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An essay on inflammation, humbly  
submitted to the President, Board of  
Trustees, and Medical Faculty of the  
University of Nashville, for the degree  
of Doctor of Medicine, by Albert  
Thaddeus Tipford of Florida, January  
the 30<sup>th</sup> 1857.

The following pages with all the imperfections that may present themselves, is dedicated to the Medical Faculty of the University of Nashville, both, as a token of my highest regard as gentlemen and instructors, and as a duty devolving on the student, trusting all inaccuracies may be overlooked, it is submitted.

# Inflammation

is chosen  
as the subject of my Thesis because  
of the frequency of its occurrence,  
and a subject calling on the  
Physician as well as the Surgeon,  
and as yet it is a theme which  
challenges Physicians, and would be  
Theorist in awe. The mind of  
every Physician has pondered upon it,  
and every Theorist has gone on  
trod in the wide and  
inviting field of inflammation,  
and each have returned and  
laid their trophies at the foot  
of the Medical altar, there to  
stand awhile and then sink  
into insignificance. Theories  
have thus risen and fallen

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in rapid succession for past hun-  
dreds of years; each having the  
support of warm and able  
votaries. Well might the medi-  
cal nerve be strung to pry in-  
to this devastating yet beauti-  
ful phenomenon. What has  
greater claims to the assiduous  
investigation of the medical  
world than this? For, there is no  
disease that claims man as  
its host of destruction, that is  
not attended by inflammation,  
with "torch in hand" to light its  
originator to a destructive focus.  
Inflammation is truly a fire  
abounding in counsels and wraiths.  
How many noble minds have  
gone into it, upon the highest peaks



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and lowest valleys, and there  
laboured hard and long to  
extract from their hidden  
treasures true theories to place  
before the investigating eye  
of a critical world. But ah!  
soon some brighter star comes  
in train, and with its light  
eclipses our neighbors great  
and only least; and thus  
they after they fade away,  
as do the flowers of summer,  
before the withering blasts of  
winter; and we of the present  
age can only take in turn  
all that has been "accumula-  
ted out of the wrecks of former  
systems" and derive there-  
from the best proven

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Points, combine them together  
and thus assume a theory  
more probably true.

Inflammation is a disease of  
the capillary system.

It behoves me at this point  
to give some of the most prom-  
inent theories before the  
medical profession. In the  
first place, I shall mention  
that of Boerhaave, which is  
old, yet not entirely overturned  
by the investigation of more  
modern times, and in which  
there are truths insusceptible,  
even in this old theory, to the  
acumen of the nineteenth century;  
which supposes that inflom-  
ation consist essentially in

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"an obstructed state of the  
Capillaries of the affected  
part, produced by some  
morbid texture of the blood,  
or by the entrance of red glob-  
ules of blood, into vessels not  
fitted for their conveyance  
This theory rests, on the belief  
that the sanguiferous particles  
are remarkably complicated  
in their structure, to wit, each  
red one consisting of six serous,  
and each serous of as many  
lymphatics, for the conveyance  
of which, three kinds of tub-  
ules, were imagined, as channels  
of communication, between the  
arteries and veins, and by  
these different structures of



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the circulating mass, getting in-  
to a wrong vessel, might easily  
produce inflammation, by the  
obstruction of the canal.

Cullen conceived the idea  
that inflammation was merely  
a spasmodic contraction of  
the small vessels, interrupting  
the passage of the blood.

This accident, he supposes, to be  
sometimes the effect of direct  
obility; And he imagined,  
moreover, that there was fre-  
quently a peculiar condition,  
which received from him,  
the name *Phlogistica diathesis*  
and which he thinks is pro-  
ductive of inflammatory  
action. Another was that ad-



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derived by Bocca, an Italian  
who maintained the belief,  
that inflammation invariably  
results from "Sanguine-  
ous, congestion, attended by  
more or less debility of the  
affected part." This step in  
the process, is relaxation of  
the Capillaries, which allows  
them to be enormously distend-  
ed, by the passage of the blood  
through them in undue  
proportions, and to this in-  
crease quantity of blood, he  
ascribes "pain, heat, swelling  
and redness," which are al-  
ways more distinctly marked,  
in proportion to the dilatation  
of the minute arteries and

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vins, the violence of the exci-  
ting cause, and the natural  
vasculerity of the part affected,  
Since the time of Boerhaave, the  
theory of diminished power  
of the vessels, has been warmly  
advocated by some distin-  
guished pathologists, The exper-  
iments of whom tend to show  
that inflammation consist es-  
sentially in weakened ac-  
tion of the capillaries, by which  
the coherence between them and  
the large vessels is lost, and  
congestion is the result. Other  
pathologists oppose these views,  
and adopt the belief that  
the primary cause of this dis-  
ease, consist in an increased

action of the vessels. And right  
 between these latter two theories,  
 I set up my flag, deducing  
 from the one and adding  
 to the other, thus forming  
 from the limited informa-  
 tion I have on the subject  
 the most plausible theory  
 There must be an exciting  
 cause, either direct or indi-  
 rect, this cause being ap-  
 plied to the nerves of the  
 part, a new or irregular  
 action is superinduced in the  
 action of the capillaries of the  
 part implicated, this action  
 is an increased one, as is ex-  
 plified, by imitating the web  
 of the frog foot, immediat-



By upon the application of the  
 irritation, the Blood is even  
 thrown into violent commotion  
 this last for a certain length of  
 time, and then debility en-  
 sues, in the capillaries themselves,  
 while the action in the large  
 vessels leading to the affected  
 part, is not retarded, but seem-  
 ingly is increased, accompanied  
 by congestion of the extreme  
 vessels, as an inevitable conse-  
 quence, being in the first  
 place engorged by the blood  
 invited to the part by the  
 irritation, by virtue of the aug-  
 mented action, it devotes up-  
 on them, acting as its direct  
 stimulus to the muscular

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coats of these attenuated vessels,  
and next distended. Because  
of the debility into which  
they have been induced, by  
their previous distension, con-  
sequent upon the irritating  
cause; these changes take place  
in such rapid succession, that  
they seem to occur simultane-  
ously. A change in the sensibility and  
irritability of the capillary system  
would seem essential to the  
production or existence of in-  
flammation; for when the vi-  
tal properties remain in their  
normal condition; preternat-  
ural determination to a part,  
does not constitute disease,  
but mere flushing of the

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Part, as is often seen in the act  
of blushing—merely "determination",  
and not disease unless there be  
stasis of blood in the part, which  
is nothing <sup>more</sup> than the entrance  
of more blood by the arteries  
than can be carried off by the  
veins. And congestion may occur,  
and no serious change in the  
part, take place, as manifested  
in erection of the penis, and  
mammary, in the first instance  
what might be called a  
Physiological action, and in the  
latter, action produce by Irrita-  
tion in the part. Therefore a  
Pathological result. Therefore  
we see that irritation is  
the precedent of inflammation



invariably. Then as irritation is the first cause of inflammation, as we have before stated, the violence of the inflammation will be proportionate to the intensity of the irritation, which may be of various forms, agreeing in all cases, in regard to its severity, with the instrument of its induction. The blood that is at first invited to the part, because of the irritating cause, which must wound the delicate coats of the vessels; then this is another source of inflammation, being as efficient in the maintenance of inflammation.

time as is the primitive cause  
in its production. The thing  
of Boverhave originated when the  
minds of men could be swayed  
by ingenious Hypothesis, more  
than can be <sup>now</sup> effected by well  
established facts. But Boverhave  
without rudder to guide him  
through the illimitable ocean,  
that opened out before  
him, Lurches out on its  
stilly and unfathomable  
depth; And thus encircled  
his name with a "halo of  
glory" to the latest posterity  
yet some may say, those were  
the days in which "Hypothesis lux  
urians in its wildest exuberance.  
But now the eyes of her empire has

gone by, and rational induction  
 is now the only path by which  
 the votary of science, presses forward  
 to conquest in the fields of  
 knowledge. Cullen's theory has  
 been entirely overthrown. No  
 doubt, and in fact, the capillaries  
 are at first contracted, but  
 Cullen seems to have thought  
 that they remained so, for he  
 says "that inflammation is  
 simply spasmodic contraction of  
 the capillaries," he contradicts  
 himself, in his own words,  
 in these words, "that this con-  
 traction is due to direct debility"  
 Now my understanding of de-  
 bility, is want of tone, which  
 is relaxation, and if my



conception be correct.} it would  
 be rather straining to a mans  
 imagination, to see how any-  
 thing could be contracted  
 and relaxed at the same time  
 I agree, they was correct as far  
 as it went.

In the next place, the causes  
 of inflammation will be no-  
 ticed, which may be divided  
 into exciting and Predispo-  
 sing. Among the Predisposing  
 causes, (as it seems most natu-  
 ral to consider these first) may  
 be enumerated, a debilitated or  
 augmented condition of the vital  
 properties, among which, Fatigue  
 may be mentioned (as one a-  
 mong the most prolific of this

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class; this brings about the condi-  
tion, appellation by Celsus "Phlo-  
gistic diathesis". The exciting  
causes, are the agents, that de-  
termine the blood to a partic-  
ular part; the effects of this  
determination, being regulated  
by the previous condition of  
the patient. It would be  
useful to mention all the  
agents acting in <sup>this</sup> manner. Hence  
I at once turn to the symptoms  
by which inflammation is recog-  
nised; the principles of which  
have been handed down  
from the days of antiquity  
which as are enumerated by  
Celsus, four, "rubor et tumor  
cum calore et dolore" yet neither

are unequivocal. When there is much inflammation, there is always more or less disturbance of the circulating system, which is manifested by full - hard and bounding pulse, and generally more or less disturbance of the cerebral system. There is what is termed buffy coat on the blood after venesection. The blood is hyperfibrinated. The above are the principal diagnostic marks. The terminations of this disease, as mentioned by most authors, are four, to wit resolution, suppuration, ulceration and mortification, to these



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some, add. effusion of serum, me-  
tastasis &c. But it would appear  
that resolution is the only ter-  
mination, to this might be  
added cicatrization, all the  
others being the results; it is  
true that metastasis is a ter-  
mination of inflammation  
in the part, but might be  
~~termed~~ with equal propriety  
be denominated an origin, there  
is a mere translation to another  
part. The treatment of in-  
flammation is variable in ac-  
cordance with the degree or  
character of the inflammation  
where it is of an acute form  
we should resort to proper dietetic  
regulations, and if this does not suf-

Five. Purgation is one among  
 our efficient remedies. Cal-  
 omel or Blue Mass. is generally  
 selected because of its de-  
 fibrinating quality. Next and  
 lastly venesection, which is one  
 of our most powerful reme-  
 dies, in cases attended by  
 inflammatory action, Clembi-  
 nip should in all cases be  
 observed, with such topical  
 applications as may seem  
 indicated. In cases where  
 the inflammatory action is  
 of an indolent character  
 we should convert the ulcer  
 into a "Healthy one", or change  
 at least its character; this is  
 accomplished by the application

of stimuli, and nutritious diet,  
with such general principles, all  
sorts of inflammations can  
be successfully combated, with  
such other deviations as each  
case may present,