Counter-irritation by
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The subject of this Essay is one on which there is considerable difference of opinion in the medical profession both as to its employment and the theory of its action. The practice of Counter-irritation had its origin nearly as early as the time when the first crude method of diagnosis began to call into requisition the Elements of the healing art. From the time of its first employment until the present, it has held its ground as a therapeutic agent of the highest value, while other systems of treatment once more highly extolled than it have not sur-vived the light of modern scientific research. And it will be the object of this Thesis which lays no claims to originality of reasoning or deduction to endeavor

to show that in Counter-irritation we possess an agent in the treatment of disease which can be confidently relied upon and the theory of whose action is not so doubtful and uncertain as some seem to believe. There can be no doubt that in regard to Counter-irritation as well as to other once popular remedies, it is their abuse rather than their proper use which has brought them into disfavour. We need only to instance the cases of bleeding and mercury the excessive use of which has in a great measure tended to their abandonment at the present day. Though it happens that there is a great amount of uncertainty in the profession in regard to Counter-irritation, the great body of evidence seems to be in favour of

its employment

The term Counter-irritation means that an irritant is applied to a part of the body for the purpose of producing an action at that part, which will have the effect of either stopping or controlling a morbid process going on in some other & may be distant part of the system The old opinion regarding its action is based upon the resemblance which its effect was supposed to have to a phenomena occurring in the course of some diseases and called Metastasis that is the sudden departure of a disease from one part followed by its appearance in a distant part of the body Thus it was thought that the reason why Counter-irritation

acted beneficially in any given case was that the effect of the irritation was to remove or at least diminish the old one and so blistering was resorted to and any benefit derived from its use in such case was ascribed to the supervening of like effects from it in similar cases Experience was here as in many other things liable to err sometimes if the true bearings of the case were not studied, and to this cause may be due the want of success and sometimes even bad effects which occurred from the inappropriate use of counter-irritation Again the success which must have attended its use when employed with the idea of Experience, was owing to the fact that in those instances it was fortunately the best means of removing the pathological condition on which

the disease dependant For example
if a blister be applied to the chest
in the first or acute inflamatory stage
of Pleurisy or Pericarditis, the chances
are that the disease will be aggravated
and perhaps serious mischief done,
but if the acute stage be permitted
to subside, blistering will then be
found to favour the return of the
part to the natural healthy condition
And also the cases in which blistering
has been resorted to notwithstanding
certain constitutional peculiarities
which should preclude its application
and where it has produced extensive
suppuration and troublesome ulcers
on the parts where it has been used
thus bringing discredit on the Sys-
of Counter irritation generally. The
real utility of the practice is generally
admitted though there appears to be
great difference of opinion as to the

as to the reasons given for its employment and the explanation of its action is a still more fertile field for controversy in the ranks of the medical profession. The use of Counter-irritation has become considerably increased since the former practice of blood-letting has been abandoned to so large an extent. There are different reasons given for this alteration in treatment such as a change of type in diseases, and constitutional causes arising from the debilitating effects of living in large towns with an overcrowded population, unhealthy pursuits &c. The good results obtained from this change of treatment are such that a return to the former practice would be attended with very unsatisfactory ones. In some acute diseases would this be especially

evident as in the case of Rheumatic fever where the abstraction of blood has been known to render the heart more susceptible to implication in the course of the malady, and of Pneumonia where venesection having been employed al-though the urgency of the symptoms may have been relieved the recovery has been so correspondingly slow as to give rise to reasonable doubts as to the utility of ever employing it except the necessity of such a proceeding is very plainly indicated by the most urgent symptoms. On the other hand there is abundant evidence to prove that in Rheumatic fever the use of Calisteny has been attended with the most beneficial results, while in the latter stages of internal inflammations equally good results have been obtain-ed.

Though Counter-irritation has to a considerable extent taken the

place of local and general blood letting it is principally in the latter stages of acute inflamatory affections that it can be safely relied upon, although in a few subacute cases it may be employed at any time in the progress of the disease It is not our purpose to enumerate here all the different diseases in which Counter-irritation is an appropriate form of treatment, but to state shortly what we consider to be the different ways in which it may be consistently supposed that its influence is exerted on the pathological conditions which give occasion for its employment. The attention of the profession has been drawn to this subject recently by two London physicians Dr Dickinson in the St. Georges' Hospital Reports, and Dr Austie in a paper read before the Medical

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Anstie on 'the
uses' No IX
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Society of London, and as their con-
-clusions and arguments are the
same, a short account of one paper
will serve as the exponent of both.
Dr Anstie attacks the old doctrine of
Counter-irritation with sprat vigour and
though he admits its utility in some
cases he ridicules the reasons given
for its employment by systematic
writers, and considers it highly ho-
-dierne to suppose that anything
which hurts the skin benefits the
deep tissues whether near the seat
of irritation or distant from it
But he also adds what detracts very
considerably from the force of the
assertion namely 'when pain is not
intelligible means of communication
between the irritated and the diseased
parts' For instance he looks upon
the application of a blister to the

chest for a Pneumonia, or to the abdom-
-men for retiring inflamation of the
bowels as an absurdity, because there
appears to be no direct communication
by which an influence may travel
from the irritated part to the seat
of the disease Now this in our
opinion is one reason why blistering
should in such cases be employed
because if there were direct communi-
-cation we are by no means sure but
that the influence might rather be
for harm than good upon the distant
part, for who would think of
blistering an inflamed vein in
the acute stage or in fact any in-
flamed tissue directly connected
with the surface to be blistered?
Dr Austie proposes to substitute the word
Counterstimulation for Counter irritation as
being more appropiate for depressing

the nature of the effect produced, but to this there is the great objection that there are various degrees of Counter irritation from mild stimulation up to Cauterization and that this latter term comprehensively expresses them all, which Counter stimulation certainly does not. It will therefore be better that the old word Counter irritation should be retained

According to Drs. Austie & Dickinson there are three sets of organs, by which when an irritant is applied to the surface, some influence is conveyed to parts situated at a distance from the seat of irritation, and these are the blood vessels, nerves and absorbents, "First the blood vessels as far as they "establish any direct communication "between the surface and the deeper "parts which we aim to influence may "effect much though not always "for good When we place a blister

"upon the skin when an inflamed
"joint will provoke a serous exudation
"beneath the skin which may unload
"the vessels of the joint of their serum
"because these vessels communicate
"with the superficial ones, and the
"consequence of this may be that the
"depleted deep vessels take up the
"effused fluid in the cavity of the
"joint Any indirect influence —
through the bloodvessels is denied
and he asks what analogy exists
between the former case and blistering
the skin therein an inflamation of
the lung tissue Certainly there is no
direct vascular communication in
the latter and therefore no analogy
between the two cases, but we will
endeavour to shew that the influence
which cannot be denied is exerted
upon the blood vessels of the inflamed
tissue
is conveyed to them indirectly through
x

"through the nervous system -
"Secondly by the nerves - the influence
"must travel along the afferent nerve to
"the nervous centre and the final effect
"may be produced either in the centre
"or in some other nerve which has com
"-munication with that centre But the
"effect here is much more often morbid
"than Artificial Artificial irritation
"has in this way produced by suffocation
"loss of power in distant muscles, loss of tone
"in vessels, and even serious disease in
"the nervous centre Beneficial effects
"however have followed the use of this
"-terms in Neuralgia where its tendency
"is when properly regulated to restore
"nerve function.
"Thirdly by the Absorbents, but here
"the action would be altogether bad
"for he says the absorbents would trans
"-mit into the system morbid matters
"from the wound made." In certain
States of the constitution this might

happen, but it is difficult to understand that the products of Counter-irritation which in the most severe form of it can only be pus, could even if absorbed be the cause of any serious danger to the system Indeed we have ~~&~~ & to learn that the absorption into the blood of the morbid products of the simple non-specific forms of malnutrition can be detrimental to the body as a whole or any of its individual parts.

We shall now proceed to discuss the various way in which we suppose Counter-irritation exercises its power for good over the pathological conditions which necessitate its employment and

1st. by the Blood vessels. — The direct influence of an irritant applied to the skin is at first to cause a contraction of the capillaries of that

part speedily followed by a corresponding dilatation of these vessels, which becoming engorged with blood, part with their serum into the surrounding tissue and an exudation takes place When an ordinary mustard poultice is kept to the skin the usual time, the effect is, that the part is found to be of a highly red colour and rather painful, which circumstances are due to an increased flow and subsequent stagnation of blood, and the consequent stretching of the nervous filaments from its pressure in the dermoid layer of the skin This principle of attracting as it were blood to the surface operates superficially in the case of blisters placed over parts which have a direct vascular communication with the structure which is the seat of the morbid process we desire to control The vessels of such structures are

The vessels of such structure are relieved of the excess of stagnant blood in them and never tend in consequence As an example we have the case of Vesicatories in which a sinapism applied to the side of the neck very often checks the further progress of the malady. When the irritant is stronger or kept on for a longer time the congested capillaries of the skin part with their serum which distends the cuticle There is here not only the attraction of blood to the surface but the discharge of serum from it, thus not only depleting the quantity of blood in parts contiguous to the seat of irritation, but also relieving such parts of serous effusion, if present, which is taken up by the vessels communicating with the blistered part This is seen if we take the example given by Dr Austie of a blister applied over an inflamed joint, when the effusion

into its cavity is taken up by the deep vessels of the joint to compensate for the loss of serum from the superficial vessels which anastomose with the deep ones. A similar effect is produced when we blister the surface over an inflamed bursa, and the action in both instances is intelligible by the direct vascular communication of the vessels. Counter-irritation also exercises its influence on distant organs — indirectly by the blood vessels through the nervous system.

2nd. Through the Nerves — The effect on the nervous system of an irritant applied to the surface is, that the influence travels from the part by the peripheral nerves to the centre whence it is reflected by the efferent branches either of the cerebro-spinal or sympathetic systems and may produce the end desired on parts supplied by these branches.

Counter-irritation may influence a part directly through the nerve which supplies it, or if the part is at a distance indirectly by reflex action. It will in this way influence through branches of the ~~branches~~ sensory-motor system sometimes at a distance from the seat of irritation, or it may also by reflex-action so stimulate to contraction the over-distended capillaries of a part the result of partial palsy of the vaso-motor nerves of these vessels, as to cause resolution of the inflammation; or it may directly produce favourable effects by gentle stimulation when there is deficient nerve force in the nerve-itself, or the nervous centre to which it goes.

(a). By direct stimulation of the nerve itself; as when we blister in Neuralgia the nerve whose depraved state of nutrition is the cause of the disorder; the effect here when properly regulated is to stimulate the nerve and

and restore its functions for a time at least. And also when blistering is applied to the course of a nerve which supplies a muscle or group of muscles which have partially lost their power of contraction from some injury or disease, as in some cases of Rheumatism & in which stimulation of the nerve produces favourable results.

(C). By reflex-action of the sensory-motor system, when there is a hyper-esthetic state of the part due to the irritation of the nerve supplying it, but the pain from which is not confined to the spot but radiates over a larger area whose nerves supply is connected with the irritated nerve, as for example in cases of neuralgic toothache in which the painful sensation is not localised in any particular spot, but extends often over the whole side of the head. Here blistering behind the neck is found to be of much

benefit in removing the pain, and its influence through the cervico occipital nerve must be reflected on to the sensory branches of the 5th pair. In muscular rheumatism we have another instance of this kind of effect from blistering. No doubt the primary cause of is the presence of lactic acid in the system inducing this diathesis but the pain in the muscles is certainly alleviated for the time by the application of a blister over the part. There are many other conditions which give occasion for the employment of counter-irritation having the same object in view namely the relief of pain in sensory-motor nerves by reflex action and we have only to mention those of Gastrodynia and Enterodynia in which blistering is presumably resorted to remedy.

(c) The third way in which Counter-irritation acts through the nervous system is by influencing

the Sympathetic, and it can do so in two ways, first by the reflection of an impression from the irritated part to the capillaries of the organ which is the seat of the morbid action we desire to control. As the Sympathetic nerve is the great centre of nutrition of the body, it is evident that no departure from the normal healthy state of the economy can take place without its being implicated in the process, so should be seen that whenever we apply Counter-irritation with the view of endeavouring to effect a change in the altered condition of any organic structure, it is thro' System of nerves that we desire to influence. Direct stimulation through the vaso-motor system produces at first contraction of the capillaries of the part, which is speedily followed by a corresponding dilatation of these vessels; but the stimulus may travel by sensory motor nerves to the centre

and thence be reflected on to branches of the sympathetic supplying the blood vessels of a distant organ and produce contraction and tone in these vessels so as to cause resolution of the inflamation The contraction of the capillaries in this instance must be due to the stimulus reflected from the sensory nerves of the irritated part, vasco-motor branches supplying these vessels and this is easily accounted for when we look at the communication existing between the two systems of nerves As an illustration of this we will take the example of a ulcerated structure such as the schneiderian membrane which is a chronically inflamed condition with its dilated and ~~in~~ tortuous capillaries forms such a ulceration quite different in properties to the normal one What we desire to do by Counter irritation here is to withdraw and to produce contraction and tone in the distended vessels, and this

is effected by a blister to the back of the ear or neck, the nerves of which carry the stimulus indirectly to the sympathetic branches supplying these capillaries. At the same time as the vessels recover their normal condition, the altered character of the nutrition in the gland is changed and its secretion is elaborated in a healthy state. Under this head also comes those cases in which one of the several forms of counter-irritation is used namely Cauterization, as for example in some joint diseases and also in caries of the bones, in the first stages of which it is often successful in cutting short the further progress of the disease. Blistering with this intention is resorted to in many other cases such as Chronic Conjunctivitis, ozæna &c, and along with the use of other appropriate remedies its employment is still, notwithstanding the adverse opinion regarding it which has lately sprung up, held in considerable confidence by the

profession. The second way in which Counter-irritation acts through the sympathetic is by that property of this system of nerves by which the reflection of an impression from one part of the nervous system to another, or as it may be called the reciprocal feeling between different nerves and therefore the parts supplied by those nerves is brought into action, and which is named Sympathy. Examples of this influenced are seen in the cases where the pouring of cold water on the head restores the brain exhausted by long continued inflammation and that of the dashing of cold water on the face removing an hysterical fit or arising from a syncope. The sympathies between organs are numerous and of great importance in regard to the line of treatment to be adopted in each case; here valuable aid may be frequently derived from Counter irritation. Functional disorder of the uterus is very often the source from which springs

irritation in the alimentary canal causing
vomiting &c, the result of sympathy which
exists between the two organs. In such
a case blistering behind the sacrum —
should be had recourse to with the object
of breaking as it were the chain of conditions
by which the one part sympathized with
the other. Epileptic fits have often their
origin in irritation of the stomach
and bowels and here blistering would
be of benefit in the same way. In
those numerous cases of neuralgic pain
in joints and other parts occurring in
women of an hysterical temperament
when there is no evidence of local —
disease Counter-irritation may by with —
-drawing the attention or sympathy
from the over-sensitive state of the part
and restore the nerves of sensation
to their normal state. There can
be no doubt but that this is an im —
-portant way in which the application
of an external irritant acts for good
in the treatment of the many diseases
and alterations of nervous function in
which it is so often employed.

3ly By the Absorbents — It is evident we cannot influence this set of vessels directly without at the same time affecting the blood vessels of a part which we desire to act upon through Counter-irritation. Absorption is not entirely confined to the absorbents alone, for the veins are found to possess this property also. When the veins and capillaries of a part are distended and the circulation in these slow, absorption is at its minimum, but when the circulation in these vessels is altered through contraction and tone in them absorption is at its highest stage. Therefore when we desire to effect the removal of an effused fluid by means of blistering, the influence of the latter must be conveyed to the veins and capillaries of the part as well as to the absorbents which are stimulated to increased action. There are two kinds of absorption that of fluids, and that of solids which is called interstitial absorption. When a serous membrane such as the pleura takes on

the inflamatory procaf the means are
exudation from the distended Capillaries
and small blood vessels of the membrane
and an effusion into the cavity of the
Chest results It is plain that if we
wish to effect the absorption of this fluid
we must influence not only the absorbents
whose action is for the time in abeyance
but also the vessels whose over distension
is the cause of the effusion. There would
be no use in this case of trying to
remove the effect if the cause which
gave rise to it were allowed to remain
and fortunately Counter irritation acts
when employed for this condition in
both ways, by removing the morbid
product and that which gave rise
to it. It stimulates the capillaries
of the part to increased contraction
and tone, thereby preventing any
further exudation, and at the same
time stimulates the absorbents to
increased activity. Interstitial
absorption or that of solids is brought
into play when we wish to effect

the removal of the solid products of inflamation by counter-irritation This is seen in the case of enlarged scrofulous lymphatic glands, which are treated by the external application of Tincture of Iodine with the view of causing their absorption which can only be done by stimulation of the absorbents connected with such glands. The use of external irritation for the purpose of causing interstitial absorption is limited in its application, and is seldom had recurse to with the view of removing solid material, as there are other means better adapted for this purpose ever employed — In the case also of effusion into Synovial cavities such the joints and tissue, after the acute stage of inflamation has subsided, blistering has often the best effect in in inducing absorption of the fluid contents.

In some one of these three ways through the blood-vessels, nerves or absorbents, can the influence of counter-irritation in all cases be satisfactorily explained. Whether we apply a simple rubefacient for the purpose of withdrawing pain from a group of muscles in chronic rheumatism, or a mustard poultice to the chest for the pain, difficulty of respiration and dyspnoea in a Bronchitis, or a blister behind the ear for a conjunctivitis, or the contrary for vertebral disease, or a seton for Epilepsy; the action in all and every case can be satisfactorily explained through the agency of the blood-vessels, nerves and absorbents. As we have already stated its action in every case is not confined to one of these three sets of organs alone, and it may exert its influence through two of them and sometimes the three. In the instance of a pleuritic effusion the influence

must be first exerted on the nervous filaments which cause contraction of the blood-vessels, and then stimulation of the absorbents follows thereby inducing the removal of the fluid. Of the three different kinds of organs through which Counter-irritation acts, there can be little doubt but it is the nerves which bear the principal part in conveying and exerting its influence and it is the Sympathetic in the gold majority of cases, especially in those in which it is desired to alter nutrition that is acted upon. We know how quickly a train of thought or reasoning may be changed by a new impression, and also how a mental impression such as joy, fear or anger may be the cause of a sudden alteration or stoppage of the secretion of an important organ. The suspension of the Catamenia from a fright, the accession of jaundice from the same cause, and the alteration of the milk

of a nursing mother from papers and examples of this. If a mental idea can in this way exert an influence on organs and their secretions, may we not also infer that external bodily impressions influence the functions of organic life. As a mental habit may be changed by a new idea, so may an organic habit be altered by an external impression. Of an organic function which is made to feel the force of habit, that of the stomach is an instance, where the disordered action may continue with regularity till some slight impression it may be from an internal remedy or an external irritant is made upon it, which will cause a break in the habit and set every thing right. In this instance it must be involuntary as in the former voluntary attention that is withdrawn by the stimulus from that which previously occupied it in either case and

and the force is directed into some other channel

In conclusion we will allude to one other explanation given by Dr. Branch of the modus-operandi of Counter-irritation. He gives the rationale of its action in this way, "that in cases of deep seated and long-standing disease, if an injury be inflicted upon the skin such as by the cautery the destroyed skin separates from the living and we can depend upon the healing process being carried on till cicatrization is complete, and during the time this separation is going on the original morbid process is observed first to diminish as evidenced evident by the diminution of inflamatory products and pain and by the gradual restoration of the structures morbidly altered to a natural condition." He ascribes the superficial results obtained from Counter-irritation to the "division caused by

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the reparative process of the injury inflicted by it." This is no more than saying that the abnormal con-dition in the diseased part is induced to take on healthy action again through stimulation of the reparative process in the part, but how can this happen. We would ask except by influencing the Sympathetic which is the great regulating power of nutrition, no divergence of which one way or another can take place without its co-operation. The good results which spring from the appropriate use of counter-irritation justify the confidence and esteem in which it is held in practice, and though the rationale of its action in some cases may appear at first sight to be rather obscure, on a close look it will not be difficult to explain

how its modus operandi is effected and to reconcile it with the laws of physiological and pathological action. This has been our object in the preceding pages and if we have done anything however imperfectly in furtherance of it we can say with satisfaction "dignique mala finit vana in illo".

(Finis.)