AN INAUGURAL DISSERTATION
ON
Depletion

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Depletion

A large number of the diseases to which the animal organism is subject are dependent on, or consist in either a local or general fulness of its vessels. Whether a knowledge of this fact first led physicians to the employment of Depletion as a remedial measure or not, I leave for Medical antiquaries to determine; but certainly a more rational mode of relief, could never have suggested itself even to a mind acquainted with this pathological fact.

Depletion in its literal sense signifies an emptying, or unloading, and hence every therapeutic means which acts by relieving the general system, or any part of it, of its surplus amount of
fluid, does so upon the principle expressed
by the term which heads these pages.
From this it will be seen at a glance,
from what an extensive field of em-
quiry, my subject permits me to gather
in my harvest of observations. I might
exhaust half the subjects treated of in
our Materia Medica, and yet not tran-
scend its legitimate limits. The term em-
braces substantially all those measures
usually understood to constitute the anti-
phlogistic plan of treatment. I shall com-
ence with the most important of these
measures and descend toward the bottom
of the list, until I shall have gone their
length into my subject, and then desist.
whether I shall have done it justice or
not. Bloodletting although not as fre-
quently employed perhaps as some other
modes of depletion, from its acknowledged superior power and from the fact that it is the most direct depletion measure to which it is possible for us to resort, claims our first attention. Several modes of bloodletting are employed. They are divided into general and local; to the first belong, Venesection and arteriotomy; to the second, Cupping, Locelung and Sepsification. Before resorting to a remedy of so much palency, it becomes a question of prime importance, whether the case is one demanding the use of the lance. In making up our minds in regard to its employment, several considerations are to be taken into account, 1st. The character of the disease, 2nd. Its stage and extent, 3rd. Its seat and the character of the tissues affected, 4th. The age and bodily habit of the patient, 5th.
The force and frequency of the heart's action, to be determined by the use of the stethoscope, as advised by Larrey; and the sensation communicated to the finger by the pulse at the wrist.

The principal diseases requiring the use of the lanceet, are inflammation and congestion of the important organs of the body, as the brain and thoracic and abdominal viscera, and some forms of fever, especially those characterized by a high degree of vascular excitement.

In cerebral inflammations and sanguineous determinations to the head, constituting, or threatening apoplexy, blood-letting is the only remedy that can be at all relied on, but should not be resorted to in apoplexy until the shock produced upon the nervous system has
failed off and reaction sets in. But there
is a different class of affection, in which
the brain seems to be involved, that are
not so obviously benefited by the lancet,
and which require great caution in its use.
There are such as occur in conditions of
nervous irritability, from intestinal
irritation, exhaustion and abstinence
from an accustomed stimulus &c.
Inflammation of the serous membranes
appear to be as a general rule more am-
enable to the use of the lancet, than those
of the parenchyma of an organ, and those
of mucous membranes perhaps less than
either. And it may also be stated as a gen-
eral rule, in the same order does infla-
mation of these different tissues enable
the patient to tolerate the loss of blood.
Pleuritis almost invariably demands
Vaccination, where as bronchitis may very often be successfully and scientifically treated by local bloodletting conjointly with the use of emetic tartar &c. The same thing is true with regard to peritonitis and inflammation of the mucous lining of the bowels. While the latter will usually yield to bleeding and fomentations, over the abdomen; the former requires the most active general depletion.

Physicians have long and sedulously sought for some indication by which the propriety of general bleeding might be infallibly ascertained on the one hand, or its impropriety made clear on the other; but as yet no single condition has been found sufficiently universal for either purpose in practice. The character of the pulse is perhaps more generally depended on as indica-
ing, or contraindicating blood-letting, than any other circumstance; but even this is very liable to mislead us, unless considered in connexion with the other symptoms of the disease. In some diseases highly inflammatory in their character, the pulse will be found small and feeble; yet bleeding is imperiously demanded; and when performed the pulse will swell, become fuller and softer under the finger as the blood flows; clearly evincing the propriety of the measure. This is particularly true with regard to inflammation of the peritoneum and other serous membranes. But should bleeding fail to produce this effect on a pulse of this character, great caution should be exercised in the further detention of blood. The reigning epidemic constitution, as
first pointed out by Sydenham, exerts a marked and decided influence over the effect of bloodletting. In what this difference consists is not known. But we do know that at one time we may draw blood with impunity in nearly all inflammatory affections, while at another the greatest caution is requisite in the use of this measure for fear of prostrating our patients. These facts are to be kept in mind, and always duly considered before resorting to a remedy of so much potency. In determinations to the brain or lungs, threatening cerebral or pulmonary apoplexy, it is necessary to bleed the deliquium animi, and in laryngitis attended with spasm of the glottis, the same thing is called for; but ordinarily it is better to be governed by the condition of the pulse, and the effect
of the bleeding, on the pain and other symptoms of the disease. When the pulse is found to grow natural, and the pain of the inflammation to subside, it is better to divert and repeat it if necessary, more especially, if the disease has existed for some days, and the inflammation has become established in the part. When that is the case the capillaries having lost most of their tonicity, cannot regain their wonted contractility, before reaction would come on, and this prevents the good effects that might be obtained by a more gradual but permanent reduction of arterial excitement.

We cannot always accomplish all we desire by one blundering and hence it becomes necessary to resort to it a second, third, or even an indefinite number of times. It's
Just as necessary for us to have some general rules to govern us in the repetition of the remedy, as it is to determine its propriety in first instance. Our decision must here also be determined by the strength of the patient, the severity of the symptoms, and the existing state of arterial excitement. As Marshall Hall remarks, if at the first bleeding much blood should flow before syncope is induced, it must be received as a criterion that the disease may require, as the patient will bear the early and efficient repetition of the remedy." The "buffy coat" has been regarded by many as a very important indication for the further abstraction of blood. But this cannot by any means be relied on, and we hear less of the buffy coat than formerly. It is not constant in
Blood drawn from patients laboring under inflammation, and is often presented when no inflammation exists, especially in puerperal affections. Besides much depends on the manner in which the blood is suffered to flow, and some other circumstances, whether it presents this peculiar appearance or not. These facts show that much more importance has been attached to it than it deserves.

Veniuction is the mode of general blood-letting to which we almost universally resort, and may generally be made from the median cephalic vein at the bend of the elbow. This is usually selected from its convenience, its prominence and its remoteness from any artery or nerve of importance. But if necessary we may bleed from the cephalic vein just below where it enters the groove be
When the pectoralis major and deltoid muscles, or from the jugular. Sometimes the veins of the foot and leg are selected with the veins of blood letting. Arteriostomy is seldom called for, and the only cases requiring it are perhaps severe determinations to the head. The blood flows more rapidly external fascicles from an artery than from a vein, and in this way a more powerful and sudden impression may be obtained than by the usual mode of blood letting. This is perhaps the only advantage arteriostomy possesses over venesection, while the difficulty of controlling the flow of blood in the former, is a very serious objection to it under ordinary circumstances. The temporal artery presents the three conditions required in this mode of abstracting blood viz.: it is small, superficial
and rests upon a hard surface, rendering hemorrhage from it controllable by the surgeon, and is therefore always selected for the performance of this operation. Local abstraction of blood is very frequently conjoined with general depletion. When venesection has been carried as far as the strength of the patient will justify, and the severer symptoms have been subdued by it, local bleeding is of great service. There is often a deposition in the inflammation to linger, or run into a subacute character, in which topical blood letting acts very beneficially. Cupping is upon the whole a more efficient remedy than leeching, the two forming the principal means of topical bleeding. In some mild acute inflammations in which there is none, or but slight general symp-
Tons, cupping and leeching are the proper remedies. Also in some chronic affections, especially such as are local in their character our chief reliance is to be placed on them. Leeches may be applied to the temple, nape of the neck, along the region of the spine, on the chest, over the kidneys, liver, etc. Leeches are generally preferred when blood is to be abstracted from the flabby walls of the abdomen, and may be applied with great benefit over joints affected with inflammatory rheumatism. They are also highly useful in certain conditions of the uterus, when applied by means of an appropriate instrument, to the region of the os. In diarrhea, dysentery, engorgements of the liver, and fulness of the head, it is said that leeches have been applied with much benefit to the aches.
It appears highly rational that much good might be obtained by this means in the affections mentioned; for a more direct method of unloading the portal system could not be devised. What is the modus operandi of blood letting as a remedy? The general effect of a full bleeding, especially in a strong subject, is that of a sedative, as evidenced by the muscular weakness, diminution of the force and frequency of the systolee actions of the heart and other symptoms of depression of the vital forces. This effect is probably produced first by a reduction of the quantity of the circulating fluid, by the amount lost, and secondly by rendering that which remains less stimulating, both to the sanguiferous system, and the nervous centers. It is doubtful according to
No. Lonal, whether the fibrin of the blood, which is generally increased in inflammation, is diminished by blood-letting; or, then it is doubtful whether its formation is retarded by the loss of blood. That the proportion of solid constituents of the blood are diminished in the aggregate, there can be no doubt. It is well known the stimulating quality of the blood is due to its solid ingredients, and hence in proportion as these are proportionately reduced in quantity by abstraction of blood, must that remedy act as a sedative.

The red corpuscles, which perhaps constitute the most stimulating ingredient of the blood suffer the greatest proportionate loss from bleeding. Abstraction of blood then acts in a therapeutic manner, first by relieving engorgement,
secondly, by diminishing the quantity of fluid circulated, and consequently the, pre-natal share of the inflamed organ, and thirdly, by diminishing the force with which the vital fluid is sent out from the heart.

*Increased secretion* is another very important mode of deflection, and one in daily and universal practice; but the limits designed for this sketch will not allow an extended notice of the various means by which this end is accomplished. The most important of them, however, are purgatives, diuretics, diaphoretics and cholagogues. This class of purgatives have one advantage over blood letting, in that they imitate a process of nature by depleting directly from the part affected, as ex-utilized by the action of purgatives
influenza, intestinal inflammation, expectorants in bronchitis, purgatives in cutaneous affections &c. In many cases these measures are sufficient without the use of the lancet and cups, but in severe cases requiring depletion, it is better to use in conjunction. They are perhaps always more or less demanded, after general and local bleeding, has been carried as far as a due regard to the symptoms and for the patient's strength will justify. Like bloodletting, some of these measures act relatively particularly purgation. It has been remarked that you may bleed a man to death by means of purgatives; and this is substantially true. By constant and continued purgation the blood becomes impoverished, and an
anemic condition of system is produced, probably by preventing the chyle from being taken up by the lacteals. The blood may also be greatly diluted by purgation, particularly if the saline cathartics be used, by which its stimulating quality is made less. By means of some of these medicines the blood is enabled to eliminate through the emmtererces. They stimulate noxious matter which may be present in it. In the use of these various remedies it should always be remembered, that though a slight stimulant impression produced upon a secreting organ, is followed by an increase of its peculiar secretion, yet the excitement may be, and often is above the secretory point, as it is termed; and therefore
where there is much inflammatory or febrile action present in the system, it is always proper to reduce it by general means, before attempting to excite the special secretions. If this caution be neglected we but heighten an action already too high, and it may be in an organ predisposed to inflammation, and thus add mischief to what we are attempting to relieve.

The excipients of all the various secretions are occasionally available as means of depletion; if these emmenagogues existing and diaphoretiques need but to be mention. I will merely remark in conclusion of this portion of the subject, that serious exacerbation in the different cavity of the body are generally relieved by means of purgatives and diuretics.
They act by depriving the blood of its watery constituents, and the absorbents to meet the demand this created, drink up the effused fluid.