 104° lochia foetid & profuse, pain over uterus but no peritonitis. The womb was kneaded, 3ii liquor ergot were given during the next twelve hours & 12 leaches were applied to abdomen. On the following day there was no improvement. The pulse was 128. temperature 104·4° the lochia was still foul but scantier some clots were expelled & the pain was as before. The uterus was washed out with a Higginson & an elastic catheter until the fluid returned sweet. That night the pulse was ~~104·6°~~ 115. temperature 101·5° headache gone. Next morning pulse 125. temperature 103° when another washing brought them down to 110 & 100°. The operation was repeated on the two following days & recovery was rapid. The woman was convalescent on the 9th day. —

I have tried only carbolic acid in a 1 to 40 solution, and I have never seen any bad results follow either from haemorrhage or absorption. On the contrary I have noted very evident reduction of the fever after such washings. The appended case shows this.*

When these injections fail to bring a satisfactory improvement, and especially if recurrent haemorrhages follow the labour, we may suspect retention of part of the secundines, or that the case belongs to the second variety of Septicaemia. In the former case removal of the retained tissue is indicated, but I have no experience of such an operation.

If however the case is one in which a living reproducing organism has found its way into the blood, it is of a much less manageable character. Here, cure expresses more than we can accomplish, so far as our knowledge at present goes. While, in Sapraemia the lochia is always putrid, in this form of septicaemia it is not necessarily so when it is we are

most likely dealing with a combination of the two kinds. Although we are not able to check the reproduction of the organisms in the blood, we can prevent absorption of more by keeping the uterus & vagina under the influence of antiseptics. I consider then, that whether the lochia be absent, putrid, or normal we should use injections in quantities & frequency apportioned to the apparent needs of the case. Beyond this trying to prevent the case getting further complicated by sapraemia, and doing our utmost to destroy any organisms in the utero-vaginal tract, the treatment of specific septicaemia consists, in attempting to carry the patient through the storm which is brewing in his system. Our endeavours are mainly directed towards keeping up the strength and combating symptoms. The first opens up a wide field for judicious nursing in its widest sense, as seen in the practice of the present day, and as these cases sometimes run on for weeks,

before permanent improvement comes, boundless scope is afforded for the ingenuity & tact of an intelligent attendant. Nutriment, given in accordance with the laws of dietetics, and in the concentrated & predigested forms which are the outcome of modern research in this department of therapeutics, can in many cases support these patients of itself. In some, however, stimulants have to be resorted to, especially in the later stages; but their use ought always to be accompanied by careful & intelligent supervision. Brandy is the form of alcohol which I make use of. One advantage which I have noticed of stimulants as compared with food, is, that while the patients generally loathe the latter & feeding comes almost to a standstill, they not only take but weary for the former. This predilection however is not without its dangers, by leading on to excess at the time, and a persistence of the fondness for the stimulant after the

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*Mrs Young was delivered naturally on Sept^r 5. /81, and kept well till the morning of the 4th day when after a rigor the temperature rose to 104·3° pulse 134, no pain, no milk, lochia foetid & scanty. I kneaded the uterus and ordered Ergot with liquor ammon. acetat. There being no improvement after two days I washed out the uterus twice daily but without benefit. The temperature rose on the 5th day to 106·6° pulse 148 & feeble. The woman was delirious, the lochia was entirely absent, there was no pain except headache & she felt as if blind. Cloths wrung out of iced water were applied to the chest & abdomen, & there being several laid alongside each other they were changed alternately, the head was shaved & cold water poured over it for 10 minutes afterwards. This was kept up for one hour three times daily extended to two hours later on and the effect is best seen on the accompanying chart. The temperature never rose above 104·8 & could at all times be brought down from 2°-3°. The duration of the disease was not apparently shortened.

DISEASE.

Notes of Case.

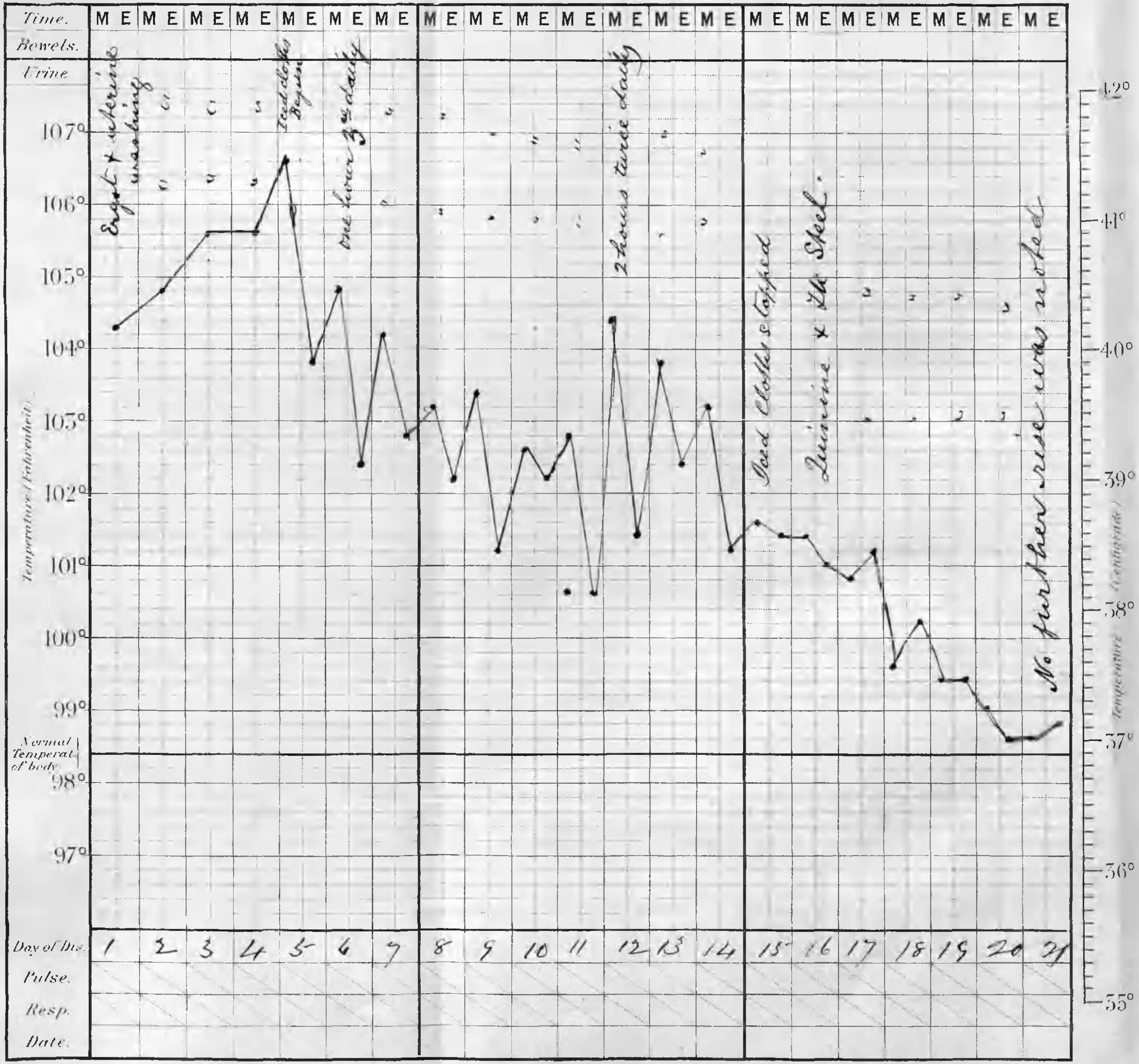
Name { Mrs Young

Age

Diet

Case Book No

The temperature was taken before the application of the cloths in the morning & after their use at night. The rise of $3\frac{4}{5}$° on the 12th day was coincident with an attack of pleurisy,



Date of admission.

Result

Entered at Stationers Hall
Printed and Published by Wodderspoon & Co 7 Serle Street, Lincolns Inn
Gould's Clinical Chart

need for it has gone. It is for the physician to provide against these evils by the most minute & strict directions as to dose & time of continuance of the alcohol. as regards the treatment of symptoms, Diarrhoea seldom requires to be controlled, at least, being undoubtedly one of nature's modes of ridding the system of the poison, we must only interfere with it when this is demanded by dangerous weakness or rather what seems likely to lead to such. The temperature may be so high as to become incompatible with the processes of vitality, although, in my experience, it seldom remains long at such a height in this disease. If quinine & salicylic acid fail to bring down the bodily heat, a cold bath may become necessary. This I have never resorted to; but the appended case is one in which a marked benefit accrued from the use of ice-cloths to the abdomen.* In cases of an intermitting nature, Quinine is very useful, and where cerebral derangement exists the same remark applies to Salicylic acid.

* British Medical Journal
Aug 29. 85 p. 403.

The treatment, so far, has been mainly a treatment of symptoms, without any specific attempt to act on the *fons et origo mali*: the organisms in the system. That we have any power over these does not seem at present very evident. Many years ago the sulphites were credited with a curative power in the specific fevers, but I fancy that credit has loosened rather than increased since then. They were also believed to be antidotes in intermittent fever, but this belief has not been corroborated. I fear then we need not look to these drugs for a specific in Puerperal septicaemia. The latest addition to this department of therapeutics is the ingenious plan of setting one organism to destroy another, a new version of the old saying of setting a thief to catch a thief. Another illustration of the principle of the survival of the fittest. * D'Cantani, it seems, has cured a case of Phthisis by making the patient inhale the Bacterium Termo, the latter destroying the Bacillus Tuberculosis, and he throws out a suggestion that we may manage to discover a non pathogenic

microbe, hostile to and able to destroy the pathogenic one of each individual disease. There are many departments of medicine which are spoken of as being in their infancy, and of these this is an undoubted instance. Lastly Dr Sloan of Glasgow recorded a remarkable case of puerperal pyaemia (in the Lancet Septr. 2. 1882) in which the subcutaneous injection of ol. eucalypti seemed to him to exert a curative influence (of a specific nature) on the disease. I am not however aware of any further Evidence in support of such a conclusion, and I believe, that at the present moment, the best treatment which we can direct against this diseased state of the blood in puerperal septicaemia, is to be found in the old fashioned drug Tinctr. Ferri perchloridi, which stands unrivalled in the treatment of the allied disease Erysipelas.