

1850

A Thesis  
on  
Thelitis  
by  
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# On Plebitis

Before entering on the discussion of the subject of this paper, I think it would not be altogether out of place to ~~give~~ give some remarks relative to the structure of the tissue which I am about examining in one of its diseased conditions. I shall first give a short history of the disease, after which I shall more fully debate on the particular lesion & question, adverted, in many places to several closely allied morbid actions occurring under peculiar and modifying circumstances, which deserve some notice as they have their origin during a period when the system is disturbed by the fever or after the completion of a process which generally ceases before the time of its continuance, even our most fatal disease. I may slightly modify our treatment and as might a priori be imagined the condition of parts when examined subsequently to death are found not presenting the same anatomical characters, as in the ichthæmic disease, viz the appearances which ordinarily occur are present, they mix so along with others which have as much to do as the former in the production of the disease and its symptoms.

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The veins are thus vessels formed by the con-  
fluence of the capillaries and have for their office  
the return of the blood to the heart. At their origin  
they are larger than the corresponding terminations  
of the arteries in the same parts, and they are  
found to retain a similar relation to them  
all over the body; they are likewise more numer-  
ous. The capacity of the venous system is therefore  
much greater than that of the arteries, and has  
been generally estimated as being capable of  
containing twice or thrice as much as the arteries.  
The arteries of small size have for the most  
part two veins accompanying them, those of larger  
diameter, but one. There are two sets of veins  
one superficial situated ~~under~~ beneath the integument  
the other deep accompanying the arteries. Veins  
have more numerous branches joining them  
and communicate with each other oftener  
than arteries of a similar caliber. The structure  
of the veins bears much resemblance to that  
of the arteries the greatest difference being mani-  
fest in their middle coat which is deficient  
in the annular muscular like fibres as well  
as in the yellow elastic ones so common

in the latter, they are for the most part described as having three coats an external, a middle and internal. 1<sup>st</sup> The external coat is composed of fibres and bundles <sup>of fibres</sup> interlacing in all directions, they are principally of the same nature as those fibres seen in the areolar and fibrous tissues, a few elastic fibres intermingling with them. The whole conjoined form a strong tough but thin tunic. 2<sup>nd</sup> The middle coat made up of one, two or more laminae of fibres agreeing in all respects with those white filaments seen in areolar tissue, sometimes almost pure in one layer and in the others mixed with a variable proportion of fibres having the same aspect as the plain muscular seen in the middle wall of arteries. These fibres have usually a circular direction in one layer and if a second be present they have either a longitudinal oblique or irregular direction. Some think the veins of the extremities both superficial and deep have a layer of circular fibres externally and within this a stronger lamina having the fibres taking a longitudinal course, while those of the trunk and neck have almost the

whole of their fibres assuming the circular form very few being longitudinal. Near the heart the Carac have distinct muscular fibres, <sup>prolonged</sup> from that organ for a short distance; the same can be observed in the pulmonary vens. This coat is much thicker in some vessels than in others thus the inferior Carac and its branches have much thicker walls than the superior Carac and its tributaries. The Saphena of the leg has likewise been found to possess walls much thicker than any other vein of a similar size. In a general way the more superficial a vein the thicker are its walls, and in proportion as the size of a vein increases or diminishes so the walls become coarser or finer.

3<sup>rd</sup> The internal coat has much more extension and is not so easily ruptured as the corresponding internal one, it is very fine and by reason of its physical properties is not so difficult of demonstration. It can be peeled off without tearing which is not so readily effected in the arteries. Internally it consists of a layer of epithelium deposited on one or more laminae of fine elastic fibres, but not all possessing equal

tenacity, and which form close longitudinal reticulations, with or without portions of perforated membranes. The walls of the veins are supplied with blood by their Nutrient Vasa, *vasa nervorum*. Some observers have succeeded in tracing small branches of nerves in them especially on the inferior Cava, and the cerebral Sinuses. The interior of the veins presents duplications of their lining membrane, named valves, which have for their office the prevention of any reflux of blood. These folds consist each of two laminae of their lining membrane having interposed between them a quantity of dense vascular tissue strengthened by fibres. One margin of these folds is continuous with the wall of the vein, the other is free in its cavity; both these margins are slightly thicker than the rest of the fold. One of the surfaces looks to the cavity of the vessel when it is bathed by the blood, the other corresponds and looks ~~to the~~ towards the wall of the vein which is always situated somewhat on the cardiac side of the valves. When the valves are pushed from the position which they generally occupy against the walls of the vein their free margins come in

contact and they form a concave fossa towards  
the heart which sustains the blood and prevents  
its reflux at this point having a curvature in the  
opposite direction. These valves are single, that is  
consist of one fold in these veins having a diam-  
eter of a line or somewhat larger than this, and  
none we meet with any few of them. At the opening  
of some small veins into larger branches we oc-  
casionally find a single crescentic fold. In veins  
of medium size we find them arranged in pairs,  
and this is the most frequent arrangement in  
the human subject, but sometimes we find three  
arranged in a row on the side of a vessel.

In large quadrupeds three, four, or even five and  
by no means uncommon. These folds are most  
numerous in the small superficial veins es-  
pecially in those of the extremities and in the  
lower ones more so than in the upper. There are  
no valves found in the sinuses of the brain, in  
the veins of the cancellated texture of the bones,  
or in those of the spine, in the omphalic, umbi-  
lical vein, vena cava, uterine, hepatic, and  
renal veins or in those of the lungs. There are  
sometimes a few in the inter-costals & vena cavae

The veins when healthy possess the power of distending themselves in a circular direction much more so than the arteries and not unfrequently they are found torn across after injuries, some say more frequently than the arteries. They cannot however elongate themselves so much as the latter. They are possessed of very little sensibility. Their contractility is at once shown by the rapidity with which a vein included between two ligatures can empty itself when punctured. Chemical agents as the acids, Cold, &c. cause decided contractions of that portion of a vein to which they may be applied.

History of Phlebitis. John Hunter was the first who drew attention to the inflammation of the lining membrane of the veins in a paper which he read in the year 1784 to a society for the improvement of Medical and Surgical Knowledge and which was subsequently published in 1793. No other disease of veins except their varicose enlargements had up to this period received any attention. He was led to a knowledge of the disease from having frequently observed in horses when he was dissecting their

veins reddened, thickened and filled with pus. These horses he found had been previously bled in the jugular veins and he noticed that the inflammation extended down along them into the thorax; but the particular reason of their death he ~~could not~~ was unable to determine. Perhaps it might be thought from the inflammation extending to the head or from the matter secreted from the interior of the veins mixing with the blood in that organ in a considerable quantity. He also mentioned that the exposure of the sinus cavities during operations and after accidents might be the cause of these secondary extensive inflammations which follow these causes and the reason why perhaps they extend beyond the sphere of continued sympathy.

That he was almost as well acquainted as we are with the nature of this affection is evident from the following quotation. "In all inflammations of the cellular membrane whether spontaneous or after accidents such as compound fractures and surgical operations the coats of the larger veins of the part become also inflamed and their inner surface takes on an adhesive suppurative or ulcerative action such present

according to the stage of the disease. The veins  
would have abscesses formed in them, did not the  
pus often pass readily to the heart with the  
blood, but this does not always happen, an  
adhesive inflammation occurs between the spot where  
pus is formed and the heart so that an abscess  
is formed in the vein and the pus can only  
mix with that portion of the blood behind the  
adhesive inflammation. He then remarks his belief  
that those deaths which before his time had been  
ascribed vaguely to injuries of tentons, and  
nerves arose from this same cause. This he made  
out in a man who died after venesection and  
in whom adhesive inflammation was set up in  
the vein above and below the orifice. In some  
places was pus, in others ulceration had com-  
menced so that did not the skin forming  
a circumscribed abscess. Some veins of the crilla  
had also suppurated but no adhesive inflam-  
mation hemmed in the pus which mixing  
with the blood probably was the cause of his  
death. Mr. Abernethy a pupil of John  
Hunter published three cases of Phlebitis of  
the adhesive variety and he explains the mode

in which the constitutional symptoms were produced by thinking that the irritation of the Venous lining was extended to the heart which was the agent producing such great disturbance.

Much about the same period 1793 Dr. John Clarke and Mr. Wilson noticed inflammation of the internal Veins as an appearance present in some cases fatal subsequently to delivery. Dr. Clarke found pus in the uterine Veins and Mr. Wilson found the external Veins thickened and partially obliterated, as also the Iliac, emulgent and spermatic. The vena Cava had its coats thickened and adherent to the surrounding parts and it contained four ounces of pus in that part below the hepatic Veins where it was contracted. Mr. Wilson had two other somewhat similar cases. Meckel in 1797 gave an account of a case of jaundice where on dissection after death the thickness of the Venous Coats arrested his attention and he therefore minutely inspected the whole of the Veins and found those of the uterus much enlarged & thickened in their Coats, and when cut into a puriform fluid escaped. The vena Cava was also engaged in the inflammation. Oslander soon after this found the lungs

inflamed and the umbilical vein from the head to the liver full of pus in a child who died of erysipelas soon after being born. Meckel records a similar case who jaundiced, colic, vomiting, & from one parent and on examination the peritonium was inflamed and contained puriform fluid in its cavity. Both the vena porta and umbilical veins were inflamed and thickened. Breschet & Lee both gave us the result of their experience that the inflammation of the umbilical vein is the cause of the infantile erysipelas fatal soon after delivery and this lesion extends almost always to the liver and canal. Falitta in 1807 gives a case of inflammation occurring in a pelvic vein which led him to suspect that pus excreted by the lining tunic had been carried into the circulation and produced the abscesses in the lungs and other organs discovered on dissection.

The French pathologists remained ignorant of our discoveries into the nature of this disease till so late as 1815 when Dr. Hodgson's work appeared. Only one case of Mr. Annot's was mentioned in their journals in the interim. This was the case of a man who had been

frequently led for epilepsy and in whom inflammation  
was set up in his cephalic vein which in some days  
proved fatal. The vein was found filled with pus  
from the wrist to the shoulder. its walls were  
thickened and red. A quantity of pus was found  
in the cellular tissue of the pectoral muscle of the  
same side; a quantity of yellowish serum was  
found present in the ventricles of the brain. There  
was fluid effusion between the pia mater and  
arachnoid the latter of which was opaque, thick-  
ened and indurated. Some opaque serum in the right  
sac of the pleura, both lungs presented a number  
of hepatized portions ranging from the size of a pea  
to that of an walnut, and gorged with fluid which  
in some places was puriform. Very little attention  
was given at home to the observations of John  
Hunter, during the same period, but at last the  
appearance of Hodgson's work and the treatises  
of Travers, Carmichael and Arnott, drew that  
notice to them which their importance demanded.  
The work of Hodgson contains many cases of  
Phlebotis consequent on Venesection and in which  
were found on dissection pus or lymph in the  
veins. There was adhesion of their walls to each

other and obliteration of their Cavities in some while  
in others they were indurated and thickened and  
adherent to surrounding parts. The symptoms present  
were like those of Syphilis from having much more  
irritation and consequent debility than acute in-  
flam<sup>mations</sup> in general owing to the vitiated  
blood affecting the nervous system. Travis in his  
essay contrasts the veins and arteries, both as re-  
gards their structure and disease. The inflam<sup>mation</sup>  
of veins has its symptoms the same as diffused in-  
flam<sup>mation</sup> elsewhere, and it has the same ten-  
dency to spread in a continuous manner as the  
inflam<sup>mation</sup> of the lymphatics. Mourning in Quind  
three points of distinction explains the various con-  
stitutional sympathies peculiar to the latter.  
Speaking of the mode in which this inflam<sup>mation</sup>  
so frequently proves fatal he gives the opinions  
of his day that it was by an extension of the  
inflam<sup>mation</sup> to the brain or to the membranes  
of the brain or from the admission of pus in-  
to the circulation. He attempts to do away with  
the last theory urging as his objection that  
those cases are the most rapidly fatal in which  
after death no pus was found present but only

true adhesion inflammation and its products lymph  
His own theory was that considering the impaired  
functions of the veins the extent of surface which  
their combined area would give larger than any  
of the solid sacs even the peritoneal and the dif-  
ferent character of the inflammatory action no  
one could attach any other idea to the matter  
except the utero. The system is as much inflamed  
by arterial as by venous inflammation if of the same  
extent of surface, but why it feels so much is  
caused of the latter is that when it occurs it goes  
on continuously and affects much more of the  
same texture which is not observed as regards  
the uterus. Since these essays in 1818 many ob-  
servations have been made both in Britain &  
on the Continent as regards the causes and  
symptoms of this disease and some of its patho-  
logical appearances have been explained very  
satisfactorily. Among the large list of authors  
who have benefitted us much I think I must  
that Cruveilhier has done more than any other  
observe towards the removal of many obscuri-  
ties both by the course of experiments which he  
performed and also by the process of close  
reasoning

which he adopted as regards his own cases and those of others. In fact I think his observations like those of our illustrious Countryman have not been generally put forward as they should be, and in the concluding portion of this paper, I shall often and frequently notice many of his statements.

All the veins have at different periods been observed to be the subject of Phlebitis but some are much often diseased than others. To constitute this disease there must be more than mere redness of the lining membrane, an appearance often present when no inflammation existed during life, and is owing to sanguineous imbibition which frequently occurs deeply staining the inner coats and is readily explained when we remember that the blood collects after death in these vessels. When real inflammation is present we have separated to redness of a variable tint, fine vascular injection not uniform, but unobscured infiltration and thickening of their structure, the effusion of coagulable lymph or pus or the existence of ulceration on one or other of their surfaces. The inflammatory product may be thrown into the walls of the vein causing the thickening or

its exterior forming adhesions to surrounding parts  
on its inner lining, is a thin layer forming a false  
membrane, or may entirely fill up the cavity  
and so obstruct the circulation. These products  
may become organized into cellular tissue and  
the vein be converted into a fibrous or ligamentous  
cord. The collateral vessels conveying away the blood  
quite readily, for soon they are fully dilated and  
fit for the increased duty. Pus as well as lymph  
may occupy all these situations, if externally a  
diffuse abscess forms, if internally the pus may  
obstruct the circulation and cause coagulation  
of the blood and often the pus is found enveloped  
in a clot. Not unfrequently at one point we  
find pus effused and at a short distance from  
it lymph - which may arrest the progress of the  
former exudation, and a vein might thus present  
in its course a series of abscesses. We must bear  
in mind that all the cases in which pus is found  
in the veins are not ones in which phlebitis was  
present during life, for this fluid may be in-  
troduced into them from ulcers on the external  
surface of the body, or as more frequently hap-  
pens from intestinal ulcers, from cancerous growths

of the uterus, from purulent deposits in various parts, through which the virus passes, from diseased bones, stumps, &c. As in the arteries is a much more positive indication and in the great majority of cases is to be looked upon as having its origin in the vessels in which it may be found.

The diseases of the veins differ much from those of the arteries. Inflammation is common in the former very rare and much less serious in the latter. So much so in fact, that it often exists without our being aware of it until a post mortem reveals its presence, but seldom or never does a patient die of it. Veins have no diseased state like aneurism so common in the arteries for their tunics distend equally to any pressure and when they enlarge, they become tortuous and dilated both in the trunk as also in the ramificating opening into it. Calcareous, atheromatous and strabomatous deposits are exceedingly common in the arteries but are hardly ever seen in a vein. In the veins however are more frequently found pus and other purged matters owing no doubt to their taking in and propagating inflammation more readily. As their being connected with the function

of absorption and from thin returning blood from viscera and parts often the seat of disease. The blood also coagulates more easily in these vessels owing to its more equable and slower motion - to the nature of its composition, and to the greater frequency of obstructions in these vessels. The vitality of the veins is also of much lower grade than the arteries.

Brischet had the honour of first giving the very appropriate name of Phlebitis to this inflammation. It is a disease belonging to the physician and surgeon. The form of it is traumatic, another much rarer form, is idiopathic or spontaneous. Cruveilhier gives us another division 1<sup>st</sup> Phlebitis of few veins. 2<sup>nd</sup> Phlebitis of many ~~contracted~~ in the substance of organs and 3<sup>rd</sup> Capillary Phlebitis. It is also distinguished according to the grade of the inflammation, as being of the adhesive, suppurative form. A very important and useful division especially as regards the prognosis for the latter generally proves fatal no matter how treated, while the former is much less dangerous. Causes. The idiopathic form is of very rare occurrence indeed, but it has been induced by exposure to draughts and cold air, and from long standing in cold damp situations. Its origin can be generally as-

signed either to some injury done to the vessel, or from  
the inflammatory action extending from some neighbouring  
lesion to it. Wounds in the walls and exposure of the  
Cavity of Veins by phlebotomy, amputation, and the  
separation of the placenta from the uterus after  
puncture, the application of a ligature to the  
coats of a divided or punctured vein for the ar-  
rest of hæmorrhage. The operation for varicose vein  
of the humer<sup>al</sup> extremity as done at the present day  
and still more frequently according to the old mode  
of cure, are amongst the most frequent causes of the  
disease. In connection with the operation for varice-  
tion. Abernethy thought that moving the arm too  
soon favoured its suppuration. Dr. Thomson that  
the lancet had much to do with it as regards  
its sharpness. A transverse wound of the vein which  
favours gaping and exposure of the venous cavity  
also assists and all authors agree that bleeding  
with a lancet which has been recently employed  
in operating on some diseased part of which Pusket  
gives many examples from varicose veins being  
present on the instrument gives the patient a pretty  
fair chance of having Phlebitis. Some constitutions  
especially the ~~irritable~~ irritable one more susceptible of

This disease than others and any derangement of the general health predisposes. The grade of the disease whether it shall be of the adhaerens or suppurativa form and the consequent degree of danger depends much on the state of the patient. The disease like suppuratus occasionally shows itself at particular seasons, and localities possibly depending on certain unknown emanations of the atmosphere, both are generally prevalent at the same time and all the circumstances which favour the onset of Suppuratus, Hospital Gangraena, suppuratus &c predispose to Phlegmon and of its most intense degree. Many French pathologists as Brouillard and others have regarded the symptoms of Suppuratus, suppuratus &c as somewhat connected with the presence of pus in the veins. The existence of ulcers is a constant source of this lesion whether they be external or as more frequently happens internal in some internal organ as the uterus or in the intestines, as often depending which we find is so frequently followed by abscesses in the loaves especially in warm climates. It has followed the incautious use of an exsiccator pipe and it has been known to supervene after passing a catheter into a diseased bladder. The extraction of a tooth has proved fatal from inflammation arising there

maxillary and dental veins in which case few after  
death was found in the sinuses of the brain. The  
fatal exsperatory inflammation of infants has its  
origin in injury done to the cord which induces  
suppuration in the umbilical vein and not un-  
frequently the liver is engaged in the mischief. The  
blow on the shin has caused the capillaries to inflame  
The application of pressure if firm and of long du-  
ration has often caused inflammation in adjacent  
veins. Tumours have often caused it. I have having  
observed this obliterated a varicose saphena behind  
the inner condyle of the knee in a man, the  
only means he employed was pressure made with  
strips of adhesive plaster. Now coagulation of  
the blood as was first noticed by Hodgson has  
sufficed for producing phlebitis, this is observed  
in varicose veins where a clot forms in that  
part which is tortuous on account of the slow  
motion of the blood, and extends up as high  
as the first collateral branch. As the clot is  
absorbed the vein contracts and forms an im-  
pervious and hard cord. Structural wounds often  
induce it especially dissecting ones, and if the  
subject has died of peritonitis, prostatic fever &c

The risk is much increased. Several Cases are on re-  
cord of young practitioners arising from fatal in-  
flammation of this sort produced by immersing  
their hands in acid animal matter or other con-  
tained parts of a decomposing body. The prick of  
a pin in discharging a blistered surface proved  
fatal to Dr. Jovin. A Knife used in crop-cutting  
on the ear produced this disease this disease a month  
afterwards when employed for opening a small  
abscess on the hand. In Cases of gangrene of the  
foot - the virus have been often found dis-  
tributed. Vibes published a case where the inflammation ex-  
tended to the ear, right ankle, and vertebrae,  
it had its origin from a gangrenous chilblain  
on the hand. Cruveilhier in 1814 at the Hotel  
Dieu made many observations on the influence which  
he found operating on, and injuries connected with  
the bone had in producing this disease which he  
thinks is peculiarly prevalent after such cases. He  
has often found it present along with ~~along with~~  
the products deposited in individual organs, and  
when suppuration had engaged a stump partly  
soured, and surrounded or even extended into  
the shaft of the bone. The deposits in the ~~viscera~~

be regarded as the consequence of inflammation and  
suppuration affecting the medullary membrane  
often for the length of the bone. No matter how extensive  
this suppuration may be if no pus enters the circulation  
he says there is no danger but as soon as a protective  
sheath is broken down and pus enters, a series of severe  
rigors follows returning in a more adynamic or typhoid  
form which almost always proves fatal. The records  
of Modern Surgery are full of cases of this disease  
supervening on officious intermeddling with various  
ways of ligature, Knife, Caustic &c. I have not un-  
frequently seen the needles finish a patient in  
a fortnight who might otherwise have brought  
living and enjoying life had measures of  
summary been adopted. Sir Astley Cooper was  
forced against all such proceedings, he often in  
the earlier days of his practice had under his  
own cases of this sort - which proved fatal and  
at a later date in his lectures he tells his class  
"he would sooner let one of them die his removal  
rather than his internal suppuration" and I  
believe I would do the same were it to be the  
subject of an operation  
Phlebotomy having taken place as a consequence of

we wound the inflammatory action may extend towards the heart or in the opposite direction to the distal extremity of the limb. Contrary to the current of the blood, sometimes it spreads in both directions. The point wounded generally inflames and becomes painful, a little pus is seen over the orifice before the disease appears. The limb affected becomes painful swollen, tense, painful, and very stiff, along the course of the vessel, these signs are most prominent and in making pressure there is felt a hard, knotty cord, rolling under the fingers and giving to the patient acute suffering. The most frequent case is that the surrounding parts are affected as well as the vessel giving an appearance like erysipelas. More rarely the action is confined to the vein and the parts immediately covering it.

The inflammatory action in the veins is usually terminated by the passage of a current of blood, when a trunk is concerned the action often ceases at the opening of a branch, and when a branch it frequently ceases at its junction with the trunk. The inflammation here in kind I doubt say stops always when a current enters but at the point where it does cease, the vein receiving a branch,

or ends in a trunk. The <sup>all</sup> extension of the inflammation to the cavas and heart mentioned by Hunter as one of the probable causes of its fatal termination has been generally found not borne out by pathological observers. The inflammation seldom ~~more~~ extends this far and the amount of surface engaged in fatal cases is very various sometimes all or most of the vein of an affected limb are engaged, not infrequently, only the one in which it was first set up! and a few fatal cases are recorded where only a few inches of a vein was affected, which has led some to suppose that the extent of the inflammation bears no ratio to the dangerous consequences. The symptoms have a very close resemblance to those produced by injecting acid and poisonous fluids into the veins and as pusulent fluids or other product of the inflammatory action is almost always present in the veins of those dying from this disease, most have ascribed the occurrence of the secondary affections and of death to this particular ingredient acting as a poison in the blood. Arnott collected 19 cases in fourteen of which pus alone or with lymph

was found in the vessels at the post mortem, in two cases no mention is made of pus, but the matter present is described in one of them as adhesive matter; in the other where the cura was engaged as plates of lymph, and in only one case of Hodgkins when the vein was varicose neither lymph or pus was present. Reasoning from this it will be evident to most persons that since an inflammatory product pus or lymph is almost universally present and since the <sup>the</sup> induction of a similar fluid into the veins causes the same constitutional disturbances it is but a fair deduction that the secondary affections and the derangement of the system are caused by their presence, some formerly argued that the symptoms came on too soon after the action had been set up to be thus accounted for but this must be all since the microscope has come into such general use appear a more verbal objection.

"In from two to ten ~~or~~ twelve days after the receipt of the injury" says Mr. Arnott "the secondary or constitutional symptoms manifest themselves. There is much restlessness and anxiety, prostration of strength and depression of spirits, sense of weight at the pectoralis

frequent sighing or rather moaning with paroxysms  
of oppressed and hurried breathing, the patient at the  
same time being unable to refer his sufferings to any  
specific source. The common symptoms of fever is  
present - the pulse is rapid reaching to 130 to 140.  
per minute, but is in other respects extremely variable,  
perhaps intermittent. There is often sickness and  
violent vomiting especially of bilious matters frequent  
and some rigors almost invariably occur sometimes  
to the number of three or four in the course of an hour.  
The general irritability and deep anxiety of the  
countenance increase, the manner is quick and  
the look occasionally wild and distracted. When  
left to himself the patient is apt to mutter in-  
coherently, but in being directly addressed is found  
calm and collected. The features are pinched and  
the skin of the whole body becomes of a sallow  
or even of a yellow colour. Under symptoms of  
increasing debility and at a time when the  
local affection may appear to be in a great degree  
subsiding, secondary inflammations of a violent  
character and quickly terminating in effusions  
of pus or lymph, ~~may~~ may frequently take  
place in situations remote from the original in-

young; the cellular substance, the joints, and the eye  
have been affected; but it is more particularly under  
a rapidly developed attack of inflammation of the  
veins of the chest, that the fatal issue usually occurs.  
Whether this is observed or not, death is always pro-  
ceeded by symptoms of extreme exhaustion, such as  
those of a rapid feeble pulse, dry, brown or black  
tongue, teeth and lips covered with sores, haggard  
countenance, low delirium.

The larger the vein affected there is the more danger to  
the patient; as there is less chance of the vein being ob-  
literated by the adhesive inflammation and the con-  
sequent insulation of the paralent fluid, and the chance  
of the arrest of the inflammatory process is also much  
diminished. Inflammation of the membranes of the  
brain is not an infrequent ~~occurrence~~ attendant  
of Phlebotis and in several instances the eye is  
recorded by Higginbotham and Marshall Hall  
as being perfectly disorganized, the cornea bursting  
and the contents of the globe escaping. This has  
followed both in ligation of the Subclavian and  
obstruction of the internal jugular vein.

When Phlebotis occurs of no matter what variety  
the first effect is coagulation of the blood which

adhesions to its lining. Cruveilhier observed the same  
in his experiments when he introduced a sheath into  
the vein or injected some viscid fluid, Resulting from  
this is a Stagnation of <sup>the</sup> blood and unless the coti-  
lateral vein carry away the blood there is an  
effusion of serum beneath the surrounding parts. This  
is the pathology of one form of Phlegmasia alba dolens  
affecting women when pregnant or after delivery  
and in them the amount of danger is generally  
proportionate to the degree of swelling which is always  
of a pale colour. Inflammation of the lymphatics  
gives rise to a swelling of a rose colour, the cord  
felt beneath the integuments is more knotty and  
more superficial. These points might suffice for  
the diagnosis of the superficial set of veins and  
lymphatics, but nothing distinctive is known by  
which we can determine whether deep vessels  
when affected be of one or the other variety.

By far the greater number of the cases of this  
disease terminate in the adhesion of the walls  
of the vein to each other and its consequent  
obliteration. All the wounds of veins are thus cured.  
It is in the same way that the uterine veins  
are closed after the separation of the placenta



This 2<sup>d</sup> grade of the disease is attended by the deposition of pus which Celsus & the Arabs is laid down first not in the lining of the vein, but in the centre of its clot. Some of the old pathologists, viewing this thought, the clot organized and capable of undergoing the inflammatory process - but here we merely see the general law prevail. The same is seen in cases of circumscribed pleurisy when the lymph in the centre first forms pus - because the most distant from the vessels which nourish it. The same is seen in the tubercular deposits. Some cases of the suppurative variety of the disease having gone this far are arrested and no harm ensues. The pus is absorbed and the coagulation is either removed or organized and no symptoms denoting its presence show themselves. Does the disease go on in its progress the amount of pus increases till the vein is filled and the quantity of the coagulum diminishes. The vessel becomes brittle when the pus forms which may at last elaborate a way for itself towards the surface and be then discharged. Many instances of this are on record, viz of abscesses having communication with veins

So long as the pus remains incalculated there is com-  
paratively little danger, but as soon as it enters  
it causes violent rigors and septicæmic symptoms which  
soon terminate fatally. When the body of a person  
dying of this form of the disease is examined circum-  
scribed purulent collections are found most frequently  
in the lungs and liver, but they may also be found  
in the cellular tissue, spleen, brain, kidneys, heart  
or in the synovial and serous cavities; no other  
source of the organs affected can be traced or be  
said to account for the presence of the fluid.

In former times pathologists found after wounds  
and surgical operations abscesses of the liver &  
lungs which they could not explain, and they  
exhausted their ingenuity in inventing theories  
to account for this mode of death, for these  
cases were quite healthy, they were under previous  
to being operated upon, and they were completely  
at a loss how to account for the rapid for-  
mation of these deposits. Sympathy (a wide word!)  
was in those days the only Fund of Connection  
between these viscera. Morgagni in his researches  
noticed that the liver was not the only organ  
affected after injuries of the head as was before

his day thought, and sympathy was put upon such  
a stretch that it was no wonder it gave way and  
at once yielded when Hunter and more fully Arnott  
Percival Poirer explained that the link was  
phlebitis and not sympathy. Cruveilhier in 1826  
published the following statement deduced from  
his experiments. Any foreign body introduced in  
the living subject into the venous system occasioning  
when its discharge by the anastomosis is impossible  
visceral abscesses completely resembling those con-  
sequent on wounds, and surgical operations, and  
such abscesses are the result of capillary phlebitis  
in the same viscera. Of the correctness of this last  
remark I am fully convinced in my mind,  
for the pain often felt during life and the softening  
or redness of the textures around observed in dissection  
serve sufficiently to evince the fact that the pus  
carried by the blood to the several viscera  
has there lighted up this suppuratory inflammation.  
These deposits vary in size. They are disseminated  
through the texture of those viscera which are  
generally red to a pretty large amount in  
their vicinity. The close observers of this part  
of the pathology of phlebitis say that there is first

Sanguineous infiltration which by and by becomes purulent from the centre as from a nucleus and thence extends all over it. The question has been raised whether these surrounding vasculities might not be the consequence of the pus carried thither by the blood raising up an inflammation in the organs, but most of the present day hold that the inflammation precedes and is the cause of the deposit.

In the treatment of this disease our chief reliance in the commencement is antiphlogistic remedies indeed almost all those cases of traumatic phlebitis which have been treated by stimulents have proved fatal. The limb should be supported and preserved in a state of rest, and leeches commensurate with the severity of the case should be applied along the course of the vein, and a poultice if acquired - this is the most important part of the treatment. The part must afterwards be covered with a poultice or evaporating lotion, Diaphoretic, and Calin purgatives should also be exhibited. M<sup>r</sup>. Sanson has treated phlebitis with tartar emetic, with great success. As to the constitutional treatment, I never see such

Much reliance can be placed has yet been determined  
When the symptoms however indicate a state of  
great depression, Stimulant must be given, of  
three kinds, ammonia, yuinin and Camphor and  
the best.

As proof of some of the propositions mentioned in  
the course of this paper I shall briefly mention  
a few of the experiments of Beaumont which  
illustrate the mode in which this action once  
set up progresses and also shows how several  
facts have been brought to light by them  
Concerning the truth of which this was previously  
only a probability. The injected the femoral  
Vein of a dog with any irritating fluid such  
as ink in the direction from the heart having  
previously broken down with a probe a few of  
the valves, if the collateral veins don't carry  
the fluid into the circulation, which happening  
death at once results, if not the limb swells in  
36 hours, and if we then kill the animal or  
it dies - innumerable bloody extravasations are  
found in the substance of the muscles and in  
the cellular tissue of the limb. The large veins  
are filled with an adhering coagulum, and

also the small ones of the part where the extravasations  
occurred. Those belonging to the healthy part are free,  
if the experiment be again performed and the animal  
live longer, we will find pus replacing the collecting  
of blood both in the vessels, and in the cellular tissue.  
When a piece of shilk was introduced from the femoral  
vein into the Caru and the dog was allowed to  
live to the sixth day, the limb was unswollen, the  
infiltration extending up as high as the Throat.  
All the veins of the lower extremity were full of  
pus and on dividing the muscles, small abscesses  
were seen which proved to be minute veins  
swollen with purulent matter. The knee joint  
was also filled with pus. Being well advised  
of what became of the pus of a phlebitis, but when  
mixed with the blood, as then the detection  
is impossible, he was then forced to use mercury.  
No matter how introduced whether from the  
femoral or jugular veins, it was found in the  
lungs; if sent in through the abdominal veins  
it was found in the liver. If much be injected  
the animal dies before 24 hours as if from asthma  
or suffocative catarrh: the whole is then found  
in the lungs which are full of serosity.

If a smaller quantity be employed each globule in the lungs is surrounded after a time by an induration and still later by a collection of pus, and at a more advanced period a mixture of pus and tubercular matter. If the animal live a few months tubercles are found with a globule of mercury in the centre of each. Having broken down the medullary texture of the femur, he put in quicksilver, the dog lived four or five days and on examining it all the matter was found in the lungs. Each globule of it surrounded by an inflammation and contained entirely in the ramification of the Pulmonary artery. When mercury was injected into the abdominal venous system through one of the mesenteric veins he found in a dog which lived 24 hours after the operation the liver studded with superficial red patches slightly indurated containing each a globule in their interior. Some of the mercury had penetrated into the small intralobular veins opposite each one of which the mucous membrane was red, bloody & lined by a false membrane. In a second dog which had an umbilical

apophysis he introduced some mercury into an  
orbital vein, in ten weeks, he killed the animal  
The momentum contained throughout many feet  
long or agglomerated tubercles very firm, The  
Linn also contained many both on its surface  
and in its substance. They were composed ex-  
trinsically of tubercular matter, than a lamina of  
pus forming a nucleus of quiescence in the center.  
He hence considered it proved that pus or other  
fluids introduced into the veins is arrested at  
various departments of the Capillary system.  
That it may when excited capillary phlogosis  
or circumscribed inflammations which ad-  
vanced to form abscesses, that these matters  
are most frequently arrested in the lungs,  
next in the liver, and then may several times  
perforate the Capillary system in succession and  
cause inflammations in all parts of the body.

All Medical Men have noticed the great difference  
in relation to secondary effects between abscesses  
of long standing and the suppuration of recent  
wounds. Abscesses of large size often disappear  
very rapidly and there is no injury done to  
the matter, although the pus enters the blood

and is again eliminated, but the difference seems to depend on the fact, whether the pus has been absorbed or whether it be generated within the vessel and thus be introduced without any change or preparation. In the former case, considering the moment of absorption, its character is altered and it is fitted for entering among the impure blood to be thrown off by its proper channel. In the latter it acts as a poison and soon excites fatal inflammations in a variety of situations. "