AN INaugural Dissertation
on
Vegetation.

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By
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The great and transcendent importance of
sanguination was known and had recourse to
by the earliest physicians. They employed it
with the greatest freedom in diseases of
an unmistakable inflammatory character, as
although they were entirely ignorant of
the circulation yet they had learned from
experience the great benefits resulting
from sanguinous depletion.

Hippocrates has spoken extensively on
bloodletting, and Celsus in attacks of per-
litential fever calls blood-letting "optimum
remedium." Galen was much addicted to
this powerful remedy, and transcended the
bounds of its practical applicability as
taught by his immortal master Hippocrates.
Through the revolving centuries which
have elapsed since the time of this cele-
brated author amidst the mutations of
the Arabian, Egyptian, and European schools
of medicine blood-letting has maintained
an almost undiminished popularity as
the first and most effective cure in many
forms of disease. And is it of less
importance in our diseases of the nineteenth
century? As Sirs. Empirica has placed its highest
and most enduring signature upon the
great and varied beneficial results which
arise from the use of sanguineous evacuations
in morbid actions of a diversified character.
Two of the most fatal, and general ge-
neric divisions of disease are in an
especial manner amenable to the cura-
tive power of this remedy. Fire and in-
flammation assume many forms, and in
most of these forms bleeding as a topical
or general evacuant is required.
Many of our most eminent practitioners
have made egregious blunders in the use
of this great remedial agent in the treat-
ment of disease as well as the use of
other therapeutical agents. It was truly said
by an eminent poet, "Man's inhumanity
to man has made countless millions moan,
and surely ignorance of palpable facts, which
I think indirectly speaking is inhumanity, to
while the great part must have had in his immo-
ternal mind when he penned the above sentence. This
sentiment has saved thousands and tens of thousands to an
unnatural and premature death. To be igno-
rant that of many things is tantamount
to being inhuman; for the great majority of
mankind are more ignorant than they shou-
ld be, or would of necessity have been had they adapt-
ed a course of unmitigated study and re-
search, especially in this enlightened age and
countryside where the glorious light of truth shines
resplendent as the summer midsay sun of the
consecrations of the ignited diamond punctu-
ing every dark and hidden corner.

Although bleeding is appropriately designated the
chief anchor in many inflammatory diseases for
it has often been known suddenly to arrest the
onward march of a severe attack, and release the
energies of life from the controlling dominion of
a disease which threatened soon to terminate exis-
tence; yet by an injudicious use of this great
weapon of medical warfare one may augment
so farful extent the incords of disease, and
precipitate our patient beyond recovery into a fatal prostration of vital power.

We shall confine ourselves principally to the physiological and therapeutical effects of blood-letting.

What are the immediate effects of loss of blood in health? To arrive at a correct conclusion on the effects produced by the abstraction of blood from the system we should distinguish between the results arising from the mode in which the evacuation is effected. A small depletion or small quantity of blood taken from the system effects a comparatively insensible impression. An interruption of activity in the controlling function of life is produced by the gradual abstraction of large quantities of blood from a hemorrhoidal disorder. Frequent small bleedings from the arm do not debilitate in any degree like one copious effusion from the circulating fluid.

One great physiological truth of repeated small bleedings in health is to increase rather than diminish a phlegmic condition of the vascular systems. When blood is evacuated to a certain extent so as not to materially or seri-

sibly disturbs any of the more important
functions of life, the appetite for food is
observed to be increased, with an equal
improvement in the process of digestion
and assimilation: so that the body is evi-
dently better nourished afterwards, and the loss
it has sustained is speedily compensated.
This is known to the ignorant butchers, who
enjoying themselves of the advantages derivable
from small and repeated abstractions of blood
are known to prepare their calves for the slaugh-
ter by repeated bleedings. What is the ra-
tional of this mode of procedure?
A subdued and calm state of the circula-
tion is thus induced, and the loss by secre-
tion and exhalation being reduced, greater com-
penancy results from the deposition of adi-
pose matter into the appropriate industries
of the body. When six or eight ounces of
blood are abstracted from a person in good health
possessed of a vigorous constitution, and the or-
ifice through which the evacuation is made is
of moderate size no perceptible effects follow.
There is indeed a slight lassitude and a more alert condition of the intellectual powers by a moderate loss of blood. This excited state of the sensuous energies from abstraction of blood is witnessed in a prominent light when a considerable quantity is lost in a short time. Delirium will then arise or convulsions will be the result. Where sixteen or eighteen ounces of blood are abstracted quickly and the patient is in the erect posture, feelings of mental exhaustion come on—The pulse becomes slow and then imperceptible. The countenance has a blanched appearance. The breathing slows and accompanied by deep sighs, cold drops of sweat roll down the cheeks. The eyes have a glassy look, and Syncope closes the scene. If left in an erect posture the individual may never recover from this syncopeal state. Convulsion may come on and continue for sometime till the restorative efforts of nature triumph over this violent disturbance of the nervous function.
Subsequent exhaustion from loss of blood to any amount may persist for sometime, the individual being troubled by a train of most distressing symptoms, such as palpitations, muscular trembling, sense of sinking, and loss of sleep with throbbing of the carotid arteries. The phenomena of animals bled to death are familiar to all. It is observed to become weak and uncertain in its attitude, and if it attempts to walk it staggers and falls. This state is soon succeeded by convulsions which in death from hemorrhage always precedes dissolution. The rational of these phenomena would appear to be as follows: as the blood flows from the vessels the great nervous centres cease to receive that supply which is requisite for the due performance of their function; hence the proper amount of energy is no longer transmitted to the muscles; their contraction cannot be energetically maintained; alternate contractions and relaxations occur in the form of tremor.
If the flow of blood continues there is not enough of nervous influence transmitted to keep the extensors in a state of contraction; the animal now falls and unless the hemorrhage be immediately arrested death will be the inevitable consequence.

Whenever the vital fluid is lost beyond a certain amount, and in particular habits this amount need not necessarily be large, a series of symptoms are apt to present themselves which are of a nervous kind, dependent upon a loss of balance between the nervous and sanguineous systems. Massive hemorrhage affords an excellent example of great loss of blood in the human subject although too many cases of mischief occur from the least of the ignoramuses. When the blood is discharged to an inordinate amount from the veins a feeling of faintness is experienced, impaired vision and defective audition in the form of tinnitus aurium or other unusual noises occur; if hemorrhage be not arrested fatal syncope ensues, generally preceded by more or less convulsive movements.
If the woman ever does recover it rarely happens that the restoration is effected without symptoms presenting themselves which are referable to the efforts produced by the loss of blood on the nervous system. It often happens that there is presented a stumbling block to the young practitioner in such cases for in the course of a few hours, although the female to all appearances may have been auspicious she may be found complaining of violent headache, suffused face, with throbbing of the temporal and carotid arteries. Yet the symptoms are not referable to a state of the blood that for their blood-litting is capable of remedying. A further abstraction of blood would unequivocally add to the existing pathological condition. Whether the state of reaction be one asthnia or asthnia is difficult to determine. An instance is when a man by had been unattended he was found next morning almost auspicious from the giving way of an artery. In a few hours he wasseen by an experienced colleague in a state of reaction who was unacquainted with a history of the case, and who so soon as he had placed his hand upon the pulse enquired why the surgeon did not bleed him.
Those who understand rightly the physiology of the blood in a normal condition of the organism, will nearly suspect the occurrence of disease when the relative proportion of its constituents elements are changed, and this change in the blood may originate from some local disease of the organism, and they can then readily comprehend the necessity of treatment in certain forms of disease.

Blood letting cures or pathetics disease in the following ways, first by its antient influence, second by an actual diminution in the circulating mass, thus diminishing the general movement of the circulating blood fluid, and removing irregular determinations and local accumulations; third by the positive impression imparted to the nervous system, and fourth by modifying the state of the blood.

The great Rush thus speaks of repeated small bleedings in chronic diseases of an inflammatory type. We shall quote his languageverbatim. We use mercury, antimony and diet drinks as alternatives in many diseases with advantage. We do not expect to remove disability by two or three immersions in a cold bath. We persist with patience in pre-
relying the above remedies for month and years before we expect to reap the full benefits of them. Why should not blood letting be used in the same way and have the same chance of doing good? I have long adopted the alternative mode of using it, and I can now look around me and with pleasure behold a number of persons of both sexes who owe their lives to it. In many cases I have prescribed it once in two or three months for several years and in others every two weeks for several months with manifest advantage. What is the modern current of small bleedings? The persistence of a modic action of a subsante inflammatory character, depends upon an increased general momentum of the circulation of relative failure creating effective local accumulation. Small bleedings in either of the above vascular conditions of the vascular system effect much good by tranquilizing the excited action of the heart, and relaxing the organ or part diseased of the excessive quantity of blood thrown upon its vitable structure. There is no disturbance of the functions in small bleedings and the strength of the patient is not lowered and the reaction is
is hardly susceptible. The therapeutical effects of a copious depletion of blood is great reduction of the heart's action caused by a removal of the appropriate stimuli and a diminished power of the nervous system with a revolutionary impression, which is subservient of the existing modified action.

We have stated above that blood-letting cures or palliates disease by a reduction of the circulating supply, and this is considerably brought to light in diseases of a decided inflammatory character, such as pneumo-

nia, pleurisy, pharyngitis, and cough. Here we have evidential congestion of the parts inflamed as indicated evidently by the symptoms; and if we bleed copiously and in full stream we shall soon be delighted with an amelioration of the existing symptoms, such as the extinguishing pain, vascular excitation, or a rapid and full pulse, hurried breathing &c.

Thirdly, bloodletting cures by an urgent impression imparted to the nervous centres. We have noted the impressions of reaction in a physiological point of view. The functions of the blood-system are carried on under presidency of the nervous system, and when
now we have local congestion or inflammation such as that, for instance, of the brain producing violent cephalalgia, or in, of the lungs, producing torturing, lancinating fevers; by the operation of section we relieve our patients directly. How the nature of this is readily comprehended. The interior extremities of the nerves supplying the organ are notably affected by the pressure of the congested capillary circulation. Now by removing a considerable portion of the blood we relieve the organ or part inflamed of its undue pressure, thereby removing consequent congestion and consequent pain produced by that congestion. It not only acts by relieving the parts congested, but by making a decided impression on the nervous centres, it acts as a direct relative removing nervous irritability, for all who understand physiology know the intimate connection between the vascular and nervous systems, and when one is abnormally affected how soon the other assumes the a moduful action.

Blood-lusting is ordinarily one of sedation, yet there may be states of the system in which
The abstraction of blood instead of being followed by signs of irritation gives rise to greater activity of vessels and to a greater tone of the system there was apparent prior to the operation. In congestive fever, where the powers of life are depressed in consequence of the accumulation of blood in the internal organs, this is clearly exemplified; for by removing the oppressing or depressing cause, by the evacuation of a due amount of blood, the powers of life develop new energy, the blood being distributed equally through the different organs and tissues of the body.

Blood-letting is one of isolation from the first and consequently it is one of our most conspicuous and well attested agents in diseases of excitement. But if carried too far it frequently will develop capillary excitement and this is an evil which was not formerly observed for it after great loss of blood. Hypersomnia occurred in any of the internal organs, or was augmented if it previously existed. Blood-letting was repeated again and again, until there
was produced a total prostration of vital power. The practitioners being ignorant of the cause and not suspecting that he, by the injudicious use of the leačed, had sent his patient to his long home.

When Hyperveniæa occurs in individuals of very great nervous susceptibility, we should be much guarded in the use of the leačed, for by using it too freely, we may develop greater or add to the prevailing nervousness by the reaction which succeeds, the irritation. It is in such irresponsible habits that great advantage is derived from a combination of blood letting with of inducing syncope, with the relative agents. The bleeding diminishes the excitement of vital manifestations by acting on the nerves through the medium of the blood vessels, and, for instance, preventing the subsequent development of nervous excitability. This course is adopted in the treatment of many internal inflammation, the bleeding being carried so far as to make a decided impression on
impression on the system, followed by a full dose of opium, by which a sedative influence is exerted on the system generally and the inflamed tissue particularly. By this mode of treatment, the hyperaemia is effectively subdued. After many of the signs of inflammation are present and yet it would be highly dangerous to resort to copious depletion.

In the case of a very delicate female, who was attacked with excretatory cerebralgia intolerance of light and sound, so that it was absolutely requisite to avoid those two stimulants. Of course she possessed great nervous insensibility; but along with this insensitivity, however her tongue was moist, and pulse though rapid, was not forcible. She was bled the second time, but without any benefit resulting from the evacuations, but on the contrary so much palpitation and exacerbation were induced that it was not practiced the third time, but leeches were applied to the epigastic region for the removal of some gastrointestinal symptoms.
She recovered more by time and quiet than by any particular mode of medication. We see then that the irritability of the nervous system becomes prominently developed by repeating medication too often, whereas if it had not been repeated too often but followed it up by sedative doses of opium the results would have been highly more favourable, especially in particular of the general state.

Blood letting we have seen is capable of acting as a sedative agency on the organism if appropriately practiced but if not judiciously had recourse to it may give rise to all the horrors of excessive loss of blood. Therefore it becomes an interesting topic of inquiry, how to regulate the operation when it is required so as to have the sedative agency without any of its concomitants or sequelae. Our object in bleeding in intense inflammation is to diminish the amount of the circulating mass, and thereby depress the vital manifestations. But the effect of copious
Deflection is principally exerted upon the nervous system, and when excessive loss of blood takes place either naturally or artificially, irregular action, and apt to recur, as nature hyperaemia exists. There is already a part of the nervous system disposed to be morbidly affected, under the influence of excessive irritability of those nerves. The vessels of the inflamed part resume their inordinate action, and the hyperaemia after a full bleeding is speedily reproduced.

We have obviously therefore, to be careful not to abstract blood in these cases to too great an extent, for we may develop nervous irregularities. But this state of irritability varies materially according to the individual organization, and to its character and intensity of the hyperaemia. The duration of the loss of blood varies in different individuals and in the same individual at different times. In a case of decided inflammation, syncope occurs after the abstraction of three or four ounces of blood, yet on repeating at two hours.
afterwards she was able to bear the loss of twenty-five ounces without any approximation to syncope.

The extent to which we should resort to sanguineous evacuation in many diseases is a matter of difficulty and often perplexity with the judicious and discriminating practitioner, but more to the reckless, uninformed theoretical charlatan, who in a state of blissful ignorance and conspicuous propositus plunges his lanceet into the living stream of life without regard to any sort of rationality.