AN INAUGURAL DISSERTATION
ON
Inflammation.

SUBMITTED TO THE
PRESIDENT, BOARD OF TRUSTEES, AND MEDICAL FACULTY
OF THE
University of Nashville,
FOR THE DEGREE OF
DOCTOR OF MEDICINE.

BY
George W. Key

OF
Morgan Co., Alabama.

1855.
W. T. BERRY & CO.,
BOOKSELLERS AND STATIONERS,
NASHVILLE, TENN.
To Paul H. Ems, M. D.
Prof. of Surgery in the University of Nashville, etc.
The merit of whose scientific and professional reputation
is only equalled by
the ability and worth of his colleagues,
who with him have made this college.
Lastly, the great medical light of the South,
this humble dissertation
is affectionately inscribed by
George W. Key.
Inflammation.

The definition of inflammation varies according to the opinions of different authors. That of Miller seems to be the most acceptable of any that has been given. With him Inflammation is defined to be "a perturbed condition of the blood, and blood vessels of a part, intercepting its healthy function, and changing its normal structure." And it is ordinarily accompanied with redness, pain, heat, and swelling. In the progress of inflammation, the first phenomenon which is observed is that of increased vascular excitement in the parts involved. On the first applica-
tion of an insistant to a part of the economy, it excites an influence, first, directly on the sentient extremities of the nerves of the part, producing a centre of imitation, and thereby a preternatural flow of blood to the part.

The capillary system of bloodvessels being endowed with the vital properties of irritability and contractility, when an insistent is applied to a part, their normal action is increased above that which is compatible with a regular performance of that healthy function which is necessary to the well being of the economy. And after an indefinite period of time, if the exciting cause continue, exerting its detrimental influence upon the implicated tissues, the vital endowment of the capillaries will be so far destroyed that
they will no longer offer any resistance to
the blood’s constantly irritation influence.
In consequence of this over-stirred condi-
tion of the capillaries their irritability
and contractility are wasted, so that par-
alysis of the minute vessels is invariably the
result, followed by congestion.
True inflammation comes on most in the
order of phenomena; characterized by red-
ness, pain, heat, and swelling. It is ac-
compained, also, by most or less constitutional
disturbance.

Redness—The first symptoms in this ab-
normal condition, which I shall notice is
that of redness. This phenomenon of inflam-
mation is produced by an increased flow
of blood to the capillaries of the inflamed
organ or tissue, together with a large amount
of red corpuscles clustering together in the di-
Swelling—This is the result of an extravasation of serum, lymph, and blood in the meshes of the surrounding cellular structure. Its extent varies with the nature of the structure in which it is situated—generally greater in the cellular and mucous structures, than that of the serous and fibrous.

Pain—This is a symptom of considerable importance to both the patient and the physician. To the patient, first, on account of the amount of suffering which it inflicts. Secondly, it furnishes, a valuable index to the dangers which may be awaiting him. For without this preliminary symptom, dangerous and perhaps fatal disorganization might ensue, without his being aware of what disaster was going
on in his system. But, even as well as in all other departments of human interest, Providence has made ample provision for man, to secure his safety and happiness. To the physician, pain in an inflamed part is of interest because it directs his attention to the seat of disease, so as to enable him to come to a true diagnosis of the case.

The pain of an inflamed organ or tissue differs in character according to the kind of tissue in which it is situated. In serous membranes the pain is of a sharp and lancinating character; in fibrous tissues it resembles more or less of the same nature of that sustained by serous membranes. In the cellular tissues and mucous membranes, the pain is of an active kind. For instance, where the internal coat of the
bowels is inflamed the pain is burning, or scalding, when that of the mouth—as in stomatitis—the patient complains of a burning or scalding sensation.

Hence, by understanding the nature of the different tissues of the human system, the Medical man is the better prepared to diagnose and treat the different diseases he may have entrusted to his care and skill. And, indeed, without this knowledge many of the most common disturbances would scour through hapless families unchecked, while the victims of its rage would be doomed to hopeless mortal maim.

The different events of inflammation are eight in number. viz.; Effusion, Suppuration, Granulation, Necrization, Ulceration, Adhesion, Resolution,
and Modification.

Effusion.—This is the first result of inflammation, and is the product of a low state of vascular excitement. The effusion exudes through the pores of the capillaries with considerable facility, being chiefly composed from the watery portion of the blood. The swelling from effusion of serum is known from that caused by other products of inflammation by sitting upon it or pressing.

Adhesion.—This characterizes a higher degree of inflammatory action than effusion. The fluid or lymph of the blood being effused in the surrounding cellular tissue, it becomes organized, thereby filling up the cells of the parts. Hence arises the induration which accompanies almost all true inflammation.
Granulation. This is a process, which nature, always eager to repair her injuries, has set up for the purpose of restoring the wrongs she has sustained, from an undue amount of vascular excitement, causing a solution of continuity of the soft parts. This process will be healthy or unhealthy according as the system is normal or otherwise.

Scleratization, an other result of inflammation, is the return of the tissues to their original healthy functions, by the complete restoration of their lost parts. When a wound is thus healed the cicatrix is more liable to take on disease than is the original skin. Therefore we see proliferation taking place, more or less frequently, owing to the fulee organization of the newly formed tissue.
Ulceration is supposed to be the disintegration, or molecular death of a part. It may also be defined to be a solution of continuity in the soft parts, produced by a mechanical injury, or it may supervene without any assignable cause. We most commonly see it in those individuals of debilitated constitutions, produced by grief, anxiety, or hereditary taint of system. The parts of the body most subject to this diseased process are those that have the least vitality, such as the upper and lower extremities. The anterior part of the Tibia is the most liable of these to take on the disease. In them the circulation is slow and tardy, owing to their being at a greater distance from the centre of the circulation, and also to their dependent position.
Suppuration. Here we have the complete destruction of the inflamed parts in consequence of the high inflammatory action to which the parts are exposed. This process announces the termination of the inflammation.

Some Pathologists suppose that this suppuration is a secretory process of the capillaries. Now, I insist, that if this be correct it is an exception to the constant law which governs all other secretory organs and secretions. For it is an established fact that appropriate organs have assigned to them the duty of secreting urine, and bile, and other secretions of the economy, known to the various types in physiology; and it is further known that in order to due amount and kind of these secretions,
the individual organs must be in a normal condition. But being the product of diseased action, it seems to me to be an unphysiological conclusion to suppose that it is secreted from healthy blood. I would, with all due deference to others, ask if it is not a more plausible theory of the formation of pus, to regard it as a decomposition of the tissues that are involved in the inflammatory action? Dr. Graff regards the cyst that forms the boundary between the pus and surrounding healthy tissues, to be the membrane that secretes the matter found in an abscess. But to him I reply, by asking, if when this abscess is formed, the inflammation is not less than before? The cyst seems to be formed by the decomposition of the part exposed to the highest degree of inflammatory...
action. The central parts, having lost their vitality, press on the surrounding cellular tissue, thereby condensing them into one solid mass by obliterating their cells.

The character of pus varies according to the nature of the diseased action, partaking, too, generally of the condition of the constitution.

It is said to be ichorous, fetid, sanious, healthy, or laudable. The discharge is ichorous when thin, watery, and acid. Sanious when mixed with serum and blood. Laudable, or healthful, when of a straw color, and inodorous, having a sweetish taste, and of the consistence of cream.

The symptoms which characterize suppuration situated externally are the sudden cessation of pain, a throbbing sensation, and fluctuation on percussion. When the suppuration is situated in some internal organ, we have in addition to the symptoms
just mentioned, others which are denominated constitutional. Such as rigor alternating with flushes of heat over different parts of the body. Prostration, sooner or later, sets in attended with a low form of fever denominated hectic. There is a tendency in this fever to decline towards morning, and exacerbation in the evening. Towards the close of the disease there is a tendency to profuse colligative sweats, hiccup and finally death from exhaustion of the vital powers of the system.

Inflammation according to its duration is divided into acute and chronic. It is said to be acute when it runs its course rapidly, and is of a short duration. And it is chronic when it does not terminate in the usual manner. And it may be smashed just here, that there are varieties of this dis-
ease which set out with the chronic form. This is seen in the irritation accompanying tubercular deposition, and some forms of uncomplicated pneumonitis. Chronic inflammation may run its course in a few weeks or it may protract its course to months, or even years.

Inflammation may terminate in three different ways: 1, in resolution; 2, in mortification; 3, in metastasis.

Resolution is the most favorable termination. It is the subsidence of the inflammatory action upon a part, without leaving any traces of its effects behind, except a slight induration. In other words, the return of the parts to their healthy condition.

Mortification. This is defined by most writers to be the complete death of the tissues
implicated in the inflammatory process. This condition may be known by the parts having a
dark, livid appearance. Blisters or vesicles
form under the cuticle, containing thin fetid
serum. Accompanying these symptoms we
have a tumultuous, quick pulse, which par-
takes more or less of the typhoid character; a
dry and brown tongue, a hot skin, restlessness
and anxiety; and sometimes there are ama-
sia, hiccup, subsititus and delirium. Nature,
always true to herself, soon sets up a process
for the separation of her injuries, by forming
a red line of demarcation between the sound
and the dead parts. This process most Patholo-
gists call ulcerative absorption. It will be more
or less rapid and complete, in its prog-
ress and destruction, according to the nor-
mal or abnormal condition of the sys-
tem.
Metastasis.- In this we have an unfavorable termination of the disease. This is often seen in the unsuspicious results of the streptococcus disease. When this supervenes, we look upon it as an unsuspicious termination, because the disease has passed from the surface to vital organs within, the enemy has broke through the outwork of defence and is making battle within the walls of the citadel.

Causes.- The causes of inflammation may be divided into two leading classes; namely, exciting and predisposing.

The latter causes include the sanguine temperament, excitability, excess in food, drink, or undue exertion; v mindedness, impute food, corrupt air, tainted or unsound diet, inadequate clothing, &c. Others ought to be mentioned, but they are alike with these idiopathic and constitutional.
The former causes, according to this division, may be subdivided into direct, indirect, and specific. The first class is of a chemical or mechanical kind, such as those effects produced by salts, acids, &c. The second class is vital, such as cold and heat, turpentine and cantharides. And the third, the specific kind, are such as poisons inoculated or vaccinated into the economy.

Treatment. The treatment for inflammation may be divided into local and constitutional. The local—The first indication in all inflammation is to remove if possible the exciting cause, whatever it may be. For instance, if the eye has become inflamed from the effect of light, light should be excluded from that affected organ. So if all undue, or unnatural stimulants when they are acting upon an organ, or tissue. Af-
ten the exciting cause has been removed, and there still remains in the part any vascular effusion, we may combat it with cold water. Cold applied long enough is an admirable remedy to reduce vascular effusion. It acts most beneficially, by diminishing the irritation which has been set up, lessening the quantity of heat, and by causing the capillary vessels to contract, so as to lessen the amount of blood in them. If this treatment should fail, which will seldom be the case, we then adopt other means; such as cups, leeches, punctures, &c. over the seat of disease.

In addition to the remedies already mentioned, we would effect considerable benefit from rest and position, solution of sugar of lead, and munate
of amonia, in the early stages. In some high grades of inflammation, moist-
ness and warmth are quite pleasant to some patients by relieving tension
and diminishing pain. We sometimes, too, use nitrate of silver, and
iodine with marked advantage. These exert great antiphlogistic power.

Constitutional treatment. This is of a more extensive character, and emba-
rees many of the remedies which we sometimes apply locally. This class of

treatment varies according to the in-
tensity of the inflammation, and
the age and constitution of the pa-
tient. If the inflammation, or inflam-
amatory action be of a chronic charac-
ter, the patient robust, the skin hot
and dry, with a strong and bounding
pulse, we should bleed the patient in an erect position, by making a large orifice in the vein, allowing the blood to flow until there is an approach to syncope.

Carbon is an excellent auxiliary to resection, and should be followed by saline purgatives. Refervoir diaphoritics should also be administered through the day so as to produce gentle diaphoritio. These remedies are advantageously by equalizing the circulating, and at the same time they diminish the excessive heat of the whole surface of the economy.

Distinctly, also, an valuable remedies in the treatment of inflammation. They are particularly indicated when the urine is scanty and
high colored. They depurate the system, act as purgatives, and carry off the effete matter from the blood.

In addition to these constitutional remedies, we may expect considerable advantage from opium, tincture of cinchona, and antimonial preparations, all of which are admirable remedies for reducing the action of the heart and arteries. Should the patient be debilitated from the commencement of the disease, or be brought to this condition by the exhausting effects of the disease itself, we should endeavor to support him by administering appropriate stimulants. But such a state should be fully made out before we resort to such stimulation, lest we unnecessarily excite the vascular system; and when made out
we should not fail to resort to such sup- 
porting medication, for it is but too often 
that patients sink to the tombs from the 
neglect of these preservative means.

Without pushing these observations fur-
ther, I only shall add, that with this 
proposed diagnosis, and treatment, I 
should expect to relieve my patient.

But whether it would kill so cure, I 
submit it as my Inaugural Dissertation, 
to the enlightened judgement of the 
honorable President and Faculty of the 
Medical College of the Nashville Uni-
versity.