A Thesis on
Puerperal Fever

by

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A contribution to the study of

Puerperal Fever

– its nature, causation, symptoms and treatment.

In my treatise upon this subject, I do not propose to advance any new & startling theory, either as to its origin or treatment, but simply to formulate in a brief & concise manner my conception of this disease, founding my remarks upon a strict scrutiny of cases which have come before me in actual Midwifery Practice.

During my 4 years of Practice I have encountered 13 well-defined cases of this disease all of which cases I brought to a successful issue, and in this paper I shall endeavor to pourtray the picture of Puerperal Fever, as figured upon my mind's retina, keeping aloof from dogmatizing upon the subject in any shape or form.

Puerperal Fever may be defined as – a name given

to a group of symptoms which result from a peculiar and highly contagious form of Blood Poisoning limited to Parturient women — the word Parturient embracing not only women who have been delivered of a child, but also those who suffer a miscarriage or abortion and including the state of those women, before as well as after ordinary Labour or abortion. It is not a Specific disease, but rather the generic title of a family which has a number of members or offshoots. As some members of any given family, may be robust, and others not so, so Puerperal Fever includes varieties of Disease which are of the greatest virulence, and others which are relatively benign and mild in their course. This Puerperal Blood Poisoning is a highly febrile form of Disease which is accompanied by more or less symptoms of a well defined Local and general character. To produce a case of

Puerperal Blood Poisoning, there must be present in the Puerperal state 3 factors, the absence of any one of which, in my opinion is a complete bar to the occurrence of the Disease.

The 3 factors are

(1) The presence in, & free ingress to the body of Poisonous Germs

(2) A peculiar morbid state of the blood, which enables these germs to live, thrive & multiply, and thus exercise their deleterious influence upon the whole body economy.

(3) Some deficiency in the excretory apparatus of the body - thus not only tending to further increase this morbid state of the blood, but also on account of its persistent though perhaps chronic and latent character, producing in its Possessor a natural Predisposition to this Disease

I wish to emphasize the fact of this Constitutional Predisposition, as I firmly believe that where this does not exist

our Patient cannot possibly get Puerperal Fever, even if Poisonous germs were introduced by the bucketful.

First of all then as to the Poisonous germs which are found in the blood and tissues in Puerperal Fever. They occur in the form of micrococci either in clusters, or in single round bodies. Those that have been found are the Streptococcus Pyogenes - Staphylococcus Pyogenes aureus, albus, and citreus. They are the same micrococci as occur in ordinary Surgical Septicaemia and Pyaemia. They are found in the body in the healthy state also Steffeck found them in the vaginal canal of Pregnant women who had not previously been examined. They are found in simple boils and abscesses, and are common on the skin, in the mouth and other parts of perfectly healthy people. We are surrounded by these micrococci on every hand. It is therefore easy to see how they can gain access to the genital canal - either by themselves, or by being conveyed

by the hands or instruments of the Medical attendant or Nurse.
After Labour, the internal genital parts of a woman resemble a large open wound - like a stump after amputation. Not only can these micrococci gain access to the blood and tissues directly through the placental site, but also through many abrasions of the remaining soft parts of the cervix genital canal, or fornicum which often result from Labour especially in a Primipara.
Once inside the body - they grow multiply, and by exerting their poisonous influence, provided the other factors of the disease are present, they produce what we call the state of Puerperal Blood Poisoning
How they do so, we shall describe presently.
Another class of Poisonous germs, is the class known as Bacteria.
These are the agents of ordinary Putrefaction of organic fluids. They do not live and multiply in the tissues. By producing decomposition

they are the means of their being absorbed into the blood of certain poisonous material. This poisonous material is the cause often, of a certain stage of Blood Poisoning, but since the Bacteria cannot multiply in the blood - the disturbance to which they give rise is in direct ratio to the amount of poisonous material absorbed and is in therefore direct contrast to the action of micrococci

If we remove the decomposition products - no more poisonous material can be absorbed, and the disturbance abruptly ceases. But once micrococci have entered, they have the means of indefinitely prolonging their mischievous influence, provided the state of blood is favourable to their growth, & we have therefore not only to prevent any fresh entrance of micrococci, but also so to act upon the blood, as to destroy the influence of those already there.

We have said the poisonous germs are micrococci & Bacteria

We have seen that micrococci may be in the body even in the healthy state. So also with Bacteria which may be found in ordinary normal healthy Lochial discharge.

Now is it therefore that these germs, which may be present in a normal healthy body, only occasionally exert a poisonous influence upon that body

Under what conditions and during what circumstances do they pursue a vicious course in the Puerperal woman?

The answer to the question, is. that when the blood & tissues are in such a peculiar and morbid state, as to afford these germs a suitable midus for their habitat and growth, it is then, and only then that they are able to exert any baneful influence, and in proportion to the extent of the morbid blood, is their power of producing disease increased or diminished. It is therefore quite as important to thoroughly understand the cause and treatment of this morbid state of the blood, as

it is to circumvent these germs entering it. Some observers have advanced as a reason, why these germs which are or seem to be innocuous in one person, & merely the cause of some trifling ailment such as a furuncle, while in a Puerperal woman they set up the grave disease of Septicaemia – by saying – that there are either different species and varieties of microbes which although not morphologically distinguishable yet differ in virulence that is to say in their power of establishing themselves in the tissues or else that they can be cultivated into virulence in the body. As evidence of this they point to the modification of variola into vaccinia, and the variation in the virulence of contagious diseases in different epidemics. My theory is that the different effects of these microbes, correspond exactly with the different pabulum which they meet with. In one person ordinarily healthy, they find no sufficient pabulum to feed upon and are consequently inert. In

another individual, they find some deficiency, some fault in the blood which just suits their purpose. They thrive upon that state of the blood, and produce different diseases in different individuals, according as the blood of those different individuals possesses different deficiencies. The true nature of most diseases I think, depends not so much upon the distinctive characters of the microbes we find in that disease, as upon the state of blood or tissue which suffices to feed those particular germs. I go further, and think that perhaps certain germs have distinct differential tastes and are attracted to certain organs by the peculiar state of those organs or blood, which perchance they may as it were smell from afar, - certain states of blood & tissues attracting certain organisms and the presence of these organisms being concomitants of the disease and not necessarily the causes of it. This by the way, but it

appears manifest to me that in Puerperal women, these micrococci produce the peculiar & well-defined symptoms of Puerperal blood poisoning, not simply on account of any inherent virtue or vice they possess, but simply because in some Puerperal women, they find just that state of blood which enables them to thrive and multiply, and become transformed from inert masses into actual potent agents of mischief.

As a child's nature may be moulded by circumstances and surroundings, so may micrococci under different circumstances assume different characteristics.

As to the morbid state of the blood - the 2nd factor of this disease

After labour, the natural subsequent involution of the uterus, in gaining its normal size, necessarily throws into the body and blood generally an enormous quantity of effete material. This must be so under the most favourable circumstances

and after the most easy Labour
Especially is it so, when this in-
volution has been preceded by
the great exertions of a first or
protracted Labour. In cases
of animals which have died
suddenly after long and violent
exertion, the blood has been
found to be in a state, very
much more prone to decomposition
than is natural.
Here then we have a similar case.
What exertion could make a
heavier call upon the tissues of
the body than that which ac-
companies Labour, especially in a
Primipara. What more exhaustive
drain upon the vital forces, could
possibly be, than that which
ensues from the natural, but
highly complex and prolonged
act of Parturition! As a
consequence after Labour we
find the blood in an extremely
debilitated condition, drained
of its life giving qualities to the
lowest ebb of impoverishment.
Then into this already poor
state of the blood, comes the rush

of the effete material caused by the subsequent uterine involution The veins of our patient become for a time as if it were a regular sewer, and the tissues thirsty for health giving nutriment, become choked with impure blood It is as giving salt to a thirsty man, or asking for bread, becoming the recipient of a stone.

Now provided the excretory organs - skin, lungs, kidneys liver etc are in a sound state of health, nature re-asserts herself, and this effete material becomes gradually carried away and the blood and tissues recover their firm healthy tone and the Labour ends in an ordinary normal recovery.

But if poisonous germs enter the blood, when it is in that debilitated state, and loaded with effete material, and if again there be some defect in the excretory apparatus so that the impure matter is not rapidly got rid of - we have then poisonous germs

revelling in a foul current - we have the veins of our patient resembling not only a sewer but a closed sewer owing to some serious defect in the outlet drainage pipe. It is now that the germs play their vicious part. The very small amount of oxygen contained in this impoverished blood becomes absorbed by the microbes. They wallow in a miry circulation and by the effect upon the tissues and body generally the symptoms of what we call Puerperal Blood Poisoning must of necessity arise.

The microbes exert their malignant influence upon the body either by producing in this growth some poisonous material which has a baneful effect, or by consuming oxygen required by the tissues, or by forming plugs which block small vessels. Most probably they act in all three ways.

The most important fact is that they do so poison the body of

that they only do so, in virtue of, and solely on account of the peculiar circumstances in which they find themselves placed.

Bacteria on the other hand do not enter the blood & tissues but give rise to a form of Puerperal Blood-poisoning, by being the direct agents of certain products of decomposition These products - this poisonous material, becoming absorbed into the circulation, provided the other factors of the disease are present, give rise to a certain train of symptoms which we shall describe under the heading of Puerperal Intoxication or Sapraemia. If a portion of Placenta be left in utero after labour, this will gradually, due to the presence of Bacteria, become decomposed. Poisonous products are continually being formed & absorbed from this decomposed mass, and the intense febrile action of Puerperal Sapraemia may be set up. This will continue so long as, and no longer than

the supply of poisonous material
casts. Remove the decomposed mass
and at the same time, we remove
the cause - the fever subsiding
often with an intense abruptness.
This is due to the fact that al-
though the blood is foul & poisoned
- the poisonous products are unable
to multiply themselves - they are
products, not agents, consequently
when the supply ceases, the effect
i.e the fever ceases, and the
blood is gradually cleansed of
the poison it contains.
The engine of destruction not
being supplied with fresh fuel
- as a necessary consequence the
machinery stops. Here then
our treatment is simply limited
to preventing the poisonous material
entering the blood stream, by
removing from the uterus the
decomposed mass, and cutting off
the supply.
In the case of the micrococci which
enter the blood stream and pro-
duce their poisonous material
there, and by multiplying can
carry on their mischievous influence

indefinitely - thus giving rise to what we shall describe under the heading of Puerperal Septicaemia Proper, our treatment will consist not only in cutting off the supply from without, but also of negativing the action of those already within. As contrasting with the preceding group - they are agents, not products, or rather we should say they are Productive agents.

The foregoing circumstances and conditions, are attendant upon any case of Puerperal Septic disease.

Some forms of this disease are due to Bacteria - some to micrococci, but in neither case can Bacteria or micrococci produce the disease themselves. There must always be present - a certain state of morbid blood and a certain defect in the excretory processes.

What tends to make the blood peculiarly morbid after Parturition besides the natural processes attendant upon Uterine Involution?

It is the answer to this question that renders the aetiology of Puerperal Fever such a profound and complex mystery. To find some cause of Body Contamination which acts directly either in the shape of a peculiar poisonous germ, which acts wholly of itself, or a germ plus a Zymotic influence upon the Body generally and together. It is in search of this, that a great many agents have been advanced as the causes of this disease — Sewer Gas, Destitution & overcrowding, the poison of Scarlet Fever and Erysipelas, and others

The point I wish to emphasize is, that there is no cause of Puerperal Fever, but a conjunction of Causes - the 3 factors I have mentioned before

What particular poisonous germ enters the blood does not matter - what particular deficiency there may be in the excretory apparatus does not matter.

The supreme fact is that there is some deficiency in

some one or more of the excretory organs, which brings about such a peculiar morbid state of the blood after Parturition as to cause with the help of micro-organisms this distinctive disease

Of these diseases of the excretory organs I class first and worst of all - Phthisis

out of my 13 cases of Puerperal Fever - no less than 6 had a distinct phthisical history, and of these 6 cases, 3 were suffering from Phthisis themselves, one being in the incipient stage, and the other 2 somewhat advanced

of the remaining 7 cases - 2 had been previously treated by myself for Jaundice, thus showing unhealthy livers. one of these 2 subsequently had well marked Cirrhosis of the Liver, and Dropsy from which she died. In 3 other cases there was a distinct history of gravel and kidney mischief. one other case was only just recovering from Scarlatinal Nephritis when she became pregnant

and the remaining woman, was a stranger to me. I could find out no distinct diseased family history, but she was a pale weak emaciated creature. The child born showed well marked signs of Congenital Syphilis. It was her first baby and consequently there was no history of miscarriages but I have no doubt that she has herself Syphilitic mischief in her own body, which though lying dormant at present, will manifest itself some day in liver, kidneys or other of her excretory organs.

This rather remarkable series of Constitutional traits in Puerperal Fever patients, seems to my mind sufficient warrant for me to propound this theory.

I am quite aware that there are two grave drawbacks to this theory. A critic might say (1) In that case since your patient has this disease of the excretory organs, and since micrococci can always gain entrance to her body — then after every confinement

she must have Puerperal Fever

(2) Or he might say

Then how do you account for the intense contagion there exists between a Puerperal Fever patient and any other Lying-in woman when both are visited by the same person? In the our theory of distinct poisonous germs it is easy to see how a doctor may carry poisonous germs from one to the other, in his hands, clothes &c but we do not see how he can carry about with him, and furnish his patients with diseases of the excretory organs to order.

As regards these 2 objections I should say -

(1) May not Puerperal Fever, like a Zymotic disease like Measles &c confer an immunity or at any rate a quasi-immunity upon the patient, from another attack of the same disease? I have not been long enough in Practice yet to satisfy myself as to whether it does confer absolute immunity or not.

(2) To the second argument I should say – How do you know that the woman who caught contagion from any given case, was a healthy woman, or even the third, fourth or fifth woman in succession, that the same doctor might visit.
How many women go through the whole of their child bearing period with as it were some latent disease that they are not conscious of, & which only breaks out into notice at a later period of life. Is it too much to say that the percentage of these latent and dormant diseases, which often seem to, as it were incubate for years in the human body is at least as high in the female sex, as the percentage of Puerperal Fever.

Is the percentage of Puerperal septic disease, so high as to discredit that theory.
How often do we in the Post-mortem room discover diseases that the patients themselves during life, never complained of, and were never conscious of. And

I would ask the man who uses this second argument - How is it since as you say Puerperal Fever is so contagious, that simple contact with one case of the disease, gives the disease to another lying in woman, the medium being the micro-organisms on the doctor's hands - how is it then that it does not always do so? I had a case of Parametritis which I did not consider septic till after what I am about to say happened. During my attendance upon this case, I had two confinements the same night in another part of the town ~~These two cases~~ The next day I had another confinement, and the very same evening yet another. The first two cases developed virulent Puerperal Septicaemia - the latter two escaped scatheless. How did a mild Parametritis cause Virulent Septicaemia in two cases, and 24 hours afterwards it not only failed to attack 2 other cases, but even in conjunction with the cases

of Septicaemia it first of all caused it was not enabled to make me carry contagion to the latter two cases! The same precautions were taken throughout, as it was not until the first 2 cases showed signs of Septicaemia, that I came to the conclusion that my Parametritis case was septic, and by that time I had already attended two other cases which never had a bad symptom. And in one of the two latter cases, I had to introduce my hand into the uterus and perform podalic version! ———

If my theory of excretory organ disease be discredited — what a remarkable coincidence it is that the first 2 cases just mentioned, who caught the disease were both distinctly phthisical, and the latter two, which escaped were to all appearance in the prudest health.

As regards the connection between Scarlatina & Puerperal Fever Erysipelas & Puerperal Fever, and

Sewer Gas and Puerperal Fever, I must say that my experience in Practice altogether discredits it. The connection between cases of Scarlet Fever or Erysipelas and Puerperal Fever, is to my mind not a whit stronger than any other diseases which tends to sloughing sores or abscess formation That micrococci from a sloughing Scarlatinal throat, or from a case of Phlegmonous Erysipelas, may be carried by the doctors hands and thus obtain ingress to the genital canal, I do not deny but even then they simply supply one factor of the disease, which, in the absence of the other factors, can do nothing towards the occurrence of this disease. Puerperal women are prone to Scarlet Fever. Scarlet Fever poison then may induce the disease of Scarlet Fever, and Erysipelas that of Erysipelas, as indeed they often do, but that either of them, of themselves can produce Puerperal Fever, is a theory for which I see no shred nor shadow of foundation.

I have been for four years in

busy Practice. My Midwifery cases average 150-200 per annum, all attended by myself personally, in addition to the other duties of a large Practice. Scarcely a day passes, but I attend some cases of Scarlet Fever and Erysipelas Those diseases, like the poor we have always with us. Often, scores and scores of such cases I attend weekly, and perhaps some half-dozen of Midwifery Cases besides. Often I am called in to a Confinement when on my daily round perhaps fresh from the house of some desquamating Scarlet Fever patient, or often I have just been making incisions in some erysipelatous limb. Far from home, away from all chances of thorough or sometimes even partial disinfecting, I have thus to enter upon Midwifery duties while reeking in germs. That has happened to me scores, I might almost say hundreds of time, yet I have never seen the slightest possible connection between these diseases. I am convinced that if

there were any, even remote connection between these diseases, busy Practitioners like myself, would have our Puerperal Fever statistics multiplied a thousand times, and instead of finding Septic Puerperal mischief, a rare occurrence, it would become a very remarkable Phenomenon should any woman under any circumstances have a normal lying-in
as regards Bad Drainage, Sewer Gas &c. I also fail to find any connecting link between this and Puerperal Fever. I am practising in a very poor and crowded part of London. Some - a few streets in certain quarters, as regards their drainage and ventilation are little better than open cesspools I am constantly in these streets visiting cases of Diphtheria, Typhoid Fever etc which diseases I grant Bad Drainage originates or accelerates but although I have confined scores of women in these streets I have never had a case of Puerperal Fever there. In houses reeking with filth and every abomination, I

have confined women in these quarters but they never exhibited the slightest signs of any state of Puerperal Pyrexia. Bad drainage can contribute to the occurrence of this disease, by debilitating the constitution infirm & debilitated and thus to a certain extent by breeding other internal diseases, in a sense predispose to this disease I admit, but all these and other foes of health have no distinct bearing upon the direct occurrence of Puerperal disease. They can only act by causing or contributing to some disease of the excreting organs, as one factor of the disease, and by contributing poisonous germs as the other factor. Of course cases will arise in which bad drainage has caused both those factors. Then it will cause Puerperal fever but not simply on account of its poisonous germs, but because in addition to that, it has first of all caused or helped to cause some disease or deficiency in the Patient's excreting organs. I

conclude by stating again my earnest conviction as borne out by Practice, that in the occurrence of every case of Puerperal Fever we must have the 3 factors I have mentioned.

I admit, that even if the 3 factors are present, Puerperal Fever may not result - the excretory disease may not be sufficiently pronounced, or powerful for mischief, or the patient may arise with some inactivity of the poisonous germs or to their supply being at once stopped by careful antiseptic precautions. Puerperal Fever may not result, although the great probability is that it will if the 3 factors be present.

but Puerperal Fever can not by any possibility occur in any case imaginable if any one of those 3 factors be absent.

Symptoms of Puerperal Fever

In order to discuss the symptoms of Puerperal Fever, I shall divide this disease into 3 more or less arbitrary divisions. Any given case of Puerperal Fever may present the symptoms of all these divisions or it may only present prominently the signs merely of one of them

(1) Puerperal Saprαemia - we have shown that by this we mean a pyrexial state due to the absorption of poisonous putrefaction products. As a rule these putrefaction products are the result of the decomposition of a portion of retained placenta, but it may be due to the sloughing of some laceration of the cervix, genital canal or perineum. One case that I had, in which I was absolutely certain that the placenta had come away entire, but where afterwards I removed from the uterus a rather large decomposed mass which upon examination was undoubtedly of placental consistence - I put down as due to one of those rare cases of Placenta Succenturiata in which there may be detached masses of placental tissue, apart

from the normal Placenta, due to development of isolated patches of chorionic villi.

The first thing noticeable after delivery in a case of Puerperal Sapraemia, is that in a few days - generally in a day or two the Lochia become offensive. Then very suddenly, generally on the 3rd day, but at all events within the first week - a rigor sets in - the temperature rises to 102. 103. or 104° - the pulse registers 120 or more beats per minute, and there is very often, complete suppression of both the Lochia and milk The patient is to all appearance in an alarming and highly critical condition. Oftentimes the rigors are repeated, owing to fresh absorption of poisonous material, and the rigors are succeeded by hot flushes and profuse perspirations

Upon making a per vaginam examination, one generally finds a small piece of decomposed placenta just inside the os

or blocking up the mouth of the os, but quite loose & detached

If we take this piece away and syringe out the uterus with a solution of Corrosive Sublimate 1 to 2000, and give our patient 10 grains of Quinine in a single dose - in a few hours time we shall return to find our patients temperature and pulse almost normal, & next day, quite normal, - the lochia and milk return, & the patient will probably make an uninterrupted progress towards recovery, as if that alarming state just described had been a simple short afternoon-dream.

(2) Puerperal Septicaemia (proper) - This being a state of affairs in which living organisms enter the tissues and blood stream of our patient, and grow, multiply and exert a poisonous influence there - the while, the blood itself, from various causes explained before is in a peculiar morbid state - the result being that such

such an extreme pyrexial state is produced, that unless remedied our Patient dies in a few days from the Pyrexia only, and in a state of what one may almost call Septic asphyxiation.

The symptoms of this condition commence generally upon the third, fourth or fifth day after delivery. First of all a rigor takes place. In two cases that I had - upon respectively the third and fourth day after delivery, when I had visited my patient, and found everything perfectly normal, as to temperature pulse, milk, lochia, and freedom from pain, I have been called back in both cases before I had turned the corner of the street and found my patient in an extreme state of rigor, with teeth chattering, and the very bed rocking from the violence of the rigor. The temperature in the two cases was respectively 104 and 105, the pulse 140 and 160 per minute, and all this alarming state within less

than five minutes of my leaving them previously in an absolutely normal and comfortable condition

After the rigor has passed the temperature still keeps high or even higher, and the patient breaths out in a state of profuse perspiration. The most peculiar thing about this condition is the state of the pulse. It becomes increased in frequency, not in absolute ratio to the temperature but at a much higher rate of increase. The temperature may be only 102, and the pulse meantime 140. I rather disregard the temperature in these cases, and rely upon the pulse

By drastic and perhaps ingudicious methods, the temperature may be ~~[illegible]~~ reduced but unless the pulse be controlled it is evident to me, that the treatment is on the wrong track and that the serious state of affairs, is only being disguised - not cured. In a case of mine where the temperature was continuously for 3 days and nights

at the point of 104, but where by means to be described I had kept the pulse at no more than 100, I was able to confidently, and successfully predict a happy issue.

In this condition also the patient will probably complain of headache, and pains in the back and limbs. Violent diarrhea may set in - the motions being peculiarly offensive. Vomiting also may take place. In one of my cases a brilliant scarlet rash was observed, from head to foot, which rash only lasted a few hours, and which after the patient's recovery was not succeeded by the slightest sign of desquamation

The Lochia is suppressed from the outset, but in all my cases the secretion of milk was not interfered with. In one case the breasts indeed were so full on account of the baby being taken away from the breast by my orders at the onset of the illness, that I had to

remove a portion of the milk by the breast pump, at a time when the woman's temperature was 104, the pulse 130, and the woman herself in a state of delirium — this taking place upon the ~~eighth~~ eighth day after delivery, and the fourth day after the onset of the fever.

In these cases also there is very often some tenderness of the abdomen, and sometimes also of the spleen

In fatal cases - the temperature mounts higher & higher delirium may or may not ensue - the tongue becomes dry, the diarrhoea virulent, and the patient sinks, as if life were choked with the intensity of the Pyrexia

(3) General Septic Peritonitis occuring in the Puerperal state

It is a much debated point whether Peritonitis occuring in a Puerperal woman, has always a Septic origin. A case here & there may not be of this origin

but I think the vast majority are, or at any rate they are cases of General Peritonitis which are either caused by - followed by - or complicated with Septic disturbance. I do not think in any case of Peritonitis occuring in a Puerperal woman, it is possible wholly to eliminate the idea of there being a septic element, and as these divisions of Puerperal Fever are perfectly arbitrary, and do not pretend to absolute accuracy, I prefer to use the above heading, as the one that seems most accurate and reasonable to me.

The first symptoms of this condition generally commence some days later than either Sapraemia or Septicaemia proper. The ninth day I have found is generally the day of onset. I am aware that all standard authorities say that it commences earlier than this, and generally within the first five days after delivery, but I have not found it so. Of the four examples I

have had of this disease or rather of this division of Puerperal Septic Disease - three commenced on the ninth day, and the fourth on the eleventh day. Observers tell us that these - what they call late cases, must have exhibited some initial symptoms upon the first few days, which were overlooked by the Practitioner, but considering that during the first few days after delivery nearly every puerperal woman has some slight febrile symptoms, totally unconnected with any disease whatever, I do not see that in the few cases which do develope disease afterwards, we should include as part of the symptoms of that disease the ephemeral febrile disturbance which is the natural concomitant of nearly every "lying-in" even in the most healthy cases.

Commencing therefore on the ninth day or later, we notice in these cases that first of all - our patient has a severe rigor. This will be accompanied, preceded & closely followed by an attack of

vomiting. The temperature rushes up to ~~to~~ a great height 105° or more. At the same time, the patient complains of acute pain commencing near the uterus & extending over the whole abdomen We shall find her lying on her back with the knees drawn up The whole abdomen becomes distended, and the distension often times is so enormous, that coils of intestine may be seen standing prominently out. The pulse is rapid, but soon becomes feeble Vomiting is frequent. The bowels are generally confined, but virulent diarrhoea may set in, with motions of a very offensive character This is a bad sign, and when accompanied with "coffee ground" vomiting - well nigh a hopeless one

The breath of the patient has a disagreeable smell, and she has a yellowish cachetic appearance The hands and feet become cold, the pulse so feeble as hardly to be felt and if at the disease is to terminate fatally, the patient begins to pick at the bed clothes, becomes comatose & dies

If the disease takes an irregular course, and is spread over a long interval of time, and if the inflammatory process be of an adhesive character, the intestines may become matted together, & actual tangible masses may be formed in the abdomen. Suppuration may then take place. An abscess is formed, which may point on the surface of the abdomen, or find its way, and burst into the vagina or intestines

(4) Septic Perimetritis & Parametritis

This last form of Puerperal Septic disease, embraces those cases in which the chief & predominant seat of disease is a septic inflammatory process of the areolar pelvic tissue (Parametritis) or of the pelvic peritoneum (Perimetritis) or of both combined, but without extending to the general abdominal peritoneum. Parametritis is the more common, and generally when Perimetritis exists in the Puerperal state it is in conjunction with Parametritis. I shall therefore describe them together, noting their diagnostic differences as I proceed.

as I proceed.

This disease may commence at any time after delivery from a few days to a few weeks

It generally commences with a rigor and sudden rise of temperature. The temperature may be 102°. 103° or 104°. The pulse is not so frequent as in other forms of this disease, and has never in my cases quite reached 120.

With the rise in temperature there may be vomiting, and acute pain in the abdomen. A distinguishing feature of this pain is - that it is limited to one side of the abdomen. There is extreme tenderness upon touching the abdomen. There is often partial suppression of urine due to the exudation surrounding the bladder.

The bowels I have generally found to be in a normal condition, neither costive nor the reverse. The pain in the abdomen often ceases after a day or two, but the tenderness remains. There is never much distension of the abdomen. Another peculiar

symptom of this complaint is a distinct & acute lumbar pain due to the pressure of the exudation upon the lumbar plexus. For the same reason there is often pain down the thigh, and we may find the patient with one thigh drawn up.

The temperature remits and intermits. It tends to soon reach its height but there are often morning remissions. Often there are profuse perspirations The tongue is coated, but usually moist. I have noticed that the fur on the tongue takes the form of a lop sided triangle, and never extends quite to the tip. The patient will also probably complain of headache and sleeplessness

It generally takes some days for the exudation to be so great, as to allow us to really feel any amount of inflammatory thickening per vaginam. But at the end of a few days, upon making a per vaginam examination, we

can usually feel a distinct inflammatory mass, upon one side of the uterus. It is generally of a wedge shape, and extending in the position of the broad ligament This generally displaces the uterus and pushes it to the opposite side The exudation may extend to the iliac fossa and form a distinct swelling in the neighborhood of Poupart's ligament, and this if present is a thing which by no manner of means is ever present in a case not of puerperal origin
The swelling tends to gradually become harder and then to be absorbed. Or it may suppurate Hectic fever becomes then established shewing the formation of pus. The abscess may open in the colon, rectum, vagina or bladder if due to pericystitis but if due to parametritis it will open a little way above Poupart's ligament.
All this is a matter of weeks and the disease is therefore protracted. This is what we may

consider an unsatisfactory turn of affairs, as in a great majority of cases, absorption takes place and not suppuration.

Suppuration is more frequent in Parametritis than Perimetritis.

Another distinction between these two forms is, that in perimetritis, upon making a per vaginam examination — in Perimetritis one finds a peculiar board like induration of the whole roof of the pelvis with the uterus as it were tightly grasped in the centre or pushed slightly forward into the pouch of Douglas

Another point in the differential diagnosis is - that if by any chance an abscess points in the neighbourhood of the umbilicus, it shows that the inflammation & suppuration causing it, has been due to Perimetritis, and that the abscess therefore is of peritoneal origin

Both these diseases — Parametritis & Perimetritis in

a Puerperal woman tend to recovery. They have generally in my experience, pursued a benign course throughout. I have had 3 such cases - two of parametritis and one in which parametritis and perimetritis were combined one of the cases of pure parametritis suppurated - the others did not. I opened the abscess just above Poupart's ligament and although a troublesome sinus was left, which took a long time to heal up - the patient made eventually an excellent recovery, although she was not altogether out of my hands, until nearly 5 months had elapsed since her confinement

as a rule the cases are the least dangerous of the group of Puerperal Septic diseases. I should almost decline to consider that they were septic, but for an experience I had - I was attending a seemingly mild form of Parametritis (the one that did not suppurate) - the case was recovering beautifully, as I say, there

were no suppurative symptoms of any kind. Except this case of Parametritis, I had had no case of Puerperal Fever for nearly 12 months. I was attending no infectious disease at the time, nor had I recently done any Post Mortem work. The case of Parametritis then in hand was pursuing such a mild course, and was as I thought distinctly traceable to a sudden chill which the woman had experienced, through too early getting up after confinement, that I had not considered it of septic origin, and had not notified its occurrence to the Sanitary Authorities. But whilst attending this case, I had one night, two other confinements. Four days later, these 2 cases had developed into the 2 most virulent cases of [redacted] Puerperal Septicaemia (Proper), that it has ever been my lot to witness.

Both recovered, but although their cause of origin was a mild Parametritis case, neither of them exhibited Pelvic Inflammation

Treatment of Puerperal Fever

The treatment of Puerperal Fever may be discussed under three heads viz Local, Medicinal & Dietetic.

The treatment of Saprœmia has been given, when discussing the symptoms of that form of this disease, so I shall not repeat it. Proceeding therefore to Puerperal Septicæmia Proper - as the disease is due, partly at all events to the entrance of Poisonous germs into the circulation and tissues by means either of the naked placental site in the uterus, or by means of some abrasion or sore in the genital passages - naturally our first care is to prevent the admission of any further germs through those channells. That is, we endeavour to stop the supply. This we do by means of Local Treatment

The best Local treatment is undoubtedly to syringe out the vaginal passage, directly any out of the way, febrile symptoms

manifest themselves after de
livery, and should a high state
of hyperia supervene, accompanied
by rigors and other symptoms of
septic mischief - the uterus as
well as the vaginal channell
should be washed out, & rendered
thoroughly aseptic. The most
powerful agent for this purpose
and the one most recommended
is a solution of Perchloride of
Mercury of the strength of 1 in 4000
down to 1-1000. I say the most
powerful, but I do not think it
the best. Indeed with the ex-
ception of a few cases I think
it should never be used.
When we have the inside of the
uterus as it were - a seething
mass of corruption, or a
Cauldron of filth we may say
as in Septaemia, where there
is a mass of decomposed Pla-
centa, or putrid blood clot and
where there is only need for
one thorough intra uterine
cleansing - then some such
strong agent as Perchloride of
Mercury, is not only permissible

but necessary. In a case of Septicaemia however of this class where we have the septic mischief going on inside the blood & tissues and where the local treatment is a mere adjuvant method, and only serves our purpose in rendering asptic the uterine walls – the door of ingress – of what earthly use can it be, to adopt such a severe method as to flush those delicate and absorptive walls, with such a powerful mercurial agent as a solution of Corrosive Sublimate? To my mind such a process is akin to crushing an ant with a steam hammer, or breaking a butterfly upon the Wheel all that our Local Treatment is required to do, is as I have said, to render the genital passage thoroughly aseptic This is easily done either with a Boracic acid solution, or a weak solution of Permanganate of Potash without causing any of those disastrous effects which patients sometimes experience by the indiscriminate use of more powerful

agents. We must bear in mind that the uterine cavity shortly after delivery is one of the most delicate substances we could possibly have to deal with. In dealing therefore with so delicate a condition of such a delicate organ, I am distinctly of opinion, that unless there is some actual putrescent mass or its remaining results, that we wish to act upon, and to as if it were, immediately stamp upon, we should never use a solution of Perchloride of Mercury for intra uterine purposes, and even in such a case, it should be only used once – once for all – and the act immediately followed by the washing out of the same cavity with a copious flushing of warm water.

As regards preventing the entrance of poisonous germs – the use of a vaginal & intra uterine injection of a weak solution of Condy's Fluid or 1 part of Permanganate of Potash to 150 of water is all that is requisite.

Two cases of Septicaemia in the Puerperal state, which came under my care, and which I treated locally with a solution of Perchloride of Mercury 1-3000 exhibited the most alarming consequences. In the one case - a few minutes after the injection, a most alarming faintness and subsequently a perfect collapse ensued which lasted for an hour or thereabouts. The pulse was almost indistinguishable at the wrist, the patient was quite conscious but bathed in cold clammy perspirations. Hot water bottles to the feet, and plenty of blankets wrapped round her, and copious doses of Brandy finally brought her round. The act of syringing could not have been the cause of this as she had had an intra-uterine injection of hot water, twice daily for two days before this occurrence, without the slightest bad result from the injection. She was moreover the reverse of nervous, and was a Multipara

and for other reasons well used to being syringed at periodic intervals.

The other case was a woman who 3 days after delivery, had a febrile temperature and the lochia smelling rather faint. I washed out the uterus with a Boracic solution twice that day. On the following morning, the Lochia appearing quite as unsatisfactory, I resolved to try the Perchloride of Mercury. This I did in the strength of 1 in 2000. She was certainly a young and nervous woman, but she had borne the previous day's injections perfectly well. I had not however quite finished the injection of this Perchloride solution, before my patient was thrown into a perfect convulsion. It was not Hysteria, nor was it epileptic It lasted but a few ~~minutes~~ seconds, but seemed to me, like a tetanic convulsion minus the lockjaw She had never had a convulsion

before, nor has she had one since During the attack she was quite unconscious, and I have no doubt the whole affair was due to shock caused by the strong sudden action of the solution of the Perchloride of Mercury upon the uterine cavity and the uterine plexus of nerves.

After that day, I for several days washed out the cavity with weak Permanganate solution, without the slightest repetition of the above alarming condition.

— Hence my practice, & advice — never to use a solution of Perchloride of Mercury for intra uterine purposes, except in a case of Septaemia, and even then only use it once and follow its use by the copious flushing out of the uterus with warm water.

For all other purposes of intra uterine injections during Puerperal Septic disease, the best and safest local agent is a 1 in 150 solution of the Permanganate of Potash.

Medicinal Treatment - In a case of Puerperal Septicaemia of this sort, directly at the onset of the Pyrexia, the best plan is I think to give the patient ten grains of Sulphate of Quinine in a little milk. Then for three days afterwards I always give the following medicine - Tincture of the Perchloride of Iron, Compound Tincture of Camphor, and Sulphate of Quinine combined. The dose I give is - one drachm of the Tincture of the Perchloride of Iron, one drachm of the Compound Tincture of Camphor and five grains of the Sulphate of Quinine in each dose - the dose to be given three times a day and once during the night, for three days. So far as I am aware, I have never seen or heard of the above combination recommended in Puerperal Fever but I have had thirteen cases of Puerperal Fever in my four years Practice, which cases have included some of the most virulent forms of the disease that I have ever read about, or that could

be imagined. I have pursued the same medicinal treatment in each case - I have conducted all these cases to a successful issue without a solitary exception, and therefore I think I may be pardoned in looking upon this combination of drugs as an almost absolute specific in the medicinal treatment of this disease. Each of these drugs is powerful - two of them viz the Camphor & Eucinic being antiseptic and the other - Iron - haematinic but I am convinced that the beneficial results from the use of this group of drugs is not so much due to the individual action of each, but to some peculiar change or modification, or increase of power that each possesses when, and on account of being, combined with the others.

Camphor is antiseptic, antipyretic, diaphoretic, stimulant & after stimulating - sedative

Eucinic checks metabolism by interfering with the oxidation of protoplasm generally - with

oxygenation, and with the associated action of ferments. It reduces the temperature by diminishing the production of heat in the body, and acts therefore directly upon the tissues and not through the heat-regulating apparatus. Full doses of Quinine such as I have prescribed, diminish the force & frequency of the systole of the heart, strengthen diastole, and lowers the pressure. It has also a direct action upon the cardiac ganglia & muscle and on the vessel walls.
That is why I give full doses of Quinine, as small doses accelerate the heart and raise the pressure. Camphor also being sedative to the cardiac ganglia & nerves after the initial stimulation - a combination of Camphor and Quinine thus gives us a powerful leverage upon the pulse even apart from the temperature and it is my opinion that in a case of Puerperal Fever, if we succeed in controlling the pulse we shall "ipso facto" control the disease

The antipyretic and tonic action of the Quinine will be going on at the same time, as also its direct action upon the poisonous germs in the blood & tissues but the fact I wish to emphasize and bring out in this paper is its powerful and peculiar action upon the pulse when associated with Camphor.

With the above drugs, I incorporate Iron chiefly on account of its being a "blood enricher". It combines with the haemoglobin & is accordingly beneficial as a haematinic. By directly oxygenating the blood, and causing abundance of oxygen, it thus counteracts the poisonous agency of the germs in micrococci which live and multiply & exert their deleterious influence chiefly by depriving the blood of its oxygen.

It also acts as a direct tonic through the blood, to the body as a whole, and there is no one of the ordinary excretory organs which we cannot imagine would be directly benefited

by the action not only of Iron but of the other two drugs mentioned. We have endeavored to show that as one of the factors in producing Puerperal Fever, or rather in allowing Puerperal Fever to occur, a deficient excretory apparatus plays a great part. I maintain therefore that Tincture Iron & Camphor in combination acts beneficially upon all the in obviating the bad results caused by all the factors of this disease. It not only stanches and destroys the poisonous germs, but it also is a direct remedy for the poisonous morbid blood flowing through the system of our patient, and exerts a secondary beneficial influence upon all the organs of the body, including of course those organs chiefly at fault and connected with excretory processes. It has never failed in my hands, and I am inclined to think, that if the local treatment is carried out as described before, a course of this medicine

will almost cure any case of Puerperal Septicaemia. I have said that these drugs should be given for three days. at the end of that time we should have an almost normal pulse and temperature. If that be the case I am in the habit of leaving the Ergotine out of the Prescription altogether, and persevering for another week with the Iron and Camphor alone. at the end of that week, I drop the Camphor also, and for a fortnight or three weeks as the case may require I allow the patient to continue with the Iron alone.

This is the main medicinal treatment of this disease. If there be much diarrhoea it is necessary to give some such drug as Opium etc to stay it Twenty drops of Tincture of Opium combined with fifteen grains of Subnitrate of Bismuth and half a drachm of Bicarbonate of Soda will be useful as an occasional dose, in both checking the diarrhoea

and to alleviate the vomiting should sickness exist. I am never however anxious to stop the diarrhoea, unless it is very excessive, as doubtless a certain proportion of poisonous products will find an exit from the body in this way. If there be much pain and sleeplessness an injection of one-third of a grain of acetate of morphia may be given subcutaneously.

℞. Dietetic Treatment

Brandy, egg & milk, and as much of it as possible is the best diet. I usually give a tablespoonful of Brandy every three hours for the first 24 hours, and afterwards half that quantity, three times a day, in a tumbler full of egg and milk, until the dyspnoea has abated - and then a gradual return to ordinary diet, as after a normal confinement.

If the sickness be great - iced champagne will be found beneficial - and if neither of these can be

retained by the stomach, we must give nutrient enemata.

Even if there be diarrhoea at the same time, we can use the nutrient enema given below, by adding 20 drops of Laudanum & 40 grains of Oxide of Bismuth to the enema.

The nutrient enema I generally use is — Equal parts of cold milk and hot thick water gruel, to every six ounces or so of which mixture is added one drachm of Benger's Liquor Pancreaticus. An Egg may also be beaten up with it.

If this enema be not retained — solid Lytone suppositories may be used.

Purulent Septic Peritonitis

The medicinal & dietetic treatment of this disease is exactly the same as for the foregoing division which we have just described with the exception of this — that it is more important to keep the bowels absolutely costive, and the great pain which the patient suffers from Peritonitis

renders it necessary to exhibit opium freely. I give two grains at the outset, and one grain every 3 hours until the pain abates, or symptoms of narcotism manifest themselves.

Local Treatment Turpentine fomentations give great relief, but I prefer hot linseed meal poultices applied every three or four hours - first of all smearing the abdomen with glycerine of Belladonna.

As regards vaginal and intra uterine irrigation, I use a solution of Permanganate of Potash 1-150 in this division also, and especially when the Peritonitis is the sequela of what I have called Puerperal Septicaemia proper.

I do not think I have before mentioned it, but it is an important fact that very often & in a large number of cases - Peritonitis is accompanied by or preceded by Septicaemia proper or even Septaemia

I have mentioned that these

divisions are arbitrary.
Any case of Puerperal Fever
may run the whole gamut
beginning with Septicaemia
and ending with Pelvic Cellulitis
& Hectic Fever, and therefore
in discussing the treatment
of Puerperal Fever, we must
not only follow out the chief
treatment of Iron Tincture &
Camphor on the one hand, and
intra uterine antiseptic douchings
on the other, but also in addition
treat other grave symptoms as
they arise, if they do arise.

I have mentioned nothing of treating the Peritonitis with cold applications, or treating the Pyrexia with baths varying in temperatures. I have never tried such methods and never feel inclined to try them, and I wish to write of nothing that I have not either seen or tried myself.

Pelvic Cellulitis (Parametritis) & Pelvic Peritonitis (Perimetritis)

The only additional thing in the way of treatment to say

of these - is that when they suppurate, and an abscess forms - it should be opened at once under strict antiseptic precautions. To open one of these abscesses (I have only had to do it once in connection with this disease) I used Hilton's method. I made an incision through the skin - pushed a director into the abscess along the director I guided the points of a pair of dressing forceps then by opening the forceps & withdrawing it, the opening is sufficiently enlarged. Then I introduced a large drainage tube to the full depth of the cavity - cut off the end of the tube, level with the skin, and secured it by loops of carbolised silk passing through the tube, and tied flat upon the skin, underneath the gauze dressings.

The abscess was rather deep, & a very troublesome sinus was left, which I found difficult to close up, but aided by strapping & compresses it eventually did so

In opening an abscess, reddening of the skin is sufficient to show that there is no fear of opening into the peritoneal cavity. If the abscess be deep down - a small aspirator needle may be used to explore matters.

If also we can feel a fluctuating swelling per vaginam it is best to first of all use the aspirator needle, to verify the presence of pus, and then open it through the posterior vaginal fornix - afterwards using a self-retaining elastic catheter as a drainage tube.

Before suppuration takes place in these cases, I should like to add, before quitting the subject, to say that I have had excellent results from using a vaginal injection of as hot water as the patient can bear, and repeating it several times. In my estimation, such a process greatly helps the absorption of the exudation

Such are the lines upon which the active treatment of Puerperal Fever should be carried out.

As regards the Preventive Treatment or Prophylaxis of this disease, we must also bear in mind the 3 factors which originate this Fever, and direct our treatment accordingly.

First of all - during the pregnant stage we should ascertain so far as is possible the exact family history of our Patient. We should endeavour to find out if perchance she may have some lurking chronic ailment in her system or a family pre-disposition to such disease. We should try to repair or remedy such defect in her constitution if present, and by all means in our power, to keep her in as good a state of health as possible. Obstinate persistent vomiting during Pregnancy should be controlled. Perfect sanitation should prevail in the house. Good ventilation, abundance of fresh air, and out-door regular and moderate daily

exercise for the Patient should be insisted on. Her diet should be modified, and all food should be of an easily digestible character.

During Labour, great care should be manifested during the 3rd stage. It should be a point of extreme importance that the medical attendant should ascertain that every particle of Placenta and membranes have been expelled from the genital passage & uterus. The hands & all instruments used during Labour should have been rendered thoroughly aseptic, by washing & soaking in some antiseptic solution such as a Carbolic Solution of the strength of 1 in 40.

A ruptured Perineum should be at once stitched up, and Antiseptic dressing supplied. If there is reason to believe that there are Lacerations of Cervix or genital canal, these should at once, and at regular intervals, be syringed with a warm antiseptic solution.

I think it a good plan, after every Labour, normal or abnormal

to syringe out the uterus & genital passage, with a warm weak solution of Condy's Fluid, twice daily for a week after Delivery.

The Patient should be kept extremely quiet after Delivery. She should be thoroughly isolated in a clean, cool, well ventilated chamber, and should be kept from noise and excitement of any description.

If notwithstanding all precautions we should be in attendance upon a case of Puerperal Fever, it is as well, where possible, to give up all further Midwifery Practice for a clear month's duration. Where this is not possible (and it is by no means absolutely necessary) the clothes of the Medical attendant should be entirely changed, and disinfected by steam, before wearing them again at any other confinement. A Turkish Bath should be taken, and the body thoroughly asepticized by the strictest antiseptic precautions. By doing this we get rid of all poisonous germs, and this

disinfecting process is always necessary, inasmuch as we do not know, who our next Patient may be, and whether or not she may be a person predisposed to this disease, as in a great many cases, the onset of the Fever itself is the first possible sign we can have of such pre-disposition.

If a Practitioner takes these precautions, it will not be necessary for him to give up Midwifery Practice for a single day, & if notwithstanding his utmost endeavours, his very next Patient should be a victim to this disease his conscience cannot accuse him of being the conveying medium. He will then have met with a case already predisposed to the disease, from causes & conditions I have mentioned. He will then best occupy his time & in curing the disease, and leave the causes and rationale of its occurrence to the workings of an Inscrutable & Omnipotent Providence.
