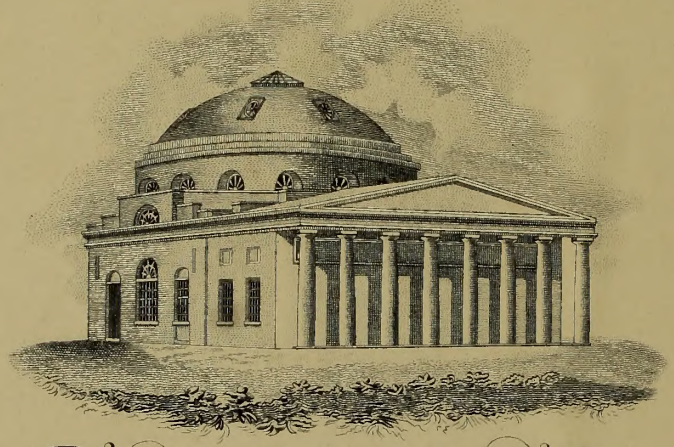

University of Maryland Theses

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These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

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UNIVERSITY OF MARYLAND

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An
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Tubercular Degeneration

The reason why I do attempt to write upon so formidable and extensive a subject, is because it was selected for me. The reason why I should attempt it is because of its very importance and extent. That it is important & extensive will be admitted when it is reflected that nearly one fourth of the human race die from the various forms of Tubercular disease. It seems presumptuous in me who know almost nothing of disease from observation, to attempt to discuss a subject which has engaged the attention of many of the brightest geniuses of the Medical Profession, and the difficulty of which is manifested by the variety of conclusions to which they have arrived

But no one will expect me to make any discoveries or advance any new ideas upon the subject. I shall be satisfied if in its inves-

-tigation I shall learn what is actually known in regard to it and prepare myself, as well as may be, to contend against its ravages

My first & not my least difficulty is to define my subject, for it seems to me almost undefinable. I believe most writers agree that Tubercular disease is Scrofula, but then Scrofula in its usual acceptation is something more than Tubercles. Now to mark the line of distinction seems to have puzzled wiser heads than mine. Those who have attempted to treat upon them as seperate diseases seem occasionally to confound them. Thus Watson p. 129 says "Now Tubercles & Scrofulous Inflammation occur very continually in the same individuals Again p. 132" A scrofulous abscess forms in the glands of the neck and pus & tuberculous matter are discharged" – again "Next Tuberculous or Strumous disease is extensively common in the digestive organs"

And Lugol, speaking of Tubercular Scrofula, says "this is undoubtedly the most important form of Scrofula, Tubercles coexist with all other forms of Scrofula — they are the emblems of the disease — they <u>are</u> scrofula". Sutton in a late prize essay, defining Scrofula, says "By Scrofula I mean the formation of Tubercular matter on or in any part of the body"

I shall endeavour to confine myself to the consideration of disease acknowledged to be Tubercular

What is Tubercle? A common definition is "a solid, yellowish white body, opaque, friable and without a vestige of organization or texture

Much difference of opinion has existed & continues to exist among Pathologists, as to the nature and origin of Tubercles & as to the changes which they undergo. "After all" as Watson remarks "the points in question possess more of curious interest than of practical importance". I believe Lugol thinks Tubercles true parasitic animals, produced probably

in the same way as Acephalocysts, id est he dont know how Lannec considered them "accidental productions, that is real foreign bodies, which spring up in the substance of the lungs & may be developed in any part of the body" Andral considers T— s to be the result of a modified nutrition of the texture and that they are produced & go through their changes through the agency of the vessels of the part & the blood that circulates in them This view of Lannec accords with that of Carpenter who says "If the fibrin of the blood be not well elaborated it does not possess its due organizability & thus instead of being converted by the nutritive process into solid tissue proper to the part in which it is deposited, it is liberated from the vessels in a state which prevents any but a very imperfect structure from being developed by it. This is the condition of the Tubercular substance which is so often formed to replace the proper tissue, especially in the lungs. being slowly deposited there by a sort

of degradation of the regular nutritive operations and being effused in larger quantities when the inflamatory process is set up" The greatest degree of organization is formed in the semitransparent, miliary, grey & tough yellow forms of Tubercle — the least, in the opaque crude or yellow Tubercle" Now this long quotation expresses just about the conclusions I have formed after poring over the speculations of about a dozen different writers —— Tubercles, then being deposited from the blood it follows that they may make their appearance in any time in the body and for aught I know this is the case. In Cooper's Surgical Dictionary, in an article on Scrofulous White Swelling of the knee joint I found mentioned a deposition in the cancelli of the head of the Tibia of "first a transparent fluid & afterwards a yellow cheesy substance" which Floyd asserts "sometimes pervades the cancelli of the whole bone the vascularity of which diminishes in proportion as the cheese-

-like deposit increases". It would seem to me that this is but a form of Tubercular deposit. Indeed T— s have been found in almost every texture of the human body Sutton in his elaborate essay on Scrofula says "The accumulation of Tuberculous matter may be in any texture or in any organ of the body but wherever situated it constitutes Scrafula & is a fearful disease". Perhaps the most frequent seats are on the surfaces of the mucous membranes, in the parenchyma of the lungs, the lymphatic glands, the spleen, peritoneum and bones" A deposition of Tubercular matter having commenced goes on to increase in size & extent according to the space which can be occupied — its shape therefore being different in the different tissues of the body Thus in the brain where the pressure on all sides would be equal, in the areolar tissue & in the air vessels of the lungs we find it globular in form, But when the deposition is in the smaller bronchial tubes, it fills those tubes

taking, of course, their shape. So if deposited upon a serous or mucous surface it will assume a lenticulated or rounded form according to circumstances. After a time these depositions become changed in appearance and begin in the centre gradually to soften until they are dissolved and broken down. This is according to Laennec, but the English Pathologists mostly adopt the theory of Dr Lombard & labour to prove it correct. They say that the process of softening begins on the outside instead of at the centre — that the Tuberculous deposit acts like any other foreign body, exciting irritation & finally suppuration in the surrounding tissues which in turn soften & break down the matter of the Tubercle. Sometimes Tubercles undergo a transformation called "Cretaceous infiltration" in art an absorption of the animal matter and an augmented secretion of the Calcareous — but the rule is that they soften & tend to be eliminated. Now if the seat of the D— e deposit be not in a vital organ, or if in

small quantity in a vital organ, the morbid matter may be eliminated and the patient recover. But if this do occur it is only a temporary advantage, for the tendency to disease remaining in the blood, new depositions are likely to take place, which ~~which~~ will generally, in the end, prove fatal

In children Tubercular depositions are commonly formed in the digestive organs & in the lymphatic system particularly in the mesenteric glands constituting Tabes Mesenterica. This disease is very common and fatal among scrofulous children

But by far the most common seat of T— s in adults, is in the lungs. Louis, indeed, says that he has "never observed them in any viscus without their being at the same time present in the lungs" and that "with the exception of a solitary case he has always found the deposit in a state of greater advancement in the lungs than elsewhere"

The same may be said of the upper lobes of the

the lungs in a comparison of their different portions, Drs Carswell & Watson have noticed exceptions to the rule of Louis, but these exceptions are seized only to prove a general rule. Why the lungs & particularly the upper lobes, should be more subject to this deposit, is more than I can say. There are theories enough to account for it, but I know of no satisfactory explanation after all. I believe that T— s commonly are more rapidly developed in the lungs at the age of puberty. This may be in consequence of the greater flow of blood to those organs, which is said to take place at that period. The lungs too are at all times subject, from numerous causes, to inflammations of more or less intensity, which no doubt increase the tendency to Tubercular deposit before existing in the constitution. But why should the upper lobes of the lungs be more liable to Tubercles? Dr Carswell thought this was in consequence of the smaller amount of expansion allowed them by the walls

of the chest But is this the case? It seems to me that the expansion of the upper part of the chest is fully as much as that of the lower in proportion to the amount of lung enclosed. Broussais ascribes it to the shortness of the bronchial tubes, there allowing inflammation the more readily to reach the air-cells and Williams suggests that it is in part because of the greater amount of interstitial areolar tissue in those parts

The Symptoms of Tubercular Degeneration vary, of course, according to the importance and situation of the organs implicated. But before I consider them I will devote a brief space to the Tubercular or Scrofulous Diathesis, id est, a habit of body disposed to scrofula. In the consideration of this subject is shall follow Watson pretty closely for I know no better guide He says "there are certain physical & moral characters which teach us to apprehend the existence of a tendency to scrofulous disease even when there has hitherto been no local

manifestation of such disease. The persons in whom scrofulous disease is most apt to declare itself are marked, during childhood, by pale & pasty complexions, large heads, narrow chests, protuberent bellies, soft and flabby muscles and a languid feeble circulation.

But the strumous disposition very often, indeed accompanies a variety of the sanguine temperament also, and is indicated by light or red hair, gray or blue eyes, with large & sluggish pupils & long silky lashes, a fair transparent skin and rosy cheeks. This red color which is well defined in general is easily changed however by cold to purple or livid; the skin is thin & readily irritated the cuticle has often a peculiar pearly lustre & the extremities are subject to chilblains. Such children are many of them extremely clever & ready of apprehension, of eager tempers & warm affections, lively, ardent, imaginative and susceptible. It is frequent though less common in the melancholic or bilious temperament in persons of a dark muddy complexion & harsh skin in whom the mental

and bodily energies are more sluggish & dull; but when it does occur in such cases it is even more than ordinarily obstinate & intractable" Still we often find Scrofula developing itself in constitutions which we not suspect to be tainted with the disease. In many cases there are apparently slight & trifling diseases which to the experienced eye at once betray a Strumous diathesis. Again we infer the scrofulous diathesis in any person when we know Scrofula has existed among his progenitors That Scrofula or rather a predisposition to it is hereditary, the most careless observer can not fail to have remarked

Now the signs of Tubercular deposit in any internal organs, other than the lungs, are very obscure and, except perhaps in the advanced stage of Tubes Mesenterica, would hardly lead us to a correct diagnosis. But knowing that the disease is constitutional & that it is certain to make its appearance in the lungs if anywhere, One skilled in Auscultation & Percussion is enabled to mark its rise, trace its progress & predict its termination with

almost as much certainty as if he could look upon the morbid changes as they occur. Long before the presence of Tubercles could be detected in other organs it is shown in the lungs by numerous & ~~comparatively~~ unequivocal signs. At first the attention is directed to the disease by the presence of a dry hacking cough, or perhaps, as happens in about one fourth of the cases of this disease, hæmoptysis occurs. Then upon close examination dullness on percussion is found at the upper lobes and at the same time prolonged expiration & increase of the vocal thrill. The respiratory murmur too is gradually superceeded by bronchial respiration and we may observe on inspection that on account of the partial solidification of the lung, that side of the chest does not expand as fully as the opposite. For the same reason we hear broncophony the sound being transmitted with more facility along tubes whose walls are solidified. The first symptom indicating the softening of Tubercular matter, is generally a single click heard at the end of inspiration. This is an

important sign & care is necessary that we be not deceived by any of the morbid sounds of bronchitis or of enlarged bronchial ~~tubes~~ As the softening goes on & the cavity increases in size we find cavernous respiration and metalic tinkling present and, if the cavity be near the surface pectoriloquy The sputa by this time become peculiar showing traces of suppurated and softened T— matter. The constitutional symptoms in the early stages of the disease are not distinctive When the disease is somewhat advanced however, Hectic fever insidiously creeps upon the patient The exacerbation is usually in the afternoon or evening & is followed by profuse perspiration which leaves the patient enfeebled & exhausted

Diarrhoea too is very apt to occur from the softening of of T— s along the ~~track of the~~ intestines and in many cases ulceration of the Larynx causes partial or complete ~~loss~~ of voice Oedema of the lower extremities is one of the latest symptoms & is generally soon

followed by the death of the patient who sinks exhausted by the colliquative sweats & diarrhoea

Concerning the **Causes** of Tubercles there has been much discussion. I shall not attempt to detail the various causes that have been assigned, but content myself with a notice of the most important

It has been demonstrated by experiment that Tubercles are generated in the bodies of the lower animals upon exposing them to certain adventitious circumstances, as damp, cold, bad food &c &c Now the same is true of the human subject, with this addition, that in proportion as the privations & vicissitudes to which man is exposed are more numerous than those of the inferior animals, so are the causes of Tubercles

To enumerate the various circumstances favourable to the production of Tubercles,

would require more time & space than can be devoted to them in this paper
In general terms "they are all those influences which tend to depress the vital powers, such as insufficient nutrition, habitual exposure to cold & damp, protracted mental depression &c &c" But the great cause, some say the only one, is <u>hereditary predisposition</u>. In almost every case of this disease we can detect upon close inquiry a scrofulous taint in the family of the patient. When this predisposition exists almost any cause of constitutional disturbance is sufficient to excite Tubercular deposit

The Treatment of Tubercular disease generally amounts to an acknowledgement on the part of the Physician that he can not <u>cure</u> the disease and this is the belief of

most medical men of the present day.

But we know that there have been spontaneous cures, for the vestiges of former T—r disease are often found in the bodies of persons who have died from other diseases. It does not become the Physician then, so soon as he finds he has a case of Tubercular disease, to despair of combating it successfully. Should he fail in ninety-nine cases he may succeed in the hundredth. Still it must be confessed that we know of no medicine that acts directly and positively on the disease. True, Lugol claims to have discovered in Iodine & its preparations, almost a specific for Scrofula in all its multifarious forms. That Iodine is useful in many cases of Scrofula, can not be denied. But its use in this country has not been followed by the success attributed to it in France; and in Tubercles of the Lungs — the most important form of Scrofula —

it is but little to be depended upon. Yet it is not unreasonable to hope that a specific may be discovered for the cure of this wide spread & fatal disease which shall render it as amenable to treatment and comparatively as harmless as Small-Pox has become since the introduction of Vaccination. In our treatment we must not forget that the disease is constitutional and that, to stay its progress we must direct our remedies to the Constitution. Whether we expect any medicine to have a specific action upon the T — r deposit, or not, we must employ every available means of strengthening the system. So far as the symptoms will permit the treatment should be tonic & roborant. Of Tonics the Iodide of Iron is among the best, combining the virtues of Iron with those of Iodine. Arsenic too is often useful. Mr Phillips, whose late work on Scrofula is rated by the reviewer to be the best that has been published, ascribes great virtue

to Barium or rather the Chloride of Barium which he considers little inferior to Iodine in this disease But a knowledge of the laws of Hygiene is of fully as much advantage as of medicine and will suggest in each particular case the proper means to be adopted Change of Climate is universally acknowledged to have great influence in retarding, sometimes checking, the progress of the disease But it is probable that to the change of habits there much of this improvement is due Migration from one climate to another without improvement of circumstances seems rather to be an exciting cause of Y—e disease Witness the Africans brought to this country as slaves The statistics of the British army, too, shew a far greater proportion of deaths from this class of diseases among their troops in the West Indies than among those at home

When the disease has

become somewhat advanced we must endeavour to palliate the violence of the symptoms The Cough should be met with Emollient Mucilaginous drinks and Anodynes with some expectorant if needed

To check the night sweats we may use Elixir Vitriol or a combination of Opium & Acetate of Lead which last is useful also as an injection to check the diarrhoea which is apt to supervene

As we can in very many cases discover the predisposition long before the disease makes its appearance, the Prophylactic Treatment becomes important — the more so in consequence of the intractable nature of the disease when once established

This will be regulated entirely from the Physician's knowledge of Hygiene

An
Inaugural Dissertation
on
Epistaxis.
Submitted to the examination
of the
Provost. Regents and Faculty of Physic
of the
University of Maryland
for the
Degree of Doctor of Medicine
by
Andrew Davidson
Baltimore Feb. 1st. 1847

In consequence of the law regulating all properly established Medical Institutions, requireing of all the candidates for the degree of Doctor of Medicine to present to the Faculty of the Institution to which they belong, a Thesis on some medical subject written by themselves. And as I am placed in this relationship to the University of Maryland I am of necessity compelled to go to work to get one up for the coming examination. Now let me see shall it be original. yes by all means nothing else would do in these halmy days of originality: now for a subject on which to advance something new, ah! this seems to be a sticking point for amid all the subjects which present themselves I cannot find one on which every thing has not been said that I know about it. Hence I am reluctantly compelled to abandon my former notions of originality and do as a large majority of those who have

preceded me present your Honorable body with a selection as I have no doubt many ~~many~~ of my Fellow Students will favor you with a like compliment. and in doing so I presume we all will fully meet your expectations. The subject I have chosen is a plain and pratical one, on which I hope to be able to give you all the important Items of treatment surgical and medicinal. Epistaxis a flow of blood from the nose. this is a phenomenon to common to have escaped notice at any period. and from the ear-liest times its consequences with the condition of body connected with and preceding it have been objects of medical observation. of the various Hemorhages to which the human Race are subject Epistaxis is the most common and so often is it attended with salutary effects that its encour-agement and suppresion equally require the consid-eration of the practitioner of medicine —

The frequency of Epistaxis may readily be accounted for when we consider the structure of the Schneideran Membrane its extreme tenuity, also the number as well as the size of the bloodvessels which traverse it in every direction forming a complete network, with less Interstitial cellular substance and thinner laminae of membrane covering it, than is to be found in any other part of the body. The bloodvessels of this membrane being for the most part supplied by the internal maxillary artery and inosculating with some of the extreme ramifications of of the internal carotid. Any increased impulse given to the latter, or to the trunk of the former is less resisted in this part, and in consequence of the rupture which is very frequently occasioned, an escape of blood is effected, with relief to both these systems of vessels, and in a very essential manner

to the advantage of the brain: As in the Hemorrhages from every other part, it is important to observe that in Epistaxis there are two opposite conditions of the bloodvessels, induced by the corresponding states of the body under which it occurs: In the one the extreme vessels are ruptured by the increased activity of the circulatory system general and local: In the other from debility and relaxation their elasticity is destroyed hence they are incapable of distension, as well as propelling their contents and thus their walls are ruptured and Hemorrhage is the result: Or from the same condition red blood may insinuate itself through the exhalents instead of the thinner and colourless part of the fluid proper to them: We shall next proceed to consider epistaxis under these two conditions adopting the common language of Pathologists

in applying to the former the term active or entonic. and to the latter passive or atonic, Epistaxis. Entonic Epistaxis occurs occasionally in very young persons. most frequently before or about the age of puberty and in persons of a plethoric or sanguine temperament. The latter are not unfrequently the objects of it until advances of age effect a change in the constitution and the ballance of power is transfered from the arterial ~~from the~~ to the venous system. This we find in early life that this Hemorrhage is almost always from the arteries and in old persons from the veins. The habits and exercises of males render them more liable to Epistaxis than Females but on the other hand we find in the latter that it is very often vicarious with the suppression of the menstrual discharge and occasionally occurs with the same periodical exactness: Even in the Male

sex the influence of habit is often evinced in the occurrence of Epistaxis and after other causes have been removed it is sometimes with difficulty that its power is resisted. Local injury. exposure to heat or increased temperature of the atmosphere. hot drinks. stimulating diet. inordinate exercise. suppressed discharges either natural or artificial and all other circumstances which increase the quantity or quality of the blood. or the impetus by which it is distributed to the different parts of the head may occasion the occurrence of Epistaxis. In addition to these causes it has been frequently preceded by various emotions of mind such as terror anger. or even a single excitement of the Immagination. Hence says a learned Medical author we may readily trace by what means philosophers and poets of the Eastern world and even some of those of the western

were led to regards the nose as the seat of mental irritation the peculiar organ of wrath and anger. and amongst the Hebrews the nose is said to be the seat of passion. In some individuals it is probable that there is an extraordinary delicacy of the schneiderian membrane and its vessels which renders the latter peculiarly easy of laceration. There appears also to be a correspondence between this expansion and the Integuments of the face with which it is continuous. the phenomenon of blushing being often remarkable in persons subject to Epistaxis a circumstance which is doubtless also in a great part to be referred to the identity of temperament predisposing to both these events or affections. Excitation of the olfactory nerves in persons of peculiar irritability of the organs of smell have occasionally induced Epistaxis there is an instance on records in which it was induced by smelling an apple and another by smelling a rose.

Coughing sneezeing singing and reading aloud for any length of time stooping and other particular postures of the body have frequently occasioned it; The secretory office of the schnei-derian membrane is liable to material alterations in its secretion from the vicissitudes of temperature to which it is necessarily exposed in performing the function of respiration. and any check to its natural or inordinate secretion will occasionally lead to the rupture of bloodvessels and consequent Hemorrhage. Various conditions of the atmosphere it is well known have a powerful effect on the expansive quality of the blood as well as of other fluids. The same expansive qualities of the blood is evinced by alterations in the atmospheric pressure as in the ascent of high mountains an early physical consequence has been a flow of blood from the nose. increasing in proportion to the altitude. and succeeded by Hemorrhage from the

ears, and lungs, as well as by other alarming symptoms, we have an interesting example of this in the enterprising traveller Saussure on the occa-sion of his celebrated ascent of Mont Blanc.
The passive or atonic epistaxis takes place only in those extreme cases of depression of the vital powers which occasionally occur after the inflamatory sta-ges of fever have passed by or in such as have been considered of a putrescent tendency as in the advanced stages of eruptive fevers particularly of Malignant smallpox and Scaritina. In ~~the~~ cachectic diseases such as the purpura Hemor-rhagica, scorbutis and certain broken down states of the constitution consequent on visceral disease of a chronic kind, particularly that of the liver aris-ing from the long continued influence of a hot climate or the habitual intemperate use of spirituous liquors. The atonic Epistaxis is occa-sionally a very troublesome and dangerous symptom.

Instances have been recorded of the loss of almost incredible quantities of blood from the nose. Ten twelve and upwards of twenty pounds have have been known to flow away before the Hemorrhage has ceased. I have some where in my medical reading seen a much greater quantity than this stated to have been lost. one case in which the patient was said to have lost the enormous amount of seventyfive pounds in ten days three times as much as the patient posessed in his entire body when the Hemorrhage commenced. The active or entonic epistaxis is usually preceded by a sense of weight and fulness in the forehead and face. frequent flushing in the latter with heat and itching in the nose, a remarkable degree of throbbing is often experienced in the temporal arteries. a ringing in the ears and sometimes a dull or indistinct sense of hearing. but in many instances no precursory symptoms are observed and the blood issues forth suddenly with various degrees of force.

ears and lungs

passive or atonic Epistaxis occurs in general without any preceding indication peculiar to it, and in many instances; particularly in the adynamic consequent on fevers, it is not unfrequently accompanied with entire insensibility. In the cachectic state of the system giving rise to this kind of Epistaxis inordinate and uncontrollable losses of blood from the nose have most commonly taken place and therefore have been more frequently the objects of attention, and it is more liable to occur in advanced than in early life. Entonic Epistaxis always to be regarded as an indication of the urgent necessity for the system of bloodvessels of the head to be relieved of a superabundance of this fluid and so long as this condition lasts it ought to be encouraged or at least on no account restrained by direct or powerful means but rather suffer it to continue unless it should become very profuse and persistent. For it is often observed the evacuation of

a small quantity of blood from the vessels of this organ is the spontaneous effort of nature to cure a severe head-ache, or relieve an oppressed state of the brain, dependent on preternatural fulness of the bloodvessels. and it is probable that apoplexies and other dangerous diseases of this organ have not unfrequently been stayed, if not entirely prevented by this natural method of cure. In advanced life however advantageous this hemorrhage may prove under an immediate threat of such forms of disease we must bear in mind that it is an indication of an altered condition of the bloodvessels of the head which pathologists have observed progressively to increase in the majority of persons after the middle period of life and that it is often on this account the precursor of fatal apoplexies palsies Epilepsies and other cerebral diseases.

In a practical view we may consider Epistaxis in reference to the condition or state of the various organs of the body

and the positive disease (if any) with which it is accompanied, in the same light as artificial bloodletting always remembering the importance and delicacy of the organ to which a determination is already established or probably would be if the exit of blood from the ramifications of the vessels of the head and face were prevented. Such diseases and conditions will require their peculiar kinds of treatment and the avoidance of the exciting causes which produce this particular affection. It occasionally happens however that this evacuation is excessive at a single occurrence or that by its continuance a passive state of the vessels is induced. and sometimes independently of plethora the evacuation becomes by frequent recurrence habitual and if not arrested would be productive of consequences dangerous to life. The particular treatment necessary to prevent ~~prevent~~ an excessive or habitual Epistaxis of the entonic kinds is founded on two principles:

first diverting the determination of blood from the head to other parts of the body: and secondly the direct application of those means which are calculated to act on the extremities of the vessels themselves: which means consists of astringent substances and Mechanical compression. The former includes the various remedies which are comprehended in the antiphlogistic regimen those being selected which are adapted to restore the particular function which may in each case have been suspended, and to produce a counterbalancing excitation in a system of vessels at a distance from the already overloaded vessels of the nares and head hence the use of purgatives is particularly indicated, and in very plethoric habits a combination of such as stimulate the alvine canal as well as excite its watery secretions will be found advantageous, bleeding also from a vein in the arm or foot or topical bleeding by leeching the head or cupping the

the nape of the neck will be requisite, In some cases in which the Hemorrhage from the vessels of the nose may have been so small as to point out only the necessity of such an evacuation, but not sufficient to remove the occasion of it, and the symptoms with which it is accompanied. In habitual epistaxis also we shall find the necessity often of this artifical changeing of the distribution of the bloods and by anticipating the periods of the return of this morbid disposition by proportionate bleeding may at length be enabled altogether to prevent it. Emetics have occasionly been of service and are recommended on the principle of relaxing the capillaries but unless the Hemorrhage should appear to depend on an inordinate fulness of the stomach impeding the due course of the blood in the large vessels we should be cautious in haveing recourse to them for the very action they induce is an impediment to the free circulation of the blood

in the vessels which it is our object to relieve and has occasionally been the cause of the affection which is to be removed. Sprinkling cold water on the face will often have a powerful effect in the suppression of this kind of Hemorrhage and even immersion of the head has been successful when other remedies have failed. A striking instance of this kind is recorded by Dr Darwin the patient was a lady who had Epistaxis for several days from a part of the nose to which the attempt to apply Mechanical compression had failed and in whom from a preternatural sensibility of the pharynx it was found impossible to stop up the posterior nares, venesection and the other remedies had been tried in vain but by immersion of the head in a pail of water rendered colder by the liquifaction of some chloride of sodium the Hemorrhage was checked and did not return but hardness of the pulse continued hence venesection on the

was resorted to as a precautionary measure, Dashing cold water on the genitals has sometimes had an instantaneous effect in the suppression of Epistaxis. In the same manner the popular remedy of applying a large key or other piece of cold metal between the clothes and the surface of the back has caused it to cease. The exposure of the face to cold and the observance of the erect posture with an inclination of the head backwards cold drinks and the application of cold water or ice to the nose will often be sufficient to terminate this Hemorrhage: If these means however should fail the nostril from which the the blood issues should be stopped with a piece of sponge, lint or any other soft substance, so that the retarded blood may coagulate and thus produce pressure against the ruptured vessels, if this should not succeed recourse must be had to astringents in preference to compression by the methods to be presently described and which

though more certain are extremely disagreeable in their application and should be resorted to only under urgent circumstances. Astringent applications may be used in the form of an injection with a syringe or that of powder carefully blown into the nostril with a quill. the method of inhaling them by an inspiratory effort as commonly advised is apt to disturb any portion of coagulum that may have formed or to increase the excitation of the ruptured vessel itself. A variety of astringent applications have been recommended for the suppression of Epistaxis those most in use are vinegar and water dilute dilute mixtures of sulphuric acid with water, or spirits of wine tincture of benzoin solutions of allum. of the metalic salts &c. The two last mentioned are chiefly to be relied on and and should always be preferred. Two drachms of allum or from two scruples to a drachm of the sulphate of zink disolved in half a pint of water

or a solution of the acetate of zink, or a drachm and half of the muriated tincture of iron, diluted with six ounces of water, will be a suitable injection for this purpose, The common solution of the acetate of lead, or the same salt in a much less diluted state, may also be used for the same purpose, after which a piece of lint imbued with whichever of the solutions may have been preferred, should be passed up the nostril with a probe, in such a manner as to effect firm compression. The powders to be used in the manner we have already stated ought to be finely levigated, but even in this state the irritation they are apt to excite, may be productive of consequences which would more than counterbalance the advantages, to be expected from their astringent quality. The sulphate of alum and powder of galls have been usually preferred, a powerful styptic has also been found in charcoal either

in the form of powder or solution. An instance of the successful use of the powder of gum acacia blown into the nostril in a case of Epistaxis which had continued for two days, and had resisted all the other means generally adopted. as this substance is not only free from the objection we have mentioned to astringents powders, but congenial to the membrane and probably produces its good effects, simply by increasing the tenacity of the blood, at the point of the bleeding vessels from which it issues. It appears to us that in some cases this remedy may be resorted to with advantage should the practitioner be baffled in his attempts with the means above suggested and should the other remedies before mentioned fail he must resort to immediate compression, this may be made by passing a long piece of catgut from the anterior appertune of the nostril which is the

source of the Hemorrhage so far into the pharynx that with a pair of forceps it may be caught and drawn into the mouth so that a piece of cotton lint or sponge may be attached to it of sufficient dimensions as to press against the parities of the canal. when the catgut is again retracted and seperated from the lint or sponge or whatever else may have been used, but I deem the precaution of attaching a strong thread to the sponge or lint before proceeding to draw it into the posterior nares. this to be allowed to hang out of the mouth until the time for the withdrawel of the plug when it may be brought to bear efficiently by pulling on it. this manner of removing it I think much less liable to produce a recurrence of the Hemorrhage. and, with what I have said I leave the subject deeming it unnecessary to trace it farther

An Inaugural Dissertation on the Pathology and Treatment of Inflammation

Submitted to the examination of the Provost, Regents, and Faculty of Physic of the University of Maryland for the Degree of Doctor of Medicine

by

Richd. J. Carter

Session 1846-7.

Pathology and Treatment of Inflammation

The subject that I have selected for my Inaugural Dissertation, is one I'm well aware, that has called forth the brightest talents, the most elaborate observation, and the strictest research, to account for its intricate Phenomena, that have ever adorned our benevolent Profession, No subject perhaps in the whole range of our extensive science, has given rise to greater diversity of Opinions. Hypothesis upon Hypothesis have from the time of the noble Hippocrates, down to the present, been flippant with needless speculation, complicated and unintelligable, alas! dogmatical assertions, presumptuous and contradictory theories, have in different countries sometimes in the same Country, under different and

alike circumstances, tended to retard and complicate, this most fatal malady.

Upon no subject is it more important that correct views should be held, discrepant theories should be abolished, and that theory which bears the closest and most consistant analogy or approximation, to our now rapidly progressing Pathological investigations should be adopted.

The importance of this subject is too obvious to need further comment, its frequent occurrence, its mortality &c. entitles it to the grave consideration, of not only the talented, the experienced, and the most gifted, but also to the most obscure member of our Profession, suffering humanity from this dire malady, in every region, from the snow clad mountains of the North-pole, to the verdant and luxurious fields, of the Temperate and Torrid zones, calls

with a loud voice for amelioration, ease succour and help – And to whom I would ask is this imperative appeal made? Why to the Members of our Profession, it is self evident,

How important it is then that we should have correct notions of its Pathology, Ætiology, Semiology, Cure, in fine all its vague and obscure phenomena, so that upon first seeing it be able at once to recognize it and by our Therapeutical deductions and appliances be at once able to abridge and curtail its devastating and destructive Ravages.

And now allow me to inquire what has Pathological deductions, Sense, experience and Theories done to elucidate this grave subject? – And how far they have succeeded in thrusting aside the dark veil which has ever denied the keen Eye of pathology an unmolested ingress to its inscrutable Mysteries.

Happily for the Human Family the commendable zeal, the industry and the intense application of our Ancestors, and the no less sagacious and penetrating talents of our present Pathologists have not altogether been unrewarded.

In pursuing this inquiry it will perhaps be unnecessary for me to enter, into an elaborate description of the various doctrines that have from time to time been held upon the subject, the various doctrines of Cullen, Hunter, Earle, Macartney, Stahl, Hoffman, Wilson Philip, and a host of others will therefore receive but a passing notice - I shall content myself with briefly noticing that theory which at present appears to me most worthy of reception.

There is no subject perhaps more interesting, no pursuit more gratifying, than the Pathological investigation of the subject at present under consideration, But allow me

to remark here, that upon a subject like the present, involving as it does some of the most ambiguous principles of our Science, admitting as it does too, of so many and various explanations, so diametrically opposed, and yet all seeming more or less Philosophical and plausible, so much so indeed, that our brightest Intellectual Gems, yea more! Professors of the same Schools often dis-agreeing, some advocating one theory some another, it is little to be expected then amidst all this dis-crepancy, that the mere Student of Medicine, with but little experience and observation, can always arrive at proper conclusions, much less offer any thing new or original upon the subject.

Upon a subject then like the present contested by such high authorities, how are we to decide, in no other way I immagine, than by duly studying and closely investigating the various

the various doctrines, and exercising our own judgment in the adoption of that which to us seems most rational.

If I have adopted a theory not inculcated by the School I patronize, I hope it will not be considered as any disrespect on my part, towards my very able instructors, being actuated from no other principle, than a through conviction, and a concientious congeniality of the doctrine I shall set forth unframeled by hypothesis unbiassed by prejudice - And if I have presumed to differ from them in any one particular, it has only been in the spirit of that independence, which they have uniformly encouraged in their pupils, yet with a distrust of my own judgment whenever it comes in collision with theirs.

Before entering upon the Pathology of Inflammation, it may be necessary for me to

define what I mean by Pathology, inasmuch as it is often used by many authors in a vague and indefinite manner, the most common acceptation being that Pathology is morbid anatomy. I however use the term in a much more extensive sense than the above.— I adopt the definition given by Dr. Watson which may be found in his inestimable Treatise page 26. Where he says that Pathology "comprehends the following particulars viz:— 1 a knowledge of the material changes to which the several parts of the body are subject, 2 a knowledge of the processes or actions whereby these changes are wrought. 3. a knowledge of the causes which may produce or set these processes on foot: and 4. A knowledge of the consequences of the same changes or of the symptoms they occasion".

In now proceeding to an investigation of the condition of parts in an inflamed tissue,

I will first notice the Hearts action, it is admitted by all that its action is contraction by which the blood is propelled forward into the arteries, the action of the arteries is also acknowledged to be contraction, whether considered muscular or not, but there is some diff-erence of opinion as to the degree of the action of arteries in inflamed parts, various have been the attempts to account ~~account~~ for the condition of arteries in inflamed parts, some Physiologists maintaining that the circulation of the blood in the arteries, is entirely dependent upon the vis a tergo it receives from ~~from~~ the heart, whilst others admit this fact, and also contend that it is greatly influenced and facilitated by the elas-ticity and contractile coats of the arteries them-selves - and no doubt the latter assumption is true, for the arteries have the power of contrac-ting on their contents, they adapt themselves to

the quantity of blood contained in them, they from this property continue free after there has been large quantities of blood lost;- this action is distinct from and opposed to the contraction and action of the Heart, Various as before stated have been the theories in regard to the actual condition of the blood and arteries in inflamed parts, in other words to account pathologically for inflammation, thus Boerhaave with his "Error Loci". and improvements upon his doctrine by Stahl and Hoffman, "by bringing in the influence of the nerves",- followed by the sagacious Cullen "with his spasm of the extreme vessels" supporting and increased action in the course of them, - Hunter "ascribed it to an increased action".- Hastings, Phillip, Earle, Wilson, "to an obstruction of the capillaries".- Macartney "to an injury felt by the arterial nerves".- Having noticed briefly the doctrines held by the above Pathol-

-ogists -. I'll proceed to notice that doctrine which to me seems most plausible, and for many of the notions I shall here set forth I am indebted to and may be found in that in-valuable little work, styled Billing's first Principles of Medicine,

It is common to say that in inflammation "there is increased arterial action", but a consideration of the phenomena and nature of arterial action, will show that in inflamed parts, the capillary arteries are weaker in their action, that there is diminished arte-rial action, for the action of the arteries is contraction, now the arteries in inflamed parts are evidently larger than before, less contracted i.e., acting less, in inflamed parts the nerves also participate in the abnormal action to a very great extent, so much indeed are the nerves implicated (I mean the nerves which supply the

blood vessels absorbents &c) that any cause which may give rise to inflammation, must necessarily act primarily upon the nerves.— In an inflamed part we see the minute ramifications of the capillaries dilated and injected, showing a diminution or withdrawal of capillary nervous influence.— Thus in an inflamed part there is not only a diminution of capillary action, but also of organic or capillary nervous action,— therefore as long as the capillaries are supplied with nervous influence, and as long as they possess perfect organic action, so long do they preserve a due size, when they lose it, either from the influence not being supplied by the nervous system, or are robbed of it by any cause whatever, so soon and whenever this may occur, they will immediately give way, and whatever tissue may be the seat of this functional lesion of nutrition, is overwhelmed as a consequence by that structural disorganization,

known as inflammation.

An inflamed part is redder and swelled the redness and turnefaction, both depending on an increase of blood in the part, this increase of blood does not imply however that there is increased arterial action, on the contrary there is diminished action, the capillaries are in a relaxed condition, they are distended by the injecting force of the Heart, containing more blood, yet transmitting it along their walls with less rapidity, than in their natural state of contraction, the blood becomes dammed up as it were in the capillaries, they owing to their state of debility or relaxation (in other words) having lost their nervous power), are incapable of contracting upon their contents and by this means propel it onward.— As proof of this we have only to produce contractility of them by the application of cold or astringents, and the inflammation gradually begins to disappear. In

inflammation then, we have diminished instead of increased arterial action - i.e. the blood is transmitted with less rapidity in inflamed than in healthy tissues. -

The progress of inflammation shows the dependance of the capillaries on the nerves, a part may in certain cases be observed, to become tender before it is red. thus in inflammations of the Conjunctiva, the Eye is painful, feeling as if there were sand under the lid sometime before its vessels are enlarged, the pain of Erysipelas precedes the redness, - The action of Cantharides in producing inflammation is another proof that inflammation begins in the nerves, for Cantharides have no effect on the tissue of the Capillaries, do not corrode or act in any way upon their substance after death, when the nerves have no influence, whereas any really corrosive agent would act even more upon the dead than the living Capillaries. - Again in

the simple act of blushing, we see the capillaries momentarily congested, i.e. they are distended enlarged, from a withdrawal of nervous influence, which under the moral emotion is expended in the brain, We conclude then that the capillaries are dependent upon nervous influence for the preservation of that tone and energy which they normally possess,

Sometimes parts are loaded with blood when we cannot find evidence of inflammation which state we call Congestion - Inflammation and Congestion are but varieties of distended vessels which if they cannot unload themselves we assist by applications or medicines which make them increase their contractile action, or if that alone is insufficient, by taking off some of the force that injects the bis à tergo as it is called,

The difference between inflammation and congestion is very striking, in Congestion the

vessels are merely distended, in inflammation there is altered tissue, the structure of the capil-laries are more or less destroyed, any obstruction may give rise to congestion - thus a ligature drawn tightly round a limb, diseased valves of the Heart also give rise to it, the congestion may last for sometime, but upon a removal of the ob-struction the vessels soon regain their natural state, not so however with inflammation, as soon as a want of that affinity between the nerves and capillaries, (which is necessary to their healthy action) takes place, so soon their fine tissue begins to decompose, the particles which were held to-gether by this inscrutable mystery, begin to be pre-cipitated from one another, and this takes place in every shade and degree from the slightest scorch of the fire, or blush from the wound of an insect to the complete destruction of the part.

In some experiments conducted by Kattenbrunner

on the foot of a frog, he describes the result as follows viz "On looking, then at the web to which some violence had been done, he observes after the first irregular disturbance was over, and when the period of incubation had elapsed, — he found, that an afflux of blood took place to the part about to be inflamed; the velocity of the blood in the vessels was greatly accelerated; the vessels themselves were distended and tense, and therefore disposed to tighten upon the blood they contained — the functions of the part, that is to say, the secretion and absorption of lymph, were interrupted; the blood underwent an evident change — or it failed to undergo the proper changes: its globules stuck together, and the parenchyma of the web became tumefied. — Now this condition is called by Dr. Watson who narrates the case "the stage of active congestion". he also says it is just "one step short of inflammation". — The congestion now described increases, until, at length this remarkable alteration

happens, the Capillaries, instead of tightening on their contents, dilate or grow larger; the circulation at first so rapid, begins to be delayed in some of the Capillaries; the direction of its motion becomes uncertain, it oscillates, as it were, irregularly, in those vessels and at last stops altogether, the globules cohering in irregular masses, and thus points of stagnation are formed, and if the affection goes on increasing, they augment in size and multiply in number, this is what Dr. Watson calls inflammation, of which the characteristic or pathognomic feature is the formation of these points of stagnation".

Now here is a case given by that minute observer, and distinguished Pathologist — Kaltenbrunner, and let us review particularly what he says — after describing the stage of active Congestion, and just as inflammation begins to make its appearance in the part, this remarkable alteration, says he, takes place, by "the

capillary tubes instead of tightning upon their contents, dilate or grow larger. proof positive that the capillaries in inflamed parts are relaxed and weakened,- and now he continues, "The circulation at first so rapid (i.e., in the state which Dr. Watson calls "active congestion".) begins to be delayed in some of the capillaries, the direction of its motion becomes uncertain it oscillates, and finally stops altogether."— This is also another proof that in inflamed parts there is diminished instead of increased arterial action.

I suppose it is unquestioned, that there is more blood in inflamed parts, if so, the capillaries must be dilated and distended, in order to contain it, if this be granted which without doubt it is, then we can prove upon Hydrostatic principles, that the blood must pass through them with less rapidity, than it would do, if they possessed their normal contractile power (bearing in mind

that their contraction greatly facilitates the passage of the blood through them, which without doubt it does), inasmuch as Dr. Billing says "When fluid passes through a given space, the current beyond that will be slower in proportion to the widness of the channel; as in a wide part of a river, where the current becomes slower, and the same may be observed (continues he) by passing water mixed with grains of amber through a glass tube with a bulbous enlargement in the middle; the current will slacken in the bulb and resume its velocity beyond it—".

From these facts I am led to conclude, then, that in inflammation there is 1. diminished capillary nervous influence. 2. A relaxation or weakness of the capillary tubes as a consequence of the absence of said influence. 3. A deficiency of their normal inherent contractile power, as a consequence of this blood accumulates and stagnates in them. 4. Blood

circulates more slowly in inflamed than in healthy parts – or Multum in parvo. I regard inflammation as diminished nervous arterial action – such being my conviction.

In adopting the above theory I am well aware, that my judgment clashes with those of experienced and great men, to whose talents and professional attainments, I would yield with respectful deference, But I have the happy consolation of knowing that I stand not alone, having advocates of the same doctrine, whose talents, attainments &c are in all respects equally as great.

I have thus far endeavoured briefly to sustain the principles I've set forth, not however by referring to all the arguments in their favour, it has not however been so much my object to prove the theory, by entering into a long controversy, or by a detailed exhibition of its merits, and the demerits of others, as to state my views of the real nature

of inflammatory action, and as the theory I have here set forth, in my humble judgment, comports most with my limited views of the subject of course I adopt it,— it would require volumes to prove a theory so warmly contested by such eminent talents, so I have just stated my views and refered to some few general and obvious facts to illustrate and sustain them, I cannot therefore go further into minute details or proof— inasmuch as a lengthy dissertation upon so extensive a subject as the pathology of inflammation would be incompatible with the limits of an ordinary thesis.

Before I leave this subject allow me to quote in conclusion the words of our very able Prof. of Surgery when lecturing upon this subject— they were as follows viz "Inflammation is a peculiar, irregular, disorderly, in other words an inexplicable morbid action of the vessels and

nerves." which in the present imperfect state of our knowledge of this mysterious subject, is as good if not the very best definition that could possibly be given to it—.

The direct symptoms to which inflammation gives rise or in other words the symptoms of inflammation are Pain, Heat, Swelling and redness, but besides these if the inflammation is sufficiently intense, we have indirect symptoms manifesting themselves through the system at large, the constitution throughout feels the shock, and responds thereto, giving rise to those set of phenomena, known to Practitioners as symtomatic or inflammatory Fever, pyrexia or the synocha of Cullen.

Pain is often the first element of inflammation present, preceding any other apparent change, thus as in inflammations of the conjunctiva, Erysipelas &c. some have attribu-

ted this sensation to a stretching of the nerves, by a distension of the vessels of the inflammed part. but this explanation seems to me, too limited, in-asmuch as we often have it, when no turnefaction of the vessels has taken place, probably it is this in connexion with a morbid sensibility of the nerves themselves accompanying the perversion of nutrition and function —, the pain varies both in degree and kind in different cases of inflammation, it is differently felt Cæteris Paribus, by different persons according to their natural susceptabilities. it varies from the slightest degree of sensibility to the utmost agony and torment, it varies also with the tissue affected, thus parts in a morbid condition and ordinarily but slightly sensitive (as bones tendons Ligaments &c) become often acutely painful, it is burning or tingling in the skin, throbbing in the cellular tissue, sharp and lancinating in serous membranes such as the Pleura, Peritoneum &c

a mere sense of burning and heat in mucous membranes, and entirely dull and oppressive in parenchymatous organs, or in parts largely supplied with ganglionic nerves as the Testicles, Stomach, Kidneys &c.. An important peculiarity of the pain belonging to inflammation is that it is usually aggravated by pressure, this one characteristic is very important in enabling us to diagnose those diseases of the abdominal viscera which are inflammatory from those which are not.

Such then is a brief summary of the several modifications to which the pain is subject in different tissues as well as in the various degrees of inflammatory processes.—

Heat.. The heat of inflammation was supposed by Hunter "to be a mere effect of the increased afflux of blood;" perhaps here too the morbid sensibility of the nerves, influence to a certain extent the degree of heat in an inflamed part;

at least so modify this sensation as to cause the patient to suffer a much more aggravated degree of heat, than the actual heat of the part will of itself account for, in other words the intrinsick heat of an inflamed part, is not sufficient to produce of itself the degree of heat as felt by the patient — This modification I also attribute to the influence of the nerves —.

Swelling. — Swelling is caused at first by the increased quantity of blood, and subsequently the swelling becomes greater and greater by effusion of serum, blood, lymph and pus, the degree of swelling in different cases depends partly on the degree of inflammation, partly on the nature and texture of the part affected, it is most remarkable in loose textures as in the breast, testicles, lymphatic glands &c.

The different liquids viz blood, serum lymph and pus, we call products of inflam —

-mation, they all play a conspicuous but diversified part in altering texture, we are sure that inflammation has been present, if we see certain of these products— Mere redness and swelling are not always indications of its presence, but we are generally pretty sure there has been inflammation if we see pus — Serum although usually is not always a positive indication, so also is blood, when we see coagulable lymph however, we may then pronounce with certainty that inflammation has been present in any tissue that may be the seat of this effusion, it frequently becomes organized, furnished with vitality, having bloodvessels, nerves, absorbents &c it often remains a monument of the inflammation—, when no other indication would furnish evidence of its previous existance,

Having departed a little from the subject, I will again resume it, and the next—

symptom in order is redness, which also is owing to the increased quantity of blood in the part — all the vessels of an inflamed part are dilated, injected &c, the particles of the blood entering into capillaries which were before impervious to them — A beautiful illustration of which may be seen in conjunctivitis, we know that this membrane i.e. the part that covers the eye-ball, is ordinarily white, transparent; none of its vessels are visible, but when it becomes inflamed its minute capillary network can be distinctly traced, they which before from the smallness of their caliber, would not admit the red particles of the blood, become now obviously injected with them, and assume a deep red tint.

The intensity of the redness depends upon the degree of the inflammation, when acute it is a bright-scarlet, when chronic of a dark brown hue, in certain specific inflammations it is

purple or copper coloured - in fine it may as-
-sume every variety of tint, from bright scarlet
to purple or copper colour, we have seen in
this review of the symptoms how much the
swelling, heat and redness severally depend upon
the increase of blood in the part.

The next symptom is an indirect or
secondary one, an effect of the inflammation.
it is the symptomatic or inflammatory fever,
it is a concomitant of every acute inflammation,
and although a mere secondary result, it is of-
-ten more distressing than the primary disease,
hence its importance if it were not for this
constitutional disturbance, the Physician would
be in many cases totally incapable of diagno-
sing many of the inflammatory diseases of in-
ternal organs, the information which he there
-fore gains from this constitutional symptom,
is therefore highly valuable, this symptom

alone there is often sufficient to direct us to the primary disease.

The most obvious symptoms that denote inflammatory fever, are chillness and debility, succeeded by increased heat of skin, rigors alternating with flushes of heat, horripilations &c, finally the surface of the patient becomes permanently hot and dry, pulse frequent, hard and wiry, wandering pains in the limbs, headache, thirst, nausea, great lassitude diminished muscular power, tongue white dry and furred, loss of appetite, the secretions are perverted and diminished, the patient is listless, sleeps badly &c, all the above symptoms become aggravated towards evening, there is often delirium at night, and slight remission of the symptoms towards morning, these are the general symptoms of inflammatory fever varying however with the species and intensity

of the inflammation.

When this fever has lasted for a time or when pus is formed in the course of an inflammation, the fever is apt to be somewhat modified, it then partakes of the nature of that constitutional disorder known as Hectic fever, which condition is characterized by rapid emaciation, increased heat of skin towards evening, night sweats, diarrhoea and burning of the soles of the feet and palms of the hands

It is again modified if the inflammation goes on to Mortification, it then assumes the Typhoid type known by a rapid sinking of the pulse and general powers, low muttering delirium, picking at the bed clothes, subsultus cold clammy skin, dry black tongue &c. Typhoid Fever (though generally) is not necessarily a concomitant of <u>mortification</u> - These are some of the general symptoms and modifications of

inflammatory fever.

But there is a peculiarity in the appearance of the blood, in inflammation to which I have not as yet referred, and which is of very great importance, inasmuch as it often (though not invariably) assists us in forming a diagnosis of the disease under consideration - I mean the Buffy Coat, which has engages quite a large share of the attention of Pathologists - When blood is drawn from a vein and allowed to stand for a short time, it undergoes the following changes, 1 it coagulates, 2 it divides into two portions viz. Serum and Crassamentum, the Crassamentum consists of the fibrin and red particles mixed, pure fibrin is of a yellowish white colour, but in this case it receives a deep red tinge from an intermixture of the red particles, - the above is the appearance of coagulated healthy blood - But in inflamed blood or blood drawn from the vein of a person suffering with inflammation - the Crassamentum presents some very stri-

striking differences, it has on its surface the buffy coat; that is a layer of pure fibrin (without the intermixture of the red particles) this layer may vary in thickness from a line to one third of the whole clot; the upper surface of this layer is also concave or cupped, Blood drawn from a large orifice into a deep vessel favours the development of the buffy coat, but drawn in a small stream into a wide shallow vessel, this process is retarded. Now this buffy coat is almost always present in inflammation, so generally indeed is it a concomitant, that it affords a valuable index to the presence of that most common of all morbid conditions (viz inflammation) but like many other of its symptoms is not invariably present particularly in the incipiency, of inflammation, although highly important as a diagnostic sign, is nevertheless rendered less so from the fact of its sometimes being absent when there is inflammation, and present when there is not, as an instance of the latter condition

the blood of pregnant females presents the buffy coat; sometimes in plethora also we have the same condition.

Inflammations of the serous and fibrous Membranes give us the most marked cases of buffy blood, as in Plewisy, Peritonitis Rheumatism &c, in mucus Membranes it is not so decidedly marked. So generally however is the buffy coat of the blood present in inflammatory diseases, that when we find it in connexion with some other inflammatory symptoms, we may as a general rule conclude that there is inflammation present, thus we see, it is a symptom of no small importance in a diagnostic point of view, it points us at once to the true nature of the disease, having discovered this then there is generally but little difficulty in treating it.—

Effects of Inflammation. The impairment of function which it occasions, consists first in an increased irritability and sensibility to external impressions, but subsequently if allowed to progress

of an utter incapability of performing the usual offices in consequence of structural change - the part which is the seat of this too common malady may undergo every variety of change, it may be partially injured, or rendered completely useless, in fine totally destroyed, and slough away from the adjoining healthy tissues, they vary from the simple blush of incipient congestion to the more appalling terminations of ulceration, gangrene, or complete death of the part, Inflammation may produce every possible alteration of secretion, in the first place secretion is invariably diminished, as we no doubt frequently have observed and often experience in the incipiency of a slight catarrh, in which the nasal mucous membrane has been turned dry and stuffed, and its secretion almost wholy arrested, its healthy lubricating secretory mucus power temporarily checked, when the inflammation becomes more chronic however, the secretion is increased, the secretions as a consequence

of inflammation, become altered in chemical properties, thus the tears in some cases become hot and scalding, and excoriate the cheek, the secretions may also be mixed with the products of inflammation, thus mucus is often mixed with blood serum and pus, sometimes there is an elimination of gas from inflamed parts.

Inflammation produces almost every variety of structural derangement, if recent, the weight of the part is generally increased, cohesion or hardness is diminished. Induration and hypertrophy are produced most frequently by chronic inflammation

The ordinary post mortem appearances of recent inflammations are redness, softening, swelling and infiltration with serum.

Terminations of inflammation:— Inflammation may result in the 7 following conditions, viz. 1 Resolution, 2 Hæmorrhage, 3 Effusion of Serum, 4 Effusion of coagulable lymph, ——

5 Suppuration, 6 Ulceration, and 7 Mortification. —

1. But in truth there is but one genuine termination, viz Resolution, in which, the inflammation subsides and the part without injury gradually returnes to its normal healthy condition – in this process the Congestion increases untie the blood stagnates in some of the smaller capillaries, the part is then said to be inflamed, but it goes no farther it here stops, no escape of blood takes place nor any of its constituents, at most there is no appreciable escape into any of the surrounding tissues, there is merely stagnation in the capillary tubes, and resolution is established after the following process, viz, the Capillaries gradually regain their contractile power, the stagnant blood is again set in motion, and if there has been any slight effusion, it is reabsorbed and the parts again return in all respects to their normal state and in-

tegrity, and perform their proper functions with as much ease and facility as previously. - This may be considered the spontaneous cure of inflam-mation and to this event there is always a natural tendency.

2 Hemorrhage like other effusions, may be a consequence of inflammation, it consists first in an exhalation from the distended capillaries - in almost every severe case of inflammation, it is probable perhaps certain that the blood escapes by exhudation through the capillary coats, exhudation principally takes place from mucous membranes, thus from the alimentary canal, lungs, urethra &c thus we can conceive that effusion of this kind (if not too profuse) from any inflamed tissue is sal-utary, it seems to be an effort of nature to relieve herself - it as it were lightens the oppressive load of the capillaries, allowing them to contract; and no doubt in this way often expedites a happy

termination, Haemorrhage can hardly be considered one of the terminations of inflammation, but as it frequently takes place from inflamed Mucous Membranes, I thought it at all events worthy of a passing notice, and from the fact of its having been looked upon as a termination by some authors –

Inflammation although a prolific source of haemorrhage is nevertheless but one of the few causes that may give rise to this frightful and distressing symptom.

3 Effusion of Serum, – as a Consequence of inflammation is not an uncommon occurrence thus we have effusion into the Peritoneum, Arachnoid, Pericardium, Cellular Tissue &c, – This effusion takes place principally from inflamed Serous Membranes, the Serous portion of the blood escapes through the walls of the Capillaries into the surrounding parts, giving rise to oedema if the cellular tissue be its seat, Ascites if the Peritoneum

Hydrothorax if the Pleura &c, but whatever may be the ultimate cause of serous effusion, it is one of the earliest events of inflammation, and sometimes that which first attracts our attention, giving rise to conditions of the most perilous kinds, the quantity poured out in a short time is often immense – thus the pleura may be filled in a few hours, exerting almost suffocative pressure on the Lung, thus we see that it is not the least dangerous of the terminations of inflammation: its presence however like hemorrhage is not always an indication of the existence of inflammation, as it may be the result of numerous other causes such as obstruction and diseased valves of the heart. —

The next event of inflammation to which I shall direct my attention is the Effusion of Coagulable Lymph, the 4th. result in the enumerated order – it is nothing more than the fibrin separated,

from the other constituents of the blood and concreted, it is poured forth at first in a state of solution or in a soft semi fluid condition, and mixed with more or less serosity, but the fluider parts of the effusion are either soon reabsorbed, at all events they are seperated from the fibrin, which becomes firmer and at the same time solid, the simple central hardness of a phlegmonous its induration to the interstitial deposit of lymph, in hepatization of the Lung the spongy texture of said organ becomes blocked up with it. in Erysipelas, Phlegmonous inflammation &c the subcutaneous areolar tissue &c, is rendered dense and hard by the infiltration of lymph, but the most striking examples of this effusion may be found upon the surface of inflamed membranes, adapting itself to the form and size of the membrane, known to Pathologists as pseudo, false or adventitious membranes. thus the false membranes of the Pleura. When coagulable lymph is poured out between membranes

that are habitually in contact ~~in contact~~ with each other, it causes them to adhere, acting in the same way as a solution of Gum Tragacanth interposed between two sheets of paper. it often becomes organized furnished with bloodvessels Nerves &c. This deposit takes place most frequently in serous membranes as in the Pleura, Pericardium Peritoneum &c, similar membranes may form upon mucous surfaces also partaking of the exact mould of the intestine, Larynx Trachea &c, but this result is not so common in those as in serous membranes. In Croup the lining membrane of the Larynx and Trachea is inflamed, and we have here if the inflammation be sufficiently intense, the aforesaid effusion, moulding itself to their exact shape which is much dreaded from its tendency to occlude the airpassages, and so prevent the admission of air, and thus bring on death by Apnoea. the cut surface of a recent wound, when placed in favourable circumstances is united through the medium

of coagulable lymph known to Surgeons as healing by the first intention, the effusion of this lymph under certain circumstances is beneficial under others detrimental, As an instance of its conservative agency we have only to refer to the Membrana decidua of the Uterus, But I'm well aware that some Pathologists deny that this Membrane (which lines the Womb after conception has taken place) is composed of coagulable lymph, whilst others maintain it is perhaps it is not as good an example as I might have taken to illustrate my position, inasmuch as it is not formed here generally as an event of inflammation A more obvious example is in ulceration of the in-testines, when perforation is about to take place and to prevent their contents from entering the cavity of the peritoneum What does watchful nature do? Why! she interposes a barrier of lymph between the two surfaces of the Peritoneum and agglutinates them, and by this means she prevents the otherwise

inevitable result of an escape of fecal matters into the serous sac, which would produce diffuse inflammation of it and as a further consequence almost certain death, its salutary effects in healing wounds has been already refered to, It is better that the bag surrounding the Heart (where it happens to be inflamed) should become adherent to that organ, than that the inflammation should run on to suppuration and fill the pericardium and oppress the Heart with pus, in the one case life may be preserved for several years, in the other it seldom lasts for so many days. It is certainly much more desireable and consistant with the safety and comfort of the patient that the two surfaces of the Pleura should be adherent than the Lung compressed and flattened by an effusion of sero-purulent matter consequent upon its inflammation. Thus this same Coagulable lymph so useful for the purpose of repairing damage, and continuing the species, sometimes kills,

as in Cynanche Trachealis by occluding the Wind-pipe, or it may produce blindness by rendering the Cornea opaque, or glue the intestines to one another after peritoneal inflammation &c. The operations of Nature are uniform and simple, the reparatory process is also uniform and simple, the throwing out of Coagulable lymph in these cases is equivalent to its being thrown out to effect union by the first intention or granulations, though from the locality the (Cornea Wind-pipe &c) it becomes inconvenient or even destructive.

This effusion unlike Hæmorrhage and Serum is a positive evidence of the presence or preexistance of inflammation.

5. Suppuration or the formation of pus is the Termination to which I'll next refer, it is that morbid action by which pus is deposited in inflammatory tumours. Pus is altered blood, it is a yellowish white opaque fluid of the consistence

of cream, neither acid nor alkaline, without smell and said to have a sweet mawkish taste, insoluble in water but capable of being mechanically suspended in it, it putrefies tardily, like numerous animal fluids it consists of serum holding some solid particles in suspension, without entering into a chemical analysis of pus or the different theories held regarding it, or the successive processes of its formation in minute detail, I will content myself with merely noticing some of its striking, obvious, and practical characteristics. Pus is the invariable result of inflammation whenever we see it we may conclude at once that it is or has been present, the successive steps of the formation of pus in the cellular tissue is as follows viz, there is a general softening and effusion of serum, fibrin &c when the inflammation is intense pure blood may also be effused, these effusions increase, the parts become much swollen and broken down, at last pus begins to appear in the thin reddish mixture of serum and

and lymph with which the tissue is infiltrated, the pus globules increase by softening and dissolving the surrounding tissues, Lymph is thrown out and encir-
-cles a cavity which being filled with pus is called an abscess, inflammation of Mucous Membranes and skin readily terminate in suppuration, Suppuration in serous Membranes is not a very common occurence although it may and sometimes does take place, particularly if there is an admission of atmospheric air, which seems to promote the generation of pus, in inflammation of the Pleura caused by punctured wounds or a fractured rib, or by a vomica in the Lungs or by any cause whatever, so that at the same time air is admitted to the aforesaid membrane, then true Empyema takes place i.e. pus is formed there, so also in Pneumonia, at first the inflamed lung is rendered solid by the effusion of coagulable Lymph into the air cells, but if the inflammation continues, the next thing that happens, is that condition

which Lenec calls Gray Hepatization, i.e. a purif-
-orm infiltration takes the place of the lymph. So
pus may be the result of inflammation in any
tissue whatever, particularly if it be exposed to at-
mospheric influences.

Upon the accession of suppuration the
pain slightly abates, except when the pus is con-
-fined, or takes place beneath dense aponeurotic fas-
-cie, as for instance under the Plantar, Palmar &c in
such places it gives rise to the most excruciating
pain, Wherever it may be generated it has a ten-
dency to the surface, as for instance in Carbuncle
Abscess of the Liver &c.

The formation of pus also gives rise to some
constitutional symptoms, its accession is marked
by rigors and if profuse enough to cause a drain
upon the system, all the phenomena of Hectic Fever
supervene, When it is diffused through the tissues
it tends to soften and seperate them, to dissect, dissolve,

break them down, as it were, whereas the direct effect of the deposition of lymph is to consolidate and harden, the time required for the formation of pus is variable, it sometimes takes place a very short time after the accession of the inflammation, at others it is more protracted, its duration is in direct ratio with the degree of the inflammation and the nature of the part affected, Pus taken into the blood by absorption from abscesses of the Liver or Lung or from any source whatever, is productive of very serious consequences, Various and numerous have been the appellations given to the different kinds of pus, thus we have the healthy, serous, curdy, mucus Lardaceous, putrid and specific all derived from some striking peculiarity, otherwise partaking of the nature of the tissue from which it proceeds and named accordingly.

6 Ulceration – This condition as an event of inflammation may in truth be called a termination

it may be defined to be, the death of successive layers or minute portions of open wounds, it is a species of mortification, it consists of a progressive and gradual solution of continuity, sloughing, a complete destruction of alternate layers of the diseased tissue &c, various are its exciting causes viz congestion of blood in the capillaries, stagnation, deficiency of nervous influence, imperfect nutrition, but it is always an event of that fearful insidious, primarily destructive malady which at present occupies not a small share of my puzzled inventive powers. it spreads with different degrees of rapidity, an attack of violent inflammation may cause destruction by this process in a very short time - The tissues most disposed to it, are the skin, mucus and synovial membranes from those it spreads with facility to adjacent textures which seem to yield to it without resistance, the cellular tissue also readily ulcerates, but nerves, tendons, muscles

Bloodvessels and ligaments very slowly, Bones, Cartilages, and the Cornea in scrofulous constitutions are very susceptible of it, those who are debilitated by intemperance tainted with Syphilis or scrofula or persons whose health is deteriorated from any cause whatever are strongly predisposed to it, various are the names given to the different species of Ulcers - viz. The Healthy, the Inflamed, the Weak, the irritable, the indolent, the fistulous, the varicose, the sloughing, phagedenic and various others derived from some striking peculiarity or fancy of the author. An individual description of each variety would require more time than I can consistantly devote to them -. I now proceed to the last, the most dreaded, and fortunately the rarest of the 7 terminations enumerated, viz Mortification, it is the most serious of all its terminations, by it is meant the complete death of a part, total, disorganization, an entire cessation of all vitality. -

frightful, appalling, and horribly distressing, both to the patient and Physician, inasmuch as there is no repair, no therapeutical appliances can restore, no sympathy ameliorate or soothe the unfortunate sufferer, an appeal to the many, various, and usually salutary remedial agencies of our art is insufficient; alas! there is no cure, and the unfortunate victim (if it be an organ effected essential to life) is inevitably doomed to death, there is no reparation, the part is irrevocably lost; nevertheless in cases of not so grave a type, Nature kind Nature, from her abundant store has her resources, not to restore however the mortified part; but with her accustomed zeal she by extending to us her protective powers, establishes a line of demarcation between the living and cadaverous mass, a barrier of lymph is instituted which prevents its further progress, and at this line she proceeds to amputate the portion that-

has lost its vitality, and the process by which she accomplishes this most noble end, is certainly wonderful and worthy of the most exalted admiration, and here too what is perhaps equally as wonderful, is the instrument with which she operates, She makes use of a modification of that malady, which is ordinarily the most distressing destructive and fatal that afflicts humanity, a modification of that disease which generally gives rise to the condition, which now invokes the interposition of her dexterous surgical aid, in other words the subject of my essay is the knife with which she operates, the several processes of the operation is as follows. A barrier of lymph by adhesive inflammation is constricted so as to prevent its further progress, the commencing separation is marked by a furrow of ulceration, and this gradually deepens until the part is completely severed, and mark here the fact that every tissue composing the

Human body is capable of being removed by the ulcerative process, and we cannot pass without noticing the interesting phenomena that takes place in the adjacent living tissue, viz the means taken to avert the hæmorrhage that we should expect would arise from the severance of large blood vessels, Nature ever ready for wise and noble purposes plugs them up with coagulated blood, their orifices are also more effectually secured by the deposition of coagulable lymph, the agent to which I have so frequently alluded so prolific either of good or evil. The Surgeon endeavours to imitate this process, he from a close observation of Nature's laws, endeavours to imitate her movements and follow her precepts, and in truth a great part both of Physic and Surgery consists in learning as far as practicable by natural resources, the expedients of repair and preservation for which provision has been made

in the living body, in exciting or repressing or directing or imitating the natural actions, which generally tends and often suffices to restore health. Oh Nature, Nature! how instructive are thy lessons, no studies are calculated to give us a more exalted idea of the omniscience of God, and so humble an opinion of all human inventions as the study and observance of thy laws. Natura ducet nil desperandum.

Having now noticed the several terminations of inflammation, I shall now notice its modifications as it occurs in the different tissues. it will be always modified by the state of the constitution in which it occurs, it is apt to be intense in the young and plethoric, but indolent and tending to destructive processes (such as ulceration and mortification) in the old and debilitated, it is also much modified by atmospheric influences, the most important mod-

-ifications are found in the tissues which it invades, thus in the cellular tissue there is a strong tendency to the formation of circumscribed abscesses as in the diffused Phlegmon, the sup-
-puration being prevented from extending by boundaries of coagulable lymph forming cysts sacs &c, this condition does not ordinarily give rise to much pain or general disturbance unless the suppuration takes place in unyielding parts as dense fascia and then the sufferings of the patient are extreme, the substance of the large glands suffer similar changes to those of the areolar tissue, thus we are apt to have large abscesses in the Liver. Kidneys &c, Phlegmonous is also a variety of this modification, this is the condition that takes place in persons from dissecting wounds, and which occasionally endangers the lives of some of the zealous votaries of our noble science. Inflammation

of serous membranes, produces effusions of serum and coagulable lymph, ~~and~~, and if there be an admission of air pus may also be formed, thus constituting what we call empyema if the pleura is the membrane implicated, very frequently we have adhesions, false membranes are formed, sometimes becoming organized, glueing the two surfaces of the membranes together,

Ulcerations sometimes occur in serous membranes but it is uncommon, the pain in serous membranes are sharp and lancinating, pulse generally hard, blood buffed, inflammation in them spreads by contiguity and contact.

Inflammations of synovial membranes are apt to produce effusions of serum or synova, more commonly however they become ulcerated.

An inflamed mucous membrane may pour out mucus lymph pus serum or

blood, inflammation of these membranes often manifest a strong disposition to spread rapidly at other times quite the contrary – in the pulmonary mucous membrane there is a strong tendency to spread, in noticing these membranes, the first thing that strikes our attention is their manifest indisposition to adhesive inflammation, how beautiful again is this provision of nature if they were as ready to take on inflammation of the adhesive kind as the serous membranes are, how constantly liable would we be? to a complete occlusion of the air passages, Oesophagus, intestines, anus and urinary passages, and in many instances I conceive be deprived ~~of the use~~ of sight, by an adhesion of the margins of the lids – The lungs would become impervious upon the accession of those very common complaints, Laryngitis, Croup & Acute Bronchitis – This membrane

does however pour out a fluid similar too if not real coagulable lymph, this is most apt to occur in Children, the Bronchial, Laryngeal, Tracheal, Pulmonary Mucous Membrane, the oesophageal, intestinal and Uterine Mucous Membranes, are all more or less subject to the formation of a pseudo or adventitious Membrane under the influence of inflammation. Whether this deposit be real coagulable lymph has been and is yet contested by high authorities, it is certain however that in appearance it is very similar, it is nevertheless equally certain that its adhesive affinity is much less than Lymph occurring upon serous membranes, it never becomes organized upon mucus membranes, there is at all events but little disposition in mucus membranes to grow together, they are much more liable to ulceration sloughing &c. This takes place more particularly in the alimentary canal. The pain of mucous mem

membranes is much less than that of serous, neither is the blood so highly cupped and buffed as in serous membranes.

The muscular and arterial tissues are but little disposed to take on inflammation, its chief effect upon muscles is a partial diminution of their contractile power, so little indeed are the arteries disposed to inflammation that S.J. Thompson declares that he has seen a case of Phlegmonous Erysipelas in which "several inches of the femoral artery were laid bare by the Gangrene, Ulceration and Sphacelus of the parts covering it without its giving away before death."

The veins however are strongly predisposed to inflammation, and whenever it does occur it is a disease of great peril, the blood in the veins soon coagulates, and the venal canal becomes almost obliterated, An obliteration of the femoral canal from inflammation is that dread

dreadful condition Phlegmasia dolens. When Phlebitis runs into suppuration it then becomes extremely fatal, pus is taken into the system at large and has a most deleterious effect, producing great constitutional disturbance, Typhoid Fever soon supervenes often followed by death.

Bones, Cartilages, and Nerves, are not very subject to inflammation, inflammation of the Cerebral substance is however not very uncommon when it does occur it most commonly ends in softening and suppuration Dr. Watson in his invaluable Treatise says excepting in cases of Hernia Cerebri, he has never seen sphacelus of the brain from any cause. Fibrous tissues are those supposed to be implicated in gout and rheumatism they seldom if ever result in suppuration, ulceration or sphacelus, they usually terminate in a deposition of calcareous matters.

Having noticed in a brief manner

some of the modifications of inflammation as it occurs in those tissues which are its most common seat and also of more direct interest to the Physician, I must now pass on as the limits of these pages will not allow me to devote more time to it, I will now in a general way notice the causes.

Causes of Inflammation, they may be divided into predisposing and exciting, they are in many cases so obscure and numerous that it is often impossible to say what may have been the predisposing or exciting cause or causes, but in many cases they are plain, occular, and without difficulty noted, I will therefore notice a few of the most common, and 1st. the predisposing, some peculiarity of the constitution, thus persons of a full and plethoric temperament are very prone to it, previous disease any disturbance of the general health &c, and debility is (using the words) of that able, modern Pathologist,

of our School Prof Power) a powerful predisposing cause ~~cause~~ of inflammation.

The exciting causes are almost innumerable, perhaps the most prolific are sudden vicissitudes of temperature, Cold, dampness, Moisture, intense heat, specific and poisonous atmospheric influences, these several conditions rendering some tissues more disposed than others; thus a Cold, damp atmosphere giving rise to Rheumatic inflammations. Cold, wet feet, will sometimes produce determinations to the head and phrenitis is often the result, or to the Lungs giving rise to Pneumonia &c. Mechanical injuries direct or indirect, Chemical causes, irregularity of bowels, unwholesome diet, insufficient clothing, Cold drinks when the body is heated, depressing moral emotions, in conclusion all causes, influences, and agencies capable of interrupting the true ballance of the circulation.

Having now reviewed the various phen-

-nomena of inflammation, noticed by successive steps the various theories regarding it, its symptoms its results and terminations, the modifications it undergoes in the several tissues of the living body its causes &c. There still remains to be considered the degree or severity of its attack, which all authors (as if by common consent) designate by the 3 following terms or divisions viz the Acute, Sub-Acute and Chronic, these terms occurring so frequently in all systematic authors, my essay would be incomplete if I did not notice them, none of the varieties differ in kind only in degree, the Acute form is that which comes on suddenly, is violent in its action and runs through all its stages with rapidity, and is attended with much general and local disturbance, it is the most violent of all the stages of inflammation.

In Chronic inflammation the general and local symptoms are less marked, is not so

violent in its action, but longer in duration, the character then of acute inflammation, is intensity of action, running through all its stages with rapidity, those of Chronic, mildness of action and slowness of progress, Acute and Chronic are the two extremes of inflammation, one denoting its most violent stage, the other its mildest, allow me to remark here however that a Chronic inflammation may be pretty intense in its action yet long in its duration, the term Chronic seeming to be generally applied by authors to designate its duration rather than its intensity, now the term Sub. Acute is intended to express that grade of inflammation, which is neither very violent in its action, nor yet very mild nor slow in its progress i.e. neither acute nor Chronic but between the two, holding an intermediate position, it is sometimes brief in its course, attended with some fever and constitutional disturbance,

but attains no great intensity of action, seldom producing much structural disorganization, and generally easily controled by remedies, Chronic inflammation is ~~of~~ often the sequal of the acute, although it produces less general constitutional disturbance, nevertheless, it is not in general much less fatal ultimately than the acute, it is always more obstinate and less amenable to treatment, and from its inflexible persistance soon disorders the whole system of nutrition, and its victim by a slow process of asthenia sooner or later succumbs to its destructive progress. it is most common in debilitated persons it tends to result in Hypertrophy suppuration and ulceration, accasioning one or the other of these events according to the tissue affected.

Having now finished the Pathology of inflammation and taken a cursory view of its several processes of action both functional and structural, there yet remains to be considered that

which has as strong a claim upon our attention as Physicians, as a knowledge of the diseased action itself biz its treatment, the diagnosis of inflammation is ordinarily easy, but to treat it with safety to the patient and credit to ourselves throughout all its modified phases, is not always so easy a task "A very fashionable and successful Physician, now dead, used sometimes to say when he met other of his brethren in consultation. it is all very well to speculate about the exact situation and the precise nature of the disorder, but the question with me is what is good for this, that, or t'other thing"? Now having speculated much about the real nature of inflammation "the question with me is" what is good for this that or t'other of its stages. The first element towards the successful treatment of disease is to ascertain as far as possible the nature of the structural or functional alteration that has taken

place in the tissue affected, and as I have just noticed those conditions in the disease under consideration. I will now lay down some general principles by which we should be governed in its treatment. The first thing to be done is to remove the cause if possible, and endeavour to bring about that result which is its natural termination viz Resolution, if this cannot be done the promotion of the next most favourable result; the patient should be removed from all exciting causes as vicissitudes of temperature, should be placed in a comfortable well ventilatio apartment and a strict and rigid observance of the antiphlogistic regimen should be enjoined, the object of which is to place the patient in that condition the most favourable to the spontaneous subsidence of the inflammation, and ensure the full salutary effects of remedies, all stimulants and excitants both of a moral, mechanical, Physical. chem-

-emical or of any kind whatever, should be str-
-enuously avoided, and any thing calculated to
disturb or distress the patient, such as bright-
light intense heat or cold in fine whatever-
tends to accelerate the circulation should also
be avoided we should as aforesaid place the pa-
tient in the most favourable and advantageous
circumstances possible. and then the Physician
may proceed to the applications which his own
judgement may dictate, or experience has pro-
ved to be most efficient in their action, and
among these there is none more productive
of good, none of such general utility as that of
general or Local Bloodletting, it lessens the vis a
tergo and takes off from the already too much in-
jected and distended capillaries, rendering them
more capable from the relief thereby obtained of
contracting upon their stagnated contents, they
again begin to assume and regain their healthy

contractile power, often as we may see, after one well timed judicious full and copious venesec-tion, it decreases the too abundant vital fluid in the system, it is one of our most powerful means in the treatment of inflammation, there is none so potent, none so satisfactory both to the patient and physician as this when judi-ciously employed, a remedy like the present there of such potent powers either for good or evil, when misapplied is productive of the most serious consequences, generally of such universal applic-ation in the treatment of inflammation, there are frequent cases however which will not war-rant or justify its employment, when it is re-quisite, the method of its abstraction, the quantity to be taken, and the propriety of repeating it. all vary with the peculiarity of individual cases that may render necessary its application, Blood-letting may be divided in to general and local.

When blood is drawn by opening a vein or artery it is called general bloodletting, but scarifications cupping leeching &c constitute local bleeding. The object of general bleeding is to lessen the quantity of blood in the system, and in so doing takes from it a source of great excitement, and to gain its sedative effects upon the brain and through the brain on the heart, in lessening the latter organs too violent contractions.- The object of local bleeding, is that of emptying the gorged capillaries of an inflamed part, but in infants it may have all the good affects of a general bleeding in bleeding locally the blood is taken immediately from the engorged vessels, general bleeding has also indirectly this effect. The veins most generally selected in general bleeding are the median basilic and cephalic at the bend of the arm, other places may be selected when these are insufficiently developed, as at the ancle, opening the

jugular although recommended by some Practitioners is nevertheless generally inadmissible, unless in cases of great emergency, inasmuch as it is not entirely free from danger, Arteriotomy is also sometimes resorted to but it too is not without objections.

The most important indications for bleeding are the indications of the pulse, nature of the tissue inflamed, severity of the inflammation, and the amount of the general constitutional disturbance, and if the organ inflamed be a vital one we are justified in resorting to the Lancet as speedily as possible. And when we have determined upon bleeding we should draw the blood as quickly as possible in a large stream from a large orifice, the patient should be placed in the erect posture, the blood as a general rule should be allowed to flow until some general effect upon the pulse is produced, or until the

patient experiences some sensible relief, or until syncope is indicated by paleness of the lips, lividity about the eyes, nausea, sighing, fluttering of the pulse &c. full syncope however should not be induced, on account of the reaction which is subsequently apt to take place. The necessity of its repetition is generally indicated by a recurrence of all or some of the symptoms that in the first place called for its adoption, the stage which gives us the most marked cases of the good effects of general bloodletting is while the inflammation is in its acute incipient stage, while it is still within the limits of resolution, before much structural disorganization has taken place. it is in this stage that we often succeed in at once completely supplanting the diseased action.

In making up our mind as to the propriety of bleeding or the extent to which we should carry it, we must not neglect the age, sex,

temperament; and the general condition of our patient, we must also remember (if any exist at the time) the nature of the prevailing epidemic, the power of tolerating the loss of blood is different in different persons and sometimes in the same person, in inflammations occuring in different tissues, it varies at different seasons the age, sex and temperament of the patient; it is less in the very young and old, than in the middle aged, less in the female than male, less also in lymphatic and nervous temperaments, than in the sanguine and plethoric. The inflammatory diseases in which bleedings are best borne are those of the Lungs, Heart, Head and other vital organs, it is also largely borne in serous membranes, less so in mucous, in which topical bleeding by cupping leeching &c seems most useful. Those inflammatory diseases in which it is worst borne are putrid inflammatory fevers and dis-

-seases of debility, I have now spoken of the efficacy of general and local bleeding as a remedy in acute inflammations, and will now notice its good effects in Chronic, it is scarcely less valuable as a remedial agent in Chronic inflammations when attended with constitutional symptoms as fever &c, it must be recollected here however that the bleedings must be less in quantity and longer in interval, general bleeding it is true is much better in acute than Chronic inflammations, topical bleeding seems much better adapted to the latter, but a combination of the two both in acute and Chronic inflammations, is often highly valuable, in local inflammations where the vessels of the parts remain full and injected with stagnant blood and are incapable of relieving themselves of the excess, in this condition we abstract blood by cupping and leeching with the most happy results, they should generally be

applied upon or as near the part as we can get. having now noticed a few of the good effects resulting from bloodletting both general and local in inflammation, it may in truth be called our "Sheet anchor." in this disease, allow me to remark here, in the application of no remedy is there more judgement and thought required on the part of the Physician he must recollect that he is using a "two edged sword." capable of giving in many cases almost immediate relief if dexterously and judiciously used, and also capable if misused of doing serious mischief to the patient, therefore in directing its employment when convinced of its necessity, we should neither be too timid, for by withholding it we may suffer our patient to die from the destructive processes of inflammation which we might have averted by a bold use of the lancet, nor yet too rash for we may inflict an irreparable injury upon our patient.

our opinion as to its necessity should be deduced from judicious and scientific principles.

But besides the unquestioned efficacy of bloodletting in inflammation there are other remedies auxillaries I may call them, whose good effects are equally unquestioned, and which in connexion with bloodletting greatly expedite a mutual good effect, to some of which I will now refer, and first Purging, active purging by saline, Mercurial, and hydragogue cathartics forms not a small share of the antiphlogistic treatment in inflammation, they are indeed next in efficacy to bloodletting in remedial powers in reducing inflammatory excitement. They answer two indications first to get rid of the accumulated and often acrid faces, which produce much irritation in the alimentary Mucus membrane, and at the same time further depletion is carried on by them in the profuse serous discharges which they occasion from the large extent of

membrane upon which they act, their operation is of marked benefit in some inflammations as of the head viscera of the thorax, in inflammations of the Liver they also do much good, but in inflammation of the Stomach and bowels they are generally inadmissible from the increased irritation to which they give rise, purgation then is a valuable auxillary to bloodletting.

Another agent which has comparatively recently gained much reputation in the treatment of inflammation, is Ant et Potassa Tart. which is now very universally and extensively employed, and no doubt from its valuable remedial powers will long continue to be much used, it has the property of subduing the action of the heart and arteries, lowering the pulse, produces paleness nausea &c its effects are somewhat analagous to those we produce by blood letting, by this agent then when further loss of blood is incompatible with the safety of the patient,

we can nearly get all the good effects of bloodletting without the further loss of blood. how valuable it must be then in connexion with bloodletting, it is in inflammations of the airpassages that antimony is so signally beneficial, it should be given in nauseant and contrastimulant doses, it may be administered in doses of 1/8 – 1/2 a grain, In larger doses such as grs ij it is a most potent remedy especially in Pneumonia, it does not vomit after the first few doses, tolerance is induced, and it exerts its sedative influence without producing any evacuations.

Colchicum is somewhat similar in its effects to antimony, it is more particularly adapted to rheumatic and gouty inflammations.

Digitalis has been much in repute as a sedative, it is also somewhat similar to antimony in its action, but less under our controle, it acts as a direct sedative to the heart, lessening its action &c. per

haps the inflammations to which it is peculiarly suited are those of the Heart, as Endocarditis, Pericarditis &c

Counter Congestion, Hæmostasis, is much used by some practitioners, and highly recommended by Dr. Buckler, who has written a very valuable essay upon the subject, it is also somewhat similar in its effects to antimony. it consists of ligatures applied to the extremities so as to prevent the venous circulation. the large venous trunks of the extremities become congested, by this means a large quantity of blood is kept from the central organs — it has a direct sedative effect upon the heart, hence a diminution of capillary engorgement, here too we get some of the general good effects of bloodletting without the loss of blood, it is in some cases a very powerful agent in subduing inflammatory excitement and should not be altogether disregarded.

In speaking of purgatives I mentioned

Mercurial preparations, refered to their depletory action as an evacuant, but they are not so good in this respect as many others of the group then mentioned, but they possess powers in the reduction of inflammation besides and far superior to their mere purgative efficacy, they are also far superior to the remedial virtues of antimony in the reduction of inflammation, The great remedial efficacy of Mercury consists in an inexplicable alterative influence, by which diseased action is modified, it has the property of stopping, controling, or altogether preventing the effusion of coagulable lymph: hence its great importance in pernicious adhesive inflammations, of the serous membranes for instance as in Pleurisy, Pericarditis, Peritonitis &c, which if attended with much pain after free depletion by the Lancet we depend almost entirely upon Calomel and opium, In Pneumonia also it is of much value.

in certain chronic inflammations perhaps there is no agent so efficient.

Mercury and Antimony have a direct effect upon the capillaries so as to cause the inflamed capillaries to contract independently of the vis a tergo or the state of the hearts action, hence their general almost universal utility in inflammation, their action is local on the capillaries when they reach them through the medium of the circulation, they come in direct contact with them, they act upon them (independently of their action upon the heart in lessening its action &c) as a solution of their salts would act upon the inflamed capillaries when applied externally and so contracts them, because when taken internally they as certainly reach them and having reached them, we have every reason to suppose they exert this peculiar contractile influence as when we apply them directly to the inflamed vessels in external inflammations, the only-

difference is, that in the one case their action is occular in the other occult; we therefore conclude that their modus operandi is the same in both instances. Mercury though less nauseating and though it acts less upon the heart than antimony (Yet it acts we have every reason to believe) more upon inflamed capillaries in promoting their contraction, and consequently a reduction of the inflammation this affords says Dr. Billing "A rationale of these remedies curing inflammations where there is no indications for depletory or common antiphlogistic means; for which mode of cure the vague term, "equalising the circulation", has been adopted; but it is erroneous, as the circulation cannot be unequal: it may be irregular, stronger or weaker, quicker or slower; but in either case the blood must be sent or circulated equally to every part of the body, as it passes at first from the heart through a single canal, the aorta". So then

we conclude that Mercury cures inflammations by its coming in direct contact with the capillaries and contracting them, so also Antimony, iodine, and numerous other agents, Mercury is used with the happiest effects both in acute and chronic inflammations. The preparations of it that are most frequently used are the Hydrargyri Chloridum mite, Hydrargyrum cum Creta, and Pilulæ Hydrargyri used internally, and the Hydrargyri Chloridum corrosivum, and Unguentum Hydrargyri externally &c We should as a general rule desist from the use of Mercury as soon as ptyalism is produced. and it is seldom expedient to carry it so far. Nitre is also frequently given in inflammatory fever to abate, heat, thirst and to purify the blood it also increases the secretion of urine.

The diet as a general rule should be of the very blandest kind, such as Arrow Root, tapioca, toast water &c, numerous are the therapeutical app-

-liances in inflammations, in the one or other of its stages, we apply cold to the head in inflammation of the brain or its membranes, cold and iced drinks in Gastritis, in the application of cold to local inflammations, we should be governed pretty much by the feelings of the patient, and as soon as they become disagreeable they should be discontinued.- Heat is also variously applied, as hot fomentations, poultices &c. A hot anodyne poultice applied over the epigastrium in gastritis is as good an external application as can be resorted to, I myself have experienced marked benifit from it, So also in peritonitis although poultices cannot be borne here from their weight and the pain thereby occasioned, yet warm anodyne fomentations are very soothing and grateful hot applications seem to do good by determining to the surface, they promote perspiration, mitigate pain and persuade to sleep, Dr. Watson says that

in Erysipelas he is persuaded "that warm fomentations, not only afford more comfort, but are more effectual and safer than cold lotions" in producing suppuration warm soft poultices and fomentations are very useful, in the application of warmth the feelings of the patient should also be our criterion.

In external chronic inflammations simulant and astringent solutions are of great service, by decomposing and washing away their irritating secretions, and inducing contraction of the capillaries, local bleedings must be employed, at intervals to unload the engorged vessels, whilst they must be excited to contraction by various stimulants and astringents such as the Nit. argenti, acet. Plumbi, Sulphates of Copper, Zinc, alumina, Salts of Mercury and various vegetable astringents, the watery solution of Opium et acet Plumbi, so often used and recommended by Prof. N. R. Smith.

is perhaps one of the best anodyne astringent lotions we can use. these or any other measures will be known to do good says Dr. Druitt "if they make the part feel stronger and more comfortable, although their first application may have been painful but if they render it hotter and more vascular, it is a sign they stimulate too highly and if continued may favour the production of acute inflammation, ~~Counter~~". Counter irritants such as blisters, sinapisms, setons, issues, moxas and irritating ointments are often very beneficial but should only be used in chronic inflammations. In acute inflammations it is best to take away sufficient blood at once to make a decided impression upon the system, in chronic cases and according to some authors in all inflammations of vital parts small and frequent bleedings are to be employed.

I have now finished the subject of

my essay the Pathology and treatment of inflammation A subject upon which so many volumes have been written, inflammation an important element in almost every disease that afflicts the human family, having then such extensive bounds and having received so much attention from the best talents that have ever embellished our extensive science, it should scarcely be expected then that the mere student with no observation and unaccustomed to original composition, could even do justice to, much less improve upon the vast amount that has heretofore been written, I have therefore merely noticed some general and well known principles, and now consign it with no little degree of diffidence to the inspection of a galaxy of talent, it is nevertheless satisfactory to know that I have performed an onerous yet not unpleasant duty in complying with a requisition which it seems has been imposed

upon students from the earliest records of our science.

The End.

Regents and Faculty of Physic
of the
University of Maryland
for the
Degree of Doctor of Medicine
By
Philip M. Wagenhals.
Baltimore Feb. 5th 1847.

upon students from the earliest records of our science.

The End.

An Inaugural Dissertation on Sulphate of Quinine.

Submitted to the examination of the Provost, Regents and Faculty of Physic of the University of Maryland for the Degree of Doctor of Medicine

By

Philip M. Wagenhals.

Baltimore Feb. 5th 1847.

Respectfully dedicated to Paul Blake M.D.
Professor of Therapeutics, Mat. Med. & Hygiene,
in the University of Maryland

It is not at all probable that any medical student, who has but for a short time devoted himself to the study of medicine, however attentive he may have been, will be able to advance anything new in the science of medicine

In the first place, however much he may know and may have read, there yet remain volumes untouched, in which all things have already been noted down; and secondly, if there be any mystery which as yet is unravelled, strict attention to the duties of his profession and an observing eye, will alone be of service to him.

If this be the case, what could be expected from one who has yet not attended two courses of lectures and who has taken a subject to write upon, the action of which is yet obscure, and which has been under investigation by the most scientific members of the medical profession.

Have these investigations by different men

resulted in the same conclusions? Far from it — Which then of the many theories shall we embrace, and what new arguments shall we adduce, to prove that the theory taken by us, is correct and that other theories are false?

Before proceeding any further it will be necessary to see what has been advanced, and if it should happen not to suit our fancy, the only thing left for us will be to advance a theory of our own.

Since the introduction of the Sulphate of Quinine into the medical profession, it has been extensively used by all its members in the treatment of various diseases and is by all considered to be, one of the most important drugs in the Materia Medicae, and were we deprived of its use its virtues could not when else be found.

It is now universally employed, in preference to any other medicines in the treatment of malarious diseases; and it is in these diseases, its salutary effects are most made manifest; and from its salutary

influence in subduing these diseases is entitled to the name of a specific.

There is at this time much diversity of opinion in reference to its "modus operandi" in these diseases and also in reference to the mode of administration. By some it is held as tonic and stimulant, and as malarious diseases are often accompanied with inflammation of the abdominal viscera, it is held advisable, on account of its stimulant properties, to withhold its use until all inflammatory symptoms have been reduced or subsided, and then to be given in small and divided doses.

Dr. Mendenhall in an essay on the treatment of malarious disease in the northern section of Ohio, says "that when Quinine is given prior to the correction of the secretions, its effects appear to coincide with the tendencies of the disease, while if the system is put in order for its use, it counteracts the train of morbid associations" —

He recommends, that Quinine, in the treatment

of Intermittent & Remittent fevers should be in every instance be preceded by active Cathartics, blood-letting, both general and topical, in order to subdue the inflammation.
After all inflammatory action has been subdued, he then recommends, that Quinine should be given, but that it must be given in small doses and its effects carefully watched lest it excite inflammation and thereby establish a symptom more difficult to treat than the primary disease. It is also held by him "to be a decided stimulant in any dose, and that on this account he would hold it injudicious to give a large quantity than grs xv in twenty-four hours.

We have here then one theory, and its author says that his arguments are not hypothetical, but that they are based on observation.

Whether or not this theory is the only correct one, we will not now pretend to say, but will first compare it with another which is quite opposite, and then draw conclusions accordingly.

The theory alluded to, is one advanced by Dr Holmes Surgeon of the United States army, and was written whilst stationed in Florida

Dr Holmes says "that in treating Remittent fever as it then occurs he has given it in the highest stages of fever and in the lowest of prostration; never permitting any existing state of inflammed stomach or bowels, to deter from its administration or lessen the dose in which he would have given it, and that he had never lost a patient from inflammation following congestion where the Quinine had been given in large doses."

From its effects in diminishing the pulse in frequency it was held by Dr Holmes to be a decided sedative, and by its sedative effects it was supposed that the disease was removed.

He also adds "that it is probable in treating Remittent fever that we never loose our patient by the injurious effect of too large a dose of Quinine, but that the fatal cases are those in which Quinine has not

been administered in proper quantity or when it has not been thrown into the Constitution for a sufficient length of time to subdue the disease."

Here there are two theories; one adduced by a Physician in the north and the other by one from the south. One contends that Quinine is stimulant in any dose and judges from its effect upon the pulse, whilst the other holds it as a sedative in large doses and the pulse has also been his guide; one holds that it should always be preceeded by Cathartics and blood-letting, whilst the other takes no notice of inflammatory symptoms; one contends that it should always be given in small doses whilst the other says that he has never lost a patient from the effect of too large a dose of Quinine; one holds that it should only be administered during the intermission of the paroxysms, whilst the other says that he has administered it in every stage and that with salutary effects.

That Quinine has stimulating properties is admitted, and that it is frequently employed as such is also certain, and in such cases is given in small doses.

If being a stimulant in small doses, it would be improper to administer it in any disease connected with inflammation. But it is certain that Intermittent fever may exist and does exist without any inflammation of the abdominal viscera.

The objections then to the use of large doses would we infer be, that by its stimulating properties it might excite inflammation if there was none previously existing

Those who hold it as a sedative generally employ it in large doses and contend that by its sedative properties the inflammation (if there is any) is subdued.

That it has the power of diminishing the frequency of the pulse, when administered in large doses, we have frequently observed, but how this was effected we do not pretend to account for.

It would be useless for us to give the many different arguments which have been advanced for and against each of these theories, by their different authors, and therefore shall content ourself, by advancing another one, which also has its imperfections, but which in our mind appears more plausible than either of the foregoing.

We know that Quinine is given in different doses in different parts of the United States, and each physician prefers his own mode of giving it, and each one claims to be most successful in the treatment of malarious diseases.

We are aware that Malaria is a poison, but we are unacquainted with its chemical constituents, and all attempts to analize it have thus far proved fruitless. We also know that the peculiar paroxysms occurring in Intermittent & Remittent fevers are produced by the poisonous effects of Malaria taken into the system, and so long as the system is under its influence these paroxysms will

continue to occur, but so soon as the system is freed from malaria, the paroxysms will cease to occur.

The paroxysms in malarious diseases are themselves not to be considered as the disease, but should only be considered as the effect, produced by a specific cause. A mote introduced into the eye will cause Irritation and if it remain there will excite inflammation but so soon as the foreign substance is removed the inflammatory symptoms will gradually disappear.

The object then in malarious diseases would be, to remove the exciting cause, and after it is removed we have nothing to fear for the safety of our patient.

Would it not be reasonable to infer, that the sulphate of Quinine acts as an antidote, chemically decomposing malaria, in the same manner that any other antidote would act upon any given poison?

Quinine acts quite differently when

administered to persons labouring under different disease.

When Quinine is given as a tonic, (for instance in Chlorosis,) shortly after its administration, your patient will complain of uneasiness in the head, giddiness, loss of vision and a peculiar buzzing in the ears, caused by the Quinine. The system will be completely under its influence in several hours after its administration, and if we persevere in its use these symptoms will be aggravated.

We think, that when using Quinine and when these symptoms occur, viz buzzing in the ears &c, that we may attribute them to the Quinine, and rest assured that the system is under its influence.

When Quinine is administered in malarious diseases this effect is not so soon produced; and until it is produced, the patient will suffer from the paroxysms peculiar to these diseases.

We have seen cases of Intermittent & Remittent fever which were brought to the Balt. Infirmary during

the past summer, which were treated with large doses of Quinine, and whose systems were not brought under its influence for several days, and not until the peculiar symptoms were made manifest, did the paroxysms cease to occur. We have also frequently observed, how carefully Quinine is used in the State of Ohio and how carefully it is administered.

There (in Ohio) gr xij of Quinine is considered quite sufficient (if not too much) to arrest an attack of Intermittent fever; and it will do it, but your patient will not be cured, but will return to you again in several weeks suffering from the same disease, and you again give him the same amount ~~[illegible]~~ and may possibly succeed in your second attempt.

We do not remember of ever having heard a patient complain of these peculiar symptoms caused by the system being under the influence of Quinine, and have another attack of the paroxysms peculiar

to Intermittent & Remittent fevers, (i.e if the patient did not expire suddenly to an exciting) but we have frequently seen patients who were laboring under Intermittent fever, who were taking Quinine, and if the paroxysms were severe, they would continue to occur until the system was brought under the influence of this remedy.

We would then be led to infer that a certain quantity of Quinine will decompose a certain quantity of Malaria, and in that manner arrest the paroxysms of Malarious diseases, but there still being a portion of the poison in the system, (not enough to excite a paroxysm) the system will be debilitated by its presence and after a certain degree of prostration (caused by the poison) these paroxysms will again make their appearance.

It is only upon the principle that Quinine chemically decomposes Malaria, that we can conceive how Quinine can be administered

in so many different doses in different parts of of the United States and with the same salutary effects.

In the southern and western parts of this union we hear of its being frequently administer in 100 gr doses without any discomfort to the patient but with certain destruction to the disease.

In the northern portions of the United States it would be imprudent, improper to use such enormous quantities of Quinine, not because we might injure our patient by treating them thus „heroically„ but because it would be an unjustifiable waste of this important drug.

We could account for the necessity of using larger doses in the south than are required in the north in this manner, viz. Malaria in the south and south-western parts of the United States is generated faster and the poison is more concentrated than it is in the north; and it makes a more decided impression on the system in the

South than that, which is generated in the north and consequently requires a larger quantity of the Sulphate of Quinine to be given in treating malarious diseases as they occur in the south, than it does in treating those which occur in the north.

In the treatment of these diseases we would use quinine in any stage of the disease, without previously attempting to subdue inflammation if there is any existing, for so long as the poison is in the system it will have a tendency to aggravate the inflammatory symptoms, whatever we may do in attempting to subdue them.

Whenever a poison is taken into the stomach, our first object is relieve it of the foreign substance or to decompose it, it would be folly for us to attempt to subdue gastric inflammation caused by the introduction of poison without first attempting to remove the exciting cause.

So in malarious diseases, we would think

it advisable first to administer Quinine, in order to decompose the Malaria, and after that is accomplished, and not until then should our attention be directed to the inflammatory symptoms, if there are any existing

The conclusions come to, would then be as follows;

1st. That, if there is any medicine which is entitled to the name of „Specific„ Quinine can be considered as such in the treatment of those disease which have Malaria for their origin –

2nd That as far as we know anything in reference to its action, we would infer, that its primary action is upon the poison, and that it decomposes it as any antidote will decompose a given poison.

3rd. Owing to the concentration of the poison in southern climates, larger doses of Quinine are requisite than in the north, and that the dose should always be regulated in proportion to the severity of the paroxysms.

4th: That before attempting to remove any inflammation which may exist, we should first remove the exciting cause, which is malaria, and which is decomposed by the sulphate of quinine.

This then is a theory and we think is entitled to that name; but whether it is a correct theory, the true theory, we do not pretend to say

We are aware that many arguments can be adduced to prove that this theory is incorrect, but there are quite as many arguments which can be found, and which can be urged against any other theory.

It may be said that the above theory is too hypothetical to be noticed; but then what theory is there on this subject which has not hypothesis for its corner stone.

It may be asked how does Quinine decompose malaria; what chemical changes are brought about?

These questions can only be answered, by asking him who proposed them, the chemical constituents

of Malaria, and then possibly, this question may be satisfactorially answered.

It may also be urged against this theory, that other Medicines, which are destitute of any of the Constituents of the Sulphate of Quinine, have been used with success in the treatment of Malarious diseases. This must be admitted, but we have different substances, which will decompose the same compound, and thereby give us a variety of Compounds, quite unlike the first.

We hold that this theory is as plausible, quite as plausible, as some others which have been advanced on this and on other things in the medical science, which are yet obscure, but which would loose all their mystery, if they were unravelled before our eyes.

If we have advanced anything, which cannot be so, we are willing to stand corrected, by those who are our superiors.

It is not alone in malarious diseases that Quinine is used with success, but it has and is frequently used in the treatment of diseases in which tonics are to be used.

It is not probable that Quinine possesses all the tonic properties of the Cinchona bark, but owing to the bulk and inconvenience of its administration, Quinine is used in preference to it or any other known tonic

As a tonic, it is used in scrofulous diseases, in Dropsy, Dyspepsia and in Chlorosis, in which case it is generally given in combination with the different preperations of Iron.

It is also used with success in various nervous ~~affections~~ diseases such as Neuralgia, Hysteria Epilepsy &c.; also in the suppurative stages of Inflammation and in all cases of debility and Extreme prostration

During the past summer we have seen it

used in cases of Typhoid fever — Convalescence is generally slow in these diseases, and Quinine was given to assist nature in her task, but its action was far less decided in these cases than in other different diseases.

In cases of extreme prostration, such as in the last stages of inflammatory diseases, where support to the system is absolutely necessary, would it be advisable to give large (say grs XX) doses of Quinine, or should we give small doses, and repeat them frequently?

Those who hold it as a sedative in large doses, would certainly not give it in large doses in cases of this kind, but those who consider it to be a decided stimulant, in any dose, would in these cases prefer large to small doses.

As its action is not altogether understood, it would be, I think, be advisable to handle it carefully, lest we might hasten our patient to an untimely dissolution

We have now said everything we intend saying in reference to the action and properties of the Sulphate of Quinine.

We do not come to a close because we could say no more, but simply because we consider it unnecessary to attempt to try to enlighten, or in any manner to interest, the Faculty of Physic of the University of Maryland.

Our subject is a good one; true, somewhat obscure, yet we think that much might be brought to light in reference to its action, if those who are constantly employing it, and seeing it employed, did but trouble themselves to make known the result of their observations.

That it is to be preferred to any other article in the treatment of malarious disease, no one would pretend to deny; that it cannot be administered in the same doses in different localities, is we think also quite certain, and the only manner in which we can account for this, will be to hold it as an antidote, decomposing malarious poisons.

An Inaugural Dissertation On The Strumous Diathesis

Submitted to the Examination of the

Provost Regents and Faculty of Physic of the University of Maryland

For the Degree of Doctor of Medicine

By

Thomas W. Pottenger
Of Maryland.

Feby 1st 1847

The Strumous Diathesis

The subject which the writer has chosen for his thesis he fears has long since been exhausted of all the interest which the charm of novelty would naturally throw around it.

But in compliance with the time honoured custom of our Medical School the Writer of this has put together in as good order as his time and attainments would admit, his own thoughts as well as the information for which he is indebted to Authors on the subject that he has chosen.

If in writing this brief essay a single idea has been suggested to the Author which will add a particle to the aggregate of human happiness, or tend in the slightest degree to mitigate human suffering, he will feel himself amply repaid for the time he has bestowed on its composition.

From a mere Tyro in Medicine nothing is expected the Author is aware but a statement of his own views substantiated by such Authorities as may be accessible to him on the subject. But as a child may find a diamond in the dust, which the more lofty being with his head above the

clouds may now see, so it may happen that the diligent and humble student may stumble on a truth which would never occur to the more lofty devotee at the shrine of science. Had the writer the privilege of the Poet, the Orator, or the Divine, Volumes might be written upon the subject that he has chosen and it would still remain unexhausted, but as a mere student of medicine he is aware that it must be viewed in another and a more practical light, and without any further Preface he will proceed to its consideration.

The terms Scrofula and Struma being used as convertible terms the Writer will so use them as he has occasion during the course of this essay. The term Scrofula is derived from the Latin word "Scrofa" and was originally used by Vegetius to denote a peculiar disease in Cattle which strongly resembled the scrofulous glandular swellings which occur in the human subject. The Latin Authors first adopted it in their Nosological Tables, using it to indicate the swellings which are known to be Scrofulous. Cullen defines Scrofula to be "Tumors of the glands, chiefly

in the Neck, upper lip and soft part of the Nose turned, face florid, skin soft, and abdomen large" It is now however generally thought that Scrofula consists in a peculiar morbid deposite called "Tubricle" and that Scrofulous swellings of the Neck, Phthisis, Tabes Mesenterica, Enlargements of the joints, Ulcerations &c owe their appearance to this peculiar deposite of Tubrculous matter - The Physical signs of this Diathesis are numerous and some of them are spoken of as being Pathognomic. They are stated to be "an extreme whiteness, fairness and softness of the skin, light hair, blue eyes, a soft and rounded form of the body and a generally mild and pleasant expression of the face". The countenance is for the most part full and rounded, the cheeks tinted of a bright rosy hue, the teeth of a pearly whiteness but subject to early and rapid decay, The skin is very easily wounded and difficult to heal. The Limbs are disproportioned to the size of the Trunk and are generally slight and well formed, Sometimes those who are of this Diathesis are above and they are often below the Medium stature" -

The powers of the body are feeble and there is but little endurance of fatigue. The circulation is generally weak and but feebly carried on in the extremities, we have generally torpor of the bowels and indigestion connected with this Diathesis - There is a great disinclination for exertion or any kind of active labour among its possessors and this feeling early in life often influences them in choosing some sedentary and light occupation which tends to develope the latent disease that exists within them, and accelerate the formation of Tubercle, instead of choosing such an active and exposed life as might retard or permanently prevent its appearance - But though these individuals are thus deficient in Physical power they appear to be peculiarly gifted in mind or the "God part" of man - They are generally of keen perceptions, a great deal of Fancy and imagination, warm feelings, and of a sanguine turn in their anticipations - In early life they are generally distinguished for the brilliancy of their minds but this appears to be at the expense of their future greatness - They are generally nervous and impulsive in their movements - but want

for the application, firmness and steadiness of purpose which is necessary to insure success. In fact this Diathesis resembles in some degree the Sanguine Temperament of the older writers. We have another species of constitution belonging to this Diathesis. Those who possess it are of a dark bilious complexion. We have in them round limbs and generally full bellies, muscular weakness, coarse skin, large feet, and hands &c with great apathy or indifference of manner, absence of mind, often irritability of manner, and great obstinacy of character. In fact we have here several of the attributes of what has been called the Leuco-phlegmatic temperament. That intellectual Goliah the late Dr. Samuel Johnson of England, is the best illustration of this class that at present occurs to the Writer. Scrofula sometimes appears in persons who possess none of the signs of the Strumous Diathesis that I have named but this is the exception. The rule is that it should occur to such persons as those I have described. Conjunctivitis, Cervical Swellings, and various Tumors and enlargements

of the Glands occur among those who do not apparently possess this Diathesis, but when any disease of this kind shews itself in any one notwithstanding his apparent health we may safely infer from it that he is of the Strumous Diathesis and that if not cut off by accident or some acute disease that he will one day die of Tubercular Phthisis. Our treatment in these cases should be prophalactic and of such a character as to prevent the development of Tubercles or such other disease as we may be lead to fear the accession of from this. Scrofulous diseases appear to pervade all the tissues of the body. It is found in the subcutaneous and cellular systems, and is frequently found eating its way through the integuments and leaving ghastly wounds exposed on the surface. This is a form difficult to heal or treat and on its recovery it leaves Scars or Cicatrices of a very ugly character. The mucous membranes are often the Seat of its ravages, the Mucous membrane of the Nose is destroyed, and the Bones become spongy and carious. The Mucous membranes of the Eye are also attacked

and here we have Conjunctivitas and the several forms of Opthalmia
Also the Mucous lining of the Bowels and here we have perforation.
The serous membranes also suffer from this disease. The
Pleura, the Peritoneum, the Arachnoid are each at times the
seat of Tuberculous deposit. It sometimes invades the Serous
Membranes of the brain and causes all the symptoms of Acute
Hydrocephalus. The Synovial Membranes and lastly
the osseous system are liable to this disease. When it
attacks the Bones we have a slight increase of vascularity in
them, which is followed by absorption of the earthy matter in conse
=quence of which they become so much softened that we can
cut them with a knife. After a time this state of softening
is followed by exfoliations of the Bone which comes away in
large flakes. The spinal column is more apt to suffer
from this disease than any other part of the osseous system.
When we have softening and caries of the Bones from settling
of the Spine angular curvature is produced. The
Periosteum when attacked by it falls off and without the
Bone suffering but it (the Bone) becomes covered with large

masses of Adipose tissue, which lay around and enclose it - The Mesenteric, the Mesocoecal, the Mesocolic and Lumbar Glands, the Parotid, Axillary and Glands of the groin are all liable to and at times attacked by this disease - The Pancreas is often found scrofulous, the Spleen often in children but seldom in adults - The Liver though so often functionally deranged is seldom the seat of this Disease - The Organs of generation in both Male and Female, the Bladder and Prostrate gland in the Male, and the lining membrane of the Uterus and Vagina in the female, are often attacked by it And lastly but the most important of all the seats of this disease is the Lungs in Phthisis Pulmonalis or "Scrofula of the Lungs" as Louis calls it - This disease which appears to be common to our race in all parts of the world but most common perhaps in our own happy country than any other possesses such startling magnitude as to make it worthy of the most serious and earnest consideration of the Physician The writer cannot let this occasion pass without taking a brief glance at this awfully interesting disease -

The Causes which predispose to it are in the Writers opinion nearly always hereditary, In some cases however the disease may be owing to more immediate exciting causes, acting either in infancy or in Adult Age, these causes acting on the hereditary predisposition pro=duce the disease - Again it is the writers opinion that the disease can be produced without this hereditary predisposition but these cases are rare, while on the other hand where this predisposition exists the odds are vastly in favour of the individual having Tubercular disease produced by some one of the thousand Causes which are always at work to the detriment of human health - And - Again - an individual may have the predisposition to it by birth and yet by taking proper precautions may pass through life without ever having the disease - There is no other disease that is so generally prevalent among us as this and none other that so often ranks among its victims the "loved ones of Earth", the young, the beauti==ful as this - Thousands who now crowd the Court, the Camp the Grove and the busy marts of trade, carry within them the incipient seeds of this disease which is one day to check their career - Nothing that Science can do will

avail to avert the doom of these - The faintest of Beauty and the morbidly active mind and sensitive feelings which accompany Worth and Talent too often mark these possessors as belonging to this peculiar Diathesis - In this disease we are often compelled to stand idle but not indifferent spectators of a doom we cannot avert - Nor the language of Truth and Candour often compels us to blast the fond but fallacious hopes that appear to characterise this disease to its latest stages - Here every word said by us relative to the disease if we are properly informed regarding it can be relied up as oracular and is dwelt upon by the sufferer as the "Vox dei" - For so plain is the Thoracic Cavity now made to us by Auscultation that its contents can almost be read like an open Book - The Causes which give rise to this Disease or to this Diathesis are numerous and scarcely well defined, Langstaff, Hasson, Ohle, Louis, and Andral, have all detected Tubercles in the lungs of the Foetus. Though there can be little doubt but that both the predisposition and the disease itself can be derived from the parents, there is

also reason to believe that it is not exclusively so derived but that certain causes to which we are subjected through life can produce the same effects - That it is not communicated by direct contact or by any intercourse, every days observation must teach us - The writer about a year since slept for some weeks in the same bed with a friend, a young man who was then and is now suffering from confirmed Phthisis - This gentleman is now in the W. Indies in the last stage - Yet the writer cannot believe he is infected with this disease - But it is due to the very respectable authorities who are in doubt as to the contagiousness of this disease to state, that had the Writer known at that time that there was any doubt on this subject, he should certainly have allowed himself the benifit of said doubt - Baudelocque quote the fact that in the Hospital des Enfans 150 Beds are occupied by children many of whom are scrofulous yet the disease was never known to be communicated from one to another, Also at the Hospital of St. Louis observation confirms the same fact - Bad air, bad diet

and exposure in fact, bad Hygeine generally no doubt tends to produce it - Altho' we find it unfortunately very common among those who are subject to none of these influences - We find that this Diathesis prevails to as great an extent among the children of the wealthy as among the poor - Among those who are raised in affluence and luxury as among those who are raised in Poverty and Want. In fact we often find those who are well fed and clothed extremely liable to these diseases while the hardy sons of Poverty injoy a comparative immunity from their effects - Still there is no doubt but that as a rule the poor who are condemned to a life of not only toil but exposure in many cases to pernicious exciting influences, are more liable to its visitations than those in the higher ranks whom wealth will allow them to select that pursuit in life which they find most congenial to health -

As regards location, we find that this Diathesis is as prevalent about in one location as in another - And we often find that if there is any difference

it appears as though those parts of the country which should be considered the most healthy are often most liable to it. "In mountainous districts where from the scarcity of population there necessarily follows a great deal of intermarrying this Diathesis prevails to a great extent." This fact which is confirmed by the writers personal observation goes a great way to prove its being hereditary. Lugol whose work on Scro=
=fula the Writer has read with a great deal of interest appears to lay great, perhaps too great stress on the fact of its always being hereditary. Most persons of this Diathesis if it developes itself in early life die young. Those who reach the period of puberty are much enfeebled in health and if they marry and have families they always beget Scrofu=
=lous Children, or Children in whom in a few years this Diathesis developes itself, they have occasional remissions but they never possess the fine constitutions that belongs to those who were originally well made. Although such persons appear temporaly to be cured they never possess the power of procreating vigorous children as do those who

are of a more vigorous frame - We find Scrofulous individuals who appear to be relieved from "Tubercles" and yet die from their effects a longer or a shorter time after their apparent cure - Phthisis Pulmonalis often appears at the age of Puberty and is apparently relieved at this period to again recur for a number of years when by some error in dress or improper exposure a relapse is brought on which in a short time proves fatal. The same thing occurs with the scrofulous dis=eases generally - Among the most prominent causes of this Diathesis are ranked the Syphilitic Virus in the parents, the abuse of Venereal pleasures and precocious marriages in all classes of Society - Onanism has been named as a cause but Lugol thinks that it is rather an effect of this Diathesis - Weakness, or imbecility on the part of the parents either the father or the mother, who are epileptic, paralytic or deranged - Sometimes the cause are with one of the parents, sometimes with the other and sometimes it owes its origin to both - In fact its being hereditary is almost undisputed and such being the case our

Lawgivers should frame and pass such laws as would put a stop to the marriages by which this evil is perpetuated. It belongs to Science to prepare the way for legislation on this subject. Apart from the horror of perpetuating disease there can be no doubt but that marriage is almost always fatal to those persons who are predisposed to Tuberculous disease. In Italy and the South of Europe it is still believed that these diseases are contagious but experiments made by Lugol both by innoculation and in various other ways prove that it cannot be conveyed by contagion and that it is always transmitted or is a sporadic disease. A meagre and scanty diet, bad Water, sleeping in badly ventilated apartments have each been named as among the causes of this Diathesis, but the writer cannot lay too much weight on these, inasmuch as it must be evident to all that the disease is as rife among those who possess all the Comforts and even the Luxuries of life as among other classes. There is no doubt in the writers mind but that the active, exposed life which Poverty inflicts

upon her sons often acts rather as a Prophalactic than otherwise, as we seldom find it prevalent among Sailors, Grooms, Butchers Farmers, Farmers &c &c which an inactive or sedentary life often leads to the developement of this class of Diseases - where the predisposition to them exists. As to the influence of Climate on them we cannot say much. In all parts of the World, from the Snow clad mountains of Siberia to the sunny plains of Italy this deathers appears to prevail "The Northern Pick and fiery Mem" appear alike subject to its influences. The Temperate Zones are perhaps more subject to its visitations than any other. The moist Climate of Great Britain appears to be much subject to it. And our own Country suffers more from its ravages than any other class of diseases. It is the writers opinion that two thirds of our national mortality leaving out of the calculation those deaths which are the result of infancy, of Old age or of accident, is caused by diseases belonging to this Class or more strictly speaking to this Deatheris.

Nor does Tubercular disease appear to be confined to the Human species. Almost all animals when subject to its predisposing influences appear to be subject to its ravages. This has been particularly observed in those denizens of the Forest who transplanted from their native wilds are condemned to perpetual imprisonment in our menageries. Among these nearly every death which occurs has been found to be attributable to Tubercular deposits. In Monkeys particularly this Diathesis prevails to a great extent. It must be apparent then that this Diathesis is confined to no locality or to no race, but that from "Greenland's Icy bound Coast to Africa's Torrid deserts" from the regions of almost perpetual night to where the Dog star always rages all Nations and People are subject to its influences. Having thus spoken of its Physical and Diagnostic signs, of its causes and of its locality we must now devote a short space to its treatment. Of this unfortunately for humanity not much can be said. Our main means must be prophalactic or hygienic,

Children who are born of scrofulous parents should be always warmly clad, and every means as regards Diet, Air and avoiding exposure should be put in requisition to counter=act the hereditary tendency - And through life, the strictest attention should be paid to such hygienic rules as will improve the general Health and increase the physical stamina - Its developement cannot be retarded by the mere exhibition of Medicines - Here we must rely entirely on the "vis medicatrix naturae" and the use of such Hygienic means as has been hinted at above - The Treatment, if any, should be mild and of the expectant character - Blood letting occasionally when there is any febrile accession - Strong Purgatives as a general rule should be avoided and aperients given - Quinine and Conium, and the preparations of Iron have all been highly spoken of, and are doubtless of great service - The Liquor Potassae, the employ=ment of Acids and Alkalies, the Carbonate of Soda, and Rhubarb have all been recommended and in

many cases are doubtless of some value – Of all the Agents however that have been used in these Diseases now appear to have been most successful than the preparations of Iodine and its compounds. The most common form appears to be Iodine in combination with Hydriodate of Potassae. This taken internally or Iodine in Baths appears to be Lugol's grand remedy, and from the number of cases which he reports of Strumous Tubercular disease that he has cured with it, together with the testimony of other respectable writers leaves us but little room to doubt its efficacy. Lugol with all the enthusiasm of a Frenchman speaks of it as almost a Panacea for all the diseases of this Diathesis. The class of diseases embraced under this head however are so numerous that no one remedy can be expected to cure them all. This treatment must be general and varied of course to suit the different cases. Our Hygienic treat= =ment must commence towards the inheritors of this Diathesis during infancy. Too early education

should be prevented, and every appearance of precocicity in intellect should be frowned down, reading, thought, solitude displays of feeling and pensiveness of disposition should be discouraged, while cheerfulness, gaiety, exercise in sun light and in the open air, and whatever tends to preserve a healthy state of mind and body should be attended to. The wearing of comfutable clothing and avoiding all improper exposure as well as all exciting moral emotions, particularly those of a depressing character, together with the selection of such a pursuit in life as will embrace a proper portion of out of door labour in fine weather, say the life of a Farmer, are among the means which we must use towards those individuals in whom this Diathesis prevails to prevent its developement. In short our course must be entirely Hygienic or more of that than any other character. By such a course the direct access of the diseases of this Class may be averted we may even hope permanently, while by their neglect the seeds of Disease may be more speedily developed. No class of diseases deserve the Physicians most serious attention more than these and

in none can his advice be of more value. By a proper exercise of his skill and influence he can here prevent a great deal of suffering and it is his imperative duty to do so. By preventing if possible the intermarriage of scrofulous people he can prevent the entailing of these diseases on a progeny who from the very nature of things must be short lived and feeble. His duty to Society should induce him to do so. And altho' we do not expect his opinions in these matters to have the weight to which they are entitled, still as a conscientious man he can do no less than express them. Altho these diseases are looked upon in the most cases as incurable still it does not become the man of Science and the well read Physician, to stand idly by with folded arms without making an effort to put off for a time the evil day, or to assuage and alleviate the pangs that accompany them. It is our duty as well as it is our privilege to do on such occasions all that our art will suggest to lighten the pangs which suffering flesh is heir to" and adopting a firm but moderate course between the rash boldness of empiricism on the one hand and ill

timed Scepticism and timidity on the other, armed with the shield and Buckler of humanity and Science stand boldly in the breach and by a skillful and judicious course prevent his Patients hopes or fears yeilding a golden harvest to those Vampires, the Venders of quack Medicines - who are always willing to take him upon their charge and "Coin his blood to Zechins" - There is no obligation assumed in the duties of a Physician either expressed, or implied the weight of which the Writer feels more deeply, or responds to more cordially than this, our duty to frown down and expose such nostrums - When all human means fail and we can "no longer hope against hope" then and not till then we can pronounce the doom of our patient. But how careful we should be that the circumstances of the Case are such as to justify our prognosis - How cautious we should be in pronouncing it - And when we are satisfied that our patients doom is irrevocably registered in the Book of Fate still we are to be the friend and Physician - Many are the symptoms to be watched, the pains to

be allivated and the consolations to be given as our patients approaches the "dark valley of the shadow of death" Here we have the noble priviledge of acting after the day for the interference of our medical aid has gone by as the friend of our patients - Like the good Samaritan we can pour the Balm of consolation into his spiritual wounds and now when "life's fevered dream is over", we can by the tendering of our sympathy and advice to surviving friends secure to ourselves that happiness which arises from a consciousness of duty well performed - And on the other hand - When our Prognosis is to be a favourable one - When we can administer our medical agents in addition to the travel or the voyage that forms a part of our Hygeine and when time with healing on his wings rolls around and our patients returns with the flush of health upon his cheek - and we feel the warm pressure of his hand and see perhaps the tear drop of gratitude glistening on his eye who is there who would not envy the Physician his feelings of satisfaction at such a moment. Then we can

indeed realize - that -

"Love linked with Knowledge crowns our noble Art"

"Gold buys the Science but Heaven rewards the Heart"

It is a matter of satisfaction to the Writer that he has chosen a calling which owned our Saviour himself as a practit=ioner, and which has received the sanction of the great and good men of all ages from the remotest antiquity - No other profession embraces among its followers a greater number of brilliant names than the goodly array that graces our pro=fession from the days of Hippocrates and Celsus down to the present - Nor is it without its rewards and pleasures which as the "green Oasis in the desert to the parched and weary traveller" serves to cheer and lighten our pilgrimage through the barren wastes of life - The Writer is aware that it has been abused by the Satirist, derided by Wits and Lampooned "whenever folly shakes her rattles" but in defiance of this and the more serious injury done to it by the unworthy conduct of too many of its own followers, still it ranks as one of the most honourable among men -

Progressive as all other Sciences are it is a matter of congratulation to the Philanthropist that our art has kept pace with them - The day has gone by for consulting the Horoscope, or trusting to the supposed efficacy of charms or Amulets or incantations in the treatment of disease -

Our science is now a positive one and a long train of brilliant discoveries which have shot across our literary horizon with the dazzling splendour of the Aurora Borealis across a northern sky, prove that its march is onward - The discovery of Vaccination by which Small pox is nearly disarmed of its terrors, and by the observation of a german Chemist that wonderful Agent Iodine which removes the horrors of Bronchocele and cretinism, & still later Laennec's great discovery of the Stethescope by means of which we can explore the contents of the great cavities of the body, decide upon the existence of disease, make our prognosis as to its final results and use those means which our skill suggests to us to avert it - All these prove that a new era is about

opening on our profession - That much remains yet to be discovered as regards the best method of treatment in many diseases cannot be denied - But enough has been done to prove to the satisfaction of the writer, that the full burst of that perfect day of which we are now catching the first glimmering is not far off - And Although Panaceas and Catholicons exist only in the brains of the quacks of this, as did the Philosophers Stone in the brain of the Alchymists of the middle ages still the day is not far off when without being thought Utopian in our ideas we may reasonably hope to find in the hands of our practitioners such an increase of our specific Medical Agents as will tend to disarm that Hydra headed Monster disease and Death will only be occasioned by accidents or that natural decay of the Body which always accompanys old age - That such a consummation is devoutly to be wished for none can deny and to bring it about requires the united exertions of all the Members of our profession each adding his mite to the common

stock of knowledge and observation. By this if we doubt accomplish as much as the enthusiasm of the Writer would lead him to hope, we will accomplish something, much more than if without effort we sat supinely waiting for such improvements as chance or accident might reveal to us.

And in concluding this long digression from the subject now immediately under consideration the Writer must express his feelings of Gratitude and respect for his Preceptor in this Institution to whose tuition he feels indebted for the largest portion of his limited medical knowledge. This may not perhaps be the most fitting occasion to make such acknowledgements yet the writer cannot let the only opportunity that he will have of expressing himself escape unimproved. That the future of his Alma Mater may be as useful, as brilliant, and as prosperous as it has heretofore been is his most sincere wish and that his own career

in life shall not render him unworthy to be ranked among her Sons shall be his earnest endeavour -

F. I. N. I. S.

An

Inaugural Dissertation

on

Malaria

Submitted to the Examination

of the

Provost, Regents, & Faculty of Physic

of the

University of Maryland

for the

Degree of Doctor of Medicine

by

W. H. Braw

To

My friend and Preceptor

Samuel Chew A.M. M.D.

Professor of Therapeutics, Materia Med. & Hygiene

In the

University of Maryland.

Sir,

Feeling that I owe you a debt of gratitude for your kind rest to me during the time I have been reading with you, Permit me to inscribe this the first fruit of my study to you

Respectfully

H. H. Bean

Seeing in the Circular of this Institution that each candidate for graduation shall prepare a thesis of his own composition which shall be presented to the faculty for their approval, with great diffidence I undertake this task. The many disadvantages under which a student necessarily labors with regard to such an attempt must be sufficiently obvious. He is of course a mere tyro in medical knowledge, he has had but a short time to prepare himself, and that has necessarily been divided among the various subjects which are presented to him during the lectures by each of the different chairs.

He has no personal or practical knowledge of the subject he undertakes to discuss & must derive his information solely from

-the observation & experience of others.
Under such circumstances I think it must be evident to all that he can scarcely be expected to do justice to himself or to render any material contribution to the illustration of the subject which he has selected for ex-
-amination.
The subject which I have chosen is at once both copious and difficult.
Very numerous indeed are the Authors who have written on it and the men of science who have investigated its origin and source and the peculiar characteristics of it, and still is it a hidden and occluded subject to the mind of finite man.
This subject is Malaria an agent we only know by its effects.

The proofs of its existence are altogether negative, and sadly may it be said that we derive those proofs from the devastating ravages which are made on the human family who are exposed to its pernicious influence.
It is related by Bishop Heber that the lower animals have an instinctive knowledge of its destructibility in certain parts of India, and leave their native homes, and seek for shelter in higher climes during its prevalence.
Macculloh when speaking of this agent remarks if the Sword has slain its thousands, Malaria has slain its ten of thousands.
It is disease, not the field of action which digs the graves of armies, it is Malaria by which the burning spirit-

—fitter for better things is quenched, and in the coward's bed of death this is the destroying angel, the real pestilence which walks at noonday, and to which all the other causes of mortality are but as feeble auxiliaries in the work of destruction.

And I may remark here that our own army has suffered far more in Mexico during the past summer by this agent, than they have by the Mexican Sword.

"They did not fall in eager strife
"Upon a well-fought field,
"Not from the red wound poured their life
"When cowering foemen yield
"Th' Archangel's shade was slowly cast
"Upon each pallid brow
"But calm and fearless to the last
"They sleep securely now!"

Dr. Watson remarks in this country i.e. in England thank God we witness its milder evils only, and those not very often, but it is the bane and scourge of large portions of the World. Whether you practise here or abroad it is very fit that you should know the habitats, habits and qualities of this wide-spread poisons.

If I recollect aright, our professor in Surgery in his introductory address in reference to this subject remarked 'tis not when we have an Enemy to deal with who fronts us face to face (though he may be strong & formidable) that we dread the attack; but 'tis when we have an Enemy who is dark & secret in his attack & conceals himself so that he may the more effectually strike his blow when we are least suspecting.

Such is Malaria! it habitates the air we breathe, and still we cannot detect it there. The atmosphere which is supposed to contain it has not been proved to be anything more or less than common healthy air; Chemical analysis having failed to detect by the most delicate reagents anything which may be properly called Malaria. In the Cyclopedia of practical medicine Vol. 3rd page 174 in an article by Dr. Jas. Brown I find the following. "The chemical & physical properties of Malaria are unknown to us, the experiments which have been hitherto performed to illustrate its nature or even to discover its presence having furnished very unsatisfactory results. The air collected above the Marshes of Fort Fuentes, (in Spain) was found by Gottoni as pure as that at the summit

of Mr. Lequone if not more so; and M. D obtained in the most confined marshes as on the most exposed hills 78 parts of azote, 21 of oxygen and 1 of carbonic acid gas from an analysis of the air.
It is true that M. Thenard and Dupuytren found that the carburetted hydrogen disengaged from marshes left in the water through which it was passed a peculiar & very putrescible matter; and M. Julia discovered that dew gathered in the neighbourhood of marshes contained likewise a matter capable of fermentation; but there is no evidence that these substances are malaria nor were they proved to be so do we know anything of their chemical properties but their capacity for undergoing the putrefactive process.
Again Library of Medicine Vol. 1 page 233

- Many attempts have been made to arrive at a knowledge of the physical qualities of this agent. Moschoti and Broschi examined the atmosphere, the former of some very insalubrious rice-fields, the latter of an unhealthy spot in the Papal States, from which examinations it appeared that the vitiated air contained albuminous flocculi somewhat viscid in appearance, but the nature of which was not understood; and that it possessed a certain weight as it did not appear to rise in the atmosphere unless mingled with it by currents of air.

All that is valuable on the Constitution of the Atmosphere of those places where ague is prevalent may be summed up from the results of the extensive investigations made by M. Julia; first the air of these several situations contained the same

- principles and in the same proportions as the purest air of the most healthy situations, Second, Marsh air contains a principle which eludes the test of the most delicate Reagents. Third, Though the nature of this noxious agent is unknown, there is reason to believe that its pernicious effects depend on a form of vegetable and animal substance in a state of decay or on a solution of those substances in air or the gases resulting from their decay; Fourth Experiment has not yet demonstrated in Marsh air the existence of Azotic gas, Carburetted hydrogen Ammoniacal gas or any of the gases resulting from decomposition; and if they be present in this vapour their quantity is too small to be appreciated.

This brings us to the next branch of our subject viz its origin and source —

—Here in my opinion a difficulty presents itself; the Author of our text-book Dr. Watson having collected certain facts from observations made by Dr Ferguson during a campaign on the Continent of Europe, which to him are conclusive but nevertheless in opposition to the generally received opinion on this subject.

From the time of Lancisci an Italian, who was born at Rome 1654, & who was the first to investigate this subject it has been the prevailing belief that Malaria was consequent on the putrefaction of vegetable matter or arose from marshes: from which circumstance it received the name of marsh Miasmata.

Having read carefully the facts given by Dr Watson and from which he states that neither marshes nor vegetation are

- necessary to produce Malaria; that the peculiar poison may abound where there is no decaying vegetable matter and none to decay.

As the prevailing belief is in my opinion an erroneous one & as it is really of great importance that correct views should be taken and disseminated by Medical men on this subject, I will mention a few of the most striking facts detailed by Dr. Ferguson.

Now since these facts, after having carefully examined them, are not conclusive to my mind, since they are opposed to such high authority, I will mention two of the most striking of them and then give my reasons for differing from the inference which has been drawn from them.

In the year 1809 several regiments of our

- Army in Spain took up an Encampment in a hilly ravine which had lately been a water course, pools of water still remained here & there among the rocks so pure that the soldiers were anxious to bivouac near them for the sake of using the water: Several of the men were seized with violent remitting fever before they could remove from the bivouac the next morning. Till then says Dr Ferguson it had always been believed amongst us that vegetable putrefaction, the humid decay of vegetables, was essential to the production of pestiferous miasmata; but in the instance of the half dried ravine before us from the strong bed of which, as soil never could lie for the torrents, the very existence even of vegetables was ~~be~~ impossible proved as pestiferous as the bed of a fen.

The second case mentioned is as follows:
After the battle of Talavera the army retreated along the course of the Guadiana river, into the plains of Estremadura, the country was so arid and dry for want of rain that the Guadiana itself and all the smaller streams, had in fact ceased to be streams, and were no more than lines of detached pools in the course that had formerly been rivers.
the troops then suffered from remittent fevers of such destructive malignity, that the Enemy and all Europe thought the British host extirpated.
In both the cases mentioned it seems to me that there are strong reasons for supposing a priori that malaria would have been produced, and that from vegetable putrefaction:
Indeed I cant see wherein those cases differ from any other in which we find-

- malaria acting; and until we know the ultimate composition of this poison, I think it will be impossible to say with absolute certainty from what it does originate.

Here are water-courses which have been dried by the Sun & Air with only a line of detached pools and their beds exposed to the action of heat, air and moisture, three of the agents which are generally supposed to be necessary in the production of this poison, and indeed it is obvious to my mind that there was vegetable matter also: since there were three of the agents present which are supposed to aid in the production of this poison, let us consider the reasons which induce us to believe the fourth, or vegetable matter was also present. —

- We know that all considerable water courses are formed by a number of tributary streams, and that these receive the drainings from the hills around during rains and we also know that generally these washings from the hills contain a considerable quantity of vegetable matter, such as weeds, leaves &c; And may we not ask, what becomes of this refuse-matter? is it not deposited either in the bottoms of the large streams or on the adjoining lands? Now let us examine for a moment the reported cases; the first is a hilly ravine, the second the Guadiana River, now that there should have been vegetation, or at least vegetable matter collected in and around those streams is to my mind obvious: Usually there is at certain seasons of the year an abundance-

of under-growth around the river bottoms and here I should think we would be likely to find it in a very suitable state for giving rise to malaria after having laid sobbing in water for months during the winter & spring, and then as the drought came on being gradually dried and at the same time being exposed to the heat & air it underwent decomposition and thus produced gases which were so destructive to the British army. I cannot see wherein these cases differ from others where we are accustomed to see the effects of this agent: Take any malarious country, I mean marshy country, and we will perceive the same causes at work to produce the same results in a less degree; circumstances in these cases render results more striking. During the winter & spring months

marshes are generally covered with water and as the hot season comes on they gradually dry and the soil becomes exposed to the action of the sun & air: their soil contains a very large quantity of vegetable matter which being acted on by heat air, and moisture becomes rotten and gives rise to gases which are sometimes even offensive to the smell & which taint the atmosphere of the surrounding country with that peculiar poison which acts as both a predisposing & exciting cause of intermittent & remittent fevers. In reading Dr Watson on this subject I was struck with the peculiarity in his manner of accounting for things; in his argument against the necessity of vegetable matter being present when this poison is produced he cites as an instance the rotting cabbage

leaves around Covent Garden and those which taint the air of the streets from the neglected dust holes of London during the hot weather of Summer which give rise to no ague; and afterwards he says, Cæteris paribus, agues are much less common in large towns than in County villages, this has been oddly enough accounted for by saying that populous cities are so full that there is no room for the malaria; a much more rational & probable explanation is that which ascribes the freedom of crowded towns and thickly inhabited districts to the number of fires burned in them.

Now that marshes are not the only source of malaria I am perfectly satisfied, but that they are a very frequent source I think, from facts observed, need no argument

I might cite cases innumerable to prove that they are so, but I think it unnecessary. No observation is more general than that Ague is endemic among the inhabitants of places where marshes abound, and in seasons as the Spring and autumn when the effluvia arising from them are more active and the body perhaps more liable to be affected by their peculiar poison.

There are few marshy countries in temperate and tropical climates in which intermittent fever is not known: The connection therefore between them does not depend on a limited but a comprehensive induction of facts; the truth is abundantly confirmed. Ague indeed sometimes appears where the influence of marsh effluvia cannot be traced; and the term Malaria has been brought into modern use to denote a

-morbific atmosphere arising from the soil capable of producing intermittent fever in which marsh miasmata, properly so called are supposed not to constitute an essential part.

That there should be moisture and a certain degree of heat present in the production of this poison, I think highly probable, from the fact that we never see its effects even in their mildest form except when the temperature is sufficiently high for it not to be termed cold; and we know there is always more or less dampness existing in the atmosphere.

It has been said by an eminent writer that heat is the extrinsic agent most influential in favouring the production of malaria in soils & situations capable of engendering it, and we judge also from

the fact that in those places which are capable of engendering it we perceive its effects most strikingly when these two conditions are present.

"When marshy land is brought to a very dry state in summer after long continued drought ague is often but little known in the vicinity; but the first heavy shower after the drought will sometimes give rise to it. And on the contrary in a wet season while much water is lying on the marshes the disease is rare; but in proportion as they become dried to a certain point miasmata are found to be active according to the degree of heat, the season of the year, and the state of the population.

A certain quantity of moisture therefore seems to be necessary upon the marsh in order that the miasmata may be-

disengaged, and of vapour in the atmosphere to convey them to a distance; while a superabundance either prevents their evolution or entirely absorbs them.
I have seen reported cases of remittents which were caused by the impure air on ships, where there was some rotting vegetable matter on board now if these cases were correctly reported it proves more clearly than any other that vegetable decomposition will give rise to an agent capable of producing that form of fever, and as malaria is the only agent which is supposed to be capable of producing this fever, then it must follow that malaria may produced from putrefying vegetable matter.
Since this has been questioned, I will conclude this branch of my subject by an extract from an article on this subject

- by Dr Joseph Brown "there certainly exists many facts which prove that vegetable matter is in the highest degree favourable to the production of Malaria if not essential to it.

There are the universal presence of such matter where the poison is generated, the cases adduced by Dr Ferguson & similar ones excepted, if they are to be regarded as exceptions; the pernicious effects of the steeping of hemp and flax, for we presume that it will not be argued in this case, the mere evaporation of the water independantly of the vegetable matter would produce the poison; a similar result from the leakage of sugar and the decomposition of coffee, potatoes, pepper, &c. and the fever which committed such ravages on board the Prairie frigate from the action of the bilge water on the chips & shavings -

-left in the hold.

A similar argument may be deduced from the wholesomeness of peat-bogs which seem as well calculated as any marsh to produce malaria, excepting that the vegetable matter they contain ~~being~~ in a subcarbonized state, is not susceptible of decomposition.

Since there is no reason to think that the evaporation of mere water will produce the poison, we are compelled to conclude in the case mentioned by Dr Ferguson some influence from mere terrestrial soil gave rise to the effluvia which are usually owing to the presence of such matter.

The next thing to be considered in reference to this subject is the propagation of the poison.

There have been many very interesting-

facts discovered concerning the nature and habits of this poison.

It is specific in its nature; like specific pus capable of producing the venereal disease or the small pox may not differ in its sensible qualities from the healthiest but must include some matter in a peculiar state of decomposition which state is capable of being imparted to other living matter", so has it been found that the atmosphere which contains malaria differs no-wise in its sensible qualities from healthy air; yet does it contain a most virulent poison, which poison is capable of producing on the human system specific effects, the nature of which has so far remained undiscovered an- intermittent fever with its diurnal paroxysms common as it is has as-

-yet proved a stumbling-block to the most learned reasoners the world had produced. As might be supposed the effect of the poison is in general more intense in proportion to the proximity to its source. This is probably owing to the more condensed state in which malaria exists near to the spot where it had generated; and it is remarked that circumstances which favour its condensation add to the intensity of its effects.

Still however there are many instances where the effects of malaria are much worse at a distance from its origin, for instance, the heights on a south or south-western exposure above a marsh are generally far more unhealthy than are the low-lands immediately around the marsh: above on the heights there is-

the combined action of malaria and the East-wind, which is supposed on exposure thereto to give more power to this poison. It has been observed that persons who have been exposed to malaria have escaped its influence for weeks until they were exposed to an East-wind, when they were attacked immediately by an ague. The distance to which malaria may be carried by currents of air is different in different latitudes: "The distance to which marshy emanations may extend by gradual diffusion, has been calculated by Monfalcon to be 1400 or 1600 feet of elevation, and from 600 to 1000 in a horizontal direction".

But malaria may be wafted by currents of air much farther than this, sometimes even to the distance of miles.

There are many other very interesting facts concerning this poison, interesting both in a medical and an hygienic point of view. It has been clearly ascertained that this poison exerts far more pernicious influence upon the body when in the state of sleep, than when awake; and also that exposure to it in the night even when awake is much more apt to produce fever than the same amount of exposure during the day.
It has also been observed that as a general rule good diet afford some protection against the influence of this poison: whereas the contrary is often very manifest, low-living, fatigue, debauch and impudence always predispose to attacks of this fever.
Persons removing from healthy climates-

- of Northern latitudes into marshy low-land Countries are much more apt to be attacked by fever than those who by long Residence or by birth have become acclimated.

It is from this fact, I suppose, that Seamen after returning from long voyages are when landing on shore subject to this poison, so susceptible to its influence; And not only to this poison or the fevers resulting from it, but to all other forms of fever.

From the tendency which malaria has to settle on the leaves of trees they have proved sometimes a safe-guard to houses in their vicinity, and it would be well for those who live in malarious climates to have a grove of trees encircling their houses.

Being heavier than atmospheric air it is said to brood over the surface of the earth and consequently the ground-apartments of houses are more unwholesome as dormitories than the upper-stories. It is also stated that water has the power of absorbing it; and that fire will rob it of its virulency: Alcoholic stimulants taken in the morning before going out are said to brace the system against its action, There is a case illustrating of this in Watson's practice of medicine. Flannel I think from what I have witnessed is of all other hygienic means we have the best safe-guard in protecting the system against the action of this poison. We have already seen that the body is much more susceptible

- to its influence, after fatigue, when the powers of the system are prostrated by over-exertion the nervous energy is exhausted, it is less capable of resisting atmospheric changes! — there is ~~much~~ a cessation of perspiration — the capillaries of the whole system are relaxed — the body becomes chilly.

If such a state of things happens after exposure to this poison, which has predisposed the body to ague it is almost certain to be followed by a remittent fever, the fatigue and consequent chilliness acting as an exciting cause,

Now if the system be sufficiently protected by flannel the body cools more gradually the heat of the body is not so rapidly carried off by the air; Nature as it were has time to rally against the poison-

before the is prostrated. Such being the case it becomes of the highest importance to protect the system well with flannel in all malarious countries.

I have thus enumerated most of the facts as to the generation, and propagation of this poison; and has intended writing of its Modus Operandi and effects but since these cannot be embraced in a thesis of ordinary length, I will conclude.

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A Thesis

on

Inflamation

Submitted to the examination

of the

Provosts Regents and Faculty of Physic

of the

University of Maryland

Medical Department

for the

Degree of Doctor of Medicine

by

Charles. F. B. Swan

As a candidate for graduation in the Medical Department of the University of Maryland I hereby in conformity to its requirements Submit to the Provosts, Regents, and faculty of Physic This Thesis On Inflamation A subject I have chosen from its great importance alike to the Physician and the surgeon A knowledge of its causes; of its laws; of its morbid and salutary effects; of its courses; of its symptoms, and of its treatment cannot be too accurately studied nor too well understood. How indispensable necessary a thorough acquaintance with this subject may better be appreciated if we reflect that more than three fourths of the cases to which we as Physicians are called we have to deal with inflamation, and to the surgeon it is one of the greatest means of cure which he should have in his power

to excite at pleasure and when excited, should be able to controll

As a consequence of inflamation death may be the result either by anemia asthenia apnoea or coma. By anemia which signifies bloodless and is the consequence of an insufficient quantity of the natural stimulus of the heart the blood, being sent to the heart to cause it to contract, which is the mode of death in those diseases which produce wasting emaciation as in phthisis, dysentery and in all chronic inflamations.

By asthenia which is caused by the exercise of any injurious influence upon the brain and nervous system as to paralize the action of the heart from insufficiency of or interruption to the nervous influence which should be conducted to the heart this is the mode of death in some forms of apoplexy in peritonitis

also in certain forms of fever
By Apnoea which signifies want of air
this is the mode of death when from some
mechanical obstruction to the entrance of
air to the lungs the blood is prevented
from being duly oxygenized the chemical
action of the lungs is prevented this is
the most common mode of dying this is the
form of death in croup that inflamation
of the trachea so common and so fatal to
children also happens in laryngeitis, in
pneumonia in bronchitis and in double
plurisies — Death by Coma resembles
death by Apnoea in its pathological ana-
-tomy, but in coma the muscular efforts of
respiration are primarily interfered with
from injury to the brain, the chemical
changes in the blood being the result of
failure in the respiratory muscles and

not from any impediment to the entrance of air to the lungs this is the mode of death in hydrocephalus in some forms of Apoplexy and in inflamation of the membranes of the brain All these modes of death are met with in fevers and often a complication sometimes there is a tendency to death in one way sometimes another all these symptoms we have to combat as one or another seems to get the ascendency. Since we have seen such fatal results do follow in such a variety of modes as a consequence of inflamation should this not stimulate us to endeavour to become more intimately acquainted with a subject in the knowledge of which the lives of so many of our fellow creatures and our own reputation as Physicians depend

I propose here briefly to consider the causes which produce inflamation; some of its morbid and salutary effects; of the symptoms attend it; of its events and terminations and lastly of the treatment which it requires. I shall proceed then to treat of the causes which produce inflamation and these may be either predisposing or exciting. By predisposing I mean that particular state of the system which predisposes to disease, as when one has had an attack of rheumatism, or slight exposure again to cold and moisture would very probably bring on an other attack the exposure to cold would be called the exciting cause, and that particular state of the system rendered more liable or susceptible to take the disease from a previous attack would be called predisposing

one may expose himself to day with perfect impunity, which if repeated again would put his life in jeopardy evidently showing that there must be a predisposing cause many a person has been known to pass through childhood to adult life with frequent exposure to measles, and scarlatina, (diseases more common to children than to adults) without contracting and when he thinks he is quite proof against it he is taken with the disease when he least expects it on the slightest exposure to its effluvia or indeed without knowing he had been in any way exposed to it what it is or will produce that state of the system which will predispose to disease is very difficult to determine some of the causes however we are able to point out excessive fatigue or any over exertion either corporeal or mental which by exhausting the strength and impairing the

animal functions predisposes the system in such a manner that it yields more readily to the injurious effects of any exciting cause; or in other words by the impairment of the animal function and the exhaustion of the nervous system the reparative energies of the system are insufficient to ward off the effects of the exciting cause — It has been said to know the cause of disease is sometime to be able to cure or to prevent this is particularly the case in reference to the predisposing causes for we find in some families a strong predisposition on the part of ~~each member~~ to gastritis, or a gastroenteritis by being aware of this predisposition we are often able to prevent its occurence by giving tone and vigor to the system and preventing the ingesta of such food as would be most likely to act as an exciting cause

So much then for the predisposing causes I will next consider the more direct the immediate, or exciting cause of inflammation, which we are able with more accuracy to determine and these are sudden variations in temperature prove heat & cold cold is the most common cause of inflammation, cold when judiciously applied is one of the most invigorating remedies we possess it is also one of the best prophylactics, it is also of great importance in the treatment of inflammation, cold under certain circumstances is followed by the most dangerous results if applied to the body while heated and the cause of heat still operating as ill effects will ensue but applied to the body while cooling after being overheated the most injurious consequences will be the result, if death does not soon follow the most serious inflammation of internal organs will be the consequence —

Cold produces its injurious effects in proportion to the length of time it has been applied, and not in proportion to its intensity, However the force of habit will enable a person to endure intense cold for a considerable length of time without suffering any injurious consequences; cold applied to one asleep or to the body by a current of air when the body is heated or cold damp or wet clothes in contact with the body for a length of time are the most injurious modes of its application. The most common diseases of cold damp weather are rheumatism and inflamation of some portion of the respiratory apparatus — Cutaneous and hepatic disorders together with affections of the stomach and bowels are the most common diseases of warm climates. Another and very common exciting cause of inflamation is the result of excess in eating and drinking, eating

certain indigestible substances for food which act as an irritant and produce violent gastritis there are also various chemical and mechanical irritants which are the source of inflamation whether wilfully employed by the hand of the surgeon, or as the result of accident. I will next consider some of the morbid and salutary effects produced by inflamation Most of the organic changes in the human body recognize inflamation as their origin what would be the particular organic change will depend entirely upon what particular organ or tissue of the body is the seat of inflamation for instance if inflamation of the mucous membrane there is thickening as in inflamation of the mucous membrane of the air passages a thickening is produced and consequently an impairment and sometimes a total loss of voice, in inflamation

of the mucous membrane of the urethra which either from being badly treated or suffered to run on without any treatment a thickening is produced and consequently a diminution of the calibre of the tube and so mechanically preventing the flow of urine giving rise to that very common and troublesome disorder constriction of the urethra in all inflamations of areolar tissue or of the parenchyma of organs they are rendered thicker and harder, the consolidation is caused by effusion of serum which has not been absorbed, in inflamation of serous surfaces there is an effusion of lymph which soon becomes organized producing agglutination of its opposite surfaces as in inflamation of the investing membranes of the lungs so in inflamation of the lining membrane of the valves of the heart of the valves which is a serous or fibroserous membrane, the effect of inflamation there is to pucker, thicken, and harden them

The salutary effects of inflamation are evidenced in the reparation of broken bones which is accomplished by effusion of lymph around the bone which soon becomes organized then is changed into a cartilaginous substance which is called provisional callus which firmly adheres around the bone giving it support until by the deposite of osseous matter the bone is united, the provisional tumors is then absorbed. by exciting inflamation in the tunica vaginalis when the serum or hydrocele is discharged the opposite surfaces of the tunica vaginalis becomes agglutinated together by adhesive inflamation the cavity of the sack is entirely obliterated and the ~~accumulation~~ of serum entirely prevented, it is by this beautiful process that wounds are closed ulcers healed and the fissure of the cleft ~~palate~~ palate united and the many dangerous and fatal consequences averted by the intervention of adhesive inflamation

The symptoms of inflamation are pain redness, heat and swelling. Pain is no doubt produced from the implication of the nerves of the part in the diseased process pain varies with the seat of inflamation or in other words the character of the pain whether it is sharp stitching lancinating throbbing or a dull aching pain depends altogether upon what structure of the body is the seat of inflamation. parts of the body which possess very little sensibility in a healthy condition, when in a ~~healthy~~ state of inflamation cause most excruciating pain and these are bone tendon ligament and cartilage why this is so we must explain in the same way that we account for the greater pain in inflamation of serous investing membranes than in mucous lining membranes. The mucous membranes are

soft yielding and susceptible of great distension and therefore are less painful than serous membranes which are more tightly applied and are less elastic and consequently are less able to bear much tension. The tension which is caused by the swelling in inflamation is no doubt the reason why there is more pain in serous investing membranes than in mucous membranes & why we should have greater pain in bones cartilage ligament & tendons is from almost total inelasticity. The less pain in inflamation of the parenchyma of an organ is accounted for in the same way they are soft and yielding and would allow a great degree of swelling without much tension. From what we have seen much may be learned concerning the seat of inflamation from the character of the pain or from its intensity or the degree of pain.

In inflamation the redness is occasioned by the greater circulation of red blood and the vessels of the part inflamed there is no doubt new vessels formed which circulate red blood which if they had existed before certainly did not circulate red blood we see this in inflamation of the eye the vessels too are greatly enlarged consequently carry a greater quantity of red blood, The degree of redness depends upon the character of the inflamation in acute form of frank inflamation the redness is of bright rosy color but in chronic forms of inflamation or when there is a disposition to gangrene the color is dark purple or black redness is most invariably present during all inflamations during one or another stage of it, Heat is always produced by the union of oxygen with carbon so the heat of the body depends upon the union

of the oxygen of the air with one of the elements of the body its carbon so in inflamation of any part, the preternatural heat of the part is caused by the increased quantity of oxygen in the part which is dependent upon the greater quantity of arterial blood circulating in the part. Increased heat is always attendant upon inflamation during some stage or other of its course but the heat of inflamation never exceeds that of the blood in the central parts of the body the surface of the body is always cooler than the internal parts and the surface of the extremities always cooler than the surface of the body so in inflamation you would have to make a comparative estimate of the degree of heat. The swelling in inflamation is in some measure dependent upon the greater influx of blood into the part, but it is more

dependant upon what is poured out from the blood vessels which is either serum, pus, blood or lymph. The serum or watery part of the blood is effused as an effect of inflammation which may mechanically prevent the due return of blood through the veins to the heart this is the true theory of acute dropsy, acute dropsy is always the product of inflammation. Sometimes there is so great an effusion of serum into the cavity of the pleura in double pleurisies that the breathing is very much interfered with and the life of the patient threatened by Apnoea. Also in meningitis which is an inflammation of the membranes of the brain there is an effusion of serum which causes death either by coma or by asthenia —

The effusion of blood is caused by the giving way of some blood vessel — Coagulable lymph is the fibrine of the blood seperated from its

other constituents which soon becomes organized it is one of the beautiful efforts of nature in the separation of tissue as we have seen in considering the salutary effects of inflammation. How soon the fibrin is effused and organized depends altogether upon the nature of the inflammation and the condition of the constitution at the time sometimes it is effused and becomes organized in a few hours and then again not for some days. Pus is altered blood the product of inflammation or a better definition perhaps is that it is the fibrin assuming a low degree of organization pus is sometimes poured out in a few hours as in gonorrhoea. The formation of pus which is diffused under the cellular tissue or incysted as in an abscess either acute or chronic is very often productive of fatal

consequences by the adynamic state to which the patient is brought great emaciation is the product and if death results it is by anemia
I have now considered inflamation as it displays itself locally - I will next consider the effects which it produces upon the whole system or its constitutional effects
As one would suppose no process such as we have been considering would be going on in any part of the body without producing a great deal of constitutional disturbance - When inflamation first sets in it is seen followed by other symptoms which affect the whole system and there are first a sense of chilliness or rigor which, in intensity is altogether dependent upon what part is the seat of inflamation after the chill there is heat and dryness of skin loss of appetite thirst headache pain in the back

general soreness of the muscles, lassitude, languor, inability, or indisposition to make any muscular effort, deficiency in all the secretions if there is a hypersecretion it is vitiated, ~~and~~ scanty high colored urine, increase in the frequency and force of the pulse which is also full and hard incompressible all the constitutional symptoms varies very much with the seat of inflamation and the peculiar constitutional habit of the patient for in some persons the slightest inflamation will give rise to the severest constitutional symptoms the cerebral symptoms varies very much ~~with~~ for in some there is violent delirium as soon as there is the slightest increase in the frequency and force of the pulse. of the state of the pulse much is to be learned. for in inflamation of the viscera of the thorax there is quite a different pulse from the pulse

of inflamation of any of the viscera of the abdomen The one is characterized by frequent full hard incompressible pulse The other by frequent quick thready pulse -

An increase in the fibrin of the blood circulating through the whole system gives rise to that general constitution disturbance which we call fever The duration of the inflamation depends upon the part inflamed and the treatment which has been employed to arrest it. The character of the fever depends upon the habit of the patient if one of sanguine temperament young and vigorous the fever will be inflamatory but if the inflamation occur in one who has lived intemperately or has been subject to long continued excitement of the nervous system or who is old and infirm and powers of life very much exhausted the fever will be of a Typhoid Type

when inflammation subsides it is either by resolution which is its most favorable termination or by suppuration. Mortification and ulceration I consider as the effects of inflamation when an inflamation has been properly treated the pain will cease; the redness fade; the swelling will be reduced to the natural size of the part the preternatural heat of the part will be gone and the part assume its natural temperature and all the constitutional symptoms will disappear the patient recovers; but if proper treatment has not been employed or has been used but not successfully pus is formed which soon makes its escape if not assisted by the Lancet of the surgeon it burrows its way to the cuticle which bursts and the pus is discharged or a channel is formed for it by the

effusion of coagulable lymph which is organized and the pus is discharged into one of the natural outlets of the body. from the surface of this abscess pus may still continue to be secreted for a length of time in such quantities that the system is entirely worn out, or by degrees the abscess fill up by granulation until the whole cavity is obliterated and the parts resume their normal healthy aspect,

Lastly we come to the treatment of inflammation as we have seen that the blood is the cause of this preternatural heat redness and swelling our first object would be to attempt to lessen the quantity of blood circulating through the part this may be accomplished either by general bloodletting or by local bloodletting the first object may be attained either by venesection or arteriotomy the last by cupping or leeching

the quantity of blood to be taken depends entirely upon the part inflamed and the habit of the patient by cupping or leeching we abstract blood locally and thereby unload the engorged capillaries and by general bloodletting we lessen the quantity of the blood circulating in the part & we thereby reduce the force and frequency of the pulse by taking from the heart its natural stimulus the blood and as a consequence being less to stimulate it contracts less frequently, another adjuvant remedy is purging which in addition to the removal of feces and ~~other~~ the irritating secretions it produces copious serous discharges from the whole of the mucous membrane in inflammation of the brain or any part of the head purging also a revulsive - Mercury is another very powerful remedy in the treatment of inflammation especially of serous surfaces where from agglutination of them opposite surfaces harm would likely to result, it is a great stimulus to the secreting organs it is what we mainly rely upon in the treatment of Pleurisy & Peritonitis

the great effect of mercury is render the blood antiplastic and mercury should always be given with that intention it also is an absorbent of coagulable lymph, it is one of the best and most powerful secreting stimulants we possess — Antimony which is a controstimulant is also much used in the treatment of inflamation it exerts a peculiar sedative influence over the heart and arteries reduces the force & frequency of the pulse. Digitalis is an other remedy which also acts as a sedative upon the heart. narcotics and sedatives are important classes of medicine in the treatment of inflamation which by their soothing influence which they exert and by allaying irritation are great adjuvants in the treatment of inflamation. counter irritants which by the detraction from an inflamed surface effect greatly in the treatment of inflamation for this purpose Moxas, blisters, stimulating liniments, sinapisms, & issues are used

application of cold as ~~of~~ have said before is if judiciously applied of great service in the treatment of inflamation the rules for its application I will not mention. The Antiphlogistic regimen should in all cases be most rigidly enforced rest in the recumbent posture all stimulus must be avoided and must be kept upon rigid diet ~~and~~ or in other words must ~~be starved~~ refrain from eating and drinking altogether The function of the inflamed organ should not be used at all if it can be avoided one of the most important of the antiphlogis regimen is to attend to the natural evacuations which should be at least once a day

Another important class of remidies and the treatment of inflamation is diaphoretics this is however very well accomplished by antimony.

In the therapeutic application of these remedies in the treatment of inflamation in nothing is so much judgement required as in the use of the lancet, it is indeed the great remedy in inflamation

An Inaugural Dissertation on Typhoid Fever.

Submitted to the examination of the Provost, Regents and Faculty of Physic of the University of Maryland for the Degree of Doctor of Medicine.

By

Isargrove Hinkley.

Baltimore February 1847.

Respectfully Inscribed

to my esteemed

Friend

and Kind

Preceptor ~

Dr. Alexr. C. Robinson.

"The Youth who strives th' Olympic prize to gain,
All arts must use, and every toil sustain."

Gentlemen of the Faculty,

I have in accordance with the rule of the University of Maryland, in the Medical Depart=ment of which, I have the honor to be a Student, written a Thesis, which is herewith presented for your inspection. —It is not to be expected that an inexperienced Medical Student shall write anything new and valuable in medicine. We can but give a compilation of facts gathered from the knowledge of others, a reflection, as it were from a brighter source. Nothing new or untold can be received as truths in medicine, unless sanctioned by experience and use. It is only after years of practice and careful observation that the physician can venture to advance any new doctrine in respect to disease, its form, or treatment, with the hope that his fellow practition=ers, will examine his theory, and at the most pronounce it plausible. Now then is it to be presumed, that a young man devoid of Medical experience, and but

partially acquainted with the laws which govern the human system, can produce a medical composition, that will be admired for the fresh truths it contains, or a new code of treatment that has been successful?

Such then, gentlemen, you do not, cannot expect to find; but the various diseases that have been chosen as the subjects of a dissertation, you look to see discussed and treated according to the best known theories and the principles you teach. — If I have in this attempt to portray the symptoms, duration and treatment, of one of the many maladies that infect mankind, fallen short of the mark, I pray you consider, that, although we may judge of a tree by its fruits, yet the tree bringeth not forth perfect fruit until it hath matured.

—— Hargrove Hinkley. ——

The disease which I have selected as the subject of my The=
=sis is one fraught with interest to the American physician,
inasmuch as it does at times prevail, very extensively
throughout the United States, and is, in fact, the most
generally diffused essential fever, that we have.
Upon this account therefore, it has received consid-
-erable attention and investigation, as well by
our physicians as those of Europe.
In the description herein given of the symptoms, morbid
changes and treatment of Typhoid Fever I have classi=
-fied my remarks in a manner somewhat similar to
that pursued by Doctor Bartlett in his work on Typhoid
and Typhus fevers.

Symptoms.

Modes of Attack.— The modes of attack of this disease are various, both in regard to the symptoms and the length of time. Generally it is slow and gradual in its approach, and the patient is unable, accurately, to say when he was first taken ill. He may have a general feeling of "malaise", a slight headache, pains in the back and legs, and a sense of chilliness followed by that of heat. Sometimes his sleep is broken, and he is not refreshed as much as usual; he feels unable to exert the powers of the body and mind, which are always depressed; generally, according to the degree of fever. These feelings may remain for some time or gradually increase and give place to others more severe and character-istic of the disease. One peculiar symptom or set of symptoms may predominate in one case and a different set in another.

Febrile Symptoms. Chill. There is generally, though not always present, in the attack a chill, sometimes amount-ing

Asphyxia.

Modes of death. — The modes of death of this disease are numerous, both in regard to the asphyxia and the length of time. Generally it is also not painful in its appearance, and the patient is usually recently to say when he was first taken ill. The many have a general feeling of uneasiness, a slight headache, pains in the back and legs, and a sense of shortness followed by that of heat. Sometimes hurried respiration, and he is not refreshed on awake as usual; he feels unable to pursue the business of the day and morning, which are followed by rest; generally, according to the stage of fever. Then feeling many symptoms for some time or gradually increase, and one fine day is others must leave and change the ratio of the patient. The fever then asphyxia is not of asphyxia many symptoms appear in one case and a different set in another.

Sudden asphyxia. Death often is generally through not assuming prominent in the attack, sometimes unusual

ing

to a rigour. Sometimes the chill is repeated more or less frequently throughout the disease.

State of the Skin. Subsequent to the chill, the skin is dry and the heat thereof much increased. The state of the skin may differ; the whole surface of the body being hot and pungent, or only particular parts. This morbid heat sometimes shifting about from place to place, and subject to changes of intensity. The greatest exacerbation or increase of the febrile and unpleasant symptoms, or rather feelings, is generally in the evening. In relation to this evening exacerbation in fevers, Fordyce says, "that all men, even in the most perfect health, have a feverish attack in the evening, which goes off in the morning. There is a depression of strength, both of body and mind sufficiently evident; there is not the same alacrity of mind in the evening, nor power of memory, imagination, and judgement as there is in the morning. If in perfect health this natural evening paroxysm of fever is visible, it is infinitely more so in diseases of most kinds".

The condition of the skin in regard to moisture, differs in different patients; in some there is hardly any moisture, in others the sweating is profuse, sometimes coming on after the evening paroxysm, sometimes occurring in the night. During convalescence there is often a considerable sweating, which necessarily tends to keep up the enfeebled condition and retard the recovery. There is a peculiar odor arising from a person infected with Typhoid Fever, which is noticed by Drs. Smith and Bartlett, and which I have, myself observed.

Pulse. ~ The pulse is always increased and, according to Bartlett, ranges, from seventy to one hundred and forty, in a minute. It is sometimes full and strong, sometimes small and soft.

Thoracic Symptoms. These consist of increased respiration in some cases accompanied by a hissing sound, and a slight cough, and viscid expectoration, which last is not however always present. In a physical examination

The variations of the pulse in regard to quantity, differs in different patients; in some there is scarcely any variation; in others the variation is frequent, sometimes coming on after the morning paroxysm, sometimes on the morrow. Morning remissions are often a constitutional symptom, which occasionally leads to their being the predisposed condition and natural therapeutic. There is a function also arising from a primary infection in the digestive tract, which is marked by the bowels and stomach, and which should require observation.

Pulse — The pulse is always frequent and accelerating in debility, varying from scarcely to one hundred and forty in a minute. It is sometimes full and strong, sometimes small and soft.

Nervous symptoms. These consist of increased irritability in some case accompanied by a relaxing general debility, which last is not harmless always present. In a frequent concomitant

of the chest we most always find some sibillant rhoncus. The Nervous Symptoms declare themselves by headache, pains in the back and limbs, disordered state of the mind, expression of countenance, and deranged state of the senses. The headache which is rarely absent in this disease, is sometimes of a dull throbbing kind, at others severe and lancinating; in one case felt more particularly in the forehead and temples, in another all over the head. The pain in the back and limbs is greater or less in different cases, generally consisting in a feeling of soreness. The state of the Mind is always re=-markably depressed, the patient in some instances replying in a very indolent manner to questions put, in others being remarkably irritable. There is a degree of listlessness and stupidity in the Countenance, a want of perfect recollection and of full possession of the powers of the mind. Delirium is frequently present, and when it is so, seems to increase towards evening or at the approach of the febrile paroxysm.

of the chest, we must always first seek satisfactory evidence.
Other diseases sympathetic distress themselves by characteristic signs
in the heart and lungs, discovered after death of the patient,
expression of countenance, and through statistics of the
causes. The tendencies which is rarely absent in this
disease, is lamentations of a dull throbbing kind of
others severe and harrowing; the eyes fall, tears
particularly in the forehead and temples, in another
all over the head. The pain in the heart and limbs is
greater or less in different cases generally consisting in
a feeling of pressure. The state of the mind is colouring
—monstrously depressed, the patient in some instances
refusing in a very instant manner to question but
in others being remarkably insolute. There is a degree
of listlessness and stupidity in the countenance, a
want of perfect recollection and of full possession
of the powers of the mind. Delirium is frequently
present, and when it is so, seems increased towards
morning or at the approach of the fatal paroxysm.

Sometimes it is very violent, but more frequently of the mild description. There is in some cases mostly those of a severe character, a state of drowsiness or lethargy, and in these it is noticed, that the patient declares he never gets any sleep and appears unconscious of having dozed. In regard to the state of the senses, the hearing is most always affected in a greater or less degree, the loss of hearing being accompanied by a ringing in the ears, and dizziness. The sight is rarely affected unless we mention an increased sensibility to the light.

Sense of Taste and Condition of the Tongue.

The tongue is generally coated and this condition of course impairs the taste, and in some cases articles disagreeable to the taste in health are taken without evidencing any repugnance. A certain value is justly attached to the state of the tongue. "It sometimes becomes clammy or dry, sometimes it is clean and smooth, more often furred; its edges and tip, will perhaps, be red, then a white fur will

Sometimes it is very evident, but more frequently of the most discriminative. There is in some cases merely there of a severe character in which of measures or testimony and in these it is matters, that the patient develops the same epileptic attacks and epileptoid manifestations of insane disease. In regard to the state of the pulse, the learning is most variously affected in a greater or less degree, the loss of pressure being accompanied by varying in the rate and fullness. The weight is more by affected under the variation on increased sensibility to the light.

Loss of taste and sensation of the tongue.

The tongue is generally coated and this condition of course impairs the taste, and in some cases articles disagreeable to the taste are taken in order to obtain natural sensations and to satisfy appetite. Certain odors is greatly attached to the state of the tongue. If sensations become changing or strong sometimes it is often and sometimes more often furnished stays and infrequent perhaps be not, then a patient for such

begin, which either covers the central part of the tongue, or is divided by a straight brown streak which occupies its middle portion. This brown streak is often the first step to dryness and blackness of the tongue."

For the tongue to be dry and furred is a bad omen, but when in addition to this it becomes brown or black, the disease in the majority of instances proves fatal. When, on the contrary, the tongue is but little altered, or remains moist; or if, having become dry, it again becomes moist —, it is either a sign of amendment, or indicates a mild form of fever. It is necessary in estimating the state of the tongue to notice whether or not the patient sleeps with the mouth open.

State of the Muscles. There is a great depression of muscular strength in this fever, which commences from the first attack; sometimes, subsultus tendinum occurs; the body feels sore all over, and the muscular system is completely relaxed. In extreme prostration the patient lies constantly on the back. Occasionally the muscles of the diaphram are affected

causing hiccup. The debility lasts until the close of the disease, a disposition to turn on the side or sit up in a chair should be regarded as a favorable return of strength.

Digestive and Abdominal Symptoms.

The symptoms of derangement in the digestive organs are characterised by the state of the tongue and appetite; by nausea and vomiting, state of the bowels, pain in the abdomen and tympanites. The appetite is lost to a greater or less degree, according to the violence of the disease; often totally. The thirst is always increased, and is in proportion to the height of the fever, cold drinks being generally desired. Patients in Typhoid Fever, frequently suffer from nausea and vomiting, the matter ejected, being, according to Dr. Nathan Smith, "vitiated bile, mixed with mucous of an unhealthy color and consistence". — In regard to the state of the bowels, the most frequent condition is that of diarrhea, which is sometimes continuous throughout the whole attack, and in some instances not making its

appearance until late in the disease. Dr. Nathan Smith says", the latter stages of all severe cases are attended with diarrhea". The discharge is in appearance watery and of a dark brown color, sometimes tinged with blood. A peculiarity exists, with respect to the discharges from the bowels in this fever, which I do not reccollect having seen mentioned by authors on the disease. The evacuations are ejected suddenly and generally with much flatus. Pain in the abdomen is a very constant accompaniment of Typhoid Fever, sometimes sharp and severe and at others only elicited by pressure. It is mostly seated in the iliac fossæ, and the patient feels pain on being pressed over the region of the caput coli; and here we may detect a gurgling sound on pressure, a peculiar characteristic of this fever. There is considerable tympanitis, varying in degree, but for the most part proportioned to the severity of the attack. Miscellaneous Symptoms. Emaciation exists in nearly all cases of Typhoid Fever, varying in extent. ~

State of the Urine. In the commencement of the fever the urine is high colored and voided often; as the disease advances the bladder is seldom evacuated, and there is retention of the urine. Epistaxis is not unfrequent, especially in the commencement of this fever, it is, however, generally slight.

Cutaneous Eruptions. During the course of the second week, there takes place an eruption, which is so characteristic of this fever, that it has been called Typhoid eruption. It occurs principally about the neck and breast, although sometimes appearing on the rest of the body. This eruption consists of small red specks, resembling flea bites, which disappear upon pressure of the finger, but return again when the finger is removed. They are slightly elevated above the surface of the skin, not always perceptible to the touch; and according to Dr. Power "usually appear in several seperate eruptions, each lasting about two days, never appearing before the fifth or after the thirty fifth day." There is also another eruption,

called sudamina, which appears upon the neck, shoulders and breast. It consists of small transparent vesicles, containing a clear fluid, elevating the cuticle. These vesicles dry up in two three days and the cuticle exfoliates. We sometimes have petechiæ appearing, which is looked upon as a grave symptom. There is a great tendency to the formation of ulcers on the skin, especially on the nates and edges of blistered surfaces.

The foregoing symptoms which I have enumerated vary considerably in proportion to the attack. Some of them are more important than others, some more peculiar to this disease. It is very rare if ever that they are all found combined in any one case of Typhoid Fever.

Anatomical Lesions. I will now proceed to speak of the anatomical lesions which are present, either constant or occasional in this disease; and first of the Circulatory System. The most frequent change found in the condition of the heart is that of softening, which according to Dr. Power, is found in one half the cases met with of Typhoid Fever.

In seventeen of forty six cases, Louis found this softening well marked, accompanied by a paleness and flaccidity of ture of that organ. The State of the Blood in Typhoid Fever is materially altered from its normal condition, and blood drawn from patients in this disease seldom or never presents any buffy coat. There is a want of a due propor-tion of fibrine, which all writers on this disease have no-ticed. Messieurs Andral and Gavarret, in their elaborate memoir on the blood, assert, the fibrin never rises percept-ibly above the normal standard in true Typhoid fever, and that it decreases in proportion to the advancement of the disease. Scherer has made a partial analysis of the blood in cases of Typhoid fever of a very low putrid type. The blood was black and tar-like, and instead of forming a firm clot, became a soft mass, from which the serum did not sepe-rate. The little fibrin it contained was soft and gelatinous. The blood-corpuscules were jagged, and more or less injured; they were smaller than usual and their nuclei were very distinct. The albumen and corpuscules are also diminished.

In regard to the Respiratory System, we find some lesions of the lungs in two thirds of cases. — They are more or less congested; but the most common alteration found, is splenisation or carnification; the former term used by Doctr Power in his lectures, is objected to in Dr Bartlett's work, who prefers the word carnification, as being more appropri-ate. In some few cases we find ulceration of the glottis and epiglottis; in many cases there is inflammation of the mu-cous membrane of the bronchi.

The condition of the Brain, is seldom changed, as would from the frequency of delirium in this disease, be reasoned. In examinations of the brain, made of those who have died in the delirium of fever, by Fordyce, Stokes, Schomel and others, there has been found no appreciable altera-tion in a majority of cases.

Lesions of the Digestive and Abdominal Organs. Changes in these organs are constant. We find in the digestive tube in one sixth of cases little ulcers in the pharynx and oesoph-agus; we also find pus in the mucous membrane of the pharynx.

The alterations found in the stomach are various, from simple inflammation to ulceration; softening of the mucous tissues seems to be the most common change. The most common and peculiar lesion in Typhoid fever, is found in the small intestines; this is, in fact, characteristic of the disease. The mucous membrane is more or less in a state of inflammation, and also changed in consistence. The traces are more marked in the last portion of the ileum, than as we approach the jejunum. The attendant characteristic lesion spoken of in this disease, is the alteration in Peyer and Brunner's glands, so called, they being solitary glands, varying in different cases. There are soft and hard patches met with in this lesion, in those who die early. After the tenth or twelfth day these become ulcerated, various in appearance; those in Peyer's glands oval, those in Brunner's round, looking as if the membrane were punched. The more numerous the glands affected, the more superficial is the ulceration. The deepest ulcerations are found near the ileo-cæcal valve, and diminishing in severity as we leave the valve. The mucous membrane between these diseased

follicles is sometimes found entirely healthy. Cicatrization takes place sometimes in this disease, after ulceration, leaving a peculiar looking serous membrane.

We also find alterations in the mesenteric glands, constantly. If the patient die from the tenth to the fifteenth day, we find these glands increased in size and of a pink hue; after the fifteenth and before the thirtieth day, they are found filled with pus, and assuming a brown hue; after this time they decrease in size and assume a slaty hue.

In the large intestines, we find softening of the mucous membrane in three fourths of the cases and not unfrequently ulceration. Another, though not constant, lesion is alteration of the spleen; it becomes enlarged and assumes the same appearance as in malignant, remittent and intermittent fevers. Morbid alteration of the liver is not frequent. When it does exist, it is found to consist of a slight softening and change in color. — - - - - - -

Some of the foregoing lesions are only occasional, others are constant, identifying the disease. "The real and relative

importance", says Dr. Bartlett, "of the several lesions, accidental, and essential, is a question, in the actual state of our knowledge, not susceptible of absolute and positive settlement. It is a very natural and philosophical conclusion, perhaps, that the essential and constant lesions are more important than those of an opposite character. This is true, of course, so far as diagnosis is concerned; so far as the fixing and identification of the specific disease is concerned, but it is very questionable, whether these lesions exercise a more powerful influence upon the rapidity, and danger of the disease, than some of the others. It seems, indeed, very probable, that in many cases life is destroyed or the disease is rendered dangerous and severe, by the successive development of these secondary alterations, rather than by the extent, and gravity, of the essential lesions alone". I am strongly inclined to think that this last conclusion is correct, especially when among the secondary lesions, we find the lungs affected. The most common of the sequelæ of Typhoid fever, is consumption, following

soon upon the fever. In two thirds of the fatal cases, we find congestion of the posterior and inferior parts of the lung, in itself sufficient to produce death. However, this is chief-
-ly observed in cases of great debility, or those in which the patients have been a long while upon their backs
houses. – I now proceed to mention the causes, which to us seem most to affect this disease; the true essential cause being as yet unknown to medical science. Age seems to exert great influence, this fever apparently being more fatal during puberty and manhood, than after thirty years old. Neither sex or occupation seem to have any action on this disease. Residence may exert a slight influence, as we find it more common in large cities than in the country, and among strangers, and students going into a hospital, (to reside). Climate seems to have but little effect, tho' this disease may perhaps be more common in the Eastern, Middle and Western states, than in the Southern. Debilitating circumstances exercise some influence. The action of putrid substances does not seem to affect it, for

we do not find it more prevalent among scavengers, and those occupied in the cleansing of sewers and drains, than in other occupations. The question of its contagion has been handled by many eminent physicians and it is not yet settled. But to be on the safe side we had better treat it as contagious, it being in this respect, no doubt modified by many causes and attendant circumstances. In my father's family last year, during the existence of a case of Typhoid fever, which terminated fatally, there were four members of the family, including myself, almost constantly in the room. Neither of us were attacked by the disease, but another member of the family, who seldom entered the room, was after the decease of the patient, siezed with this fever, but he ultimately recovered. The state of health in the last case previous to the attack of fever, was much debilitated by close confinement in a counting-house. This might have had some influence in the matter, and yet in regard to myself, my own state of health was worse than his; having just returned from the West,

suffering from a violent Intermittent fever, contracted in the "American Bottom" of Illinois, consequently much enfeebled, and yet I escaped the Typhoid, although much more exposed to its influence. Query, was it the existence of Intermittent fever in the system, that overpowered any influence, which might have been produced by the contagious principle of the Typhoid. — — — Typhoid Fever has been divided into several varieties by different authors. Louis divides his cases into three classes, mild severe and fatal. Chomel has several forms, the inflammatory, the bilious, the mucous, the ataxic and the adynamic. — Duration — Typhoid Fever rarely or never occurs in the same person. The convalescence is proportioned to the attack. In severe cases the average duration is twenty five to thirty five days; the limits are fourteen for mild and thirty five for severe. From the insidious mode of attack, and its almost imperceptible approach, it is extremely difficult to date the commencement of an attack of Typhoid fever. — — — — — — — — — — — — — — — — —

Complications. — The complications of this fever are not very frequent. We may have true Enteritis as a complication, especially in children. Pneumonia, a common complication, is found in about one in six cases; this we can discover by physical examination. We sometimes have Erysipelas as a complication, about once in eighteen cases. This is generally fatal. Inflammation of the ear is a complication, most common, when met with, in children. In inflammation of the parotid glands, suppuration is inevitable and death probable. Peritonis. This most suddenly fatal accident is marked by a quick, acute pain, and vomiting of fecal matter. We cannot foresee this accident. It may occur in the mild as well as in the severe forms. It is not however so apt to occur in children as in adults. We may sometimes have intestinal hemorrhage, with concomitant symptoms. This is a bad symptom, found according to Dr Power, in about one in eight cases.

Relapses.- There sometimes occur relapses in this fever, which may be brought on by inattention to diet during convalescence. Patients who are recovering from an attack of Typhoid Fever

have a very sudden return of appetite, which must be guard-
-ed against. There is a falling off of the hair after an attack
of this disease; and sometimes we have insanity following
the fever for a short time. Dr. Nathan Smith mentions, that
in some instances the morals appear to be affected by an
attack of Typhoid Fever; and he cites a particular case in
which the propensity to steal, was developed after an attack
of this fever.

Diagnosis. The diagnosis of Typhoid Fever, is now, owing to
the pathological researches of Louis, Chomel, Jackson and others,
comparatively not difficult. Although in many cases, in
the earlier stages, it is obscure, and we need all the grave
symptoms grouped together, to make us certain. The exam-
-ination of the blood may assist the diagnosis, as also the
age, as we seldom meet with the disease in persons over
fifty, unless in epidemic form. Apart from complications
the diagnosis is generally easy; the great muscular debility,
headache, pains in the back, feeling of soreness, loss of appe-
-tite, state of the skin, increase of pulse, hurried respiration,

physiognomy, epistaxis, loss or dullness of hearing, the gurg-
-ling sound elicited on pressure over the ileo-cecal valve,
and the peculiar flea bite eruptions, point out conclusively
the disease. We must however be searching in our diagnosis,
and discover any complications that may exist, and against
which we will have to combat. Dr Marshall Hall says,
"If it be true that few diseases of an individual organ exist
uncomplicated, it is especially so in regard to fevers. In
fact our task of diagnosis is only half performed, when we
have ascertained the case to be fever — a special form of fever.
The complications may mediately or immediately be the
cause of death. If these be undetected, or undistinguished, the
first part of the diagnosis will be unavailing. In the course
of fevers, the early detection of a complication is therefore of
the utmost moment. It is also of the greatest importance to
cultivate a habit of watching, and of renewed examinations
for such complications."

Prognosis. The prognosis of Typhoid Fever is almost always grave.
An attack of the malady leaves the patient in a condition to be

assailed by tubercular disease. Those attacks which come on tardily are worse than those which come on acutely. In cases with difficulty of swallowing the prognosis is grave. Slowness of the pulse, and weakness, and coldness of the system are grave symptoms. A relapse after or during convalescence is generally fatal. Diarrhea, especially in the latter stage of the disease, is a bad symptom. Dr. Nathan Smith says, "The danger of the disease is in proportion to the violence of the diarrhea. I have never lost a patient whose bowels continued constipated through the whole course of the disease, and have never known a fatal case of Typhoid unattended by diarrhea." Involuntary discharges from the bowels and retention of urine, are generally found in fatal cases. The prognosis of course varies much in different cases, governed by circumstances. Dr. Stokes says, "It is hardly necessary for me to state, that persons differ exceedingly in their power of bearing up against an attack of fever. It is a fact, almost universally known, that one man may be favorably circumstanced for resisting

the disease, while another may be a bad and unfavorable subject. Anything that has a tendency to weaken and depress, as excessive apprehension, exhausting labor of body or mind, the debility brought on by mercury, bad food, and foul air, grief, care, and other depressing moral causes, all these are circumstances, which generally speaking, render fever exceedingly dangerous".

To theorise on the subject of Typhoid Fever, would require abler minds than are possessed by the generality of modern medical students. I will therefore only mention a few remarks made by others on this subject. This disease is always characterised by lesion of the intestinal follicles. Is this lesion the cause or effect? Bartlett, and other writers, and many eminent medical men are of the opinion, "that the local lesions are peculiar in their nature; secondary and dependent in their relations; constituting not the primary and essential cause, but only one of the pathological constituents." One theory declares the lesion to be the cause, the symptoms, the effects; while another, perhaps with more reason, places the

cause in a disordered state of the blood. — — — —

Before speaking of the treatment of this fever, I will say a few words in respect to the mortality of the disease, which should have been mentioned before. The mortality is, as has been found from careful observation, affected by age, season and climate. During youth, or up to the age of puberty the mortality is smaller, than it is at any time thereafter. Dr Roby cites a Typhoid epidemic in Lowell, which carried off all or nearly all attacked, above fifty. Chomel has noticed that the mortality is greater in cold than in warm weather; and other writers mention the same facts in regard to the influence of weather or season upon the mortality. It has been observed, that the mortality is greatest in the unacclimated, than in residents, and this may be owing, very probably, to the change which the system is undergoing, in being acclimated, and which change is favorable to the disease. Complications increase the mortality.

Treatment. This is yet very unsettled; every one who has written on this fever, having advanced some particular,

favorite treatment, and each one of which has in a manner, been successful. The circumstances which modify the treatment in one particular case, do not exist in another, and therefore we must adapt our treatment to attendant circumstances. The negative treatment, seems to be the most judicious in this disease, which can be guided, but not checked. The question of bleeding in the early stages, has been long canvassed, and is now questioned, and favored. The result of strong bleeding in the first stages, has given us the facts that it does not increase the mortality, but adds to the tedious-ness of the convalescence. Bleeding then is useful, the sooner employed the best; it is especially useful in inflammatory attacks. We may bleed more than once as circumstances may warrant. This remedy must be cautiously used es-pecially in children, as it is in them apt to promote secondary complications. We must be extremely careful to confine our patients to a strict diet - give them plenty of cold iced drinks - apply warm fomentations to the abdomen - give flaxseed enema. If the diarrhea is profuse give starch and laudanum injections.

if this does not answer give black drop; this also checks the insomnolancy and gives quiet. In irritability of stomach we give prussic acid and soda. To give ease and comfort to our patient, we sponge him all over; but this does not do when the skin becomes cool and the pulse low. We also make use of the Neutral Salts. In the later stages when he is sinking, we give tonics — quinine — brandy — and carbonate of ammonia. The use of tonics from the commencement is injurious; they are useful in this disease, but we must not use them, when the symptoms contra-indicate them. Purgatives have lately come into use again, especially in France. Louis advises their use throughout the disease as very beneficial. The most appro-priate are saline and laxative purgatives. They are contra-in-dicated in diarrhea, intestinal hemorrhage, and great weakness. We must keep the apartment in which our patient is, well ventilated and clean, and have his person kept cool, and his clothes changed frequently. The mouth should be kept clean and washed out. In case where the tongue is much furred and mouth in a bad condition, give an emeto-cathartic, or a

saline purgative. Dr. Power says, "In cases of intense meteorism a solution of common salt, given in tablespoonfull doses, acts well. The diarrhea should not be too much checked. In case of perforation keep the patient entirely quiet — give no food and but little drink. Drs. Graves and Stokes advise opium in large doses, in cases of perforation, and Louis gives it in this accident, though in smaller doses. Brandy is very grateful, and may be given in small quantities, iced. The application of two or three leeches to the temples or nostrils is often useful in cerebral congestion, and when there is intense headache, the forerunner of delirium. Blisters are likewise advantageous in such cases. When there is a tendency to local congestion, we must change the position, and give a little calomel or hydrargyrum cum cretâ combined with the purgatives; or calomel and opium may be given every six or eight hours. To check the approach of bed sores, in addition to altering the position, we must cover the places getting red with Diachylon salve. We may, in bronchial difficulty give an emetic to take away the excess of serous

secretion. The bladder sometimes needs attending to, which we must be careful of. When the disease is complicated with local affection in the head, chest, or abdomen, these should be treated on the same principles as the idiopathic disease, with this important modification, that evacuatives of all kinds must be used more sparingly, and that even in these cases, if there be much prostration of strength, wine must be exhibited, though more moderately than in the simple disease. The Convalescence of Typhoid Fever is slow and tedious, and we must be careful to prevent a relapse. The appetite, as before mentioned returns strongly, but we must guard against giving way too much to it. Tonics will be found of service during convalescence. We sometimes have edema of the legs, tenderness of the feet, or gastric irritation, a little trip to the country and proper treatment overcome these. To adopt the language of Dr Bartlett," we may hope, that our treatment of this disease, will yet become more successful, and more uniform; more exact in its application, and more positive

in its results. Many "ministers and interpreters of Nature", faithful to their high vocation, and competent to its duties, are zealously and patiently occupied in endeavouring to accomplish this end. Guided by a sound philosophy: relying upon the one great means of ascertaining the properties and relations of all forms of matter, inorganic and organic, that of observation, they or their successors may yet find, by persevering experiment or fortunate discovery, methods of modifying the living organ-isation, and of correcting its disordered actions, which shall give us a much greater control over the disease, than we are now able to exert."

An
Inaugural Dissertation
On
Diagnosis.
Submitted to the examination
of the
Provost, Regents, and Faculty of Physic
of the
University of Maryland
for the
Degree of Doctor of Medicine
By
Nicholas James Doney
Frederick City
Maryland
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On Diagnosis-

In examining the subject before us, we are compelled to divide it under several heads; each of which, is desired to be studied, with its relation to the whole subject. That we may be the better able to understand the object desired, let us in the first place endeavour to point out the correct meaning of the term Diagnosis; secondly the manner of Diagnosis, next the great importance of a correct Diagnosis based upon Pathology and lastly some of the great Diagnostics and differences between diseases-- Diagnosis is that science by which we are enabled to know and distinguish disease, one from the other, as well as the difference of the type of disease; which knowledge is obtained by the classification and arrangement of the different signs and symptoms, presented by the patient—

each Case; to be studied, and examined as an isolated Case; then the similarity compared to others. Diagnosis is susceptible of a division into general and special Diagnosis; for understand general Diagnosis to teach us the power of arranging and dividing Diseases, into families or groups of Disease, each group Controlled and known by seperate and distinct pulse, and symptoms; without any relation, to the others. each group also Capable of a division, of types or forms; each type Modified by the Circumstances under which it may occur; for instance the difference between inflamatory and nervous Diseases. Exanthematous and Profluvia — Sympathetic and Idiopathic.

Special Diagnosis again teaches the means of pointing out the particular, form or type of the Disease, with its location, and nature,

governed by the mode of the attack; nature of the State of the patient, previous to the attack; for example, whether the disease be an inflamatory attack of the body, of the Lungs; or simply of the Membrane covering the Lungs, called the Pleura; or again if it may be a tubercular deposit in the Lungs, or possibly an inflamation of the Bronchial tubes; also the possibility of the patient suffering under Variola or may it not be simply scarlatina - be it Measles, or Varicella, and so are we enabled by our knowledge of Special diagnosis, to pass through the entire Catalogue of the "ills to which man is heir".

We shall now direct our attention, to the means, of diagnosing disease, with the necessity of a Carefull and rigid examination, of the patient - endeavouring to shew the necessity of this strict study, of the symptoms, by the

simple fact of all persons, being so desirous to dwell freely on their ills, and sufferings; nearly all patients, are ready to tell not only the nature of their suffering; but also the causes, and the seat of the disease: by which means they would not unfrequently lead the Practitioner from the correct path; provided he suffered himself to be content with their statement; It therefore behooves him, to make his own investigation; And it then becomes a matter of importance in what manner he interrogates his patient; And as the plan laid down in Andral's Clinic appears the most advisable; we beg permission, to use it. Andral says, the first thing to be done, is to examine the exterior, by which means we form some idea, of the patients Age, strength, and state of mind; Also the form of the body, its size, colour, and eruption, if there may be any; He then says the first

Question, to be addressed to a patient, should be "Where have you any pain?" rather than the question "What ails you?" for by the last question he may be sure to be left as much in the dark with respect to the nature, of the patients disease as he was before he put the question.
Whereas by asking where his ailment, lies, the patient seldom fails to point out the function, and organ, diseased. Even with this precission in Conducting our examinations, it is sometimes difficult to prevent patients from wandering into pigmarole accounts, Concerning their Complaints; frequently too they take one organ for another: they, for instance, Complain of a pain in the Stomach, when the seat of the disease is in the Chest.
It is usefull, in order to avoid all misunderstanding to bid them lay their hand on the part where they feel pain. The next question, should be "How long are you ailing in this way?"

by this, you ascertain whether the disease be acute or chronic - If you discover that the disease is of recent occurance, we then confine our attention solely to the consideration, of acute diseases, excluding altogether chronic diseases, of the same organ - After examining the patient in this way; it next remains for us to go back to the previous circumstances, which might have acted as causes, or which might furnish some usefull data for the treatment - We should inquire to what causes, the patient attributes his disease: whether the disease be hereditary or acquired: whether the present is the first attack of it, or whether it appeared on a former occasion, Lastly we should direct our attention to the age, sex, constitution, Idiosyncracy, habits, and profession, of the patient" Following out the general principles here laid down. We come next in order, to the state of the pulse, the condition of the tongue, and mouth, the

state of the skin, then the respiration; and turning our examination a little deeper, we come to the expectoration, the cough and to the secretions, in general. lastly to the aid of Auscultation and Percussion, by which aid, great light has been thrown over disease; which light bids fair to disperse the clouds, of doubt, that at one time rendered the diagnosis of disease comparatively difficult; affording a sanguine hope that the day is not far distant when there will no longer remain any doubt or difficulty in this most important study - -

Hence arises the great necessity, and importance of properly studying and understanding; diagnosis in its correct meaning - based upon a knowledge of Pathology. By a proper use & knowledge of Diagnosis, we are enabled to know the distinction between the studied and scientific practitioner, and the bold, and presumptuous Quack;

who after (to all appearances) a carefull examination of his patient - says with a great degree of self importance - and assured of the ignorance, of the Family - "there is something wrong in the Chest - the chest is not all right = the abdomen is diseased, or the brain is injured" - without saying or even knowing what it is = while on the other hand, the Practitioner from principal, tells emphatically the seat, and nature of the attack, whether it be acute or chronic; he says he knows it to be this or that, from the nature, and form of the symptoms; presented by the Case, knowing each Case to be governed by fixed and immutable general principles, he gains his knowledge from a knowledge of Pathology, and a Standard of health; he see that each organ or bis Lus is not pursuing its wonted natural - functions, he examines every part, every secretion, he knows each to present certain

Appearances when in health, and sees the difference in the then existing Condition; But how different from the other, who sees; to be sure "that some thing is wrong", but why? or how, he knows not - because he does not know, the means of Diagnosis; fixed upon scientifical basis = Alas for the Country and our Profession, we have still another kind of Quacks, or as they Call themselves Empyrics - Men who have - gained the title M.D. and permission to practise Medicine, but Men entirely ignorant, of the benifits resulting from a knowledge of Diagnosis - simply from the fact of their having never studied it, or if at all, but imperfectly, Men who know nothing about the Appearances, presented by Morbid Anatomy - Consequently it is not at all suprising to hear those Men say they never rely on Pathognomonic signs, that they Care nothing at all about

the Symptoms, of the Case; all they Care for, is; he has Billious Fever, or some other fever, which they undertake to Cure, reasoning thus; Mr. A- had Billious fever, and was relieved by such a Course- now for Consequence this Case must yield to the same Curative Means- for both Cases are Billious fever- he sees, or thinks he sees, a similarity, in the Cases, and by noticeing the Stages of the attack, he feels prepared to say at once the result of the attack- Pity! thrice pity! that such Medical Philosophers, even not Compelled to enjoy the practice of such Hypothetical Philosophy upon their own more than human Carcasses, that they might be led to feel, (When they will not see) the absurdities, of such abortive attempts at reason; such Men are Often heard to say that Science will Answer to talk about; but When you enter the Sick Chamber, you must divest yourself of all

such superflous nonsense - Alas! poor deluded beings - deluded by self conceit - grovelling in the most helpless darkness of ignorance. The best importance of correct Diagnosis may be so variously shown, and so readily understood, with so palpable benifit to the meditating student, that it is hardly necessary to mention a single more instance: yet we will point out the necessity, in a case, when the Practitioner is called to see a patient, who he finds in a comatose state utterly unconscious of any thing surrounding him, and his friends also unable to give any satisfactory account of his condition; what a quandone the M. D. is placed in; yet comparatively how easy the practitioner who is prepared to examine every portion of the body, and hence contrasting the existing condition, with his standard of health, based upon a proper anatomical knowledge

he is at once able to say if any injury has occured externally or internally, or whether it may not be Apoplexy, and to treat the Case accordingly, which even yet Life may be restored, while it is a matter of Life or Death. Again he may be called on, when it is essentially requisite to relieve the patient in a short time, before all hope of recovery shall have fled. Suppose a Case in which the patient, is unconscious of his Condition, with all the indication of injury of the brain; how important that a Carefull examination should be made; Yet how impossible for a man to make necessary examination who looks upon all diseases as but a modification of one disease: he who in his self security (which security is his own ignorance) Cannot say whether the Case be an injury of the brain or if such a Condition could not be brought about by a disordered stomach.

It is generally known that several classes of diseases so nearly resemble others in the presentation of their symptoms, as to make it a matter of careful study to point out the distinction; owing to disease often occuring, with what is called negative symptoms. Yet each class when discovered, is fundamentally different. Again we see the absolute necessity of correct Diagnosis, between Apoplexy and Epilepsy - the emergency of the case requiring prompt and energetic treatment; there is no time to wait, and watch the disease - it must be met at once, or else the vast fabric of Nature totters and falls; how absurd it would be to treat either of those cases for any thing but the real cause of the attack. How many lives have been - and are still sacrificed by the foolish notion of unity of disease; The necessity might be carried out in every single case of the entire list of diseases - and each case - -

within itself will show the advantages to be derived, not only in building the Practitioners reputation but also in the great saving of human life. Its necessity is pointed out by taking two Cases of Any one Disease - grant that Mr. A and B - are both suffering with an Attack of Billious= Fever - does it follow as a matter of Course, that they should both be alike? is it any proof that the Circumstances Controling the Cases - both in their Causes - as well as the Condition of the patients are the same? Certainly not; by no means, for as Professor Bartlett says in his Med. Philos= ophy - "It is a well known fact, that the obvious and appreciable elements, which are united to Constitute the disease, differ in many respects in different Cases; and those elements are also Constantly changing, in themselves, and their relations to each other - The State of the System, at the Commencement of the disease, must also

be widely different in different cases. Then in addition to all this, there are peculiarities in different individuals, less obvious in their character, of a more subtle and recondite nature; and known only by their effects, which would more or less powerfully, modify the disease itself; apart from the differences already enumerated" Consequently we see the necessity sufficiently forcible to induce all persons desirous of making any progress in the profession, absolutely unavoidable for their advancement. We shall before leaving this portion of our subject, once more seek a Quotation from Dr. Bartlett's Medical Philosophy. Viz. "The Philosophical reason of the practical importance of Diagnosis, is simply and manifestly this. It is the expression of one of the terms in every problem of Cure; - it constitutes what may be called one of the elements in every therapeutical operation.

or Analysis - It is the only term, the value of which it is difficult to ascertain; it is the great element, upon a full knowledge of which, the certainty of every therapeutical operation depends - Just in proportion to the perfection and absolutenss of our Diagnosis; just in proportion to the Completeness of our Pathological knowledge, will be the certainty of our therapeutics - and nearly all the difficulties, the obscurities, the uncertainties, the imperfections of Practical Medicine, grow out of the difficulties, the obscurities, the uncertainties, the imperfections of our Pathological knowledge, or, in other words, of our Diagnosis." We also beg the opinion of Professor Davidge in his Nosological arrangement - "That the Pathognomonic symptoms in disease, are as unequivocal and fixed as the distinctive characters in Animals or plants; and further, that no Generic disease, in any of its

distinctive diagnostic properties, however, by time, by climate, or any other accidental circumstances, been changed.

In pursuance of the course adopted in the commencement of our investigation of the subject before us we come now to the last and grand object of our study; the importance of care in this part appears so palpable the we hope for excuse in taking a recapitulation of the course of our investigation. In the first place, it has been our effort to explain the meaning of the term Diagnosis; next, the great importance of a correct Diagnosis, based upon Pathology with the means of Diagnosis. And lastly it is our desire to point out some of the great Diagnostic indications and differences. not that we mean to say that each and every sign and symptom, is peculiar only to a certain disease, or even a certain class of diseases.

for well we know, there are many symptoms, that are common to disease in nearly all circumstances. yet the absence of which have but little, if any weight in making out our Diagnosis. Our object shall be to endeavour to show, there are signs, and symptoms, only indicative of certain pathological conditions. and that the laws of this part of the profession, under the general principles, are immutable and fixed. We deem it proper, and perhaps better, that the diseases of the three cavities should be considered in their relative positions, in order; consequently we commence with those of the brain.

yet when we remember the great difficulty attending the Diagnosis of diseases of the brain, from the want of Physical signs - which are rendered impossible, from the circumstances under which the brain is placed - as well as from the want of the light shed by -

Auscultation and Percussion - we are therefore compelled to rest satisfied with Physiological and Pathological induction, and if inductive signs vary much in more simple organs, in consequence of mere variations of circumstances, they must be infinitely more variable and complex in reference to the brain; an organ within itself of so great structural complexity - Believing therefore, the difficulty attending the Diagnosing = also that there is no difference appreciable during life, between inflamation of the membranes of the brain (it being the opinion of Abercrombie, Gueasant, Cooper, and Copland) Nor do we think there is any appreciable difference in inflamation of the medullary substance, and meningitis - Abercrombie says "Our knowledge, is not sufficiently mature to enable us to say with confidence, what symptoms indicate inflamation of the substance of the brain,

as distinguished from that of its membrane"-
In fact we think that one cannot exist without the other, thereby rendering it impossible to distinguish them- Consequently shall pass over diseases of the brain by attempting to show the difference between Acute and Chronic Meningitis,
An Acute attack makes its appearance first by a cold stage, or rigor, with great pain in the head, of an acute and throbbing nature, heat, and intumescence of the head, intolerance of light, and sound, blood shot eyes- staring prominence of the eye balls, contraction, with oscillation of the pupils- more or less violent delirium; pulse quick, full and hard- with twitching and jerking of the muscles- often- more or less paralysis- this state lasts for a longer or shorter length of time, according to the result of the attack = Whereas in the other, or Chronic form, it steals insidiously over the victim,

leaving him often unconscious of the approach — until it has so fastened its death like talons that death itself is only able to sever its hold. Chronic Meningitis may be either a sequel of the acute form, or it may be primarily chronic. In either case, it is obscure, from the deficiency of fever, and from the absence in many instances, of any considerable intellectual disturbance the only symptoms then being, more or less constant headache, mostly with somnolency, convulsive movements, which may in many instances last for a considerable time, generally increasing, until delirium and paralysis ensue. This delirium is at first a mere monomania, with intellectual imbecility, ~~and~~ often with sullenness, irascibility, taciturnity, and lofty hallucinations, but sooner or later, it passes into confirmed mania, and this into idiotcy. The paralysis is at first

incomplete, but gradually increases until it per=
vades the Whole Muscular System, renders the
gait tottering - and finally annihilates the
power of Motion -

Although diseases of the bra=
in are comparatively wrapt in Obscurity - we
hope, and think the day will come, when all
may be explained; with equal force, with any
other organ, which belief, the great and
general fundamental principles of the Science
justify - Let us commence diseases of the
Chest with Pleuritis and Pneumonia - and
first state the Symptoms of Pleuritis - then those
of Pneumonia = showing what symptoms be=
long to one, without the other. In Pleurisy
we generally have sharp cutting pain in the
side, a short dry cough, general inflamatory
fever; with hard quick pulse, heat of the skin
flushed cheeks, and scanty high coloured urine

difficulty of breathing, dullness on percussion. Pneumonia usually appears, with cough, difficulty of breathing, a dull heavy deep seated pain, blood shot eyes, head ache, and pain in the limbs. intense fever, thirst, furred tongue, loss of appetite, scanty high colored urine; after two or three days the cough, is accompanied with an expectoration, of a rusty colored sputum of various shades. semitransparent, tenacious, and coherant, dullness on percussion, and the various rales. which are attendant to Pneumonia, and never found in Pleurisy. Now although we have many symptoms that are common to both, yet there are several very important distinctions, such as the absence of the sputa, the crepitant, and mucus rhonchi, as well as the various sounds produced by respiration; which are never present in Pleurites. Also we have in Pneumonia, the red and grey hepatization as-

terminations, whilst Pleuritis terminates in effu=
sion, adhesion, and resolution—
Next in order we shall compare the difference bet=
ween Peri-Carditis, and Hypertrophy of the heart—
Amongst the most common symptoms in Peri
Carditis, are high fever, generally preceded by
rigors, pain in the region of the heart; irregular=
ity of pulse, and palpitations, dispnea, anxiety,
restlessness, and incapacity of lying on the left
side, with cough, vomiting, and difficulty
of swallowing— as the disease advances, there is
extreme debility, suffocative paroxysms—
tendency to syncope; with infiltration of the
face and extremities— In Hypertrophy of the
heart we find increased size of the heart, du
=llness on percussion, dispnea, and slight pal=
pitations, with a strong full, yet regular
pulse— more highly arterialized blood, a
bright eye, and false show of health, with

brilliant Complexion; Haemoptysis, and dropsy. Yet never, or very rarely any febrile excitement.

Now although we again find many symptoms in Common. Yet what are the differences! the pulse in Peri-Carditis is irregular, sometimes full and strong, at others, feeble and small, in the one, we find high fever; in the other rarely any - in Pericarditis we have in the region of the heart, that sharp, lancinating pain; whilst in Hypertrophy we find a dull heavy pain under the sternum - and of necessity a Considerable degree of enlargement and displacement of the heart; which is never to be seen in the other. Nor do we detect in Hypertrophy that great restlessness, jactitation, anxiety, faintness, and sense of suffocation, with coldness, and incapacity to assume the recumbent posture; which is so frequently the Case in advanced Pericarditis.

When we seek the aid of the Stethoscope, how differ=
ent are the signs presented by it - in one we
find a number of dry, cracking, rubbing, and
whiffing sounds; in the other only a dulness
on percussion; Now how vastly important is
it, that we should study each Case, separate=
ly, and unconnectedly, and with so great
Care not to Confound signs and symptoms -

We now Come in order to Gastritis and
Hepatitis - One of the earliest symptoms, in
Gastritis is intense pain in the epigastrium,
and a sense of burning along the oesophagus.
the slightest pressure aggravates the pain, as will
also swallowing, and vomiting, which is very
frequent and is alternated with the most dea=
dly nausea, and retching - an unquenchable
thirst, with a longing for Cool drinks, which the
Stomach is seldom able to retain; a sunken,
pale Countenance, cold, clammy extremities -

great prostration; skin dry, hot, and harsh; the pulse frequent, and small, bowels constipated; the urine scanty and high coloured; the tongue, red, rugged, and covered with a thick flaky fur. The local signs are fullness and distention of the epigastrium, with great heat.

Whilst the symptoms of Hepatitis, are hot dry skin, the pulse full, and often hard the tongue covered with a yellow fur, thirst and a bitter taste, in the mouth, vomiting constipation, though often relaxed bowels, urine scanty and of a deep orange colour, and deposits on cooling a red sediment, also some pain, tumefaction, and sometimes jaundice. Now we find in Hepatitis jaundice, a deep orange coloured urine, throwing down a red sediment, a bitter taste in the mouth, with a yellow furred tongue, and a full, hard pulse, which are

never present in Gastritis- bisa versa, we have a frequent and small pulse- great prostration, and increase of pain on pressure; cold clammy extremities- unquenchable thirst- tongue red, rugged- with other symptoms- that are never seen in Hepatitis -

Again, let us point out the difference between Enteritis and Peritonitis; in Enteritis the most usual symptoms are pain of a dull or griping character about the hypogastrium and right iliac region, tenderness on pressure and diarrhea; the stools being of a thin, feculent character, and often mixed with mucus- generally fever, the skin however being often moist, and the pulse soft- the urine scanty and high colored, the tongue often red at the tip; and edges- and furred at the center, the cheeks have a fixed red flush; and the eyes are dull,

Occasionally there is delirium, which is succeeded by stupor; the fever mostly of a low typhoid nature.

Those of Peritonitis are acute pain, in the abdomen; which pain is aggravated by every movement of the body; whilst pressure is extremely distressing. the patient lies supine on his back, with his knees drawn up. the belly is hot, tense, and mostly tympanitic. Constipated bowels with nausia, and vomiting. the Skin is dry and hot, the pulse rapid, small, and hard, the tongue has a white fur. the lips are dry. the cheeks pale and collapsed, the eyes sunk, while the Countenance indicates great physical distress.

Now we will usually know Enteritis from Peritonitis, by its tendency to diarrhea, the slighter degree of pain and tenderness. the softer pulse, the absence of vomiting.

And the redness of the tips and margins of the tongue - whilst peritonitis is characterised by that intense pain and tenderness, with the hot, tense and tympanitic belly - the dry lips, pale, and sunken eyes; collapsed cheeks with that rapid pulse.

In order that we may continue, after having finished diseases of the Cavities, by giving an example of each - we design to give a case or two of the eruptive diseases. And shall first show the difference between Scarlatina and measles, as they are most likely to be confounded, for each other. Yet when we study them carefully, we are able to see a very palpable distinction, for Scarlatina may be know from Measles, by the time intervening between the first accession of fever, and the appearance of the rash; by the character of the eruption; and by the regular

Measles commences with Coryza, sneezing, suffusion of the eyes, cough, slight dispnea, and other Catarrhal symptoms; while in Scarlatina the first sensation of uneasiness is referred to the throat. The eruption in Measles shows itself, on the fourth day of the fever, but in Scarlatina; it may usually be distinguished on the second. In Measles, the rash is disposed in irregular portion of a crescentic form; and is slightly elevated, so as to be sensible to the touch; in Scarlatina the eruption assumes the appearance, of broad patches of an indeterminate shape. The rash has a different tint in the two diseases; it is of a vivid red in Scarlatina, but of a darker hue in Measles. In Scarlatina, the fever does not abate upon the appearance of the eruption to the same extent as in Measles: the former is frequently succeeded by anasarca, inflamation of serous—

membranes, deposits in the joints &c. The sequelae of Measles, are principally affections of the respiratory organs, such as Bronchitis, Pneumonia, and Croup.

We shall now content ourselves by one more example, which shall be Small-pox, and its many modifications and varieties. Although much has been said and written on the subject, and many think there is no difference between the true Variola and many of its varieties, when modified Also an equal number say there are fixed, and determinate laws and diagnostics, which opinion we think most plausible. And there are no varieties nor any other eruptive diseases, that may not be know from small-pox by a carefull study first of the condition of the patient at the time, of the attack, his previous health, the nature and character of the

percussory symptoms, followed by the progressive symptoms - the length of time intervening between the first accession of fever, and the eruption the character of the eruption - Although many of the modified forms of the disease, may assimilate, in other respects the true disease - yet none present the depressed and corrugated pock nor is the duration so great - And when all other means may fail - there is one infalable symptom, which is one never present in any of the varieties or modifications, that one criterion is the presence of the secondary fever only in the genuine disease; or true variola which when once it has be inhaled, it is never to be forgotten —

The great doubt and difficulty of properly Diagnosing eruptive diseases, appears with so much force, that we may be forgiven, the attempt to say it is —

necessarily equally, impressive, in the necessity of proper study and inquiry - that as in proportion to the difficulty of studying and understanding any subject; ought to be our exertions, and efforts, with a positive determination to master it, if in the power of man - we think the very fact of any science, or part of science, being difficult to acquire, ought to act as a powerfull incentive to ambition, not only that we should determine to conquer, for our own selfish purposes - or merely to have it said, we did conquer - But for the purpose of throwing if possible the slightest, and most faint ray of light, and information, on the great, and general principles of Medical Philosophy; remembering that Medicine is the great preserver of the human race - and in proportion to the benefit our humanity - will be our reward, and advancement - that one of our greatest pleasures

should be to "Let our light so shine" that others may see - rejoice at, and be benifited by it -

For the purpose of so studying and knowing the great principles of Practical Medicine we deem it essentially necessary, and requisite, that we should first fully know, and understand thoroughly - General Pathology - - -

We now beg the pleasure and priviledge (before finishing our subject) to make a Quotation from Dr. Williams - On the Need of the study of General Pathology; as the foundation of Practical Medicine -

He Says - "It is the - fashion to decry our Profession; to call it a poor profession; a degraded profession: If it be poor and degraded, is that the fault of the Calling, or of those who practice it? or rather of those who should have governed and protected it? Is the art of healing in itself less -

noble, because its Practitioners, unsupported by the arm of civil power, and too often unsustain=ned by a Consciousness of their own dignity, have not raised it to the place in Society which it ought to hold!-

Poor it may be, but degraded it Cann=ot, shall not be, so long as its foundation is Science, and its end the good of Mankind

An
Inaugural Dissertation,
On
Animal Intellect.
Submitted to the Examination
of the
Provost, Regents, and Faculty,
of the
University of Maryland,
for the
Degree of Doctor of Medicine,
By
Loyd. W. Brown.

To

Professor J. R. Ly,

As a testimony of high admiration

for him,

As a Teacher, & as a Man,

the Writer of the following pages,

respectfully begs leave,

to inscribe them.

Animal Intellect

Perhaps, no problem, has more vex'd the brain of Sage, and philosopher, than that of the future existence of Man – the actuality of an immaterial essence, a soul in him. Wisdom seems now to have decided this question in the affirmative, and it is at rest. But there is another problem, closely allied to this, and suggested by it, to which, the same Wisdom, has given a negative decision – We allude to the existence of an intelligence in animals, – a thinking, feeling principle, separate and distinct from their physical organisation. Based, as the decision of this problem is, upon no positive proof, it may not be uninteresting to inquire, whether the evidences, and arguments, which tend to an affirmation, are not at least as strong & plausible, as those which have led to an absolute negation –

To some, it may seem a strange fancy, the selection

of such a theme for a medical thesis:- to such we would remark, that all sciences within the scope of man's intellect, whether those sciences be physical, moral, or metaphysical, offer aids to the great study of medicine - indeed, they may be well compared to so many streams, all pouring their tributes of knowledge, into this profound sea of wisdom. Surely then, any inquiry into the question of being, whether it regards matter, or mind, in man, or those orders of his fellow animals beneath him, cannot be other than interesting, if not the source of useful knowledge

The chief reasons, which have led to the universal belief in the absence of minds in animals, seem to be these:- the immense superiority of man's intellect over the manifestations of their intelligence; and a want of progression in their acquirements. To the arguments drawn from these sources, we will advert, in the course of our reflections

The strongest proof of the existence of a one deity,

infinitely supreme in his attributes, is the entirety of design in all Nature, & for the perfection of this design, the few simple, & inalienable laws, by which it is govern'd. One of these universal laws, is the sequence of cause & effect = a like effect, always flowing from a like cause. Destroy this, and you destroy the base upon which is erected the graceful superstructure of science - Nay more, you hurl back to chaos, the beautiful system of universal order, which, Deity, at the beginning of creation, call'd into being. No one, will then affirm, that the same result can ever be the effect of dissimilar causes, or that dissimilar objects, can possibly possess like qualities. You cannot impart to water, the qualities & properties of fire, nor to the hard & brittle stone, the ductility & malleability of lead; A fortiori, you fail to find in inorganized matter, the properties of organized bodies, & by a more potent reason still, you discover not in any matter whatever, the qualities & phenomena of mind - of im-

-material essence.

This law holding universally good, (and no one will deny that it does) it then inevitably follows, that if in the lower animals, we find those qualities, or rather those phenomena or manifestations, which, in man, we attribute to an immaterial essence, distinct from his physical being, there must exist in them, as in man, an immaterial essence, altho' it may be, & doubtless is, of an almost infinitely lower grade, than the human mind.

The question then presents itself: Do animals in general, or any of them, evince the possession of an intelligence — do they show powers of memory, reason, forethought, faculties of courage, fear, anger, joy, pride, love, hate, fidelity, or any of those qualities, which, in man, we look upon as the legitimate offspring of mind?

Every day, affords numerous instances, of the exhibition of such powers. Even the very lowest animals, show cunning in the capture of their food, & thereby,

Evidence the possession of some of the faculties of intelligence, altho' they may be ever so slight, and feeble. But in the cat, the dog, the horse, the elephant, in the various tribes of Simia, & in other animals of a higher grade, we have intellectual manifestations, strong & frequent, & of a character not to be mistaken. You can hardly look over a miscellaneous publication, without finding some account of animal intelligence, and book after book, is published of anecdotes concerning them. Now, granting that many, nay most of these accounts & anecdotes, are false, (& this is not probable) yet those which are true, give incontestable proof, of the existence of a brute mind of some sort at least, so far as its manifestations extend, similar to the human intellect.

Indeed, the indirect acknowledgement of this, is universal. Talk to any man, who has had much to do with animals, & he will be certain to tell you something of their selfwill, their cunning & intelligence,

their fear, anger, hate, kindness, & so forth, speaking of them, exactly as he would speak of reasonable beings. Now, if they possess not an order of mind, why this incongruity,—this strange antithesis of fact & expression,—this giving to animals, in conversation, faculties which they do not possess? The answer given is, "because their words & terms, are necessary to an intelligible account of their history & actions." And when are necessary? Plainly because, we have a certain set of words & terms to express the operations of the human mind, and when speaking of the lower animals, very naturally, & perforce must, to express like operations in them, use the selfsame words & terms.

Listen to the Oriental traveler, who has slept beneath the tent of the Arab, and wandered with him across the desert's fiery waste, and he will tell you, incident after incident, of the intelligence of the patient Camel, and of the noble horse of the

desert; who, curbing his proud wild spirit, comes tamely at his Masters command, & listens to, & understands, while he receives the fond caresses, every word spoken to him, or lays himself quietly before the tent door, to afford a temporary hillock, for the sport, & leaps, of his Masters children. The showman, to various animals, teaches tricks that excite the wonder of the gaping crowd - tricks, the acquirement of which, brings into requisition, not only memory, but reason & will, the highest faculties of mind. The Sportsman, learns his dog to hunt with care, & point the game, & has many a tale to tell, of his acuteness, cunning, bravery, & fidelity - fidelity, which does not grow weaker at the reception of wrong & injury, & yet is strengthen'd by every act of kindness. Sit in the hospice of the Monks of the Great St Bernard, as the fire burns bright within, & without, in the gathering gloom of approaching night, the storm howls, & the fast snow falls:- And, whilst they busy themselves in fastening

about the necks of their noble dogs, the little store of wine, to revive the dying traveler, who may have sunk beneath the cold by the way, or been whelmed beneath the avalanche, ask them, if animals can feel, can reason, can love, - have intelligence - And, as at the bidding of their masters, they, with a seeming pride resulting from the consciousness of virtuous action, bound fearlessly forth into the freezing night; to search thro' the gloom along the track of mountain-side, for the way-lost traveler, & listen mid the intervals of the storm, for the faint moan & cry of the perishing, tell me, if there be nothing in them but dull matter, tell me, if that noble conduct, which in man, would be look'd upon as the offspring of a soul of the highest & noblest generosity, is in them, the effect of nothing, or rather of that which is tantamount, a portion of dull matter, sworn to be mingled with the common, insensible dust, on which we tread upon.

The appreciation & enjoyment of music, one of the chiefest

sources of refinement, calls into requisition, all the finer feelings of the soul, yet no one will deny that many animals are affected by it,— have all the ferocity of their nature soothed into gentleness by its strains. Even some of them possess the power of singing a series of musical tones: & how often does the fair lady teach the sweet voice of her bird, to warble the notes of a favorite song. Think of the noble warhorse, as, at the sound of the trumpet's inspiriting blast, his eye flashes fire, his nostril dilates, & he spurns the ground with impatient, more eager than his daring rider to rush upon & bear down the foe, & tell me if there be not something in him beside mere matter, an immaterial something, that thus strongly moves him? That even some animals can, to a limited extent acquire the language of man is a notable fact. The learn'd Leibnitz, gives account of a dog, taught by a Hungarian peasant, to speak distinctly a number of words. We might, if more were necessary, multiply instances of mental manifestations in animals, but the mind of every one is stored with numerous recollections of such. ——— From the examples just cited, none will deny, that animals can, at least to a certain extent, be taught.

Yet the very idea of being taught, includes that of something capable of learning; & that something, cannot be matter, either organic, or inorganic. For whatever learns, must, just to that extent which it does acquire knowledge, be capable of receiving intellectual impressions. But no matter can receive an intellectual impression. If this be not true, the whole system of mental philosophy is a fallacy; & man's body thinks, & the proudest monuments of thoughts & reason, have been the result of organic matter, not, of an exalted, & noble immaterial Essence

Whence too, the doctrine of transmigration? Why did Pythagoras, & so many wise men of ancient times, believe that the souls of their dead friends and acquaintances, dwelt in the bodies of animals around them? Why did they spend their life-long talents, in adducing proofs to confirm their belief? Because, they saw evidences of, & were forced to admit, in animals, the existence of mind. And not knowing whence its origin, & at the same time being conscious of the existence of a soul in themselves, & ignorant-

of its dwelling place after death, they, by a very natural chain of reflection came to the conclusion, that that animal mind, was the transmigrated soul, manifesting itself under a new state of being.

But, it is remark'd, all this is only instinct. Whatever it be, it is something in animals, aside, and distinct, from mere matter. What is instinct? The answer given is, "it is instinct, something, given to animals to supply the want of reason, having the qualities of mind." In other words, something which is mind, & at the same time is not mind. Here then, one of the great & deem'd immutable laws of the universe, that has held good thro' all creation, up to this final, mightiest effort of the hand of deity — the formation of intelligences — is at last turn'd aside, and God, his omnipotence exhausted, unable to create an intelligence lower than man, has, in the inferior animals, bestow'd upon matter, the faculties of mind. No, instinct is only another name for mind, of which man, in his pride, would fain deprive his fellow animals

But those who talk of animal instinct, speak also of human instinct, betwixt which two, there is a perfect sameness. Thus, we see in the life of the young child, actions so distinct & determinate, so used as a means to compass a given end, that we cannot attribute them to mere chance; and of all such, they say, they are the result of an instinct. But why of instinct? Why not of intellect. Is the mind then inactive? Yet granting, for a moment, that these first acts of life are the result of instinct which not being mind, must of necessity be a property of organised matter — there must then exist, a mark'd difference betwixt its actions, & the actions of mind, and some period must exist in the life of the child, at which, it ceases to act, and intellect becomes active. Wherein consists that difference of action — who shall define it: and when shall be placed the period at which, instinct ceases, and intellect becomes active — who shall draw the line of demarkation? Does not the full grown man,

the very impersonation of intellect, shrink instantly, without, so far as we can see, the shadow of a vociferation, from a well aim'd blow? And as instantly make an effort to recover his lost balance? But these too, are attributed to instinct, which, not being immaterial essence, must, as before said, be a property of organised matter. But, physiologists tell us, and all admit, that organised matter has but two properties, sensibility, & contractility: And these, to be excited to action, require always, a mental, or a material stimulus. Yet, no one will say, that in either of the cited cases there is the application of a material stimulus; therefore, it must have been mental. As well might we expect, the sturdy oak to shrink from the stroke of the woodman's axe, as to suppose the human body, unaided by intellect, by its animal life, able to avoid danger. "Animal life"; for what is animal life, if it be not a modification of organic life, produced by the influence of a mental force? What is it, that distinguishes

the life of Man, from that of the brute, except it be the possession of a mind, & a peculiar arrangement of organs for the action of that mind, whereby his body is adapted for its residence? Altho' we are in the habit of looking upon Man as physically infinitely removed from plants, and altho', when compared with them, the beautiful complexness of his organisation gives to him such a different appearance, yet their ultimate structure is the same: and altho' he requires prehension, and a certain preparation his food, before it is fit for nutrition, yet their nutrition, growth, and reproduction, are carried on in just the same way: and it is not unreasonable to suppose, that if proper aliment could be immediately presented to the lacteals of the alimentary canal, and the nutrient fluid be aerated without the intervention of voluntary respiration, a man might live on even without a mind - a soul - (and indeed we have, at least almost, such an example, afforded us by foetal life)

Yet his would be a vegetable, a passive, an organic life. But so soon as you give to him a Mind, & a nervous System, by which that Mind, (as the Engineer by means of ropes & bands, puts in Motion & guides a Machine), May influence, and control the powers of his body, he becomes an active being, has, & gives Evidence of, animal life. Now, the instinct of Man, & the lower animals, being the same, & their animal life, being the same; And Man's instinct being Mind acting by intuition, & his animal life being organic life Modified by Mental force, we have here another argument, for the existence of Mind in inferior Animals.

"But," it is ask'd "if this instinct in animals, is in very fact Mind – a distinct immaterial Essence – Why is it incapable of progression? Why is it, that whilst Man is yearly adding fresh stores, to his already vast amount of Knowledge, his brother animals, Know no more than they did centuries ago?"

For this, there is very good reason. And in answering it, it may be ask'd, Are there not numbers of the human race capable of almost no acquirements whatever, altho' doting parents, & faithful teachers, may strive hard & long, to beat into their thick skulls a few grains of Knowledge? And, are there not others, who, more unfortunate still, manifest no intelligence at all? But who says there is nothing in them, but matter? Who denies to them, the boon of an immortal mind? Now suppose the whole human race composed of such beings, how high would have been man above the lower animals — how far his residence removed, from the woods & caves, the homes of the bear & wolf? how high would have been rear'd the beautiful superstructures of Science — And how full would have been the garners of Knowledge? Containing hardly enough, we may well suppose, to afford seed from one generation to another.

One cause, of a want of progression in animals, in some sort similar to, tho' infinitely less than, that in Man, (a sufficient, & it may be, the only cause too,) is the low order of their intellect — their weak reasoning powers; powers in man so exalted, as to give him complete dominion, not only over every beast of the field, & fowl of the air, but over the whole Earth, & even the Mighty Elements of Space. How often, do we see a force incapable of acting, because control'd by an inert, or a contrary power. Yet that force is not thereby annihilated, — does not the less continue to exist. The all-pervading, & universe-controlling force of Gravitation, is for a time over-come by the power of the puny arm of the urchin, who in sport, hurls the stone in air; and how many a fountain is there, for long centuries, hid beneath the Earth, which, if the superincumbent mass were removed, would burst forth, irrigating the parch'd fields, with its pure refreshing streams. — May it not be,

Nay is it not reasonable, that the animal mind, naturally so weak, with its reasoning powers so much controlled, as they are, by its passions, & appetites, & desires, is thereby prevented from a progressive improvement? And if, God like as the intellect of man is, there are many beings of the human race, capable of but the slightest improvement, & not a few of no improvement at all, is it strange, that in the climacteric creation of Deity, there should be races of intelligent beings, having faculties but for a limited degree of advancement, linking vegetable life with man, as man himself, stands midway, between earth & heaven?

Anatomy, so dear to the physician, as affording the very foundation & corner stone of the Medical science, does not leave us without a reason, to aid in the investigation of our subject. It demonstrates, from the simplest & lowest orders of animal existence, having a structure but little removed from that of plants, a gradual & beautiful progression,

wanting not one link, up to the complex organisation of the human frame. Now, does not the truest Analogy suggest, that as to Man is given the most beautiful & delicately organised physical frame, as he stands on the summit of creation in body, so should he stand in mind? That he occupies this mental Eminence, no one will deny:— yet the selfsame correct Analogy, that suggested & tended to confirm this truth, suggests, and tends to confirm the position, that all animals, have minds, & that their minds, are in degree proportionate to the complexness of their material organisation — that as Man, who stands at the head of creation, possesses the master mind, so those animals below him, have intellects suited to the grade they hold in the Scale of being. Candid observation too, confirms the truth of this Analogy: for we find that the various tribes of Simia, approaching nearest to man in their bodily appearance & structure, & having the brain proper, thro' whose functions are performed the phenomena of mind, strictly so call'd, most largely developed

& of all the inferior animals, the only ones, like him, capable of standing erect; have also an intelligence, in its capacity for improvement; nearest allied to the human mind.

Again, anatomy has demonstrated, the perfect identity of the nervous mass, in man & the lower animals; & has further shown the functions of the brain to be, perception, thought, sentiment, & volition or will, or, to speak more correctly, it is the medium thro which, are made evident & effective, these phenomena of mind. Now, that general law, with which we set out, & upon which is founded much of our argument, being true, - that like essences have like phenomena, & require the same conditions & substances, thro' which, to make evident these phenomena or manifestations, - it necessarily follows, that the brain of man and other animals, being precisely the same substance, is the medium, in both, of making evident the qualities of the same essence - the medium of the action of mind

Again, supposing for a moment, that animals never gave evidence of reason, yet the substance the medium of intelligent

manifestation, being in both identical, & animals possessing these faculties of mind, included under the terms perception, sentiment, & volition (which even the most sceptical have never denied them) does not reason say, they have thought also:- in other words, that having the same medium for the manifestation of their intelligence, thro' which are made known the phenomena of the human intellect, & possessing these powers of mind, they have the fourth also.

From all that has gone before, the conclusion clearly follows, that there exists in animals, something - call it instinct if you please - similar to, & differing only in degree from that which in man is called intellect. This being true, we are then inevitably forced into one of the three following beliefs: We must believe, either that all manifestations of mind, in man, as well as in inferior animals, are but the result of material organisation, & as a necessary consequence, that with the breaking down, & mouldering of the body back to dust, a gloomy, chill annihilation,

awaits us, thereby quenching the dearest and most cherish'd aspirations of the soul —: or, if we revolt from materialism, we must believe, that all intelligences are but scintillations from Deity, the great Central Mind of the Universe, and as such, will be reabsorbed into him at the death of the body:— or, if we reject too the doctrine of Pantheism, we are thrown back upon this last conclusion, when per force we must settle, that all animals have given them, by the Great God of the universe, immaterial essences according to their grade of being, and that upon man, his "Master work" he has bestowed an immortal soul —

An,
Inaugural Dissertation,
on the
Composition of the Blood
Submitted to the examination
of the
Provost, Regents, and Faculty of Physic,
of the
University of Maryland
for the degree
of
Doctor of Medicine,
by
J. B. Carlisle.

"The blood the animate principle of the human body springs from the great fountain which unceasingly undergoing changes both by respiration and nutrition is prepared for the performance of the duties of its office and then and there to be governed by many changes taking place in other organs
The composition of which will form the basis of this feeble effort.
The subject is one that has puzzled the greatest reasoning and research of the gigantic mind of an Andral. or Louis and much less is then to be expected from the puny intellect of a second course student, who has learned that but few ~~now~~ theories can be advanced which have never heretofore occupied the untiring and investigating mind of the skillful

The materials from which the blood is formed are the Lymph and Chyle. The Lymph yields the nutritive matter taken up from the intimate structure of the organism. The Chyle those matters absorbed from the alimentary canal. In the vertebrate animals the colour of the blood is red and also in some of the invertebrate though it is generally colourless in the invertebrate. The blood which is brought from the extremities to the heart by the venous circulation is of a dark red colour that which is brought from the Lungs to the heart by the pulmonic veins from thence to be sent through the aorta to be dis-tributed by the arteries throughout the gen-eral system is of a bright red colour. This change in colour takes place on the one hand in the Lungs and on the one

in the capillary system. The change of arterial to venous in the Capillaries and venous to arterial in the Lungs
To account for these changes there have been a great many theories advanced some of which bears absurdity to the utmost extent. In trying to account for these changes it is necessary to call forth some of the phenomina of respiration which is one of the chief agents in producing it. If respiration be interrupted in any way the blood returns from the lungs with its dark venous colour unchanged, while even after death of an animal if respiration be kept up artificialy the change in colour takes place as natural as before. It is also known that if we expose venous blood to the action of the atmosphere it absorbs a portion of the atmospheric oxygen and

becomes of a bright-red colour resembling that of arterial blood. We see that there is a change in the blood brought about by the respired air. Now does any change take place in the respired air. Dr. Black first observed that Carb. Acid gas was given out during respiration which is easily proven by the simple experiment of breathing into lime water through a tube the water will become turbid from the precipitation of Carb. Lime. Is there any portion of the respired lost. There have been many answers given and they all implyed that there was some lost. The average quantity of air taken in is about 40 cubic inches and in an ordinary sized man the lungs are capable of holding 280 cubic inches and by expiring freely he is able to throw out 70.80.

but by an ordinary respiration he throws out 40 cubic inches. In a minute he takes in 800. inches in an hour 4800 in a day 152,100. by weight amounting to 52 pounds a great portion of which he again throws out; but in a very different state from that when taken in. It loses a great portion of its oxygen and moves with the carb acid gas. But again to trace the changes in the blood. In the lungs the blood comes in contact with a delicate membrane not more than the 1/1000 part of an inch in thickness On the one side of this membrane we have the blood and on the opposite we have air. It is a well established fact that the animal membranes are easily penetrated by the gasses. The air then has access to the blood and several important

changes takes place in it. The colour is changed. the chyle disapears. And we have the appearance of Carb Acid and Water Now can these changes take place out of the body. We mentioned before that change in colour also the desappearance of oxygen and the formation of Carb. acid gas could take place out of the system But the disappearance of chyle cannot be produced What is the source of the carbon entering into the composition of the Carb. acid?
From some papers which were found after the death of Lavoisier it was ascertained that he had came to the conclusion that the venous blood arrived at the lungs charged with a large portion of Carbon & Hydrogen and then by means of the oxygen of the inspired air it forms two new compounds. Carb Acid. and Water and is again reanimated.

Afterwards it was supposed by Lagrange that the blood in the Lungs possessed the power of separating the oxygen and nitrogen of the inspired air and combining with the oxygen carried it along throughout the whole system and at the extremities of the arteries where the process of assimilation is going on Hydrogen and Carbon are generated and unite with the oxygen of the arterial blood and enter the venous blood in the of Carbonic acid and water which are taken to the lungs and then thrown out. Dr Mussey supposes the great difference between arterial and venous blood to be in the latter having so much more carbon The theory advanced by Dr Leubuscher does appear the most rational: he thinks the carbon is not only mixed in the blood but bound by chemical affinities which are not to be broken up simply by the weak attraction of oxygen at

this temperature. (There are many results which cannot be obtained by the opperation of one or two principles but may by the action of more, some results cannot be had by simple electric attraction but may by double as for example in formation of Pyroligneous acid and vinous fermentation)
The result we get here is not from the action of one or two but all the principles engaged remove any one and it is impossible to obtain a correct result. When I consider the character of the chyle says Dr Lee Butts and find it contains every principle necessary to every part of the system, we should take into consideration the power exerted by each principle,
The chyle disappearing when it arrives at the lungs shows that it here enters into other combinations. The venous blood arriving at

the lungs with a super abundante amount of Carbon which must be separated. But this cannot be done merely by the agency of the oxygen. Dr LeButts thinks that the carbon of the venous blood is in a state of Combination with a portion of Iron and that this Carburet of Iron is loosely Combined with the other con-stituents of the blood. This is followed to the lungs by the Phosphoric Acid of the Chyle the oxygen exercises its affinity for the Carbon and at the same time the Phosphoric Acid its affinity for the Iron, in this manner the Carburet is decomposed and Carb Acid formed and thrown out and a sub Phosphate of Iron which gives to the arterial blood its florid colour. This salt is only found in the arterial blood. The blood now goes on through the arteries to their extremities the point of assimilation and there deposits fibrin

bone and every other part that the waste of the system calls for The sub Phosphate of Iron is here decomposed the acid unites with the lime to form bone at the same moment there is an evolution of carbon which again combines with the Iron forming carbonat of Iron which gives the venous blood its dark colour and carried by it again to the Lungs

General Properties

The grand division of the blood is into Red Particles or Globules and Liquor Sanguinis The red particles are heavier than the Liquor Sanguinis. The temperature seldom varies from 98° Fah. The specific gravity of the blood varies from 1.053. to 1.059. In its ordinary state has a stiffy feel saltish taste and an alkaline reaction also a very faint and peculiar odor. Healthier Sangu

Blood drawn from the arm and suffered to stand for a few minutes soon becomes a gellatinous mass: but this slowly contracts and we have appearing a dull yellow fluid (The Serum) this fluid has a specific gravity of from 1.029 to 1.030 a saltish taste and in some animals a weak alkaline reaction The Serum holds in solution several animal matters among which we find albumen. This substance is coagulated by heat and some of the chemical agents. If we wash the red gellatinous mass we obtain a substance which has a white colour and fibrous texture called <u>Fibrine</u>. The clot is formed by the spontaneous solidification of this substance. The buffy coat of inflamitory is also produced by this substance the formation of which will be considered when we speak of it in detail

<u>Red Globules</u>. These globules which contain the colouring principle are merely suspended in

the blood and according to the opinion of the distinguished Müller they are distinct from the fibrine which is considered in a state of solution which can be demonstrated by beating the blood with a bundle of rods when we find all the globules intact in the colouridg liquid and films of fibrine hanging to the rods. Nothing certain can be said about the origin of the red globules, however it has been asserted that the Lymph globules are the cells which afterwards become the red particles of the blood in an early stage of formation. Something similar to the roundish cells of the Rete Mucosum which becomes the Epidermic scales. The diameter of the globules in man which are among the smallest is estimated between 1/70 and 1/500 of a line in diameter according to M. M. Lumas the large diameter is about 1/25 of a line according M Mandl 1/50

and it is highly probable that the opinion of the latter is the more correct, he having made the most recent experiments. The form of these bodies is very different in different animals in some animals they are circular in others eliptical and Gibert regards them as always being flattened whether eliptical or circular although there is a great deal of discrepancy on this point but there is no doubt of there being circular and flattened in the human subject. The flattening is said to be very great in both reptiles, birds, and fishes. There is in central portion of each particle a spot which maintains the form of the globule in which it happens to be placed it is circular in the circular and elliptical in the elliptical. Is this spot a central nucleus? Some authors positively deny it — as Blumenbach de Bainville, Weber, Wagner, Manal, and Donne,

others assert that it is a central nucleus among whom are. Müller. Ev. Home. Prevost and Dumas Those who deny the existence of a nucleus claim that the spot which is seen in the globule is merely coagulated fibrine. On the contrary Müller contends that the evidence of a nucleus has been amply proven with chemical characteristics essentialy different from the outer envelope in each of the red globules of the Frog and Salamander and as it has the same appearance in the globules of Birds and Fishes as in those of the Mammalia and it is stated by some that they have seen by the aid of a Microscope the nucleus in the blood particles of the Mammalia and say farther that they can even be seen in the particles of human blood. The analysis of this supposed nucleus has never been made out on account of there never having been sufficient quantity obtained

There is also but little known about the analysis of their envelope. The colouring matter of the red globules are Hematin and Cruorin.
The colouring matter can be obtained in solution by washing the crassamentum but cannot get it pure on account of the nuclei being suspended in the solution which necessarily must form a portion of the analysis.
<u>Liquor Sanguinis</u> This is the fluid which holds in suspension the red particles during life and when coagulation has taken place it separates into two substances <u>Fibrine and Serum</u> which were previously in solution in Liq. Sanguinis
<u>Serum</u> The serum is a lymphatic fluid almost inodorous saltish to the taste pellucid of a yellowish colour and plastic consistence It contains a large portion of water and in the higher animals has an alkaline reaction a specific gravity of from 1.027. 1.030.

Besides those already mentioned there is one other highly worthy of our consideration. The facility with which the air surrounding a vessel filled with blood passes through this liquid and spends its effects upon the coag-ulum. Whereas the same action of the air would be very much impeaded if not entirely prev-ented, if instead of the serum. the crassamentum was covered with any foreign liquid: as: water, Oil, &c or even any other fluid belonging to the body, as: Milk. Saliva. Urine — Prevost and Dumas gives a table from which it may be seen that in the serum from human blood about one tenth part by weight consists of solid ingredients in solution. The proportion of the solid parts of the crassamentum to those of the serum is about 3 to 2. The animal matters of serum according to Lymelin are, Saliva. Casein. Albumen.

Osmasome and Lactic Acid <u>Fibrin</u>. The fibrin the other constituent of the Liquor Sanguinis is so styled because it concretes in fibers and is found to be the most abrinalized portion of the vital fluid in which it is contained. The fibrin is found in the coagulum and can be obtained by beating or agitating it with the fingers or a bundle of rods when first taken from the arm. This substance resembles muscular fibre in every respect with the exception of colour and we have in this respect a very singular circumstance, this difference between a fluid and a solid between an organized substance and matter in its natural state or form. The basis of the crassamentum which is the fibrin appears to be a white elastic substance more heavy than serum insoluable in water and alcohol and contains a large proportion of azote.

Fresh fibrin wet with acetic acid soon forms a transparent mass which is dissolved by water. It is owing to the spontaneous solidification of the fibrin that coagulation is brought about and this spontaneous solidification always takes place only under the influence of living surfaces. In all cases where the blood coagulates more tardily than usual the red particles sink and there is left at the top or surface a fluid which after coagulation forms the white crust which takes the appellation of "Buffy Coat." and the remainder of the blood maintains its natural red colour. The cause of the buffy coat has long been dwelt upon There is a well established fact that we generally find it upon inflammatory blood and it is highly probable that inflammatory blood owing to some heterogeneity of some of its constituents coagulates more tardily than

healthy blood, Now if such be the case it explains in some measure the cause of the buffy coat for we well know that if coagulation is taking place slowly the more time have red particles to subside before coagulation of the fibrin. So that we might suppose the principle causes of the buffy coat in inflammatory blood is its slow coagulation and ~~and~~ the increased amount of fibrin it contains. Lymph Corpuscles The existence of these corpuscles have long been known in the lower vertebrata. They being so much smaller than the red corpuscles were easily recognised and through the researches of the distinguished Gulliver and Addison they have been recognised in human blood. We mentioned whilst speaking of the red corpuscles the great variation in size in the different vertebrata but on the contrary with the colourless corpuscles we find them maintaining a pretty constant

size throughout the whole series of vertebrata their diameter seldom being much greater or much less than 1-3000 of an inch. The circulation of these globules is rather peculiar when ever one of them circulating with the general current of the blood comes in contact with the wall of the vessel it either retards its progress or sticks fast and remains so until the current removes it again also the greater number appear to move along the side whilst the red particles pass rapidly along the centre of the vessel; and frequently the lymph globules appear to stop up the passage of a capillary vessel and as a consequence prevent the red particles from entering but finaly they all re enter the general current of the blood again

These phenomena were first noticed by M. Poiseville:

Qed.