Graduation thesis,
On the fibrinous concretions which occur in the heart and blood vessels during life.

by
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Hence we find that the various modes, in which death and more especially, sudden death, occurs, have been studied with the greatest care and accuracy by some of the most illustrious of which the respects of the profession can boast.

By their labours our science has been materially extended and the interest of those already advanced, and innumerable have been discovered which have proved of the greatest service to medicine, yet there is one disease, Condition, perhaps in many cases as swiftly fatal and as far as our present information extends, as little amenable to treatment as any other, which in the profession generally is comparatively little known; indeed its very existence has been questioned by some and absolutely denied by others. — a form of death, very commonly but erroneously, supposed to be slow for the first time engaged.
The attention of the members of the profession — far however from being now investigated for the first time, it formed the subject of discussions from the middle of the seventeenth to the close of the eighteenth century, and was warmly debated during that period.

For a time the subject appeared to have been lost sight of and well-nigh forgotten until renewed of late recent years. Since this revival it has been re-investigated by Vries, Kirchou, Richardson, Culbreth, Humphry, Paget, and others in our own country and on the continent.

These observers have explored the records of former controversies as they are found in the writings of Pater, H. Brindley, Coulth, Bar., Serres, Culjed, Chisholm, Neushard, and many others — controversies, according to Dr. Richardson, extending over "miles of ancient paper in the keepable files."

So far then from Commencing
An earlier essay investigating the labours of preceding ages, and indeed in our knowledge of the subject we have advanced, lead us a little beyond what these records contain.

Reasoning in mind these facts in selecting a subject for my graduate thesis, I have been led to fix on that of Embolism, to use a term under which the subject is tolerably familiar and which it but right to state "in limited", that is the pages of a necessary brief dissertation, I attempt only a short and I fear very imperfect exposition of a subject to which and so con. specially difficult and obscure— a sketch based on such information as my limited time and opportunities have enabled me to procure.

Through one careful literature, teens with communications on this subject, this series rather to increase than diminish the subject.
Difficulty encountered by one who endeavors to give in a short-hand comprehensive form a statement of the most salient points.

Independently of the circumstance that the communications of authors are scattered through so many ponderous volumes, their conclusions are by no means free from discrepancy. It is therefore a task of no ordinary difficulty to embody in the form of an essay the result of their observations.

Masses of coagulated fibrous matter have been found in the heart and other parts of vascular system after death. They have received various designations, as "thrombi", "false polypi", "polypoid concretions", "fibrous concretions".

The term last mentioned seems the best inasmuch as it is that which most accurately describes their pathological nature but it is objectionable from being too long and cumbersome. The names "thrombus" and "thrombus", the latter
applied to the known forms of concretion
have been quite, whether, by Yersinian
and that chronic medullary in their
being easy of application.
The term embolism has quite
rise to that of embolisms, applied
to this pathological state and though
objected to by some, its convenience of
extent to have securely established
it in medical nomenclature.
The question was discussed at an
date period, perhaps somewhat-
definitely, and even now in the
shape, not decided to the satisfaction of
a year;—

Are theses concretions formed by,
if ever after death?

Some maintained that they were
formed after death and were therefore
of no pathological moment whatever.
Others again asserted that they were
formed before and were indeed in
many cases the direct and immediate
cause of death.

So arose a discussion, which had
the effect of stimulating research and
which caused many observations to be recorded, whose value, though not at the time apparent, has become so Eric a Controversy which, though it failed to convince either class of disputants, has not been without good effects.

It is here interesting to notice that both were to a certain extent right, for it is perfectly true that we may meet with a Coagulum of fibrin which had been formed after death; at the same time it is equally incontrovertible that we may meet with one which had been formed during life. The two differ in many respects. Particularly — the former may be met with when death occurs in states of hyperemia, a thin layer of fibrin on the interior of a red-blood clot — a mere coating of the red-clot by the Excess of Fibrin; it is not adherent to the wall of the vessel or cavity; whereas in the latter case we have a mass moulded on the cavity or vessel in which it is found marked by grooves along which
blood had gradually passed during life of the adherent, more or less firmly, to the vessel — also in many cases the effect is such that it could not have been of post-mortem formation, as the blood remaining in the cavity at death could not possibly have contained a sufficiently large amount of fibrin to make up such a clot.

If any further proof had been required it has been afforded by Dr. B. W. Richardson in those experiments on the lower animals in which he has produced a fibrinous coagulum artificially by the prolongation of inhalation of oxygen gas. The case given in the foot note is an example.

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"A pigeon, was made to breathe oxygen gas for six hours; the inhalation was then stopped that fresh gas might be applied — soon dyspnoea came on. After nine hours the creature became pale with convulsions and inspirations. The respiration became stopped — third angina. Convulsions came on; continuing for two hours more when sleep came on lasting an hour. Thirteen hours from the
In case surely affords proof of the most conclusively that such clots may be formed during life, since, a true gliborous concretion was here removed from the pulsating heart of an animal while it yet lived.

I think therefore we are justified in concluding that such concretions may be deposited in the heart or blood.

Annunciation of the experiment rapid maccutain was induced and the head opened while it yet felt.

The Araneso was found filled with a

×paxalene of fat, accurately modelled to the

wall; a cord being protruding from it through the Araneso along the Pulmonary artery - a bellows

that passed up from the lower part of the left

Araneso dividing as it approached the Araneso:

Vascular opening, the division along the valves of

rinding the skin and arches from which a prolongation of

tended into the Araneso, was constructed by the valves

and afterwards expanded to fill and guard the

arteries of the head. The construction was

beautifully modelled to the interior of the Araneso

and to the valves. Plastic lymph was spread

on the flap surface of the mucous membrane of

the cheek, accounting for the Group al inspiratio
The experiment just cited is of value also from the fact that in it witness hyperemia resulted from the prolonged inhalation of oxygen gas and from the association in it of Croup with the existence of a fibrinous clot in the heart.

Similar results having occurred from the prolonged inhalation of oxygen in other experiments performed by B. H. having met with many cases in this experience as a physician, in which an occlusion of this kind in the heart was associated with Croup, he has been led to conclude that the formation of a coagulum of fibrin in the heart is a more common cause of death in Croup than is generally believed. This is of great practical moment in reference to the performance of tracheotomy in this disease, since this operation could possibly be of service in a case of Croup in which the tendency to death arose from the existence of a fibrinous
in the heart or large arteries.

It is abundantly clear that there is a much greater liability to the occurrence of these clots in some diseases and states of the system than in others and the question may now be entertained  -

What conditions of the system are the most favourable to the occurrence of these concretions?

The following general conclusion appears to be deducible from the evidence before us; that such concretions are most liable to form whenever the fibrin of the blood is increased in a relatively or absolutely or generally where it is at or above below the normal standard of firm old age or premature decay that is languor of the circulation with diseases of the coag of the vessels.

According to Strong and Strong, (p. 20) "Every condition of the system in which there is an increased amount..."
of fibrin in the blood, is favourable to the deposition of that fibrin. In other words — a condition of slight or relative increase of the fibrin of the blood is one prominently favourable to the occurrence of fibrinous exudation in the heart, arteries, veins, or central sinuses. In such cases the fibrin may be said to be absolutely or in a homely expression, "chased out of the blood," and wherever a "point of appui" is supplied by an excrescence from the valves, or an inner free edge such as the interior of the sinuses and trabeculae of the heart presents, there and there a coagulum — an embolus may come to rest.

In the excessive debility and exhaustion consequent on diseases of the acute inflammatory type, there is a tendency to this result; for if, said a considerable proportion of recorded cases of embolic disease in the course of such maladies as Croup, hemorhitis, pnenmonia,

Now it is known that the fibrin of the blood is increased in these cases, thus experienced physicians are led "a priori" to expect.

In the puerperal state, bleeding is comparatively common. There are probably few obstetric practitioners of long experience who have not met with cases of alarming or sudden death from this cause.

Sir Churchill says that this was first pointed out by Dr. Meigs, who remarked: "(Obstetrics, 7th ed., p. 308) "It is well known that the coagulability of the blood is greater in hemorhoids that are present; therefore a woman who has lost during her labour, forty or eighty times of blood, has the rest of it more coagulable than it was before flooding commenced."

"But, and this is the danger, if she faint badly, while her blood is becoming thin and highly coagulable from hemorrhage, the
scarcely moving current partially stops in the heart and enters the cava out of the deliquium; if ever, there is with a coagulum in the auricle and ventricle, she has a false polyp in the cavity and will surely die.

Again the page: "They now to consider briefly the effects produced by a mass of fibrinous remnants of a clot, suddenly formed in the and squashed by the cavity or cavities of the heart. Enlarged as the thoracic blood can only get back to the external side by passing through the pulmonic heart, such a clot, if of large size would either unknot or plug greatly hinder the return of blood in the left. In fact it would be equal to a partial or complete ligation of the Cava superior or inferior. Death is likely to follow the occurrence either immediately or within a few hours. They observed it to be at about eighteen hours, in thirty-six in eight days."

Loss of blood, syncope and Epistaxis in impoverished states of the
system; favour deposit of fibrin
because it is excess, is relatively more
creased; the blood is thinner, more
washing, its coagulat is discommitted
through a larger quantity of
fluid and states of the blood
alone is needed to demonstrate ascend
fibrin.

Independently of the occurrence
of flooding, there was in the per
nual state, was fully insisted
their favouring Circumstances.

During pregnancy a large Ms.
Color renews the term — is being
built up and the blood is the
Homing material for this purpose.

Large quantities of fibrin
(for sustenance and fibrin are seen,
ly, if at all, not necessarily for
each other) is made up that
promotes, and after delivery the
same material required is the
removed, and the blood makes
the white by which that proc.
Gravel is affected; it need not therefore be a matter for surprise that fibres should be liable, at this time, to concretion in some part of the vascular system of the purulent woman, particularly when we remember the additional fact that from the exhaustion following parturition, there is great likelihood of fainting and, as De Meurig remarks, in the passage just quoted, the veins come out of the abdomen with le Tagalums in the Cardiac Cavities.

Again, some cases of purulent infection may be accounted for on the ground that a portion of this may be Gomb sudden muscular obstruction be detached and set free in the circulation from the kidneys which close the large and uterine veins after delivery—two pieces of decentered blood, producing embolic obstruction of some important vessels.
While perusing the notes of recorded cases of tuberculosis which are found interspersed throughout the periodical medical literature of late years, the reader cannot fail to be struck with the fact that this is a not-infrequent cause of death in phthisis, probably owing to the colliquative events and phenomena which attend that disease, draining away the watery portion of the blood, deranging the balance of its elements, the thicker blood increased relatively to the other constituents—one of the great predisposing conditions becoming thus established.

In extreme old age, when the powers of life are at their lowest ebb, or where premature senescence has been induced by habits of drinking, or other excess, by syphilis, overwork, exposure, vicissitudes of temperature, and other causative causes, we see_intersectional heart is languidly carrying on the ceaseless labours of the vital mechanism, the form though not in excess, yet even where below the normal standard may be deposited in some part of
of the vascular system.

When hemorrhage occurs in these cases it is probably harmless to meet
section of disease of the walls of the vessels with the above condition of
deformity—the state of things being
similar to that which we find in
aneurisms.

We know that from dilatation of
the vessel, the circulation of the blood
through aneurisms is slow and fibrin
is deposited in layers forming a
lining of the sac.

This has been shown. The actual
deposit of fibrin and not merely a
coagulation of the blood as was
at one time supposed.

In seeking an explanation of
this occurrence we cannot remember
that the blood is not a permanent
but a temporary fluid. Its fibrin
is maintained in a fluid by means
of a volatile solvent which BéRi
shews he has shown to be ammonia
that gentleman explains that
the blood yields up its solvent.
that which passes on up the vessel and that the fibrin is deposited in a solid form as a lining to the ear. Induced more to the opinion of Mr. Lister the believes that the and:
tomical and physiological energy of the battle of the vessel being on:
paired, escape of the blood entails
be permitted, solidification of the fibrin.
In perfect as the exp:
planation may be or certainty of:
plan, till at present the belief:
applying it to the last-mentioned group of cases, in which the blood
circulates longingly through vessels whose coats are diseased and re:
sirable of retaining, within them the
blood, coagulant, whatever that substance may be, it is not surprising that
fibrous concretion should in these vessels.
In some cases of peripnoe, however,
typical as, where the patient lies in
a condition of extreme prostration,
with an almost paralyzed heart from
propelling the blood upwards, a
a fibrous concretion may be affected in the heart.

The sudden introduction of a reptile poison into the blood, cause deposit of fibrin at the place where it occurs. Gascard and Les on injecting pus into a vessel found a deposit of fibrin took place. Natural disc and putrid put and the blood remained fluid. Since pus is a weakly acid fluid whereas recent blood when putrid is alkaline, and since the blood cotnent is alkaline, it may be that the acid neutralized by the former deposit of fibrin but while it was mopped by the latter.

The entrance of certain poisonous fluids into the body by absorption, or their presence in the, as the result of certain processes going on in the body, may be mentioned as occasional causes. Probably of the production of this condition with regard to phlegm, asthma, and pleurisy of some stating their belief that these diseases are produced...
by the absorption of certain obnoxious fluids by the urine — a view of the etiology of these diseases which is of all perhaps the most generally entertained.

It is not perhaps going too far to say that a closer relation may subsist between the etiology of these diseases of certain cases of tabolos in whose pathology we yet feel authorized to speculate. The careful and minute analysis of the phenomena, attendant on those great groups of diseases in the course of which these concretions are observed to occur, would well repay the labour which it would entail and might go far to dissipate the obscurity which unhappily has ever surrounded this subject. Such an inquiry would involve the expenditure of more time than is at present at my disposal and its exposition would demand a volume rather than the limits of an essay like this. It is perfectly apparent that the more extended our knowledge becomes of the constitution of the blood in different states...
of disease, the more shall we approach an understanding of the pathology of embolism.

In what situations are these concretions most generally met with?

This is a highly important question, as the symptoms to which they give rise and the effects which they produce, directly depend on their situation. Authors differ somewhat in stating the most usual sites. The cardiac cavities, especially those of the right heart, are however without doubt the most common situations and the reasons appear tolerably obvious:

1. These cavities constitute dilatation of the vascular system.
2. Their internal surface is rough, from the presence of valves, trabeculae, circular bundles, etc.
3. There is liability to obstruction of the circulation from vascular insufficiency for contraction of an oriifice and pulmonary arteries.

Again, they are frequently attached to the appendage auricle, to the auricle or ventricle, leading to prolongation of...
the pulmonary artery or may be attached to a valve or a resection on a valve. They may be solid, almost filling the cavity, and grown by blood passing over them or exist as a layer forming a false lining to cavity as a solid cord or hollow cylinder more or less complete, passing into the pulmonary artery and following its ramifications. In such cases the clot being a hollow tube may constitute a false lining to the wall, admitting of the passage of blood and being found after death to contain a clot of red blood. Clot occupying the cavity. The most perfect form of condition is that which consists entirely of pure fibrin, fits completely one cavity of the heart and has only a small quantity of clotted blood in contact with it.

A bubble clot is occasionally found in the right auricle, with a layer of red blood clot between its two divisions. A clot may be attached to the auricle and extend into the ventricle or may lie attached to both auricle and ventricle in either case constructed by and inter-
Spring with the action of the valves.

Dr. Richardson met with a case in which the contraction nearly filled the right atrium, was attached to the right ventricle and sent a prolongation into the pulmonary artery. I recollect having seen a constellation of pure gum fibroid which was attached to the infundibulum, extended into the pulmonary artery, branching at that vessel breached, not however as is usually the case under these circumstances a hollow tube but a solid cylinder. Hollow tubes of fibrous having been met with in the small ramifications of the pulmonary artery, it is probable that they were depicted in the situations in which they were found.

In the left cavities they are rare and are attached to the valves, frequently the vibrations produced by inflammatory exudation.

In the aorta, they are most frequently excited or less complete cylinders attached to the commencement of the valve or to the value of prolonged from the left ventricle and sometimes attain an enormous length.
One in the museum of the Royal Colleges of Surgeons of England occupies the abdominal and abdominal aorta. They have also been found in the aorta attached to the office of an intercostal artery. One of the most complete instances of embolic obstruction is that recorded by Dr. Tuller in the London Med. Gazette for 1847, where the whole of the aorta of the lower half of the body were plugged by coagulated fibrin.

In the more distant arterial circulations are found plugging the vessel, having been detached from the heart or formed at the place where they are met with after leaving the latter case adhering to the vessel, in the former probably unattached.

The interesting case of a coronary formation of these concretions, in a coronary is occasionally met with, having a groove passing specially round it and leaving a channel for the passage of blood.

With an artery from disease of its coats has lost that elastic peculiarity which it normally possesses, it is very likely to become the seat of a saturnine deposit: once it no
longer exercises, duty, that power by which the regulating act is carried out; the amount of blood passing along it, a function which is an auxiliary one in the circutation and without which retardation of the circutation must necessarily result; if we add to this the possiblity that on Professor Lister's theory, the volatile blood coagulated is permitted to pass out of the vessel, we have circumstances at the highest degree favourable to the occurrence of fibrinous concretions which leave little room for doubt as to the possibility of such concretions, being sometimes left down in the more distant arteries. In the veins the deposition of fibrin is doubtfully dependent on the local general laws which regulate it in other parts of the vascular system.

One source of recurrence of erosion in the veins probably consists in the detachment and convaguation of the circulation of matter of fibrin derived from the plugs which close the veins, such as the uteri after delivery or the hemorrhoidal in cases of piles.

The distinction between true fibrinous concretions and incrustation is the result of this.
inflammatory exudation to say he means simply drawn in some cases. The opinion of
Brody's practice that it affects passed into
the mass, it was not a concretion formed
by deposit from the circulating blood but
the result of inflammatory changes in the
lining of the cavity or vessel. This is in all
likelihood correct but we must recollect that
such excreta having once formed as the
result of inflammatory action might receive
further deposits of fibrin from the circulating
blood, now coming to participate of the channels
of both formations.
The fact that some concretions contain
in their interior a transparent fluid was
at one time regarded as proof of organisation;
Mr. Callier has shown that this fluid is pro-
duced by the molecular disintegration of a
certain portion of the mass, that its presence is
evidence of inflammation and cannot be ac-
cepted as affording any proof of organisation.
That such a concretion may-offen and a
portion be carried away in the circulation and
brought up as a distinct foreign body, a view advocated
by Eulal and maintained in our own country
by Turkish is probably questioned by none, that
such a migratory clot might acquire attachment by necrosing inflammation to certainty not impossible.
The full and complete adhesion of this, however, may preclude the statement of what may be deemed equally conclusively shown viz. that a certain amount of clot or mass may be deposited at the place where it is found, wholly irrespective of the partial or complete detachment of a mass of fibrin from the heart.

Passing now to the consideration of the symptoms originating and effects produced by these masses of fibrin either in various parts of the vascular system, it is at once obvious that these are as diverse as the sites of their occurrence.

**Symptoms and Effects.**

In the right and left and pulmonary arterial these formations give rise to symptoms, mainly indicative of obstruction to the pulmonary circulation.

It is considered that holes found in this situation, are either deposited there from the circulating blood, or are migratory. The conditions under which the former are deposited have been already fully discussed, as also the various "points of attack" to which they are ordinarily attached. With regard to the latter
they are detached from a clot in a retained or residual vein. According to Messager these never occur. They are cases of metastatic or metastaphlebitis. In the vast majority of cases however the fibria is deposited in the heart or pulmonary artery itself or reaches the heart after detachment from the head.

The symptoms will resemble the pulmonary artery, being dependent on the cots of the organs. If it blocks up one of the smaller ramifications, the onset of asphyxial death will be dependent upon the duration of asphyxia. If one function is suspended, while the capillaries of the surrounding part will be in a state of activity. Congestion, by means of this perfusion and in this way doubtless obtains. The cause of death may be accounted for.

Acute pulmonary effusion, pulmonary gangrene,

P. apoplexy as among the occasional deaths which occur.

W. Abolzer conceived that pulmonary gangrene is the result of occlusion, i.e. of the Pulmonary artery and of the bronchial artery and it certainly seems more likely to result from plugging of the latter than of the former and convulsions. Blood for aeration and not for nutrition. If the constricting lid of large size, it may plug the pulmonary artery, producing abrasion of the lungs.

The symptoms which indicate the
presence of a clot in the Right Cavity of the Brain or at the
Parotid, which are unbreathed and may be illustrated
by supposing a case, such as the following:

A patient, suffering from acute disease, by hemorrhage or a
wound after delivery makes some sudden muscular move
ment, such as rising up in bed, or falling back in bed:
She faints, feebly convulses, pateclips,—dead.

Before the medical attendant came he commenced
or it may be death is delayed for a few hours.
The physician on his arrival finds the patient
faint, gasping, suffering from a seep and ineb
stretching the face—so that there exists any
beneath a barrier of air for the air tubes freely
at each inspiration and the respiritory number
visibly audible over the chest, but because the
blood is prevented from passing into the lungs
for absorption.

So the necessity for oxygenation
of the blood, — the necessity for respiration of the
lungs which impels the patient to those gasping
efforts. These may be employed from rupture
of the ear vessels. — The supply of blood to the
left Cavity of the head is cut off; consequently
there is a feeble, intermittent pulse, the veins and
other organs are commonly receiving only blood and
muscular delirium, and Cyaneal stumps. The veins
are engorged — the lips and cheeks are bluish.
There is marble palor of the skin - coldness of the surface - the orifices are moved feebly and redlyly - the patient lies with a death written on his face. There is involuntary deflection and protrusion - and death terminates the painful heart expiration outlives the paralysed or obstructed head.

Thus in such cases death is a mixture of asphyxia and actual syncope for asphyxia or asphyxia means death by insufficiency or cessation of the action of the heart. Whether that be owing to prevention of access of the lungs of air or of blood - in either case the alternate effect is the same - the blood is not arterialized.

The obstruction at the same time prevents the passage of blood into the left side of the heart and syncope is the consequence.

When the clot obstructs the circulation by its presence in the left auricles or aorta, we find the head pulsating violently - the lungs white and heavy - engorged with blood - suffocative dyspnea - acute pulmonary asthma or Pneumonia - expectoration frothy or bloody, skin dusky and flushed - extremities cold - abdominal and cervical veins swollen with blood - the violent action of the head utterly powerless to propel the blood onwards.
beyond the obstruction. The blood reaches the brain of the organs or at all events the blood supply diminished and syncope (perhaps coma) and death follow.

It may here be remarked that these obstructions are much more common in the right than in the left heart, in account for which Lane only suggested the effect of obstruction of the pulmonic circuit, as a possible reason.

The symptoms and effects of the impaction of a Coagulum of tissue in the aortic valve are modified by the size of the Old and the calibre and number of the collateral communicating branches. If the aorta is sufficiently wide to admit of nutrition being carried on—modifications—dry gangrenous areas—the heart dilates annularly while in adjacent parts, hypertrophy inflammatory exudation, chronic effusion takes place, operating the aorta at the former healthy parts.

Should the particles be small, they may merely give rise to local congestion and effusion at the organ in whose capillaries they happen to lodge, these effects passing off with restoration of the organ to healthy condition.

If the masses are larger, the consequences may be serious, gangrene of a limb or of an eye.
important organ peculiar.

Arterial emboli are said to occur much more frequently in the splenic artery — one of the branches of that vessel being occluded.

The very early changes, according to Thiersch, are augmented by superfetation; launders of fibrin, if these become larger in clots, undergo fatty transformation and molecular decay, part is absorbed while another part is converted into fibrous tissue, which, contracting, causes a depression in the atrophied organ. In some cases pyogenic brochastitis, opposite, has caused softening of the splenic clot, which breaks down into a caseous purulent fluid. Hence cases have ruptured of the wall of the cyst, with escape of the contents into the peritoneal cavity, has occurred, giving rise to fatal peritonitis. He admits that the diagnosis is often obscure, relying on splenic enlargement and sudden pain in the region of the organ, concomitant with physical signs of disease of the heart. While Shaw's grave doubts as to whether such a condition could ever be fatal, factually diagnosed, it must not be improbable that such might actually exist.
softening, their interior breaking down into a bilious brown case; purulent fluid, the walls of the eye becoming thinner and thinner, until clouded rupture takes place, allowing their content to mingle with the blood, this is enabled to recede by various methods by which infection may be produced.

Emboliem of the renal artery sometimes occurs. There is doubt to be constant allumination and haemorrhage of its branches only be elicited and diagnosis of this form of embolism seems to me to be practically impossible.

The symptoms which characterize the occurrence of embolism of the principal artery of the limb are: coldness of the skin, absence of pulsation, severe pain in the part, tingling and formication in some cases, then loss of sensibility and what is of chief consequence paralysis, without cerebro spinal disease to account for it.

These symptoms may pass off again and power return to the limb, from solution of the clot or establishment of the collateral circulation or on the other hand gangrene of the limbs from may result. Should a Co. agulum at the cause.

...
Until plugging the vein, the gearbox will be moist.

When the main artery of a limb is the seat of a coagulum, the termination is almost invariably fatal.

In the cerebral arteries, if a proximal artery of the circle of Willis is closed by means of fibrin the collateral circulation may be established and no bad consequences follow. If a distal artery in the middle cerebral be affected, while efferent branches of the posterior cerebral thus deprived of nourishment, the brain will prove, dying in hemiplegia. In this case there is a portion of brain in a state of white affracting, circumscribed by a boundary of red affracting, which is separated by adematous from healthy brain.

When the carotid is obstructed there is loss of consciousness, perhaps convulsions and hemiplegia, passing off gradually as the collateral circulation is established. In a more peripheral artery more serious symptoms are witnessed—the patient falls down like a person in a fit of epilepsy, hemiplegia, and death rapidly succeeding or should consciousness return—blinding, deafness, loss of speech, violent epileptic or maniacal attacks may occur followed by monotonous delirium.

Complete recovery rarely occurs.
The collateral circulation is established. The phenomena of inflammation of the brain may supervene and the case terminate fatally. In those cases in which a cicatrix or cyst forms and recovery takes place, some imperfection of the mental powers or of special functions usually remains.

The difficulty of diagnosis of obstruction of an artery supplying an organ is dealt with difficulty, since the phenomena and are induced are very frequently also symptoms of other lesions of the same organ.

Finally with regard to the question of treatment it may be asked. **Are there any means of treatment?**

Moreover one may desire to answer this question in the affirmative, it is deeply to be regretted, that candour compels us to confess, that this condition is one which in which treatment has hitherto been of little avail. It has baffled the skill of the physicians in every age.

When we consider how profusely ignorant pathologists have until recently
Of the diseases of the blood, how little attention was formerly paid to the alterations of its constitution in disease generally; how although denominated the life of the flesh, pathologists were equally with Wellcome, ignoring the fact that it had a pathology of its own; how important blood diseases as fever, cachexia, had remained almost unknown—have never been duly investigated until recently. We cannot be greatly surprised that the treatment of tuberculosis is in so unsatisfactory a state; remembering that it is a disease whose resistance has been to a very recent period regarded as doubtful. Recent researches have led to Richardson to conclude that the cause of the congestion of the blood is the escape of a volatile solvent, who persists in it maintaining its fluidity and furthermore driving itself so strongly that the volatile solvent is unchurned. He finds that ammoniac will maintain the fluidity of the blood for a length of time, out of the body and that in cases of poisoning
poisoning by it and other alkaloids, as well as by the alkaloids—morphine-
acenaphthene—physostigmine &c.
the blood remains more or less completely
fluid and coagulates with extreme
bowelness. In consequence of
these observations he has vigorously
suggested the propriety of employing
ammonia as a solvent of itin.
oncerebrosis and coma measure of leci-
cess appears to have attended its employ-
ment, although no case of certain rei-
covery from insoluble obstruction of
any large vessel is, so far as I am
aware, yet recorded.

In the treatment of these cases
the most obvious indication is, to prolong
life, obviate as far as possible the
tendency to death and certain general
principles of treatment are therefore
applicable to all cases; such as—first
the maintenance of the most perfect quiet—
in the recumbent posture; the administration
of nourishment—in its most concili-
artic form—milk, raw eggs, strong
beef tea, &c. with bravery or violence
small quantities and at short intervals, the respiration of pure air and such like measures, while ammonium in salt form is exhibited in the hope of its being separable, as Dr. Bichat has shown, as a means of removing obstructions of the coronary. Even should it fail to have this effect it will be most useful as a stimulant of the heart and circulation. In cases where there is much suffering, pain may be alleviated and constitutional disturbances expelled by administering the alkalies of certain sedative drugs as: morphia, &c. which while they do good by their physiological action, may favour the coagulating power of the ammoniac; agents which favour coagulation of fibrin, as the urethral catgut and other catgut tricks, should of course be avoided.

Although in certain cases when a large clot exists in the head pulmonary arteries, aorta or other similar situations, this treatment may not be productive of much extra benefit...
To the practitioner, still, although the case may terminate fatally, alleviation of the distressing symptoms may be obtained and should a life important vesel be affected, even recovery may take place. When a limb is threatened with gangrene, maintenance of the temperature by the usual means, should be added to the above treatment.

A most valuable practical lesson is deducible from the consideration of this subject and it is this:--that bearing in mind the unfortunately unavoidable nature of this pathological condition, it is the bounden duty of the practitioner, in every condition, such as have been enumerated as favourable to its occurrence to adopt measures for its prevention.

This will of course be best accomplished in states of exhaustion, induced by such diseases as pneumonia, cholie, and the & hypoplastic states, in convalescence after delivery, especially if attended by flooding; after confinement from surgical injuries or operations,
and all similar states, by keeping the patient quiet in bed, with strict precautions on no account suddenly to accede to the sitting posture, while the proper measures are taken for the restoration of the blood to its proper quantity and quality.

Remembering the advances which are now being made in the study of the pathology of the blood; the increased interest taken by the profession at large in this and other pathological states of that fluid; we are justified in entertaining the hope that something may yet be done to remove what has long continued one of the "anachronisms" of medicine.

I should disgrace my youth were I not careful enough to anticipate that information acquired by examination of the blood in different diseases will yet render the state in which the blood is liable to deposit in the vessels more tractable, and less certainly fatal than it has hitherto been.

I regret that I have not been able to treat this subject in the elaborate
and comprehensive manner which its importance accurately merits and which I could myself have desired.

In extending nature, the accuracy of pathology; the doubtful character of many of the cases recorded; the acknowledged difficulty of giving in the form of an essay anything like a succinct account of the subject had well might induce me to abandon it.

I have been encouraged to the attempt by a sense of the importance of the question and feeling that it was into diminished it, would have ill become one entering a profession whose members are held personal convenience subordinate to the interests of science and the benefit of their fellow-men; remembering that theirs is a high and holy office, not for their own advancement, but for the glory of God, and the good of their neighbours.