

**Observations on the causes and treatment of ulcerous diseases of the leg /
by J. C. Spender.**

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OBSERVATIONS
ON THE
CAUSES AND TREATMENT
OF
ULCEROUS DISEASES OF THE LEG.

BY J. C. SPENDER,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON.

LONDON :

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PATERNOSTER ROW.

M.DCCC.XXXV.

THE
OBSERVATIONS
ON
THE
CAUSES AND TREATMENT
OF
ELECTRIC DISEASES OF THE LEG
BY
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OF THE
UNIVERSITY OF BATH
LONDON
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PREFACE.

DURING the last five years about a thousand Cases of Diseases of the Leg have fallen under the observation and treatment of the Author. He must have been very careless and inattentive not to derive some practical conclusions from these advantages; for general rules, if not resisted, readily form themselves in the mind when the particular instances are sufficiently numerous to furnish comparisons and afford deductions. Some of the lessons which his opportunities have taught him are contained in the following pages; with an attempt to explain the cause of the facts, and to extend the application of the principles.

The Author is anxious to remark, as early as he can, that although the nature of the present publication has led him to speak much in the first person, yet this mode of expression must not be misconstrued into egotism. It is, in reality, the result of diffidence, though not of distrust in his opinions ; as it would indeed be arrogance to announce as established truths those statements which must first of all rest on the limited foundation of individual experience.

Possibly, however, it may be urged by some, that his little Volume contains nothing new ; and that all he has written is very old and very well known.

To such observations as these, he must be permitted to make the two following replies.

1. Even if his opinions be found deficient in novelty, they are most of them original, so far as the Author is concerned. About five years ago, though ignorant, as he has since found, of some modes of treatment recommended, yet,

acquainted with a number sufficient to be perplexed by their want of agreement, and the absence of any principle to hold them together, he commenced the task of observing for himself. Cases soon crowding upon his notice, afforded him the opportunity of drawing some conclusions; and his experience enlarging as he advanced, he was enabled to test their correctness by further observations and trials. A few months since, conceiving that the general and uniform nature of his practical inferences were such as authorized him to consider them, though not exactly in the light of established rules, yet as considerable approximations to the truth, he proceeded to write them down; intentionally abstaining from the examination of any treatise on the subject, until he had recorded the lessons his experience had taught him. In some instances his opinions have coincided with the statements of others; but, in a greater number, the doctrines and practice inculcated by those writers possess-

ing the highest authority and reputation, were at such variance with his conclusions, as to determine him to publish his own. Had he, indeed, found that the inferences he formed were fully entertained by any other observer, he would not have obtruded his thoughts on the notice of the Public; though some advantage, even on this supposition, might have resulted from the step. In the present unsettled views on the subject, the statements and conclusions of an inquirer, destitute of any previous bias to one plan of treatment more than another, and supported by an experience sufficient to give importance to the results of any individual however insignificant, cannot be considered entirely useless. They might not, indeed, have possessed so much weight in themselves; but they would, nevertheless, be adequate to assist in turning the scale on the side of truth. Thus much of utility, then, on any supposition, will be found in the present publication; and, the Author hopes, a great deal more.

2. If the opinions and treatment hereafter described be so old and so well known, it is, nevertheless, very obvious, that they are not generally carried out into practice. Assuming, then, for a moment, their correctness, which not only his experience authorizes him to suppose, but which would seem to be admitted by any attempt to deprive them of their novelty, as no one contends for the discovery of a thing that is false ; this consequence follows : That practitioners are fully acquainted with a method that is successful, and yet will not adopt and pursue it. This is an aspersion which the Author is neither bold nor unjust enough to throw at any man.

If the Writer could prevail on those, who may say there is nothing novel in his plan, to pursue his practice ; it will be a matter of little importance with whom it may be decided to originate. In either case, the afflicted and suffering will be equally benefited ; and the Author will be richly consoled by

reflecting, that just in proportion as he misses the fame of a discoverer, he will meet with the higher honour of being a benefactor ; for the more there are who contest his claims to novelty, the more there will be, who, by an argument of their own construction, fasten upon themselves the obligation to act as he has done.

But even conceding, for the sake of argument, that the present Treatise contains nothing new, which, however, by publishing it, the Writer, of course, does not believe ; yet, since the mode of treatment it describes is not generally, if at all, followed, it can be no unseasonable or unworthy task to present it once more to the notice of the Profession. Old truths often require to be re-enforced, as much as new truths require to be discovered. There is even reason to think that the necessity is occasionally greater in the former case than in the latter ; because, having once assented to the correctness of a doctrine, without

practically yielding to its influence, there is danger of thinking that the principle itself sanctions the very proceeding by which it is violated. This is one great source of self-deception; and though its effects are chiefly to be deplored in moral questions and conduct, yet all of us, sometimes, practise the same imposition on ourselves, in other inquiries and pursuits.

The Author is, however, inclined to hope, that it is not with such sentiments as these, which he has been anticipating and answering, that the majority of his readers will rise up from the perusal of what he has written. He flatters himself that they will find some new truths struck out, and some old truths placed in a stronger and wider light; together with some errors, both new and old, examined and exposed. He believes, also, though a few may be slower to acknowledge than to perceive this, that the great bulk of readers are very fair and candid in their judgments.

It may possibly be thought that the Writer, on several occasions, has animadverted too strongly on received opinions, and has used a tone of expression unbecoming a young man. But if he has spoken warmly, it was because he felt so, from seeing the mischief and misery entailed by the measures he condemns. He has not stated what he did not think, nor without first trying to think rightly: and when he has considered it his duty to oppose any opinion or practice, he has carefully distinguished between persons and things.

Instead of making a large Volume by the recital of Cases, hundreds of which he could furnish, in support of his treatment, the Author has been chiefly anxious to develop and discuss principles. He knows that, if these be established, the practice they enjoin must follow; whilst, if they be false, they will admit of more easy detection than the statement of cures, which might never be read.

In order, however, to compensate for

any disadvantages arising from occasional disquisitions of an abstract nature, he has attempted to exhibit the general truth, in varied and successive aspects, so that its parts and relations may all pass under review. This method of inquiry must, indeed, sometimes wear the appearance of repetition : but it has been intentionally adopted by the Writer, who is willing to sacrifice every thing else for the purpose of being well understood.

Whatever may be said or become of the Work which the Author thus ventures to publish, nothing can shake his confidence in the correctness of his opinions, which an increasing experience is daily confirming ; and nothing shall rob him of the gratification he feels, in being able to describe a method of treatment, which, in his own hands, has already removed the sufferings of so many around him.

BATH ; January, 1835.

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CHAPTER I

Some Remarks on the Causes and Consequences of the
Floods of the Nile

The first object of this work is to trace the
causes of the annual overflow of the Nile, and to
show how far it is influenced by the state of the
atmosphere, the state of the Nile, and the state of
the country through which it flows. The second
object is to show the consequences of the floods, and
the manner in which they are regulated.

CHAPTER II

Of the Nature and Extent of the Nile, and of the
Manner in which it is regulated. The first part of
this chapter contains a description of the Nile, and
of the manner in which it is regulated. The second
part contains a description of the Nile, and of the
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contains a description of the Nile, and of the
manner in which it is regulated.

CHAPTER I.

SOME REMARKS ON THE CAUSES AND CLASSIFICATION OF ULCERS OF THE LEG.

THE legs suffer from ulcerous diseases much more frequently than other parts of the body. This has been commonly explained by referring to their dependent position, or to their remoteness from the centre of the circulation: but that these circumstances, either separate or in combination, cannot account for the fact, must, I think, appear evident from the following considerations. The direction and locality of the limbs are perfectly natural conditions, and, therefore, to think that these lead to the production of mischief, seems to imply some original defect in their construction. There is, consequently, this presumption against the truth of both suppositions, that they necessarily drive us to

the absurd conclusion, that the tendency of the structures is to evil. Without, however, insisting on this, the daily occurrence of facts affords a sufficient refutation of the opinions now under review. One individual has a spontaneous ulcer on his extremity, but for every such instance perhaps twenty others never experience a similar sore during the whole of their lives. Two persons, of the same age, and of the same general health, shall receive a kick or blow of the same severity on the same part of their legs—in the one case, the injury will get well of itself, or even in opposition to injudicious treatment; whilst in the other, the greatest care and attention to the mere local accident will not prevent it from running into a troublesome sore. Now the legs of all these four classes of individuals are equally dependent and equally distant from the centre of the circulation, and, consequently, if one or both of these states rendered them liable to the evil, the effects ought to be the same in each case. It is plain, therefore, that we must search for some other cause to explain the fact to be accounted for; and this, in a great majority of the worst instances, as I shall soon attempt to prove, appears to arise from the existence of a positive and palpable unhealthiness of the superficial structures of the limb.

But although, as I shall almost immediately endeavour to show, it is the presence of such abso-

lute and defined alteration in the exterior of the extremity, and not its direction and locality, which is the most frequent cause of the production or continuance of bad kinds of sores, yet it is not meant to assert that this is the only source from which they spring. For, independently of that class arising from external violence, some ulcers partake of a constitutional origin; though this latter cause does not, I believe, operate to the extent which is usually supposed. But whether such cases be many or few, they are the effect of a general, not a local tendency, and might have exhibited themselves on the arms or other parts of the surface of the body, as well as on the legs. In these instances, therefore, the situation or position of the limb cannot explain the common occurrence with which it is the seat of ulcerous diseases.

But the custom of resolving the frequency and intractableness of ulcers of the leg into the direction or locality of the extremity, is not only, I think, theoretically wrong, but, what is of greater importance, and induces me to give the inquiry this prominent place, it has given rise to the practical evil of drawing off our attention from the real and immediate cause of the disease. We have been satisfied by announcing in general terms that the legs are prone to ulcerate, and to remain so, without always sufficiently investigating the positive

condition of the structures of the limb which produces this tendency: indeed, by attributing the liability to nature, we put an effectual stop to all further inquiry. The consequence is, that a want of distinctness in our conceptions of the character of the diseased actions has introduced a corresponding want of precision into our treatment; and we sometimes act as if fate made the leg bad, and fate must make it well.

Now, since we cannot, I think, ascribe the frequency and obstinacy of ulcerous diseases of the leg to the mere dependent position of the limb, or to its remoteness from the heart, the question to determine is, what is the real cause which accounts for the acknowledged fact? It is necessary that we obtain clear conceptions on this subject, in order to arrive at any sound and satisfactory principles to direct and regulate our treatment. We should not rest contented by stating in loose and general terms that there is a natural proneness in the parts to the occurrence of disease; but we should endeavour to ascertain the precise condition of the structures which produces the evil, or exposes them to it. It is not sufficient for us to say, that the lower extremities, from their position and direction, have a tendency to ulcerous complaints, and then be satisfied to say nothing more; but we should try to discover the immediate and actual conditions

which bring about the malady. Unless we do this, we shall never possess that clearness and distinctness of the cause and nature of the disease which are absolutely requisite to give precision to our treatment. For it is not only true that "that which in speculation stands for the cause, in practice stands for the rule;" but it is equally true, that in proportion as we simplify the cause we simplify the rule. Our therapeutics will always be complex, and may sometimes be even contradictory, so long as our pathology is vague and unsettled.

There are chiefly two circumstances which contribute to explain the great frequency with which ulcerous diseases of the leg occur.

1. One cause arises from the manner in which the inferior extremities are exposed to injuries, from external violence, by the infliction of blows, and from the effect of falls. The consequence is, that the legs suffer from accidents, in the form of contusions and wounds, to a greater extent than the arms or other parts of the body. This is more remarkably the case in men than in women; and, for the same reason, in a higher degree amongst those men who are employed in laborious and mechanical occupations. But although the lower limbs are in this way the most liable to injuries, yet, from the commonly trifling nature of these accidents, this alone would be a matter of little

importance, were it not for some peculiar conditions frequently connected with the extremities themselves. Every one must have observed that slight wounds or cuts of the leg are often much more unmanageable than even greater injuries of the same kind occurring on other parts of the surface of the body, and much more apt to run into painful and troublesome sores. It is, indeed, to solve this fact, that recourse has usually been had to the explanation derived from the position or situation of the limb ; for when writers on Surgery assign these conditions of the extremity as the causes which account for the obstinacy of ulcers on the leg, it is not that they overlook the origin of many wounds from external violence, but that they then more particularly refer to their refractory nature.

2. This in a great majority of instances arises, I think, from the other cause which remains to be mentioned. It is a positive and palpable unhealthiness in the outer structures of the leg, consisting of a varicose state of the superficial veins, either alone or combined with adventitious deposits, which are most generally the products of such varicose state.

Perhaps, however, it will be said, even conceding the truth of this opinion, yet the varicose affection itself results from the dependent position of the limb, and its remoteness from the heart, and therefore the

tendency to ulcers, arising from its existence, should still be referred back to those anterior causes. But to this it is to be replied, that since we have already disposed of the doctrine of any original liability to disease in the legs, more than in other parts of the body ; in order to bring about this unhealthy condition of the veins, some mechanical interruption to the flow of blood, or some disease or weakness in the tunics of the vessel, must be present ; and it is to these impediments, whatever they be, and not to any presumed natural tendencies, that the varicose state should be imputed. If it were merely from the dependent situation of the limb, or its distance from the centre of the circulation, that the veins become varicose, all legs ought to be varicose, for all legs hang down, and all legs are far away from the heart. So far, however, from this being true, we not uncommonly find that, even in the same individual, one extremity is varicose, and the other not.

Without stopping to give a tedious enumeration of all the circumstances which may give rise to the varicose affection, it will answer every useful purpose to allude to them under two comprehensive classes. The first, or external, comprises every impediment or obstacle acting on the track of the vein from without ; the second, or internal, every state of disease or weakness diminishing the powers of the vein from within. These are the causes which

produce the varicose condition ; all that the position or locality of the limb ever does is to make the leg more *susceptible* to their agency, as well as to *perpetuate* the evil when once it is formed. It is the combined result of the prevalence of these causes, and of the existence of this susceptibility, in relation to the leg, which accounts for the great frequency of varicose veins in the lower extremity, when compared with the upper.

I have then to prove, in this place, that the legs are subject to a depraved character of their superficial structures ; and that the liability the limbs have to form sores ought to be referred to this deviation from their natural state. This, if established, will explain the reason why some legs are so ready to ulcerate, either spontaneously, or from the most insignificant injury, whilst others show no such danger, though exposed to the same or even greater exciting causes : a fact wholly inexplicable by the usual solutions. It likewise offers to our notice a positive and defined cause of the evil, against which we may direct our efforts, and employ our remedies. The doctrine is indeed of such great importance, from the precision and assistance which it gives to our treatment, that I shall occupy some little time in describing the origin, nature, and extent of the unhealthy condition to which I allude.

When the body is in the erect position, the

blood, in its return back to the heart, has to rise in opposition to its weight. In order to assist the ascent of the fluid, there is a beautiful provision in the construction of the veins. At short distances apart there are placed sets of valves, which readily admit of the direct flow of the blood homewards to the heart, but which prevent it from retrograding in a contrary course. Every pair of valves sustains that portion of fluid immediately above it; so that the longest vein may be considered as composed of a series of shorter tubes placed one on the top of the other, and each of which may be viewed as a separate and distinct column. In addition to this, the coats of the veins are formed of a texture which enables them to be more or less distended, according as a greater or smaller quantity of blood has to flow through them in any given length of time. This was necessary in order to accommodate the circulation of the limb to its different conditions, resulting from the exercise or rest of the muscles; for when these are in full action, a greater volume of blood has to pass through the superficial vessels than when they are in a state of repose. Now, from these two circumstances combined, viz. that the blood has to rise contrary to its gravity,* and that the veins are endowed with a

* If it be said that there is an inconsistency in acknowledging in this place that the upward course of the blood exposes

. capacity for dilating themselves, it frequently happens when any mechanical hinderance is present, or any diseased condition of the vessels exists, that they become distended to an undue degree. For whilst the original structure and function of the veins

the veins of the leg to greater danger from any obstacle, and in contending in a former page that the position of the limb does not produce the varicose state, I answer, as I have already done, that it is to the unnatural obstacle, and not to the natural position, that the effect ought to be ascribed. But even supposing, for the sake of argument, that the position of the extremity contributed ever so largely to the formation of the evil, our chief attention should nevertheless be directed to the evil itself, and not to any remote agency beyond our control. It is, in fact, because the ordinary solutions frequently serve the purpose of diverting our minds from the precise and immediate cause of the ulcer, and of leading us to something else, that I have ventured to criticise the prevailing opinions on the subject. It is also worthy of remark, that the common explanations drawn from the direction and locality of the limb are not always carried out into practice; for whilst these conditions are assigned as the causes which produce the tendency to ulcerous disease, they are not by all writers entertaining this opinion considered as affording the principal rule of treatment. They are, in some cases, soon lost sight of, and the chief attention is transferred to the external character of the ulcer, as the source from which the therapeutic principles are to be derived. If, indeed, the alleged causes were not in this manner overlooked or forgotten, and if, instead of being partly relinquished in practice, they were allowed to have their proper effect of inculcating the use of the bandage in other sores besides the indolent and simple, though the doctrine would, I think, be still both vague and unsatisfactory, yet it would not be productive of such ill consequences as the custom of paying so much attention to the outward aspect and condition of the sore.

are undoubtedly sufficient to answer all the purposes designed in their formation, yet it is obvious that the operation of unnatural causes must, from the position and properties of the vessels, additionally interfere with their action. Any thing which produces unequal pressure on the track of the veins, acts as an impediment to the flow of the blood ; and any unhealthy state of the coats of the vessels, which makes them weak, diminishes their strength ; so that in either case the fluid, not being able to overcome the resistance opposed to it, accumulates in the tube, which in its turn increases its area, in order to suit itself to its overloaded condition. The consequence is, that the veins become still more weakened ; the blood flows still more slowly ; and obstructions still continue to increase. The vein soon becomes elongated as well as stretched, taking a winding or tortuous course, which materially aggravates the evil ; for each turning offers an additional hinderance to the progress of its contents. When, likewise, the veins are much distended, the sides of the vessel are so separated from each other as to be too wide for the valves to meet ; and thus the advantage resulting from their presence is lost ; whilst in some few instances there is even reason to think that the valves themselves are ruptured. In either or both of these cases, the vein becomes converted into one long tube, instead of being a chain

of shorter ones ; and the column of blood is increased in weight, at the very time that the powers of resistance are the least able to sustain it. Occasionally, also, coagula are formed in the veins ; which, though not sufficient to plug up the tube entirely, yet tend to diminish the area of the vessel and retard still farther the current of the blood.

This varicose state of the veins sometimes increases to such an extent, that the coats of the vessel become ruptured, and a considerable bleeding may follow. The loss of blood, though occasionally very great, is rarely fatal, yet such a consequence has occurred ; because, like all other hæmorrhages from the smaller veins, it is checked by the syncope which ensues before a sufficient quantity of the fluid has escaped to give rise to very serious effects. The vein appears to burst not so much from the mechanical forcing of its contents as from the effects of an ulcerative process ; the result of an inflammatory action in the vessel and superincumbent integuments set up by the irritation produced sometimes by the distension, at others by the presence, of a clot of blood. In the greater number of instances the veins do not burst, but the disease accomplishes its effects in a more insidious and imperceptible manner. It produces a slow and gradual alteration in the texture of the skin, sometimes rendering it extremely thin, at other times

making it thick and spongy. The former state of the integuments chiefly accompanies the irritable description of sore, the latter the indolent kind.

One very common form in which the varicose affection exhibits its pernicious consequences is in the production of adventitious substances, either of a fluid or more solid nature. The former seem to be seated chiefly in the cellular substance, whilst the latter approaches more nearly to a species of interstitial deposit in the dermoid structures. The extent to which these unnatural productions may be generated is really astonishing; I have seen a limb nearly or quite double the size of its fellow. When it has arrived at this state, the skin is so distended or thickened, as sometimes to obscure the varicose veins; but the history of the case and the progress of the cure, together with the absence of any general dropsical symptoms, will distinctly point out its local origin. These adventitious deposits are either diffused extensively throughout the limb, or they are more confined in their situation, occupying only the foot or the track of the veins. In general, they are found to accompany the indolent description of sore in a greater or less degree; but seem frequently to be almost entirely absent in the irritable ulcer.

Sometimes these states of the integuments proceed very rapidly to the production of a spontaneous sore. On other occasions they remain nearly

stationary, until roused by some exciting cause ; but the slightest injury from without is usually sufficient to give rise to an ulceration on the surface. Trifling accidents, which in a healthy state of the limb would speedily get well, almost always, when the veins are diseased, or adventitious deposits exist, pass into painful and obstinate sores. It is, in fact, these causes, and not the direction and locality of the limb, which principally explain the reason why slight injuries on the leg will not occasionally heal so quickly as they commonly do when situated on other parts of the surface of the body.

The precise manner in which a varicose state of the veins leads to ulceration, or perpetuates it when produced by an external wound, seems to be the following. The obstruction in the veins impedes the circulation in the minute ramifications of the arteries, in consequence of the undue resistance thus placed before them. Sometimes also, the capillaries by this means become so overloaded, that they are compelled, for their own relief, to pour out a portion of their contents, in the form of adventitious deposits ; whilst, either from the consent of parts subsisting between the lymphatics and bloodvessels, or probably from a more direct and mechanical cause, the function of the absorbents is so far interfered with, that they do not entirely take them up.

The presence of these increases the source of obstruction, by pressing on the small arteries, and this affords another hinderance to their action. The capillaries being thus opposed by the accumulations in the veins, and often by the presence of the adventitious deposits, their powers of circulation become enfeebled, and of course all the functions and processes depending on their free and unrestrained action are weakened. The vitality of the parts fed by these little streams is so lowered, that they are unable to bear up against the effects of slight injuries ; or sometimes even to sustain themselves alive, running into a state of death, or spontaneous ulceration. The same circumstances likewise render the structures unable to repair themselves after a portion is destroyed, and a sore established, either from an internal or external cause, the energy of the capillary vessels being so reduced, as to render them inadequate, without assistance, to accomplish the restorative process.

It will no doubt be allowed that the legs may be the seat of that unhealthy condition which has thus been described ; but it will most likely be said, that it does not occur so commonly as to account for their great susceptibility to ulcerous attacks. It may be contended, that although the varicose state of the veins is present in some few instances, yet that it is not to be found so frequently

as I am assuming; and that other causes, not yet mentioned, deserve a more conspicuous place. It remains, therefore, to prove that this deviation from health in the superficial structures of the limb exists to a degree and an extent quite sufficient to account for the fact to be explained.

Mr. B. Bell, a distinguished writer on the subject, speaking of the callous ulcer, says, "It is in this species of ulcer chiefly too, that varicose veins occur as a symptom, especially when the complaint is seated in the lower extremities. This seems to be owing not only to the difficulty the blood in such situations meets with in its return to the heart, but in a great measure to the stricture occasioned by the callosities on the course of the different veins: a circumstance which, in extensive sores of this kind, must, no doubt, have a considerable influence."* I have already attempted to refute the

* *Treatise on Ulcers*, p. 255.—The works of Mr. B. Bell and Sir E. Home, though published some time ago, have been both recommended by a later writer, equal in authority to either. "The two works in the English language," says Dr. Thomson, "from the perusal of which such of you as have not studied this branch of surgery are likely to derive the most advantage, are, in my opinion, the *Treatise on Ulcers*, by the late Mr. Benjamin Bell, and the *Practical Observations on the Treatment of Ulcers of the Leg*, by Mr. Home." *Lectures on Inflammation*, p. 434.—It is useless, therefore, to attempt to lessen the force of those criticisms which, in the course of this undertaking, I have, on two or three occasions, found it my duty to make, by saying, that the publications

opinion, that the more upward course of the blood produces the varicose veins ; but what I have quoted the passage more particularly for, is, to examine with what propriety it can be said that the varicose state is a mere symptom and effect of the ulcer. If it be “ the stricture, occasioned by the callosities of the ulcer on the course of the different veins,” which give rise to the varicose state of the vessels, such condition of the vessels ought to follow, not to precede the appearance of the ulcer. But, contrary to this, an appeal to the history of these diseases will shew that the unhealthy character of the veins exists prior to the ulcer ; and therefore, of course, could not be produced by its “ callosity.” Besides which, the same state of veins is often to be found in other descriptions of ulcers, where no callosities are present to constrict the vessels, and even in some legs which never ulcerate at all. Then, on the other hand, we occasionally meet with sores, having extremely thick and callous edges, entirely unaccompanied with varicose veins : which, however, ought to exist, if the callosities are the cause of them. It is, indeed, not unlikely, that in some instances the callosities may increase the varicose affection, though existing

containing the opinions investigated are old. Besides, the evil of an error is not to be judged of so much by its age,—indeed, the older it is, if still followed, the more injurious it is likely to have been,—as by the extent to which it is adopted and pursued.

before the ulcer ; but this is very different from producing it. The opinion of Mr. Bell is farther refuted by watching the method and progress of cure in such cases. An attention to the condition of the veins, by the employment of well adjusted and powerful compression to the limb, will soon give, by its support, a more natural action to the circulation : and, in proportion as this is effected, the aspect of the ulcer improves ; whilst the mere removal of the callosities by the caustic will not cure the disease of the veins. This is exactly what we are prepared to expect, on the supposition that the varicose veins are one of the causes contributing to produce the ulcer ; and contrary to what we should find, if this state were only a symptom or effect. From all these circumstances, therefore, I think it must be evident that Mr. Bell's opinion on this subject is incorrect, and that we are perfectly justified in concluding that the varicose veins are a cause of those callous sores, when such condition of the vessels is found to accompany them.

Now it is not in the callous or indolent ulcer only that the varicose state of the veins prevails and pre-exists ; it is very commonly met with in the irritable sore, and it is not easy to assign a reason why it should not here act a part equally important. If it produce any effect in the former case, it is not likely that it is harmless or inefficient in the latter.

The mere circumstance of its forming at one time an ulcer of an indolent kind, is no reason why it should not form, at another time, an ulcer of an irritable kind; because we constantly see the same disturbing cause giving rise to different pathological effects, according to some modifying power in the constitution, or in the seat of the disease. Nor is it difficult, I think, to assign the reasons which appear to alter the operation of the one common cause, and which account for its giving rise to dissimilar effects. I have generally found that the varicose affection exists, more or less, in all kinds of very severe and refractory sores of the leg; and some of the worst states of this diseased condition of the veins, I have ever observed, were in conjunction with irritable ulcers. The circumstances which appear to determine whether this common condition of the veins shall exhibit itself in the production of an indolent or of an irritable kind of ulcer, are partly to be attributed to the constitution, and partly to local causes. The irritable ulcer is most frequently formed in persons of strength and health; whilst the indolent ulcer is most commonly produced in individuals advanced in life, or suffering from a weakened state of the system. Thus men experience the irritable description of sore more frequently than women; and young persons more commonly than old. Then, with regard to the local modifying cir-

cumstances: I have almost always found that the indolent ulcer is situated more deeply than the irritable one; the former appearing to attack both the integuments, and the less sensible cellular textures underneath; whilst the latter is chiefly confined to the vascular and excitable tunics of the skin itself. That this is the true explanation of the difference in the two instances, I am convinced; not only from having almost constantly observed a very bad ulcer of the leg, of either kind, to be preceded by a varicose condition of the veins, but, still more decisively, from having occasionally found, in the same individual, the same cause giving rise sometimes to one effect and sometimes to the other, according as the deeper or more superficial parts of the leg were affected. One of the most indolent, and one of the severest irritable ulcers I have ever seen, were both situated on the same leg; the former placed more deeply in the substance of the limb, and the latter more superficially on its surface. Nor was this to be accounted for by supposing that the indolent ulcer was lower down the leg than the other, and thus farther from the centre of the circulation; for it happened that this ulcer was high up in the posterior part of the calf, whilst the irritable sore occupied the dorsum of the foot, and front of the shin. But even supposing the solution I have here advanced be pronounced inadequate, yet we should not be

justified in neglecting the varicose state which precedes an irritable ulcer, whilst we take into our consideration the same state which precedes the indolent ulcer. We ought to admit this condition of the veins as the cause, in both instances, or in neither ; and it would be no more just to deny or overlook its influence in the irritable variety, because this is unlike an indolent one, than it would be to deny or overlook its influence in the indolent variety, because this is unlike an irritable one.

The propriety of considering the varicose affection, when it exists, as the cause of the irritable, equally with the indolent ulcer, is likewise confirmed by observing what occasionally takes place in the treatment of these diseases of both descriptions. If by any means during the progress of cure the compression be too quickly discontinued, or too greatly diminished, so that the veins are deprived of their artificial support, the local sore of either kind will generally fall back again in consequence of the healing process being arrested. A return to a proper degree of compression will be followed by a return of the healing action, and the parts will then advance onwards to their recovery. Now it is impossible to account for this relation plainly subsisting between the condition of the veins and the condition of the sore, without viewing the former as the cause of the latter.

At other times, however, by suspending the pressure after one ulcer has been so far improved by it, in conjunction with a suitable local remedy, as not to fall back, another portion of the skin will put on the disease; and this is the case in the irritable much more frequently than in the indolent kind. Now this must be the result either of some condition of the skin, or of some other parts. It is not in the skin; because, if it were so, it ought to have appeared before any relief at all was afforded to the complaint. It must, then, be the result of something else, and of something which has an existence, and is sufficient to account for the effects to be explained. The varicose veins answer to these two conditions, and, therefore, it is unnecessary, and indeed unphilosophical, to look any farther. The part which is healed being sufficiently recovered to resist the influence of the varicose state, this state exhibits its effects by exciting ulceration in another situation, whose vitality is now lower than the surfaces restored. For it is not correct, as is sometimes stated, that newly-formed parts are always weaker than the original structures; for, independently of the fact now adverted to, we occasionally find an individual who, at some former period, had his leg badly ulcerated, acquiring a spontaneous sore in a fresh, and even in a higher place of the same limb.

The same conclusion may be inferred from observing the difficulty of removing some irritable ulcers by the use of topical remedies only, compared with the readiness with which the indolent sores disappear under the employment of compression. Since the introduction of this most admirable remedy for the cure of chronic indolent ulcers, the certainty and rapidity of healing them are wonderfully increased; whilst most of the irritable sores, under ordinary and local treatment, remain just as obstinate and capricious as ever. This discrepancy of results arises in consequence of our having limited the use of pressure from overlooking the varicose origin of the irritable species. Had the same principle of treatment been extended to all sores alike, when diseased veins are present, regardless of the mere external aspect of the wound, the same good effects, I have no doubt, from my own experience, would have uniformly followed. This, if true, shews that in both kinds of ulcer the varicose state, when present, is the operating cause of evil.

The opinion that both varieties of ulcer are frequently derived from the same origin, is rendered still more probable by observing, that one form of sore is very apt to pass into another. At one time, an indolent species, under any unusual exercise or general disturbance of the system, will assume the character of irritable; but, on the removal of the

excitement, will fall back into its former state. At another time, an ulcer, which at its commencement was irritable, gradually degenerates into an indolent nature: indeed, the mere effect of time is not uncommonly sufficient to produce this alteration: so that the longest standing sores generally become of an indolent description. This, I think, sometimes arises from the ulcerative process becoming deeper and deeper in the substance of the limb, according to a fact which I have already referred to.

Another proof, which shews the dependence of ulcers of the leg of both kinds on varicose veins, may be drawn from the greater or less frequency with which they occur in different sexes, and at different ages. In children and very young persons, varicose veins are extremely uncommon—this state of vessels scarcely ever appearing till a later period of life. Now, in perfect agreement with this, children and young persons are remarkably free from troublesome sores in their legs: for, although from their inexperience and fondness for running into danger, they are repeatedly getting injuries on their legs from blows and falls, yet such accidents almost always do well of themselves. When we meet with a young person suffering from an intractable ulcer of the limb, it can generally be traced to some unhealthy condition of the bone, or of the system at large, which fully explains its

origin and obstinacy. Of adults, also, men are much less liable to varicose veins than women, and, so far as I have seen, are proportionably exempt from sores on their legs, although their pursuits and employments render them more exposed to wounds from external causes. Females in the middle, and especially in the decline of life, are the most frequent subjects of varicose veins; and it is in this class of individuals, though the least endangered by outward causes, that ulcerous diseases of the extremity are by far the most common and the most refractory. The conclusion is farther strengthened by observing a frequent difference which exists in the situation of ulcers in the two sexes. In men they are not uncommonly found on the front of the limb, being the part most liable to be affected by external contact; whilst in women the sides of the leg, where the principal veins pass up, are the principal seats of the disease.

I shall mention only one argument more in favour of the opinion I am attempting to establish, but which, if acknowledged to be satisfactory, must in itself be sufficient to prove my position. What I allude to is, the fact that if an individual in good health receives a cut or wound on his leg, it will heal as readily as a similar accident occurring in any other situation, unless the limb is suffering from some unhealthy condition in its outer structures.

I am quite aware that it is the prevailing opinion that wounds on the lower extremities never proceed so favourably as the same kind of accidents on the upper: but this conclusion seems to be formed by taking for granted the very question under discussion; it appears to suppose it because the limb is in a dependent position. The unhealthy condition of the parts which I believe would often be found present to account for the particular fact when it takes place, having been overlooked, or not sufficiently acknowledged, the cause of the occurrence has been at once resolved into a general property of the limb. I have watched the progress and effects of many recent cuts and wounds on the leg, and I have almost always found that they get well as quickly as they do when situated on other portions of the body, except the individual be labouring under either some constitutional disturbance, which would equally affect the same injury in other parts, or some local unhealthiness of the limb, which particularly influences it in its present situation. This statement, so important to the decision of our inquiry, is probably confirmed by the personal experience of almost every individual. There is scarcely any one, perhaps, who has not at some period experienced a cut or wound of even some severity on his leg; and yet how rarely it happens that such accident does not heal without much care being

bestowed on it ; or, at least, without more attention than would be required if it had occurred on the body or upper extremity. In the majority of such instances, indeed, the natural tendency to recovery is so great, that the part has healed even in opposition to unsuitable applications, which the poorer classes especially are so accustomed to employ. It is only when some constitutional indisposition, or some local unhealthiness of the structures, exists, that such injuries commonly degenerate into the character of a sore ; but where such causes are present, and particularly the latter, even a trifling scratch may be sufficient to give rise to an ulcer.

It is not likely that the truth of this statement will be disputed, confirmed as it is by the experience of every day ; but it is possible that the explanation advanced to account for it, and, consequently, the correctness of the conclusion drawn from the fact, may be questioned. It may be contended that the reason why slight injuries, which in the majority of instances get well of themselves, degenerate on some legs into troublesome sores, is owing to a faulty state of the general health of the individual at the time of receiving the accident. That this is occasionally one cause, there can be no doubt, and its influence has accordingly been acknowledged in the last paragraph ; but that, in by far the greater number of cases, it arises from the local unhealthi-

ness of the limb, is plain, from the simple fact of such a condition of the structures being present. It will be found, on examination, that varicose veins, or unnatural deposits, are a common occurrence in such legs; and it seems unreasonable to overlook a cause, the existence of which is not only apparent, but whose power and properties are known in other instances to produce equal, and, indeed, greater effects; this state of the parts not unusually giving rise to even a spontaneous sore. Besides, in most of the cases under consideration, there are no symptoms of a want of good health in the individual: but the indisposition appears to have been assumed, in order to account for the fact; which is taking for granted the truth of the position, instead of establishing it.

I have thus detailed several circumstances which render it, I think, highly probable that both the indolent and irritable description of sores very often originate from the same cause, and that such cause is frequently a varicose state of the veins. But even supposing these arguments to be inconclusive, and, indeed, independently of all reasoning, the very important, because practical, doctrine which I am desirous of establishing, may be fully substantiated by an appeal to experience. It is from this source that I have drawn my opinions, and it is upon this foundation that they rest. I have traced the

history, and carefully examined the appearances of several hundred cases of ulcerated legs, both of the irritable and indolent kind, and I have been astonished to find how frequently the varicose affection, with or without adventitious deposits, precedes and perpetuates the local evil.

These are the results which I have observed in those cases which have fallen under my own inspection. Out of a hundred cases I have found—

79	Varicose, consisting of 41 simple, 27 very irritable, 11 very indolent.
21	Non-varicose 15 ditto, 4 ditto, 2 ditto.
	Of the whole number .. 68 females 32 males.
	Of the 79 Varicose 59 ditto 20 ditto.
	Of the 21 Non-varicose 9 ditto 12 ditto.

I have sometimes been at a loss, when seeing case after case of bad ulcerated legs depending on varicose veins, to account for the reason why this cause is not brought forward in treatises on the subject, as forming, not a subgenus merely, but a leading and comprehensive class. The varicose kind of sore has indeed, for a long period, been acknowledged by some writers as constituting a species; and, curious as it may be thought, it is, perhaps, from this very circumstance, that the unhealthy affection of the veins has not been viewed in the more just and important light, as offering the best foundation on which a practical classification of ulcerous diseases can be built. For the partial recognition of a truth, is not uncommonly the reason

why it is not apprehended to its full extent; because, when an individual instance is seen, it is liable to be referred back to the supposed limited occurrence of the thing, instead of carrying us onward to the belief of its more general existence. Had there been no species of the varicose ulcer allowed by authors, every surgeon would have been soon satisfied, from his own experience, of its common existence; but having been acknowledged at all, though, I believe, in an imperfect manner, when a specimen has presented itself, it has perhaps been merely thought that one of a rare kind has been found. This sort of error, on any subject, can never be rectified, except we not only become willing to observe for ourselves, but also possess the opportunity of inspecting and comparing a considerable number of particular cases. It is not until we have the advantage of an enlarged experience that our opinions become either extended or limited, according to their truth.

Other circumstances might, however, be mentioned, which contribute to explain the reason why the varicose state has not been more generally acknowledged as the cause of ulcerous diseases of the leg. It is sometimes obscured by the effects which it produces on the surface of the limb. Œdematous swellings, and still more completely thickenings of the integuments, though themselves evils not unusually springing from this source, are occasionally

sufficient to conceal its existence, unless accurate search be made. Besides, if the varicose condition be not very conspicuous, so as to attract notice from the size and colour of the veins, it is possible for it to be entirely overlooked ; and yet it is evident that even this less severe form of the affection must be productive of injurious consequences.

The principal reason, however, why the varicose affection has not been sufficiently attended to, as the cause of ulcerous complaints, arises most likely from the custom of giving them another origin. In order to account for the frequency of bad legs, recourse has commonly been had to the dependent position of the limb, or to its remoteness from the heart ; and these conditions, at first sight, possess just that degree of plausibility which is enough to prevent us from looking any farther. The consequence is, that we have rested satisfied with this explanation ; and, by doing so, we have, I believe, committed the double error, of adopting a wrong solution and missing the right. A fallacy resembles a truth in this respect, that it rarely terminates in itself ; for, as in the present instance, one error almost always begets another.

I have thus endeavoured to prove, that the lower extremities are frequently the seat of a positive and palpable unhealthiness of their outer structures, consisting of a varicose state of the superficial veins,

either alone, or combined with adventitious deposits ; that it is principally this deviation from its original state, in those individuals in whom it exists, that makes the leg so susceptible to ulcerous attacks ; and that it is from the absence of this depraved condition in others, which chiefly accounts for the reason that the same, or even greater exciting causes, are then not followed by the same troublesome sore. Neither can it be said that this unhealthiness itself arises from the direction or locality of the limb ; for, if it were so, all legs ought equally to labour under it. It results from some mechanical interruption to the flow of the blood, or from some diseased or weakened state of the veins, either of which may render the vessels unable to convey the blood properly home to the heart. This fact, if established, not only solves what is inexplicable on the other suppositions, but leads to a more precise and determined plan of treatment. It tells us that the obstacle to be overcome, towards the removal of many of the most refractory ulcers on the leg, is an obvious and a manageable evil. It holds up to our view a defined cause of the mischief against which we are to direct our efforts ; making, at the same time, the remedies required, simple and uncomplicated, by the distinctness with which that cause is invested. But these considerations must not be dwelt on here, as they have been already adverted to, and will appear still more

fully when we come to discuss the principles of treatment. It may, however, be remarked, before we proceed farther, that if the attempt has succeeded which has been made to establish the existence of a defined unhealthy character of the superficial parts of the leg as the frequent cause or continuance of ulcers, this not only renders the explanations derived from the position or situation of the limb unnecessary, but falsifies them both. For, independently of the objections which I have urged against the usual solutions of the fact, that the consequences are not co-extensive with the alleged causes, such explanations are shown to be false by proving that a different one is true. The question to decide, therefore, is, whether this varicose affection possesses the two characteristics of a true cause; viz., having an existence, and being sufficient to explain the fact to be accounted for; and that these two qualities belong to it, enough, I think, has been said to evince. But if this be so, we are placed in a more advantageous position than at the commencement of the inquiry to investigate the merits and claims of the usual explanations. We are now authorized to reject those, not only because they are unsatisfactory in themselves, but from being able to advance in their place another solution more entitled to our reception. An adequate cause on any subject being brought

forward, not merely requires us to adopt it, but compels us to relinquish all other conjectures. This arises from the very nature of the unity of truth; for whilst there may be many wrong theories on a question, there can be only one that is right.

If I have at all succeeded in the undertaking which I have engaged in, to establish the frequent existence and important influence of varicose veins in connexion with ulcers of the leg, that very success will, not unlikely, be the means of exciting some remark from an opposite direction. Nothing is more common, when an effort is made to prove what is believed to be true, than first of all to question its reality; and, after it is shown to exist, to maintain that it contains nothing new. Now it ought in every such case to be distinctly stated and insisted on, that both these objections cannot be valid, and that the one being in direct opposition to the other, the fact of advancing the two, though by different parties, affords the best proof that neither applies.

If, then, the views which I have taken from experience respecting the existence and importance of the varicose affection be admitted, and if it be said they possess nothing novel, that they are very old, and were always acknowledged,—I answer, in the first place, by asking, how comes it, then, that these opinions are not more frequently alluded

to in books, and more frequently acted on in practice? How happens it that in some works on the subject, of high reputation and authority, we meet with so many instructions for using vapours, fomentations, and washes; and that ulcerated legs of all descriptions are so perpetually wrapped up in poultices? Every one knows that the effect of these remedies must be to soften, weaken, and dilate the structures to which they are applied. Why, then, should they be so commonly prescribed if it be so well and generally known that the varicose affection is the prevailing cause of the different kind of ulcers; which affection, in all common sense, requires a very opposite treatment?

But waiving this, I answer, in the second place, an examination of the works of the most celebrated writers on Ulcers will soon convince us that the varicose state of the veins has not been considered so frequent and essential a cause of these diseases as I have attempted to prove. A very brief review will be sufficient to show that this affection of the veins, though recognized by some authors, has not by any been brought so prominently forward as I think its importance demands; much less proposed as affording the leading character for arranging ulcerous complaints of the leg. This inquiry will also serve the purpose of introducing us to the consideration of the classification of ulcers; which

is one of the objects embraced by the present chapter.

Although it is well known that Wiseman speaks of a varicose ulcer, and used in its treatment the laced stocking, his opinions of the nature of this kind of sore are not, I think, so generally understood. He does not view the varicose state as a cause of the ulcer, strictly speaking; or certainly not to any great extent; for when this diseased condition of the veins was found in combination with a sore, he arranged it, to use his own words, amongst "the accidental differences which are taken from those things not intrinsic to the nature and constitution of an ulcer."* But even had this distinguished man considered the varicose affection in the juster light of an essential cause and element of the ulcer, yet, by the arrangement of sores which he afterwards adopts, it is obvious that he did not think it operated to the extent which I believe it does in the formation or continuance of the disease.

The paragraph already quoted for another purpose from Mr. B. Bell is the only instance in which he refers to the existence of the varicose disease in his whole book; and there he viewed it merely as a symptom or effect of the ulcer. What he has stated in that place is very plain and unequivocal; but if any farther evidence were

* Chirurg. Treatises, vol. i., page 263.

required to prove that he did not consider this affection of the veins as productive of any kind of sore, it would be afforded by observing the manner in which he praises the use of pressure in the scrophulous ulcer. "In no species of sore," says he, "is it so evidently indicated, and of so much utility." That in this kind of ulcer, when situated in parts which will admit of it, compression is of great benefit, by leveling the edges, every one must allow; but then its advantage must be much greater in those cases of sore arising from varicose veins and adventitious deposits. In confirmation of the correctness of the view here taken of Mr. Bell's opinion, it may be farther added, that in his arrangement of sores the name of varicose finds no place, although he has eleven divisions of ulcerous diseases.

Mr. Baynton, it is true, speaks of varicose veins "attending" two or three of the Cases he has recited; and likewise asks in another place whether "one of the difficulties in curing ulcers may not arise from a deficiency of the absorbent powers of the veins in that variety of the disease attended with a varicose state of those vessels;"* but he nowhere assigns the varicose affection as a cause of ulcers; neither was it with a view to sustain

* Descriptive Account of a new Method of treating old Ulcers of the Legs; page 41.

the action of the veins that he introduced the adhesive plaisters. The thought which directed him to try the strapping in states of old ulceration, was the good he had observed from having as small a cicatrix as possible after the healing of the sore ; and justly considering that this desirable object would be greatly effected by approximating the edges as nearly as he could, he had recourse to strips of adhesive plaster to obtain this end. The obstacle to be overcome in permanently curing a bad sore, he thought, consisted in a disordered state of the lymphatics, and that the general pressure on the limb acted beneficially on the ulcer by assisting their function. After advancing arguments for this opinion, he states,* "I therefore conclude that the principal difficulty which occurred in the curing of ulcers, has been occasioned by deficiency of power in the absorbent vessels." In another place, we shall have a better opportunity of inquiring into the manner in which compression acts ; where I think it will be evident, that although it is of great service, by exciting the lymphatics, especially when unnatural deposits exist, yet that its chief advantage arises from supporting the veins, and thus indirectly accelerating the capillary circulation. All that is required to prove here is, that Mr. Baynton did not view the varicose

* Page 34.

veins as a leading cause of ulcers; nor was it with the primary intention of aiding and strengthening this class of vessels that he introduced his very useful method of treatment.

Dr. Underwood and Mr. Whately have not once alluded to the existence of varicose veins in the leg as being a cause of ulcers, although they are both very able and strenuous advocates of pressure. The first of these writers has not, as I can find, even mentioned this condition of the veins in any place of his treatise; and the second has only once incidentally adverted to it, in a part of a note, as being a state benefited by the use of the bandage, in common with some other advantages obtained by its employment. "I have been very particular," says Mr. Whately, "to discover the true cause of an acknowledged fact; namely, that wounds on the lower extremities are healed with much more difficulty than those which are made in other parts of the body." He judiciously observes, "If the cause of this fact be ascertained, we may then hope to arrive at a certain method of cure." He then continues—"That wounds and ulcers of the leg are of more difficult cure than those in any other part of the body, is a circumstance which is attributed either to their dependent situation, or to the greater languor of the circulation in them as extreme parts. The more general

opinion I believe is, that it is owing to the former cause; but Dr. Underwood attributes it to the latter—"I think, however, that we shall find, on the strictest examination, that it is almost entirely owing to their dependent situation."* Although I believe these explanations of the fact not sufficiently precise to be satisfactory, yet both of these writers carried out their principles into practice much more consistently than many others entertaining their opinions. Mr. Whately employed compression to a great extent as the agent most suited to counteract the real or supposed ill effects of a dependent position; and Dr. Underwood used the remedy to the same degree, as being able to admit of exercise with a view to rouse and assist the vitality of the parts. Neither of these authors has, however, acknowledged, or at least not mentioned, the frequent presence of the varicose state which I have attempted to establish; the admission of which is, I think, not only necessary to account for the greater liability to sores, and difficulty of healing them, in some legs, than others,—but at the same time affords a more defined cause of the disease, against which our remedies can be applied with better precision and success, than merely directing them to the natural condition and properties of the limb.

* Practical Observations on Wounds and Ulcers of the Leg; page 9.

Sir E. Home has recognized the varicose state in connexion with ulcers of the limb more than any writer that I have seen—though not by any means to its full extent. It is, however, of great importance to observe that he speaks of this division of ulcers as being merely “attended” with varicose veins; and instead of assigning this condition as the cause, states that “they have their origin from some accidental cause.”* Neither does he consider that this state of the veins ever produces an unhealthiness in the outer structures of the limb, preparatory to the ulcer, the existence of which I have attempted to show as giving rise to sores, either spontaneously or from the most insignificant injury; for he explicitly maintains—that “there is at that time no disease whatever in the part itself.”† Besides this, he has advocated, for its removal, an operation which, in its proper place, I shall attempt to show to be harsh, uncertain, and unnecessary. Sir E. Home seems to confine the varicose sore to the inside of the leg, just above the ankle. This is indeed one very common seat of it, but I have found it nearly, if not quite, as frequent on the outside of the leg. I think the most prevailing situation has been on the external side of the dorsum of the foot, in a line drawn from the ankle to the top of the instep.

* Page 274.

† Page 276.

The fact is, the smaller saphena vein I have as often seen varicose, as the greater; and when this is the case, ulcers will appear in its track, as well as on the inner side of the leg. Sir E. Home supposes also that these ulcers "have their origin from some accidental cause; and when once they take place, are difficult of cure, and almost always break out again." This is perfectly true respecting many of them; some, however, are not produced by any external violence, but spring up spontaneously in the limb, without any injury from without. Neither is the ulcer always so superficial nor so free from uneasiness as this writer supposes: I have occasionally seen it very deep and very painful. When situated on the inner side, it is commonly productive of but little suffering; but when it takes place on the outer side, it often gives rise to the most excruciating pain. Ulcers of any description, indeed, in this position, are generally accompanied with more uneasiness than when found on other parts of the limb. But the circumstance which, of all others, proves that Sir E. Home did not acknowledge the varicose state of the veins to be a cause of sores so extensively and frequently as experience has led me to believe, arises from the very classification of ulcers which he has adopted. He has arranged them all under six orders: the four first, according to the

nature and degree of the action they exhibit; the fifth, in consequence of some specific state; and the last, from the presence of the varicose veins. But the great frequency with which this state of the veins occurs, and the important influence which it exerts when it is found, compel me to think that merely looking upon the varicose affection as producing one kind of ulcer in common with the irritable and indolent, does not go far enough. It ought to be recognized, I believe, as the cause of the irritable and indolent varieties, in a great number of instances; and that these superficial characters, if they be allowed to confer any name at all, should be subservient to, not on a footing with, the distinction arising from the absence or presence of disease of the veins. It is not sufficient that the varicose be considered as one kind of ulcer in common with others, called, as may be, irritable or indolent; but it should be viewed as the parent of the others whenever it exists along with them. Sir E. Home, however, has limited the term varicose to a sore possessing the following characters: "This species of ulcer is seldom very deep; when it spreads, it is generally along the surface; its shape is commonly oval, the ends of the oval pointing vertically. The edges of the surrounding skin are commonly neither thick nor irregular, but are imperceptibly lost in the ulcer.

The pain which it gives is seldom from the surface, for pressure does not increase it,"* &c. Instead, however, of confining the term varicose to sores of this kind in contradistinction to those which are deeper and more irritable, I think the name varicose, when this state is present, should be extended alike to all. If the varicose affection exists, it ought to be viewed as the cause of the sore or the reason of its obstinacy if derived from violence, without any regard to its outward aspect. Whether the sore be superficial or deep, oval or round, easy or painful, indolent or irritable, makes but little difference, provided the varicose state is present; as it is this state, and not the external character of the ulcer, which ought to confer the name. The whole inquiry, therefore, resolves itself into a question of fact. Does the varicose affection exist in connexion with the other and opposite kinds of sore as well as with the ulcer answering to the description given by Sir E. Home? Does it precede and accompany the irritable and painful as well as the indolent? the deep as well as the superficial? In reply to this, I can confidently state, that I have often found this condition of veins in conjunction, at one time, with the irritable and painful kind of sore, and at another time with the deeper-seated and more indolent description; and I have already attempted to prove

* Page 275.

that no reason can be advanced why we should acknowledge the diseased state of the veins as the cause in one instance and deny it in the other.

But not only has Sir E. Home limited the frequency with which varicose ulcers occur, but even when he has acknowledged this disordered state of the vessels as one cause of a sore, he has limited it respecting the extent it may occupy on the limb. He defines these sores to be "ulcers in parts which are prevented from healing by a varicose state of the superficial veins of the upper part of the limb." But it is not in the upper part of the limb only that the varicose affection appears; nor is it in that position only that it prevents the ulcer from healing. I have repeatedly seen the veins about the upper and outer surface of the foot dilated, knotty, and discoloured, forming a kind of net-work underneath the skin. When this state of the vessels exists, we might presume that it must be productive of mischief, as well as when the vein is distended higher up in its course; and that this is the fact, I have seen, I am sure, a hundred instances to prove.

If it be said that it formed no part of the design of Sir E. Home to treat fully of the varicose affection, but that his remarks were intended simply to introduce his recommendation of the ligature—this, if true, though not appearing to be the case,

from the systematic nature of his work, will indeed explain the reason why he has almost entirely confined himself to the consideration of those ulcers attended with a varicose state of the greater vein. But then this very circumstance affords an additional argument why the doctrine should be more largely discussed and delivered by others; and I am not aware that any writer on the subject has investigated the topic with any greater, or even equal minuteness, since the appearance of Sir E. Home's publication.

Although Sir E. Home has more fully treated of the existence of varicose veins attending ulcers than any other author that I am acquainted with, yet he has not insisted on the frequent presence of adventitious deposits in the limb. These, it is true, commonly flow from the varicose state, but not always so; and even when they are merely a consequence of the venal disease, they deserve to be mentioned and described. These unnatural formations impart at all times such a degree of obstinacy to any ulcer which happens to occur, and the removal of them is so necessary in order to heal the sore, that it is scarcely possible to attach too much importance to them, in connexion with ulcerous complaints of the leg.

From this brief statement and examination of the leading doctrines entertained by writers on the

subject, it is clear that the varicose affection has never been proposed to form the basis of an arrangement of ulcers; but that by some authors it has been denied, or overlooked altogether, and by others it has been merely considered as constituting an order, or species, instead of a class. Any opinion, however, short of this comprehensive mode of viewing the varicose state, is, I believe, not sufficiently extensive; and I have therefore endeavoured to bring it more prominently forward, by assigning to it, as will presently appear, the place which I am convinced its frequency and importance deserve. Should such an opinion be considered erroneous, it must nevertheless be acknowledged to vary from the usual method of viewing the subject. If the doctrine be false, it ought to be refuted; but it cannot be silenced by pronouncing it well-known. To say that the varicose affection occasionally attends an ulcer, is one thing—to say it is the most frequent cause of the production or continuance of bad ulcers, is another; and though the former proposition is very old, I believe the latter is very new. Neither can the opinion be justly neglected by condemning it as speculative and useless. Truth requires us not only to take the right view of a question, but also demands that the view be as wide as nature has made it; whilst the precision and success of all curative efforts essentially depend on

the distinctness and completeness of our opinions concerning the evil we have to encounter.*

In addition to these two leading causes, viz., external violence and the varicose affection, the lower extremities are equally liable with the rest of the body to other ulcerous attacks, arising from other causes. We sometimes find in old and enfeebled persons, a general weakness in the structures of the limb; which, though rendering them prone to ulcerate, or adding to the difficulty of cure, can

* I beg in this place to remind the reader of a remark already made in the Preface, that the conclusions which I have here and elsewhere advanced are stated simply as practical inferences drawn from those Cases which have fallen under my own inspection. Such conclusions can be only approximations to the truth; for, before they can be considered in the light of established principles, they must coincide with the aggregate results of many inquirers. It is even possible that they will be found, when tested by a much larger experience, to form exceptions to a rule, and not the rule itself. Should, however, this prove to be the case, yet the varicose ulcers must be of common occurrence, in order to preponderate so greatly in the thousand instances which I have examined; whilst, from the frequent obstinacy of this description of sore, it requires, perhaps, a greater consideration than any other class of ulcerous diseases. "The varicose," says an able writer, "is a very obstinate form of ulcer, and baffles often the best directed efforts of our art." *Thomson on Inflammation*, p. 439. I shall, however, have an opportunity of stating hereafter, that I am always glad to find the varicose affection accompanying a bad and refractory sore leg, from the precision which it gives to the measures of treatment, and from the uniform success which in such cases has followed the practice I have pursued.

scarcely be called a state of disease. This, therefore, is not strictly embraced by the principal cause already described. But such tendency to sores, arising from a want of strength in the parts, cannot be fairly imputed to either the locality, or direction of the limb, but should be ascribed to that deficiency of power common to all the organs of the body, when bowed down by sickness or age. Many of the forms of eruptive complaints are formed on the skin of the legs, in common with other parts of the surface. There is indeed reason to think that some of these diseases occur more frequently on the lower limbs, than elsewhere; and that their origin should be sought for in the varicose state of the veins. To be convinced of this, it is only necessary to attend to their history from the commencement, and to observe the manner in which an improvement in the condition of the vessels, by proper treatment, alters and removes the attack. I believe a regard to this circumstance would very much simplify our notions of some of these complaints, which have been so ingeniously, though perhaps unnecessarily, subdivided; as well as most materially assist us in our indications and efforts of cure. The leg occasionally suffers from œdematous and other swellings, which impart a degree of obstinacy to any ulceration which happens to occur. Most frequently, indeed, these depositions arise from

varicose veins, according to the manner already mentioned; but this is not invariably the case. In some instances, the enlargement appears to be produced even by the ulcer itself, and in such cases it is generally of a fluid consistency, resembling a local œdematous swelling. It seems then to result from the concurrence of the two following circumstances: when the sore is of an inflammatory origin at a given circular distance beyond the centre of the disease, the parts have been excited, and this action terminates by effusion; whilst the fluid is not readily absorbed, in consequence, probably, of the destruction of the continuity of the lymphatic chain of vessels, by the presence of the ulceration of the surface; the quantity of serum being too great to be carried into the collateral channels. But whatever may be the origin of this increased size of the limb, it is a most important circumstance in connexion with its ulcerated states. Whenever it is present, it is a serious difficulty in the way of recovery; and, unless it be previously reduced by its appropriate remedy, no local application to the ulcer will be followed by much effect. The manner in which the unnatural deposits operate to prevent the healing of a sore, appears to be similar to that which arises from the varicose affection, uncombined; by reducing the superficial structures of the limb, below their ordinary vital powers.

The presence of the enlargement, when not produced by the varicose affection, seems indeed to presuppose a want of energy in the lymphatics; but when it once takes place, it interferes still farther with the healthy action of this class of vessels, as well as obstructing the capillary circulation. It likewise prevents a ready formation or union of parts, by the irritation it is calculated to excite, as well as by mechanically keeping the structures in a distended and separated state, instead of allowing them to become firm in themselves, and in contact with one another. The legs are equally subject with other parts of the body, to those forms of ulceration which are the result of idiopathic inflammations, both of the phlegmonous and erysipelatous kinds. They are likewise occasionally the seat of specific sores, arising from some poisonous influence in the system. The reason why some of this kind of ulcers take place on the inferior extremities, in preference to other portions of the body, may be owing to the coincident operation of the two leading causes enumerated above. The exposure of the limb to outward violence renders it liable to injury, whilst the presence of the varicose affection makes it prone to ulcerate; and a wound or sore once formed, readily puts on a specific character, when any morbid disposition of the body exists which is calculated to produce it.

All ulcerous diseases of the leg appear to admit of a very easy and natural arrangement into general and local; and, accordingly, this has been adopted by almost every writer. The first, or constitutional class, is subdivided in conformity to the nature of the diseases from which the sores arise—as venereal, scrophulous, and the like. The subdivisions of the second or local class, instead of being derived, as is usually the case, from the mere external aspect of the ulcers, should, I think, be taken from the more important and permanent distinction, arising from the presence or absence of the varicose state. All sores of this class may, therefore, be arranged under two orders, determinable by the condition of the veins—first, varicose; second, non-varicose. Under each of these orders may be retained the species or distinctions arising from the superficial appearance and character of the ulcer, according to the threefold degree of action exhibited—irritable, simple, indolent. Thus we should have varicose irritable, varicose simple, and varicose indolent; and non-varicose irritable, non-varicose simple, and non-varicose indolent. The two general classes may be farther considered as separate or combined, according as the specific sore takes place on a varicose or non-varicose limb; giving, for instance, venereal varicose, venereal non-varicose—each possessing its three-fold degree of

activity ; and so of the rest. The object of such a classification is to make the presence or absence of the varicose affection one of the leading foundations on which the whole is built ; as being the element of the greatest practical importance. When I have observed this simple distinction in practice, I have in general found that it is comparatively of little consequence whether the superficial aspect of the ulcer be what is termed irritable or indolent—exuberant or callous. An attention to the varicose condition of the veins, when present, has, with nearly equal facility, removed each variety of ulcer, by the use of the same form of application hereafter described ; whilst, on the contrary, the same application to the same kind of ulcer so far as its mere external appearance is concerned, varies in its effects, just in proportion as it depends on the varicose state, unless great attention be directed to this constituent of the disease. Nothing can be clearer, therefore, that this last characteristic furnishes a much surer ground for a practical arrangement of ulcers than the former—or rather, that the former affords none at all.

I believe all the ordinary arrangements of ulcers of the leg, taken from the mere superficial appearance and external character of the sores are essentially defective. The inquiry should not be so much what is the outward aspect of the sores, as what is the inward state of the veins, and other structures

of the limb ; as this last is chiefly to determine the plan and practice of treatment. I have commonly found that if two ulcers of dissimilar external appearance result from this cause, nearly the same method of treatment will remove them ; whilst for the cure of two ulcers, of the same superficial character, if the one arise from this cause, and the other not, a difference of management will often be required.

The classification of ulcers, according to their mere outward and superficial appearance, has likewise, I think, been productive of great evils, and disappointments in practice. Much of the vagueness and uncertainty of our opinions has, I believe, arisen from this source, as well as many of the failures and miscarriages to which our treatment is liable. For an ulcer possessing the same external aspect, will be affected very differently by the same external application, according as the varicose affection and adventitious deposits be present or absent. In the latter case, an ulcer will usually heal, if the constitution be good, with almost any remedy, or even in spite of a bad one ; whilst, in the former, the mere use of any topical application will do but little, unless combined with compression to the limb. Hence the chief reason why ulcers of the same description, as regards their superficial character, frequently exhibit such very different effects under

the use of precisely the same local application. Hence, also, arises, probably, the great diversity of opinion what kinds of ointment, and the like, are the best; whilst, from the uncertainty and occasionally opposite effects of our remedies, there is, sometimes, a discredit thrown upon them all.

Another practical evil resulting from the ordinary classification of ulcers, by their superficial appearance only, is the limitation which is given to the employment of pressure. The most strenuous advocates of the bandage and strapping appear very much to confine the use of these remedies to the description of sore, usually called indolent, and to prohibit their employment in what are denominated irritable ulcers. I have been long convinced from experience that nothing can be more fallacious and unfortunate than this doctrine. What has always guided me in the application of compression is, not the condition of the ulcer, but the condition of the structures underneath;—not the question whether the ulcer be indolent or not, but the question whether the veins be varicose or not. I shall in another place have occasion to shew that this deep-seated condition of the limb, is the leading circumstance which should direct us in the employment of pressure, and not the external aspect of the ulcerated surface. All that is here maintained, is, the fact, that the common arrangement of sores, tends to confine

this most important agent within extremely too narrow bounds.

But not only does the classification of ulcers, according to their outward character, convey uncertainty into our remedies, and limit the employment of compression, but it is absolutely calculated to mislead us in our treatment. It does this not merely by the frequent omission of a very essential constituent of the disease, I mean the varicose affection, and by trusting too exclusively to the topical application of ointments or poultices; but as respects the very nature of the application supposed to be indicated. For if the terms indolent and irritable are to be taken in their precise meaning, which they must if the classification is of any use, each must have for its correlative the opposite state. An indolent ulcer, therefore, must indicate for its removal the employment of something to excite; an irritable one, the employment of something to allay. The former will demand a stimulating local remedy, the latter a soothing one. This, indeed, comprises the directions usually given on the subject, and is, I think, an instance of the manner in which the common views have misguided us in practice. For, in opposition to these doctrines, I am confident that one of the very first things which will strike an impartial observer is the fact, that a bad irritable sore almost as often

requires local stimulation as an indolent one. The truth of this statement is, indeed, practically acknowledged by the frequent use of the solutions of nitrate of silver, diluted acids, and the varied ointments of mercury ; all which remedies are employed in these obstinate and troublesome complaints upon the well-known principle of destroying the morbid condition of the parts, by substituting a higher but more temporary and more manageable action. Then, as regards the other class of sores, called the indolent, unless these are very sluggish and insensible indeed, the best local application is, I believe, a simple calcareous ointment, for the purpose of forming a gradual incrustation ; and then, by disturbing this as little as possible, afford an opportunity for a sound cicatrix to form underneath the artificial scab. All busy and meddling interference by washings, fomentations, and poultices, and still more so all indiscriminate applications of irritating substances, are not only unnecessary, but are absolutely prejudicial ; and answer no other purpose than to retard, if not to frustrate altogether the healing process. This method of treatment, by producing a gradual crust first on the margins and then on the face of the sore, which I have now for some time pursued with the most decided success, is very fully detailed in the second and third chapters : and one of the chief intentions I have in this little publication

is to explain and advocate it. Assuming, then, for a moment, the soundness of this proceeding, and which, too, experience has confirmed, it at once opposes and condemns the frequent use of all stimulating and exciting topical remedies to the common indolent sore. Both methods of treatment, then, thus briefly adverted to, afford a practical refutation of the justness of the common division of ulcers as a guide to practice. Such division is, consequently, useless. It is even calculated to mislead; since, if its indications were strictly followed, it would forbid the use of those plans of treatment which experience has so abundantly sanctioned.

Now, when it can be proved that any given mode of treatment is uncertain, limited, and erroneous, the doctrines which teach and enforce it must be unsound. We are at liberty to reason back from the practice to the theory; and the fallacy of the latter is established by proving the insufficiency of the former. We may test the speculative rule by its practical results; and, by a species of *reductio ad absurdum*, the inefficiency of the consequences are a proof of the fallacy of the principle. And thus, since the common arrangement of ulcers by their superficial characters merely, lead to the adoption of a treatment which is both defective and misleading in practice, the unavoidable inference is, that such external appearances cannot

furnish the groundwork for a safe and satisfactory classification.

Instead, therefore, of a more complicated, and, I believe, sometimes misleading classification, I have been in the habit of practically arranging all kinds of ulcers under these two very general heads—as they possess, or as they want, the varicose affection and its consequences. A primary attention to this will be found greatly to simplify our views and management of these diseases; and nearly all that is required by the method of treatment hereafter described, with the exceptions there pointed out, is to observe this comprehensive division. Should it, however, appear that the few remarks which I have ventured to offer on the causes and classification of ulcers be unsatisfactory, this cannot invalidate or lessen the good effects of the practice which has been pursued. Observations of the disease and results of the treatment obtained are, indeed, the foundation of the arrangement proposed; but those cannot be shaken, even if this be destroyed. The success of the method has been established by experience; and, like all other realities, it rests not on any theory for its support. Conjectures as to the origin of facts, and inferences deduced from them, may either or both be false, but facts themselves are infallible.

CHAPTER II.

GENERAL PRINCIPLES OF TREATMENT.

IT appears from the preceding Chapter, that there are chiefly two circumstances which demand our attention in the treatment of ulcerous diseases of the leg—the superficial sore on the surface, and the deep-seated affection of the veins and other structures underneath. In practice, we shall very commonly find these two elements combined; but it will be advantageous in the present place to consider them separately.

Disease, in all instances, is a deviation from health; and the cure consists in the restoration of the original state. When the difficulties to be surmounted are not very great, this may frequently be accomplished by the unaided efforts of the system. At other times, the obstacles to be overcome are more than the unassisted energies of the body

can subdue ; and then the tendency usually is to depart still farther from the healthy standard.

In our present inquiry we shall have to consider each of these conditions ;—the ulceration on the surface partaking very much of the character of the former ; the deeper-seated affections of the limb of the latter.

When the efforts of the system are adequate to the removal of disease, our duty is to observe the steps which nature takes, and record her method of proceeding for our rule of practice. The principle of treatment in all such cases consists in *imitating a natural process*.

When the system is unable of itself to conquer the disease, we must, whenever it can be done, assist its endeavours by placing it in a position which will enable it to remove the evil. The principle of treatment in all such cases consists in *introducing a healthy action*.

It is upon these two principles that the plan of managing ulcers, which I have been in the habit of pursuing, is built ; and I shall now attempt, with as much brevity and simplicity as I can, to explain and apply them. The present chapter will contain an exposition of these doctrines, and the next the method of adapting them to particular cases.

I. *The imitation of a natural process.* The principle which should regulate us in the treatment

of the exposed surface, consists in imitating a natural process; and in order to understand the nature of this process, we must observe what takes place, when nature alone accomplishes the cure. For this purpose, we may choose our example from savage, or even from animal life. If a beast in the field stakes itself, the blood pours out, and some of it coagulating, forms a crust on the wounded part. If the injury is not very extensive, this covering may probably be sufficient to protect it from all external influence, and to allow the formation of a healthy skin underneath; when the cure will be very speedily and effectually performed. Even the union by the first intention, as it is called, seems in some degree to be indebted to the presence of the blood acting on this principle. At other times, when the accident is more severe, suppuration takes place, and a purulent secretion is thrown out; which, in a short period, becomes dry, forming a scab first on the margins, and then over the surface of the sore. This shields the part from all outward injury, and thus covered and protected, a new skin is formed, and the crust drops off. If by any means the scab be removed before the cure is completed, another quantity of fluid is supplied, which hardens in the same manner as the former; but then all the intermediate time is lost. Although, from our habits of interference, we do not possess

the same opportunities of seeing the natural process of cure in the human subject, yet it may be occasionally observed. Besides the manner in which most slight scratches and cuts are spontaneously healed, in what is commonly termed 'breaking out' on the lips every one knows that if the scab be picked off too soon, the sore becomes exposed, another scab is formed, and it is only by letting it alone that the part underneath will heal. Now if we compare this beautiful, simple, and effective process with the method of treating wounds and ulcers in the human subject by poultices and fomentations, vapours and lotions, together with spungings, washings, and wipings, how striking the difference appears; and it is really wonderful that we can continue to go on pursuing a plan which so violates these first lessons of nature. We must become more humble as well as more observant, and be contented to abandon our complicated and cumbersome remedies, which, by losing their simplicity, not uncommonly lose their effect, before we can hope to make much advancement in the treatment of diseases. Nature is to be conquered only by submitting to her; and he conquers the most easily who submits the most readily.

In obeying this principle of imitation in the management of ulcerous diseases of the leg, I have been in the habit of attending to two things;—

employing an application which will form an incrustation to resemble in its effects the natural scab, and removing the dressings as seldom and with as little disturbance as possible.

When the cure is left to nature, it seems to be only a superficial ulcer, which will readily scab; for, if it be deep, the quantity of matter is too great to be speedily evaporated into a crust. Now we can, in these cases, greatly assist the natural process, by the addition of some harmless substance, which will thicken the discharge, and thus produce an incrustation; whilst, even in ulcers situated more on the surface, and which would sooner spontaneously scab, the same application will hasten the formation of the covering required.

Of all the kinds of outward application which I have tried, an ointment containing a very large quantity of prepared chalk forms the best artificial crust. The earthy matter must be in a much greater proportion than enters into any ointment in the Pharmacopeia, consisting of about three pounds of chalk to two pounds of lard. Even four pounds of chalk will be readily taken up by two pounds of lard; and if about three ounces of olive oil be added, the ointment will not be too stiff, but will easily admit of being spread on the linen. The best method of preparing this application is not by rubbing the chalk down with the lard; but, having previously

reduced the chalk to a very fine powder, heat the lard to a tolerable temperature, and, whilst it continues hot, gradually add the levigated chalk in the same vessel in which the lard was warmed. By this means it forms more of a solution than a mere addition; and the two ingredients thus become more intimately blended together. This should be stirred until it is nearly cold, and then placed by for use. I have found that preparing the ointment in this manner is preferable to the more usual mode of making such substances, by simple admixture or trituration; as it produces a mass more homogeneous, containing less of the earthy particles in a distinct or separate form. I have for several years past been in the habit of using very extensively an application thus prepared, and have watched very closely its effects. The result of this observation has satisfied me that we may obtain the following advantages from its employment.

1. It is extremely mild and harmless in its nature; so that it very rarely produces pain. Out of several hundreds of cases in which I have applied it, I have scarcely known more than two or three in which it did not give great and immediate ease;—and in these exceptions there were other circumstances existing to account for the fact. I have frequently heard patients exclaim, how comfortable their legs have felt as soon as any irritating appli-

cation has been thrown aside, and the chalk ointment applied to the sore. The mildness of this application is probably owing to the large quantity of the alkali, which is ready to unite with the acid generated by the animal matter, on the presence of which, rancidity appears to depend—and thus the lard is prevented from running into this state. It is well known that most of the common ointments soon become rancid by keeping, and that they are then very irritating to a sore. The chalk ointment, however, never spoils, but retains its freshness for any length of time.

2. As soon as the lard is melted by the heat of the part, and absorbed by the bandage—and no more is employed than sufficient to hold the earthy matter in combination—the chalk is disengaged, and a portion of it combines with the discharge. This fluid, in many ulcers, is extremely acrid; inflaming and excoriating the skin in the neighbourhood, and perhaps, on the principle of inoculation, perpetuating the disease. Some of the chalk unites with this secretion, and, greatly depriving it of its irritating properties, converts it into a comparatively harmless compound.

3. Partly from this compound, and partly from other portions of the chalk itself, an incrustation is formed, first on the surrounding skin, then on the margins, and at last on the face of the ulcer.

This crust is produced in a very gradual manner; and when the discharge is great, sometimes none is deposited for the first two or three dressings. It is this slow method of its formation that constitutes its excellency; as in this respect it resembles the concretion of the natural scab. At one period, I thought the same advantage might be obtained by sprinkling the surface of the sore by the powdered chalk, or still more completely by plastering over the part with a thick watery solution of it.* But I found the chalky coating was formed much too quickly; that having no lard, or oily ingredient, in combination, it produced hard, earthy, uneven knobs, which acted as extraneous substances. From the rapidity and too great thickness with which the incrustation was thus formed, it was liable also to obstruct the discharge, and to prove injurious by confining this fluid. But the use of the chalk ointment is open to none of these objections. The slow and gradual manner in which it is deposited, prevents it from forming the earthy knobs, as the

* Both of these plans have, I believe, been formerly recommended, but have now dropped into disuse; probably from the circumstances mentioned immediately. I am not aware, however, that an application similar to the ointment I am describing has ever been employed, or suggested before. A chalk ointment, indeed, so far as the name is concerned, is very well known; but I mean, an ointment in which the earthy ingredient so greatly preponderates.

watery solution, or the substance in powder produced. Neither does it ever confine the discharge, because it is so imperceptibly deposited, and in such small quantities at a time, that when the purulent secretion is very great, it is always sufficient to wash it off. Even here, however, it forms, for the time, a milder and less painful application than the ordinary kinds of ointment. Besides which, whilst the discharge continues too much to admit the formation of the artificial scab on the centre of the ulcer, yet the surrounding skin, which is commonly very sensitive and delicate, soon becomes crusted over, and is thus protected from the irritation of the purulent fluid.

4. From all these circumstances combined, another great advantage is obtained. The dressings are not required to be removed so frequently; and the surface of the ulcer is consequently less exposed to disturbance. The mildness of the application, together with its neutralizing powers, lessens the pain, whilst its union with the discharge, or its more direct deposit, forms a harmless crust to shield and protect the adjoining tender skin. The consequence is, that the dressings will remain on for a much longer period without producing uneasiness, than when some other descriptions of ointment are employed. The habit of meddling and interfering, washing and fomenting the ulcer, cannot be too

highly reprobated, as it checks the healing process, and frustrates, or, at least, retards, all the natural efforts. It is true, that occasionally the quantity of discharge, and the disagreeableness resulting from its accumulation, demand the removal and renewal of the dressings, more frequently than we could wish ; yet there is surely little reason why the edges of the sore should be washed, and still less that it should have warm water poured over its surface. This, which however is sometimes done, betrays a sad want of thought, and displays a great forgetfulness of the steps which nature takes to bring about a reparation of parts. Now I have found the chalk ointment to be greatly serviceable, in allowing the dressings to remain on for a much longer time than many other forms of application.

Thus, then, the use of the chalk ointment fulfils the two conditions required to imitate the natural process. It forms an artificial scab, and does not require such frequent disturbance to the sore as most other kinds of dressings.*

* Mr. Hunter has alluded to the advantage which may be obtained, in the healing of exposed surfaces, by permitting them to scab. "Many wounds ought to be allowed to scab, in which this process is now prevented ; and this arises, I believe, from the conceit of surgeons, who think themselves possessed of powers superior to nature, and therefore have introduced the practice of making sores of all wounds." *Treatise on the Blood, &c.*, vol. i, p. 378.—He has described the

It is scarcely necessary to remark, that these observations apply with undiminished force to all wounds and ulcerations, on whatever place of the body they may be situated. The employment of the chalk ointment is not restricted to sores on the leg, but may be advantageously extended to those which occur on other parts of the surface. It is particularly serviceable in all cases where we are anxious to bring about as speedily as possible the healing process. I have had recourse to it, with very great advantage, in the treatment of burns and scalds, where an extensive surface is exposed, and requires either the natural crust, or some artificial protection resembling it. Another instance in which I have found it of very essential benefit is, when a blister has been applied to a very young child, and the vesicated part shews no disposition to heal. Every one must have observed this to have taken place ; and, probably, there are very few medical men who have not once, at least, been mortified and grieved, to find that the sore, instead of healing, has, by its irritation, absolutely destroyed the child. In all such ulcerations, the chalk ointment is particularly useful. It allays the excitability of the

process with his usual accuracy ; but it did not fall within his design to state very fully the practical application of the principle. "How far this practice may be extended, is not yet ascertained." Page 379.

sore—forms a crust over the exposed surface, and thus protecting it, hastens onward the natural process of cure.

But to return to ulcerous diseases of the leg. It will be said that, although it may be perfectly true that the chalk ointment acts in the manner stated, yet, by the very pretension which it makes of imitating a natural process, it goes upon the supposition that nature would, though in a longer time and in a more tedious manner, heal the ulcer herself. But the instances in which this natural cure could be effected are chiefly those simple kinds of wound and sores which are unaccompanied with any peculiar condition of the parts. When the veins are varicose; or adventitious deposits exist; or the tunics of the skin are altered in their texture; or the mechanical form of the sore is very uneven; or any specific poison is present, to produce its influence on the part;—the unassisted efforts of the system are not competent to establish the cure; and, consequently, the chalk ointment, or any other application which derives its benefit from a resemblance to the natural process, must be equally ineffective. This is quite correct. It is requisite, therefore, that when the ulcer is complicated with any of these states, such conditions fall under consideration. For, whilst the principle of treatment thus briefly expounded may be sufficient in all simple kinds of wounds and

sores, yet, in practice, we shall find that a very large proportion of ulcers of the leg are combined with the existence of other evils, which either produce the sores, or account for their intractable nature, when derived from external violence. This brings us, therefore, to the discussion of the second general principle of treatment, which consists in,

II. *Introducing a healthy action.* This, in the present cases, is to be done by approximating the diseased structures to their natural form and function.

The circumstances which render an ulcer difficult to heal, and which are, therefore, the obstacles to be overcome in the treatment, are chiefly the following :

1. Varicose Veins.
2. Adventitious Deposits.

The manner in which these affections act in the production or perpetuation of a sore, has been fully considered in the first Chapter.

3. The Form of the Ulcer.

The shape of the ulcerated part may be unfavourable to the healing process, in consequence of a great inequality between its margins and centre. The edges of the ulcer may be too high ; or the granulations may be too prominent to admit easily of the process of skinning. It is true that when no other obstacle than this exists, a sore will commonly heal in the end, though irregularly ; yet this want

of level is often sufficient to retard the formation of the cicatrix.

4. The Existence of Constitutional Disturbance or Debility.

When any disease or weakness is present in the system, that is capable of interfering with the healthy progress of the sore, it must, of course, be met by its appropriate internal remedies. Sometimes, however, this general cause may display some of its pernicious local effects by producing deposits in the neighbourhood of the ulcer, or by giving a want of equality between its margins and centre; and, when this is not the case, the constitutional disturbance or debility may coexist with a sore answering to these characters. In either of these instances, in conjunction with the general treatment, the local evil will demand the use of those topical means which the former class of ulcers requires.

The remedy for all these local obstacles to the healing of a sore consists in the employment of powerful and well adjusted compression of the limb. This, when properly applied, approximates the structures to their natural form and function, and thus introduces the healthy action required.

Compression effects this by operating in a salutary manner both on the local character of the sore and on the general condition of the leg.

With regard to the ulcer itself, pressure, when rightly applied, serves to flatten and bring together its edges, and thus tends to convert a larger into a smaller space ; whilst, in cases where the granulations are too prominent, it reduces them to the level of the surrounding skin. The consequence of these changes in the shape of the sore is, that the natural process of generating new parts, instead of expending itself in excessive growths of either kind, is restrained within its bounds, and made subservient to the formation of proper skin. Partly by this means, also, the extent of the sore is diminished during its healing ; and thus lessens the size of the cicatrix which afterwards remains. This is a matter of great importance ; for we find that new skin in general, though not always, is less substantial than the old. Pressure to the local sore acts advantageously in another way. An ulcer of any depth seems not to be entirely obliterated by its cavity being filled up with newly formed structures, but partly, also, by the lowering and removing of its sides. Whilst the small arteries are engaged in producing a fresh formation to supply the vacancy, the absorbents are employed in taking away the abrupt sides of the cavity, and gradually sloping them down so as relatively to diminish its deepness with the surrounding parts. This natural expedient of paring off the sides of the sore very much diminishes the work of

reparation, as a less quantity of fresh deposit is required to heal the sore than would be necessary to fill up its whole cavity. It appears to be this circumstance which explains the depressed appearance of most scars or cicatrices after ulcers and wounds are healed. Now a very important share of the use of compression to the local sore consists in hastening this sloping and removal of the sides of the cavity ; since it is well known that parts under the influence of pressure are more quickly absorbed.

With regard to the structures of the limb, compression acts beneficially by supporting the distended and weakened veins, and by assisting the absorption of solid or fluid deposits. The deviation from health which a varicose vein displays, may be stated to be, in general terms, that it is too much dilated. This, by whatever means brought about, is a mechanical evil, and admits of a mechanical remedy. By pressure, applied around and up the limb, we compress and diminish the enlarged vessels, and approximate them to their natural form and function. The absorption of adventitious deposits is likewise hastened by the use of compression. This is a matter of very great importance in the management of those ulcers connected with an increased size of the limb. So long as this bulky state of the extremity is allowed to remain, scarcely any local treatment of the sore will be of any avail, in consequence of the

enfeebled action of the absorbents, veins, and arteries, on the activity of which all reparation of parts must depend. I have repeatedly seen, in these cases, that, just in proportion as pressure exerts its proper influence on the veins and lymphatics, the appearance of the ulcer improves under the same mild application; whilst, on the contrary, the use of all forms of ointment and other remedies will produce scarcely any alteration in the character of the sore, if not combined with the employment of a tight bandage. It is, I believe, from the assistance which compression affords to the varicose veins, when present, and from the stimulus which it gives to the absorbents, when adventitious deposits exist, that the chief advantage of this most admirable remedy is derived. Some advocates of pressure, indeed, by their method of employing it, seem to suppose that its great service is obtained from its local effects on the sore. They have recommended plates of lead, compresses of linen, and other substances, which are placed like wedges on the ulcerated part. There can be no doubt that compression acts beneficially, even by its direct effect on the ulcer in the manner already described. It brings the edges of the sore more nearly together; and flattens its margin, or centre, as the one or the other happens to be too high. But I believe its greatest advantage arises from the support it gives to the general structures of the limb, and

more especially to the varicose, or weakened veins. For if it were only, or even chiefly serviceable, by diminishing the surface of the ulcerated part, we ought to find all small sores, as such, heal more readily than large ones; but this is by no means the case, as some of the most intractable ulcers are frequently of inconsiderable size. Besides, this opinion is contradicted by the topical effects of the pressure itself. For suppose we take an ulcer of five inches in circumference, and reduce it, by bringing its edges together by the strips of plaister, to four inches; even then it is not in such favourable circumstances for healing, so far as its magnitude is concerned, as another ulcer of only three inches in circumference, without the strapping. The latter being the smaller of the two, ought, if size alone is of importance, to heal without the strapping, more readily than the former with it, in the proportion as three is less than four. This, however, is not the fact; as, on the contrary, some of the largest ulcers frequently proceed the fastest towards recovery, as soon as the proper treatment is employed. For if we take an extensive sore on a varicose leg, and place over its surface a simple covering of chalk ointment, and apply properly and tightly a bandage from the toes to the knee, we shall find the healing process soon begin; and one consequence of this will be, that the edges will approach nearer together.

The approximation of the margins of the ulcer, is one of the modes by which nature lessens the evil: it is one of the important steps of her own proceeding, by which she gradually diminishes the extent of the injury. The credit of this beautiful expedient is very frequently given to the strapping, when it ought as much to be ascribed to the natural process itself. The size of the ulcer diminishes, because it is healing—it is not the diminution of its size which produces the healing. This has been already proved, by shewing that if magnitude alone were concerned, small ulcers, as such, ought always to heal more speedily than large ones—which is not the case. Neither can the good resulting from compression consist only, or chiefly, in its flattening the margins, or granulations of the ulcer, as the one or the other are too prominent; because, if this were so in those sores in which this want of level does not exist, the healing process ought to go on readily itself, without the assistance of the bandage or strapping. But this is not the fact: for, in many of the most unmanageable ulcers, no great inequality exists; whilst, on the other hand, where the edges and centre are really uneven, if the limb be not varicose nor enlarged, healthy granulations and skin are nevertheless frequently formed, leaving the scar rough and unsightly. If, also, we take an irregular ulcer on a varicose limb, and level it by

the use of a plate of lead, or compress of any kind, locally fixed on the part alone, without embracing all the limb by the pressure, the sore will not heal much more readily than it did before. But if, on the contrary, we take an ulcer of the same description, situated high on the leg, and bandage the inferior part of the extremity, up to the lower side of the sore, without, however, including the ulcerated surface, the advantage thus obtained will be considerable, although no pressure is applied to the ulcer. The reason why this limited compression does not act so advantageously as if the surface of the ulcer, and the portion of the limb above it, were embraced by the bandage, is, probably, more owing to the want of support to all the veins, than to the want of pressure on the part that is sore. The steps by which the healthy process of healing is established and continued, under the use of compression, seem, then, to be the following. In addition to the mechanical advantages of leveling the face and margins of the sore, and lessening its extent, the support given to the distended and weakened veins restores them greatly to their original function; so that the blood passes freely onwards to the heart. Obstructions in the veins, which interfered with the capillary circulation, being thus removed, the proper action of these small and important vessels is re-established. The swollen

and spongy skin is likewise reduced and consolidated, partly by the removal of interstitial and cellular deposits through the medium of the absorbents thus excited to a better action, and partly by the mere impulse, or force of contact. The blood-vessels and lymphatics being thus brought into a more natural state, their innate powers are roused and elicited. The sore becomes clean, proper granulations form, the sides of the ulcer approach each other, a bland and unirritating pus is poured out to cover and protect the face of the sore; and if we do not hinder this proceeding, by our busy meddling and interference, but be contented to follow and imitate, the cure is soon accomplished. All that was required, and indeed all that we can ever do, was to put nature in a better position than before; to give her an opportunity to develop her own internal resources; or, in the words of the proposition which we are briefly expounding, to introduce a healthy action, by approximating the structures to their original form and function.

It is not by any means a speculative question to ascertain how pressure acts in the healing of ulcers of the leg, but it is an inquiry of very great practical importance. Our employment of this most admirable agent will be regulated very much by the views which we take of its mode of operation. If we suppose its advantage arises from

the improvement produced in the local sore, it will be the superficial character of the ulcer only, which will be our guide to its adoption. We shall consider the want of it indicated by certain appearances in the ulcerated part—and by nothing else. But if, in addition to its local effects, we have reason to conclude that compression acts beneficially on the veins, and other structures of the limb, then, instead of limiting its use to the improvement of the local sore, its application will be much extended. The want of it will be as much indicated in an even as in an uneven, in an irritable as in an indolent sore, provided varicose veins, or adventitious deposits, are present. In either of these instances, the history of the case will, most likely, inform us, that the deeper affections of the limb preceded the ulcer in such a manner as to satisfy us that they are the cause, either of the production, or perpetuation of the sore. Our chief efforts should therefore be directed to the sources of the evil, without considering only the precise mode in which the effects display themselves. It is not of much importance what form or character the ulcer assumes, provided it can be shewn to spring from the deeper seated conditions of the limb, as it is to the removal of these, and not to their superficial consequences, that we ought chiefly to direct our attention and remedies.

Besides, however, these primary and more important objects obtained by the employment of pressure, especially in cases where varicose veins, or adventitious substances exist; the bandage is also serviceable by the support it gives, both in these and in the more simple ulcers, when the process of granulation is going on. It is well known, that if an individual is labouring under ever so healthy an ulceration, and granulations of ever so good a character are forming to repair the breach, yet if the erect position is observed, without the assistance of the bandage, the florid colour of the new-formed structures changes into a darker hue, from the stagnation of blood in the weak and delicate vessels. Whilst therefore contending that compression confers its chief and most salutary effects in the manner stated above, it is not meant to deny, or diminish the great value derived from its use, according to this secondary mode of its operation. In the former instance, it is a practical principle of an active nature, giving a direct stimulus to the parts; in the latter, it is a more passive agent, simply affording a support to the vessels.

The opinion that compression is principally efficacious in the treatment of ulcerated legs, by the stimulating and correcting properties which it imparts, admits, I think, of confirmation, by observing the effects which it excites, when applied to structures

that are sound. If we take a healthy extremity, and bind it up very tightly, we soon perceive a throbbing sensation; and this arterial action may go on increasing until the part is inflamed, and even mortified, if the roller is not loosened. It is true, that, in a limb diseased, and bulky by varicose and other enlargements, less resistance is given to the bandage, in consequence of the surface almost immediately becoming reduced in size, by its use: but still the same result, in the shape of vascular reaction, must to a certain degree ensue in both cases alike. This shews, that, in the employment of pressure in the management of sore legs, great care should always be taken to adjust its force as accurately as possible to the yielding, or unyielding condition of the limb it has to encounter.

The same fact likewise proves, that an objection sometimes advanced against the frequent use of bandaging in ulcerous extremities, from the inflammation and other bad effects, the remedy occasionally entails on a sound limb is, in a great degree, destitute of any foundation. For although it is very contrary to our first expectations, it is nevertheless true, that ulcerated legs almost always allow of a greater degree of pressure without uneasiness, than frequently can be borne by a sound and healthy limb. This does not arise only from the effect which compression produces, by lessening the suffer-

ing which was felt before its application, and thus becoming tolerable by giving ease; but even if the sore limb should be unaccompanied with much pain, the same effects may be observed. This fact, which is very important in our treatment, probably arises from the following circumstances: nearly all ulcerated extremities are more or less swollen and enlarged, either partially or generally, from the presence of varicose veins, or adventitious deposits, whilst such a condition is of course absent in a healthy leg. Now when tight compression is applied to such a bulky limb, one quick effect which it produces is to reduce the size of the veins, and to excite the removal of some of the deposits; and by this means, the leg becoming less, the tightness is proportionally diminished. But if the bandage is placed with the same force on the healthy limb, it meets with nothing so yielding, or which is so readily taken away to diminish its bulk—there is therefore a greater resistance; and a corresponding greater uneasiness and re-action are experienced. The same principle explains the fact, which must have forced itself on the attention of every observer, that the more swollen and enlarged the leg is, the better it submits to powerful compression; but that, as the cure advances, and the limb becomes reduced to its natural size, it is more sensible to the remedy. This most important circumstance accounts for the

reason why pressure does not lose its beneficial effects in our treatment similar to most other stimulants. It is well known that all irritating ointments, and the like, gradually part with their power, in consequence of the sore becoming accustomed to their presence; and require to be either changed or increased in strength. Nothing of this sort, however, occurs in reference to the continuance of compression: but its good effects are not commonly interrupted or lessened, from the commencement to the close of the treatment. This is owing, most likely, to the fact alluded to above; that as the bulk of the limb diminishes, and the parts resume their original size, greater resistance is given to the bandage: and just in proportion to this, the roller acts more as a stimulus; and thus this invaluable remedy becomes nicely adjusted to the condition of the leg, in its successive stages towards a cure. There is a gradual increase of susceptibility to its impression, which is equivalent to an increase of power in the pressure. There is a self-adjusted balancing between the disease and the remedy; so that just in proportion to the length of time the roller is employed, and would hence be liable to lose its effects, there is an alteration produced in the limb, which changes the relation between the two, by making the leg more sensible to the bandage; which is precisely

the same as if the force of the pressure were increased in strength.

I have generally found that the combined application of the two general principles, thus briefly explained, has fully succeeded in practice. The object which has always been kept in view is, to unite them both in such a manner that the veins and other structures may be supported underneath, whilst the ulcer is properly protected above. When this is done, many ulcers, which at the first inspection appear to be very unhealthy, and would seem to demand some local remedy to cleanse and correct them, put on a more favourable aspect as fast as the pressure restores a more natural action in the parts below. Being satisfied that it is the diseased condition of the veins and other structures, whenever it exists, that exerts the chief influence on the character of the sore, and accounts for its obstinacy, primary attention is directed to this condition, and an improvement in the structures is soon followed by a corresponding improvement in the appearance of the ulcer. When this conversion from an unhealthy to a healthy state has taken place in the sore, the chalk ointment forms a protecting crust to shield its face, and a firm cicatrix is soon produced underneath its covering. Even, therefore, when an ulcer is very ill-conditioned at first, I do not begin by

applying poultices to draw it or stimulants to correct it, but simply cover it with the chalk dressing, tightly apply the bandage, and wait and see if its character do not quickly alter under the use of the pressure. When this most useful remedy has acted in the manner already described, the aspect of the sore is almost always changed; and its correction being chiefly accomplished from within, I do not commonly attempt, in the beginning of the treatment, to effect it from without. I have found from experience that a little patience at the commencement is amply compensated for in the progress of the treatment. For, in almost every case, as soon as the compression alters the condition of the subjacent structures, the character of the superficial ulcer improves, and heals much more readily under the chalky crust than by the use of external stimulants and correctives. The propriety of this method of proceeding I find more and more confirmed by every day's experience, and I now rarely or ever have recourse to any local or external corrective, how faulty and vitiated soever the sore may appear, until I have given the tight pressure and mild application a fair and proper trial. The combination of these two remedies inculcated by the two principles which have now been expounded in this Chapter, commonly answers; but, like all other general doctrines, they admit of some exception,

and require some modification. These exceptions and modifications will more properly fall under consideration in the next Chapter, when we come to treat of the particular application of the principles to individual instances.

CHAPTER III.

APPLICATION OF GENERAL PRINCIPLES.

ALTHOUGH it is frequently convenient and useful to treat of General Principles distinct from one another, yet, when we descend to their particular application, we almost always find them combined together in a greater or less degree. In practice, we no longer behold them in their unmixed character, but we see them blending one with another; two, or more, contributing to produce a common effect. This takes place in a very conspicuous manner with most ulcerous diseases of the leg. In the great majority of these cases, which fall under the notice of the surgeon, the local sore on the surface of the skin, and the unhealthy condition of the veins and other structures underneath, enter as elements into the formation and constitution of the malady.

Before, however, we proceed to the particular application of the general principles explained in the last Chapter, it will be necessary to notice two remedies which so very commonly form a part of the treatment of ulcers on the leg; I allude to the poultice, and rest. These means would, indeed, deserve examination, from the importance which is commonly attached to them, even if they did not demand it, by standing in the way of the practice which I have undertaken to describe and advocate.

Nothing has ever astonished me more than to see the frequency with which patients who apply to me with bad legs have the limb wrapped up in a poultice. Cases of the most opposite description—young and old—recent and long standing—irritable and indolent—exuberant and callous—are all subject to this indiscriminate remedy. I have been in the habit of recording what kind of application is found on every sore when I first examine it; and I see the result is, that out of a hundred cases, sixty-one, considerably more than one-half, were covered with the poultice, whilst some of the others, though not using it at that particular time, had employed it at a former period. I have seen many legs in which this treatment had been pursued for years; a pretty convincing proof, by the way, that such a proceeding is not calculated to do any good.

Probably, one cause of the great employment of the poultice, is the temporary relief which it occasionally affords, when compared with the great pain produced by the improper application of stimulating ointments. This is certainly a very good reason why it should sometimes be preferred to such unsuitable irritants; but no reason at all why it should be continued, instead of a better and more rational plan.

Another cause why the poultice is so frequently recommended, arises, no doubt, from the fact, that it appears to act beneficially in some wounds derived from external violence, when the limb is neither varicose nor enlarged. In this simple kind of injury the cure takes place very readily, whatever application is used; and though it may be retarded, is not prevented from ultimately proceeding even by an improper one. A frequent remedy in these instances consists of the poultice; and such cases rarely failing to do well of themselves, the poultice gets the credit of the cure, and is, consequently, advised at other times, when its employment is not merely useless but absolutely mischievous.

But from whatever circumstances the frequent use of the poultice has originated, I cannot deprecate in terms sufficiently strong its common employment in ulcerated states of the leg. An application

of this nature weakens and dilates the parts on which it is placed, and is therefore just calculated to increase that condition of the limb on which the worst kind of sores commonly depends. Poultices are properly had recourse to for the purpose of producing or hastening suppuration, when it is thought advisable to establish this action. It is strange that this truth should be lost sight of in the treatment of ulcers of the leg. Here we want to heal, not to increase, the sore—to remove, not to perpetuate, it; and if we were really anxious to prolong its existence, our proceeding in other cases shews that we could devise nothing better to answer the purpose than the use of the poultice. The very great length of time which ulcers are not uncommonly found to continue under the application of the remedy, confirms the truth of this statement.

Whatever may be said in favour of the poultice, in some few cases where the sore looks unhealthy, and requires to be corrected, yet these form but a very small proportion of the instances in which it is used. Even here I believe it may almost always be dispensed with, unless incompletely sloughing exists; and that the improvement of the ulcer can be better accomplished by other means, without this loss of time: but certainly no appearance of reason can be advanced in behalf of the remedy, in the great majority of cases. All those

which are the worst, and the most numerous, depending on the varicose veins or enlargements of the limb, require the assistance and support of compression, and not the dilating and weakening effects of the poultice.

This application, in most instances, acts prejudicially, likewise, by the effects which it produces on the shape and character of the sore. It makes the granulations soft, pale, and flabby; and converts the margins into spongy, insensible edges, giving them a sharp and abrupt termination,—the most unfavourable conditions imaginable for healing. It also absorbs the purulent fluid which is formed on its surface, preparatory to the act of reparation. It has been clearly proved, that an ulcerated part, deprived of its matter, unless covered and protected by a scab, is arrested in its progress of healing, and does not proceed until the fluid is reproduced. It is true that if one supply of the pus is taken away, another is thrown out; but then the intermediate space is lost. Besides, the renewal of the poultice is each time a repetition of the evil, as every successive one tends to absorb the matter that is present, and the surface becomes continually deprived of its fluid almost as fast as it is formed. Thus, then, both the unhealthiness of the parts below, and the nature of the sore above, require the very opposite treatment to poulticing; and it is really

difficult to assign any other cause for the frequent and indiscriminate use of such a remedy, than the disinclination to do any thing which will soil the fingers or offend the nose. We can order a poultice, and even prescribe a fomentation or a lotion, and yet stand at a very agreeable distance—shifting off on other hands the local treatment of the disease, instead of executing it by our own. It is, however, very clear, that if the performance of what ought to be done strikes us with disgust, though it may be allowable to dislike it, yet if the aversion prevents us from doing our duty, we are inexcusable for pretending to undertake the management of the case at all.

Another direction frequently given and followed in the treatment of ulcers on the leg, is to keep patients in bed. “In every species of ulcer,” says Mr. B. Bell,* “even in those of a most simple nature, rest of the body, especially of the part affected, is particularly requisite, insomuch, that unless this circumstance be attended to, all the applications that can be used, prove commonly of little importance. In disorders of this kind, too, occurring in the lower extremities, the affected limbs should be always kept as much as possible in a horizontal position, as being the posture which proves most favourable for the circulation of the fluids.—Rest, and a horizontal

* P. 209.

posture, have by almost all practitioners, both ancient and modern, been looked upon as absolutely necessary for the cure of ulcers in the lower extremities." In this passage we have both the injunction to observe a state of rest, and the reason for doing so; viz., in order to assist the circulation of the fluids. Now, every one will acknowledge that it is of the greatest consequence to sustain both the veins and lymphatics; and that unless the action of these vessels be supported, the process of healing in most bad cases of ulcerated legs will go on but slowly, or most likely will not proceed at all—so far, then, all are agreed as to the importance of the principle. It does not, however, follow from this, that the confinement of the patient is the only or best way of effecting the object required. If the obstacle to be overcome in curing a sore on the lower extremity arose merely from the dependent position of the limb, placing it in a horizontal situation would indeed be sufficient. It could not, however, with justice be said, even on this supposition, that rest was the only means of obtaining a cure, but simply that it was one means in common with compression, which equally assists the action of the vessels, according to the manner described in the last Chapter. Even, therefore, if we were to concede that the direction of the extremity constituted the difficulty to the healing process, yet the confinement of the patient would be merely one of the

methods of surmounting the evil in common with the employment of compression; and consequently, instead of being compelled to say that rest is indispensably necessary, we should still be at liberty to make a selection of the two plans of proceeding. But when we further consider that, in the most intractable cases, the dependent position of the limb is not the hinderance to the cure, but a positive and palpable diseased condition of the structures of the leg, we shall soon be led to the conclusion that confinement, so far from being superior to compression in value, or on a level with it, falls very much below. For if we take a varicose or enlarged limb, and send the patient to bed, this may relieve in some little degree the circulation of the part, but nothing will restore it to its original vigour but the great diminution, or perhaps entire removal of the varices and deposits. These, however, will not be fully subdued by the horizontal position of the extremity—even putting a man on his head would not make them completely disappear. Nothing will do this but powerful and well-adjusted pressure to the leg—this alone will reduce the distended veins, and condense the spongy integuments, down to their natural size, and keep them there. In these cases, therefore, which are generally the worst, and almost always the most unmanageable, compression is not only equal in value to rest, but much superior to it—and thus confine-

ment, so far from being indispensable, as Mr. B. Bell maintains, does not answer so well as a tight bandage. Mr. Bell, in the paragraphs following the extract which I have quoted above, has made concessions himself in favour of pressure, which very much qualify, even if they do not contradict his former statement. "In some very slight ulcerations this"—that is, the cure without rest—"may sometimes be the case, and with the assistance of a pretty tight bandage or laced stocking, applied so as to support the parts properly, even sores of a worse kind may be frequently cured, and the patients at the same time be allowed to take gentle exercise." "It often happens, indeed, as we have said above, that ulcers of even a bad nature are cured without any assistance from confinement or a horizontal posture of the limb. This I have frequently met with; and at this time I have different cases under my care of ulcers going on towards a cure, whilst the patients are daily going abroad."

Unless, indeed, powerful and well-adapted pressure be employed in the treatment of ulcers of the leg, exercise must of course do harm—and it is, I have no doubt, from observing the ill effects which follow the uses of the limb, when it is not properly supported by the bandage, that we have been led to the adoption of rest as a means of cure. When the veins are not sustained by the roller, the motions

of the extremity increase the superficial circulation of the limb, which proportionally augment the venous obstructions, and all the evils dependent on this state are aggravated. Local accumulations in the veins occur, the capillary circulation is retarded, and, as a consequence, an increase of effusions takes place. All these unhealthy actions of course increase the bad condition of the sore; for it is upon the presence of these, that the continuance of the worst kind of ulcers depends—and thus exercise under such circumstances must be highly prejudicial to the local evil. But it is very different when the superficial veins and lymphatics are properly supported by the bandage. Then not only are all those evils obviated, but the compression confers the positive and direct benefit of sustaining, assisting, and invigorating the circulation of the fluids, which is necessary for accomplishing the process of restoration.

It would be a great practical advantage obtained, if it could only be shown that the use of pressure was equally efficacious with the observance of rest, and therefore superseded it. Confinement of any sort not uncommonly acts prejudicially to the general health, which is liable to affect unfavourably the local disease; whilst, for the same reason, exercise, if rendered safe, must be advantageous both to the man and to his leg. This consideration should indeed be taken into

account in forming an estimate of the relative value of the two methods of proceeding. But what I intend more particularly to remark in this place is, that it is with many individuals a matter of most serious inconvenience to be compelled to abandon their pursuits and go to bed. Their avocations are of such a nature, and of such importance to their very subsistence, that many cannot afford to be idle. I have sometimes heard patients say, in accounting for the length of time which they have suffered from bad legs, that they had been directed to lie in bed, as a necessary means of getting well, but that they were unable to follow such advice, and thinking no benefit could be obtained in any other way, had gone on for years with a painful and disgusting sore, most commonly, morning and evening, wrapping it up in a poultice. Now to such individuals it must be of the highest importance to be cured, without losing their time or relinquishing their pursuits, and this I am confident from experience may almost always be done. Neither would the advantage be limited to individuals—the plan, if adopted, would prove a public benefit. Many of the beds of our hospitals are not unfrequently filled with patients suffering from ulcerous diseases of the leg. These individuals, by being prevented from working, are a great expense to the charity; as well as occupy the room, which

would otherwise be open for the reception of more urgent and more suitable cases.*

But I believe that not only may the inconvenience of confining patients be dispensed with in the treatment of ulcers, uncombined with active inflammation, but, even when they are cured by following the plan of rest, nothing is more common than for the part which is healed to break out again soon after the return to exercise. Surgeons who are in the habit of keeping their patients in bed when under cure, know very well that both parties are frequently mortified by such an occurrence. Confinement is, therefore, not only as I have attempted to prove above, unnecessary, but absolutely useless: not only can it be done

* I trust it will not be imputed to any unworthy motive, if I quote, in confirmation of this statement, an extract from a letter, written by an observant young man, who has lately left me to attend the Hospitals in London:—"I took the opportunity of being present the other day, when ——, one of the surgeons, was prescribing for the out-patients, and, as is always the case, there happened to be plenty of ulcerated legs. Among the rest, a poor woman unrolled a large poultice from a varicose ulcer, which, by the by, I would have cured in a month. ——'s remarks were much as follow:—'Gentlemen, this ulcer is plainly produced from a varicose state of the veins; now nothing will do in these tedious cases but rest—rest, gentlemen, is the grand desideratum.' The woman's reply was, that she could not possibly afford to lie in bed, as she had a family to support. Then —— told her, 'your leg will never get well, but you shall try some fresh application.' He accordingly prescribed the black wash, which he appears to make use of in all those cases which are not poulticed. I am afraid ——'s treatment is too general."

without, but frequently nothing effectual or permanent is done with it. One great advantage of healing ulcers during exercise, therefore, is, that they are not so liable to return at any future period. This important difference of the results between removing them when the patient is walking about and when he is observing a state of rest, appears to arise from the following circumstances :—When the leg is perfectly quiet, a degree of repairing power in the small vessels is sufficient to heal the sore, which is inadequate to preserve it sound, after returning to the natural motions of the limb. Such newly-formed parts are not endowed with sufficient energy and strength to resist the effects of exercise, and, therefore, under its influence are destroyed, and become absorbed back into the system, leaving the sore nearly or entirely as large as it was before the confinement to bed. But in order for the ulcer to be healed when the leg is subject to its usual motions, a degree of power in the restorative process is demanded, which is capable of sustaining the vitality of the newly-formed structures, under all ordinary uses and states of the limb. The very power which was competent to cure the sore in such a condition, is of course sufficient to keep it well ; whilst the power which was competent to cure it, in the resting state, is not sufficient to keep it well when the patient resumes his customary avocations. Now if this be true, we act not only very uselessly, but very injudiciously,

when we send patients with bad legs to bed ; for this plan, instead of permanently curing them, may absolutely prevent them from becoming so. Rest of the limb admits of the healing of the ulcer by a degree of action which is unable to keep the part sound, and prevents this degree of action from being increased by the stimulus which exercise affords. On the contrary, exercise sets up an additional energy in the process of reparation, both directly by the effects of it as a stimulus, and indirectly by the very obstacle which it places before the healing function ; for all living actions are strengthened by the opposition which they are made to encounter. If it be said, this may be true, yet it is nevertheless possible that such opposition may be so great as to destroy or subdue rather than assist and strengthen the existing living powers ; this, of course, I allow, but the objection will not apply in the present case, for, in order to effect a proper cure, the ulcer must be healed in such a manner as to continue sound during the natural motions of the limb ; if it will not do this, it is not cured, and the only opposition that I am speaking of is this very exercise of the leg itself. It will not be supposed that I mean to assert that all sore legs which are cured by observing a state of rest will necessarily break out again, but I am referring more particularly to those cases in which the powers of vitality are enfeebled by the presence of varicose veins or adventitious deposits.

In these instances, a degree of repairing power, less than what is required to keep the part sound under exercise, is sufficient to heal it, if the limb be at rest ; and these are the instances of which we have been speaking, as liable to return. Common wounds or ulcers, derived from outward causes, seated on a limb unaffected by any positive diseased condition, may be removed, though confinement be adopted, in such a manner as to be strong enough to bear up against the effects of exercise afterwards. But when this takes place, the function of reparation would have been sufficiently energetic to heal the part, even if the patient had continued to walk about : and thus, whilst in the former classes of ulcers rest serves only the purpose of deluding us with a temporary cure, in the latter, it might have been entirely dispensed with. In both descriptions of cases, therefore, confinement is a useless remedy—in the first, it does nothing effectual, and in the second it might be safely omitted.

But I am satisfied experience will permit us to go farther still, and that it authorizes us to maintain that not only is confinement unnecessary and useless, but absolutely pernicious, by depriving us of a direct and positive advantage which exercise gives to our treatment. It is not enough to say that an ulcer can be healed, notwithstanding the limb is moved, but I believe the cure is hastened

by allowing it to follow its ordinary uses, provided it be properly supported by the assistance of a tight bandage. Exercise of the limb, during the healing process, acts beneficially in two very different ways. In the first place, it is a stimulus to the action of the parts,—the small vessels, by this means, becoming more energetic in their functions, form more vigorous and healthy granulations, as well as produce them in a shorter period. In the second place, at the same time that the exercise, in combination with pressure, is producing this internal change in the formation and character of the granulations, it is acting as a check on their growth; and by this resistance indirectly increases their strength. The exercise restrains them within their proper limits, and, by the very opposition which it places before them, makes them stronger by rousing their energy to overcome the obstacle they have to encounter. If the newly-formed parts are not good enough to bear up against the effects of exercise, they are destroyed and absorbed back again into the system, just as they would be by applying any other stimulus too great for their powers of vitality to endure; and just as they are—for the principle in the two cases is the same—in those instances where the individual is cured by lying in bed, and gets a return of the disease as soon as he resumes the full motions of the limb. To with-

stand the effects of exercise, the recently-formed structures must be of a certain degree of strength ; and this degree of strength is just that which is demanded to make them substantial and durable. It is only when they would be useless, by falling short of this requisite power, that exercise can act in this manner ; and here we want something that will act so, in order that the weak and faulty parts may be destroyed, and afford opportunity and give assistance for the reproduction of better. Exercise is, then, a test of the strength of granulations ; with this great advantage, that it not only tries them and removes them, if they are defective, but, by rousing the energy of the part, makes them better for the future.

It is in consequence of the healthy stimulus which exercise gives to the granulations, and the check which it keeps on their growth, that explains one of the reasons why ulcers get well so quickly and permanently whilst individuals are walking about. We are at the first sight inclined to suppose that sores must heal much more speedily if the limb is quiet than when it is moved. But, independently of the unsoundness of cures obtained by confinement, there is nothing gained even in point of time, provided compression is properly employed. This is owing to the stimulus which the exercise affords hastening on the cure more rapidly than any local

application of stimulating ointment alone. It is not unusual to find patients, who had sores healed up by rest, and which reappeared by return to exercise, afterwards get them well with the bandage, whilst walking about, in a shorter time than before, as well as continue permanently sound.*

It is a great advantage when one can appeal to facts to confirm one's reasonings; though there is danger sometimes of the reasonings weakening the force of the facts. An unsatisfactory attempt to solve the speculative question may tend reflectively to diminish the authority of the practical rule. Whatever, therefore, may be defective, or pronounced to be fanciful, in the preceding paragraphs, cannot lessen the success which has followed the adoption of the plan which the reasonings have enjoined. From a persuasion that confinement is useless in the cure of ulcers on the leg, and from having seen

* In some of these remarks on the advantage of exercise as a stimulus there is such an agreement with the opinions advocated by Dr. Underwood, that I think it proper to mention, that what I have stated above was written before I perused that gentleman's Treatise. In two or three other instances, also, in reference to exercise and the bandage, I have been confirmed in my conclusions by seeing how nearly they have approached to his. We differ, however, most widely respecting the method of managing the local sore. For some very judicious remarks on the advantage of restraining the growth of granulations, in order to increase their strength, see also Sir E. Home's Practical Observations, Chapter 4.

this opinion verified in many instances, where patients have come to me after having obtained a temporary cure by lying in bed with their legs as bad as ever, I have entirely renounced the remedy, with the single exception where active inflammation exists on the limb. Instead of encouraging rest, even when the patient is able and inclined to observe it, I direct him to use the limb, if suffering from an indolent sore, to the full or even greater extent than that to which the individual has been accustomed ; but if from an irritable one, to a degree rather less. To take exercise is frequently one of the injunctions given ; it forms a part of the treatment pursued ; of course taking especial care that the limb is well sustained by the bandage. The result of this is, that I find by experience patients recover as fast in walking about as they did by being confined ; with this great advantage, that they are much less liable to a recurrence of the disease. This plan I now invariably follow ; and its success has been so extensive and uniform that I feel no hesitation in saying, that any sore, unaccompanied with inflammation of the limb, ought to be cured without sending the patient to bed.

Having thus examined the value of the poultice and confinement, as remedies in the treatment of ulcerous diseases of the leg, and attempted

to prove that their frequent use is both useless and pernicious; we shall proceed to the more particular subject of the present Chapter. This, it will be remembered, is to describe the application of those general principles which were expounded in the last. In doing this, I shall enter rather minutely into the details which are connected with the local treatment of ulcers, although I may run the hazard of being thought tedious, or pronounced guilty of repetition. In all practical matters it is much better to be diffuse than to be misunderstood.

When I am called to see a patient with a bad leg, I begin by throwing away the poultice, if he happen to have one on—and by telling him to get up, if he happen to be in bed. With the single exception, where the process of sloughing exists and is incompleated, the poultice is entirely abandoned; and unless active inflammation is present, the individual is directed not to lie in bed more than other people.

A very attentive examination of the limb is then made, for the purpose of ascertaining whether the veins are varicose or not. In ordinary cases this condition of the vessels may be readily detected, by their enlargements on the foot or up the leg; but sometimes the question is not so easily settled. Occasionally, we meet with a diffused swelling of the limb, or spongy-like thickening of the inte-

guments, with or without partial ulceration, and the leg is so swollen as to render it difficult to say at once, whether the veins are diseased or healthy. In such cases, other considerations will come to our assistance. We can inquire of the patient, whether, previous to the attack, there were any little soft prominences or knobs on the leg; and we can ascertain by inspection, whether the veins are enlarged above the knee on the same side—or on the foot and leg of the opposite extremity. In superficial and eruptive kinds of ulceration, we may also examine whether patches of the same disease are to be found on other parts of the surface of the body, because, if they are, the complaint is more likely to have a constitutional origin. We may, likewise, derive great assistance from other circumstances connected with the situation of the sore—the age and sex of the patient according to the particulars already enumerated in the first Chapter.* But although the existence of the bulky state of the limb may, in some degree, conceal the varicose veins, and render it difficult to pronounce immediately whether the vessels are so affected or not; yet, the very presence of such increased size of the leg will lead to nearly the same practical indications of treatment as the varicose condition itself. For in a great majority of

* See page 24.

instances, the unnatural depositions are the consequence of varicose veins, as is proved in the less severe cases where the difficulties of detecting the conditions of the vessels are less, whilst in the remaining cases, where such enlargements are not clearly dependent on the varicose affection, yet the same plan of proceeding is demanded as that which the others require. When therefore this state of the veins, with its occasional consequences, or an enlargement of the limb produced by other causes, is found to be present, it affords one of the leading guides to the practice to be pursued, by pointing out the necessity and advantage of compression. The indication is so clear, and the benefit of the remedy is so uniform, that I am always glad to find either of these conditions of the structures of the leg in very bad and long-standing sores, because it both accounts for their obstinacy, and holds out the most promising hopes of success. Even when the veins are not varicose, nor the limb partially or generally swollen, and the ulcer, therefore, is of a simple kind, the bandage will indeed be useful to retain the dressings on the part, but then its employment is not so absolutely necessary, nor will it be requisite to apply it so tightly.

The next step is to examine the condition of the integuments in general, and the state of the ulcer in particular. The skin surrounding the sore for

some distance, or even separate portions of it, may be excoriated or partially ulcerated; and when this is the case, the chalk dressing must be applied so as to cover such parts, as well as the face of the sore itself. If incompleted sloughing exists in the ulcer, the poultice and fomentation may be continued a little longer, but I sometimes find it a loss of time to wait until the surface of a large sore is entirely free. Something may be done to the margins, whilst the centre is cleaning; or to one part of the surface, which is purified, whilst another is undergoing the process. If active inflammation is going on, the ordinary antiphlogistic remedies must be employed, and comparative rest must be enforced. In these two exceptions, a particular mode of treatment is adopted at the commencement, but in all other cases, I pay at first but little attention to the superficial appearance of the ulcer. In some few instances that come under the notice of the surgeon, the only evil existing may be a wound derived from external contact, which merely requires us to abstain from meddling, poultices, and stimulants, to allow it to get well. Indeed, the disposition to recovery is here so great, that the part commonly heals in spite of any unsuitable application which the patient may himself resort to. When such attacks are placed under our management, the treatment to be pursued consists in imitating the natural process,

according to the manner already described. In the more numerous and the more obstinate cases of sores on the leg, however, we find the presence of a positive and defined unhealthiness of the structures of the limb, which either gives rise to the ulcer, or perpetuates it if derived from an outward cause. When, therefore, the history of the case, and the existing symptoms, point out the varicose veins or unnatural [depositions to be the origin or means of continuance of the ulcer, the treatment, unless in extreme cases, hereafter considered, is nearly the same, how unlike so ever the aspect of the sores may be. Irritable and indolent, exuberant and callous, are employed chiefly as terms of designation to prevent a circumlocution of expression, but scarcely exert any influence in deciding the treatment and management to be pursued. If a sore, springing from, or depending upon this internal source, appear particularly unhealthy, and require correcting, this is accomplished, not by poultices and fomentations, lotions and washes, or indeed any other merely topical application, but pressure is had recourse to at once, by which the veins are supported, adventitious deposits are absorbed, the capillary circulation is re-established, and then the local character of the ulcer is sure to be changed. The origin of all the mischief having been proved to be less in the sore than in the subjacent structures, attempts are made to alter their

condition, and a corresponding improvement is soon conspicuous in the ulcer itself. All the directions for cleansing and purifying the sore which occupy so large a space, and make so prominent a figure, not only in the writings of the older surgeons, but in more recent publications, would, in the greatest number of cases, be entirely superseded by the proper and immediate use of compression. The time which is lost, and the pain which is inflicted by the irritating substances for digesting, mundifying, and incarning, may be saved and prevented in all cases where the disease of the limb is the parent of the sore. In that great majority of ulcers depending on the existence of a positive unhealthiness in the subjacent structures, an improvement in their condition will soon be followed by an improvement in the character of the sore; whilst, on the other hand, all the digestives, deter-sives, sarcotics, and epulotics in the world applied to the local ulcer will do but little good so long as the veins continue distended, and the adventitious deposits remain unabsorbed.

I have almost always found, that as compression exerts its favourable effects on the structures of the limb, the superficial aspect of the sore begins to look better, and not till then. I, therefore, do not lose time by attempting the local improvement in the ulcer by the topical use of external correctives, but proceed directly to apply the principles of treatment

already discussed in the former Chapter. In the more simple and less unhealthy description of sore, no one, probably, considers any delay required, or any preparatory cleansings necessary.

The first thing is, to cover the surface and sides of the sore for some distance beyond its edges with the chalk ointment, spread about the thickness of a wafer on thin linen. I think the linen is preferable to lint, as it seems to allow the disengagement of the chalk more readily. No compresses of any sort are placed on this, as I am convinced the frequent use of paddings of linen, calico, and the like, placed between the dressing and the roller, are prejudicial, by unnecessarily loading and heating the part, and by confining, or preventing the escape of the matter. They are injurious, also, by interfering with the regular operation of compression; because, if the bandage is applied tightly all round the limb, which ought to be done, the ulcer is pressed beyond its proper share. It is like driving in one of the parts of the superficies of a cylinder; it is depressing the ulcer more than the other portions of the limb just to the extent of the thickness of the paddings: and thus, if the compression be sufficiently powerful, it is not only unequal, but bears too much on the ulcerated part. The pledgets made of tow are, I think, also objectionable on much the same principle. These are gene-

rally thicker in the middle than at their margins, resembling in figure a sort of double convex. The consequence is, that the centre presses more powerfully than the sides, and the face of the ulcer is driven in more than its edges ; when, generally speaking, it is the margins of the ulcer which demand the greatest pressure. Thus, then, without the addition of all compresses and paddings, and in preference to all pledgets made of tow, a single piece of linen, containing a spreading of the chalk ointment, is placed over the centre and sides of the sore. By using this simple unencumbered dressing, in addition to the advantage of obtaining more quickly the chalky crust, all the evils just adverted to are completely avoided. The ulcerated part is not heated nor overloaded ; the matter can more freely escape ; the face and margins of the ulcer admit of a more equal pressure ; first, amongst themselves, and, secondly, in relation to the general outline of the limb. If the edges of the sore are too high, they are brought down ; and if the granulations are too prominent, they are depressed by the application of compression upon this flat and even dressing.

The advantage derived from the bandage does not, as I have already attempted to prove, arise from the local leveling of the sore only, but from the general support and assistance which are given to

the structures of the limb. Thick compresses of linen, plates of lead, and the like, placed over the ulcer, or on a varicose vein, may, therefore, do harm by acting as an obstacle to the circulation of the inferior parts of the limb. Any thing approaching to the nature of a wedge becomes improper; and instead of adopting these local expedients, we should be very careful that every portion of the limb, from the toes to the knee, be equally and evenly compressed. For this reason, an objection might not unfrequently be advanced against the adhesive plaister. The portion of the limb included within the strappings is compressed so much more tightly than the parts below and above it, that I have sometimes seen both edges of the plaisters girding round the skin as completely as if the integuments had been cut, and considerable inflammation and partial ulceration have been the consequences.

The face of the sore and the surrounding integuments for some little distance, as well as any other portions of the skin which happen to be excoriated, being covered with a thin linen dressing of the chalk ointment, the next stage of proceeding consists in the application of the bandage. This is useful, in the non-varicose class, to retain the dressings, in order to form the incrustation, as well as to counteract any ill effects of the dependent position of the limb during the period of granu-

lation; but in the varicose ulcers, in addition to these advantages, it is *indispensably necessary*, for the purpose of altering the condition of the structures underneath. In the latter cases, compression is of such absolute and unequalled importance, that without it every thing else will be comparatively ineffectual. For although the chalk ointment may form its crust, by simply being applied and renewed over the surface and edges of the sore, yet this alone will be productive of only the least half of the benefits of the treatment so long as the subjacent structures remain varicose or swollen. The simple kind of wound or non-varicose ulcer will, indeed, commonly heal, and the cicatrix may remain sound without the aid of the roller: but the varicose kind will proceed but slowly, if at all, without its employment; and, even if it should thus get well, is extremely apt to break out again, either spontaneously or from the most insignificant cause. The advantage of each remedy is greatly increased by the co-operation of the other; it is like some compounds in chemistry, endowed with important properties which neither of their elements possessed alone.

The necessity and advantage of compression in the treatment of the varicose sores being so great, the rapidity and completeness of the cure will very much depend on the manner in which it is

employed. *Except it be properly used*, any surgeon who may feel disposed to give the method I am recommending a trial, will probably be disappointed in its result—but then the failure should be fastened neither on me, nor on the plan, but ought to be imputed to the incomplete mode in which the attempt has been made.

Unless we have had some practice, it is not easy to place a bandage properly on the leg. The difficulty which is generally at first experienced, and the uneven manner in which it is then applied, constitute, I have no doubt, the chief reason why preference is often given to the adhesive plaister, as this will stick and remain wherever it is put. It is owing to this that praises are occasionally given to the strapping, to the depreciation of the bandage; and advantages are ascribed to the former, which the latter is said, or supposed, not to possess—when, in fact, the fault is not in the bandage, but in him who attempts to put it on. Pressure is pressure; and its effects must be the same, whether produced by a strip of plaister, or a roll of calico, provided each be applied equally smooth—equally tight—and remain in its place equally secure. The roller, when placed as it ought to be, frequently possesses advantages over the strapping; by being less irritable to the skin; by being more quickly put on, and more quickly taken off; by being more easily

removed, without disturbing the surface or tearing the margins of the ulcer; and by more completely allowing the formation of the chalky crust over the edges and centre of the sore. I have seen the skin of a limb blistered, and an extensive excoriation produced by the strapping, which has even given rise to another sore. The expedient of using cold water in conjunction with the plaister, as recommended by Mr. Baynton, will not always prevent this; and is very inconvenient when it does. The lace stocking is a very poor substitute for the bandage, as it does not properly embrace the whole foot, nor can it be well fitted under the ankles. The consequence is, that its unequal tightness on the limb above increases the obstructions below, and the remedy is calculated to do as much harm as good. Placing a card, a piece of vellum, or beaten lead, between the limb and the lace stocking, as advised by Wiseman, is likewise objectionable, from its being calculated to give partial and unequal pressure. I have just seen two very bad legs; one of twenty years' standing, and the lace stocking has long been worn on both of the limbs.

As so much depends on the proper application of the bandage, I shall particularly describe that manner of putting it on which I have found to be the best, in order to obtain the full effect of compression, as

well as to make it remain on the limb, without becoming loose and falling down. With regard to the substance of which the bandage is to be made, this may be either flannel or calico. The first possesses the advantage of being more yielding and elastic, and is, consequently, preferable in those cases where the greatest pressure is not required. In œdematous enlargements especially, the flannel appears the more suitable, by being softer to the skin, which in such cases is not uncommonly very tender, and by giving a little and contracting again, so as to accommodate itself to the greater or less distension of the limb, arising from the augmentation or diminution of the fluid. Flannel may be thought objectionable on account of its heating the parts ; but this will be rarely the case, as, in the great majority of bad legs, the temperature is probably below the usual standard, in consequence of the obstructed circulation. Indeed, in many instances of old and enfeebled persons, it is even of advantage to increase the warmth of the limb ; as it is well known that if parts are below their proper degree of heat, their functions are not well sustained. Strong calico is the better application where very powerful and continued compression is demanded, as in most instances of old callous sores. Flannel may therefore be selected where the case is not very severe, as confining in

the least degree the motions of the limb ; but good substantial calico may be used where considerable pressure is necessary.

Nothing is of greater importance, respecting bandages, than to be careful that they are of a proper breadth. The ordinary method of making them three inches wide, and sometimes more, is by far too much ; as it must be nearly, if not quite impossible, to put on a roller of this description without wrinkling and puckering at the ankles. This is a most capital fault ; for unless the bandage be applied very smoothly, not only half of its benefit is not obtained, but one fold becoming loose, the whole of it is in danger of slipping down. I find it best to use a bandage of about an inch and a half for very young persons, an inch and three quarters for women, and two inches for men, when it is made of calico ; but if it be composed of flannel, it may be a little wider, as this substance will more readily accommodate itself to the different parts of the limb. A roller of this width can be placed over the foot, around the ankle, and up the leg, without making the slightest wrinkle or irregularity, which I believe cannot be done if it is broader. The length varies from four to eight yards, according as it is wanted for children, women, or men.

Before beginning to use the bandage, it should be rolled up very tightly, so that it may be easily

grasped, and firmly held in the hand without slipping; and in putting it on, great care should be taken not to unbind more than just that portion which is being applied to the limb. If it be loose in the hand, or if a considerable piece be unrolled at a time, it is not easy to place it on the leg smoothly or firmly.

The patient should be raised on a seat rather higher than the chair on which the surgeon sits, directly fronting him, a foot-board or cushion supporting the opposite limb. By this means, greater command is possessed than when the surgeon is compelled to bend too much downwards.

Having, then, the bandage tightly rolled up, and taking care to unfold no more at a time than the part just being applied to the leg, and the patient being properly seated in front, and a little above, I commence at the foot by making one turn at a short distance from the toes. The next fold is brought forward close to the root of the toes, or even over their first joints, so as not to leave any portion of the foot uncovered. A third turn is then made posterior to the toes, covering that piece of the bandage where it began; and by this means, its commencement is well fastened and secured. Each successive turn of the roller throughout its course is made to overlap the preceding one rather more than half of its width; and thus every portion of the limb receives, at least, a covering of two layers of bandage. Three or four

such turns around the foot bring us to the base of the instep, and then the bandage is passed backwards and rather obliquely downwards under the outer ankle, and around the heel just above its projection. It is then brought forwards, and to the same degree obliquely upwards, under the inner ankle round to the point whence it started in front. It is now conveyed perpendicularly downwards, on the exterior of the foot, under the middle part of the sole, and upwards on the interior of the foot to a higher part of the instep. From this point it is passed horizontally backwards, covering the outer ankle and encircling the lower part of the leg one half of its width above the former crossing, and is then brought forward over the inner ankle to the front of the instep. It is then conducted downwards on the exterior of the foot under the sole, and upwards on the interior side to a still higher point of the instep. Thence it is conveyed backwards, and rather above the outer ankle, embracing once more the lower part of the circle of the leg, and forward again, rather above the inner ankle, to the highest portion of the instep. It is again carried downwards, and rather obliquely backwards, on the outer side of the foot, so as to include all the heel, except its projection, which, however, may, if required, be covered by the flannel roller; then, passing under the posterior part of the foot, it is brought upwards and forwards on its internal side to the very

top of the instep. The bandage is thus made to describe three or four rolls to encircle the front of the foot, and three crossings around the ankles alternately, with three turnings under the hinder half of the sole, before it is allowed to proceed up the leg. It is of very great importance that these lower portions of the extremity be well covered and supported by the bandage, otherwise the pressure higher up the limb is more likely to increase than to overcome venous obstructions, and consequently do more harm than good. I believe in many instances this is not sufficiently attended to, the foot and instep getting only two or three turnings of the roller altogether. Most commonly, the number of folds on the foot and ankle which I have described will be fully sufficient to answer all purposes required; but when more than usual pressure is necessary, an additional number of turnings and crossings may be made, either by covering once more those already taken, or by causing each successive fold to overlap the preceding one only a quarter or less of its width, and thus a greater series will be wanted to occupy the same space. Having arrived at the small part of the leg immediately above the ankles, two or three simple turns are made according to the length of the limb, without reflecting or turning down the bandage on itself; but as soon as it has approached the calf of the leg, this expedient is adopted and pursued throughout its

extent. Having come to the top of the calf, immediately below the knee, two or more unreflected folds are made, and the bandage is then securely fastened at the side. The roller should always be conveyed up to this point, even if the sore be seated on the lowest part of the leg, or on the foot itself, as the object in its application is not merely to cover and flatten the ulcer, but principally to support the vessels of the limb. Using a short bandage over the ulcerated part only, is quite insufficient to obtain the chief advantages of the remedy. Besides, if it be discontinued on any portion of the calf between the small part of the leg above the ankles and the knee, it is very liable to get loose and fall down. It is desirable, also, that the patient should not wear a garter above the bandage, as anything unequally tight on the course of the veins is calculated to obstruct the free passage of the blood. The stocking may be easily secured by pinning it to the upper fold of the roller.

As the extreme and prominent part of the heel generally projects considerably, its point is purposely left uncovered by the calico roller—though it may be embraced by the flannel one, without such fear of moving—for if it is included within the folds of the linen bandage, it is very liable in walking to shift, and one turn getting slack, the whole of the crossings are in danger of becoming loose. If any great pressure at all is required at the very extremity

of the heel, which is very seldom the case, it is accomplished by using one strip of adhesive, either before or after placing the bandage. The latter I generally prefer, because it will adhere equally close, and it then serves the additional purpose of keeping the crossings of the bandage in their proper places. It is not usually necessary to carry the roller above the knee; for how much soever the veins of the thigh may be varicose, yet, as the vessels of the leg are improved by compression, those higher up almost always get better. But occasionally the vessels of the thigh may be so distended, or ulceration may be seated there so as to require the bandage to be applied over the joint and up the thigh. When this is the case, I have found it better to have two bandages; the second to commence below the knee, where the first left off—for if the full lengths are rolled up together, it would be too large for the hand to grasp conveniently. This second bandage is passed around the knee in a simple circular manner, until the whole of the joint is included within its folds, and then over these the crucial turnings are made, passing obliquely from the one side to the other. The advantage of beginning with the circular before the crucial turnings is, that the former is a sort of foundation for the latter, which is not then so liable to shift; but chiefly, because this method protects the ham from the

irregularities and wrinklins which the cross foldings sometimes produce. If the superior part of the thigh requires a roller, the tail bandage is employed, as the common one will not stay up equally well. It is true, this bandage cannot be made to exert much pressure, but then this portion of the limb very rarely demands it. Should it however be required, the ordinary roller may be put on, and kept in its place, by fixing it to a band passed around the lower part of the trunk.

By following the method thus described, I am constantly in the habit of putting on bandages, which remain smoothly and firmly in their place many days together. When patients are getting well, and do not require attendance so often as before; or when they come from some distance in the country; I do not sometimes see them for a week or two: but during this period, the roller scarcely ever becomes loose, or shifts from its position, although the individuals are walking about as usual. Owing, however, to the conformation of some legs, when the calf enlarges very abruptly, there is some danger of the bandage becoming loose by exercise, and in these instances it is advisable to have it stitched from the bottom to the top.

With regard to the tightness with which the roller is applied, I use much more force than is generally employed, pulling it at each turning as strongly as

I can by the common effort of the arm, and sometimes even to the full extent of power which I possess. This firmness with which the bandage is put on, is of course chiefly for the purpose of gaining the good effects of compression on the structures underneath, but then it also contributes very much to make it remain in its place when it is once applied. The reason why the roller so frequently falls down, is partly in consequence of being put on too loosely, as one of the folds soon becomes slack by walking, and the whole then slips off the limb. But although the bandage is applied thus tightly, patients in general bear it extremely well if it be put on in a smooth and even manner, and commence from the lowest part of the foot, around the root or first joints of the toes. Why pressure sometimes excites uneasiness, is either because the roller is applied irregularly, or because the lowest portions of the limb are not wholly included in its folds. I have occasionally had patients who, as soon as I have mentioned the bandage, reply, that they cannot bear one; that attempts have been made to wear it, but the pain which resulted compelled them to abandon its use. Formerly, I used simply to repeat my opinion as to the propriety of the remedy, and leave the decision to the patients themselves; and the consequence has been, in a few instances, that they have gone away refusing

to follow the advice which has been given. But I act differently now ; and suspecting that the reason why the bandage was not previously endured arose from the mode in which it was applied, I merely say, “ We will try, and see how you can bear it now”—and accordingly begin to place it on the limb. During this process, frequent exclamations are sometimes made that it is too tight, and assurances are given that it will be impossible to allow it to remain ; but when it is all properly adjusted, and the patient stretches out the limb, and feels how equally all its parts are supported, he begins to change his opinion. He now hopes he shall be able to submit to it, and after a few steps are taken, and he feels how comfortably he can walk, his dread that he could not bear it is entirely dissipated. The fact is, the combination of the simple unirritating dressing, with equal and powerful pressure, almost always gives very quick relief, when much pain had been previously felt. This is a great advantage, not only by diminishing the suffering, but by gaining the confidence and concurrence of the patient ; as he then cheerfully submits to the continuance of the treatment. He thinks it would be a good thing to get well at all, even at the expense of some temporary uneasiness ; but he justly considers it is much better to be cured by a

plan which lessens his pain from the first moment that it is employed.

The proper application of the bandage is of such great importance in the treatment of sores on the leg, that it should never be left to the individual himself: for even when he has, unfortunately, had long experience of the disease, it is difficult for any one properly to place a roller on his own limb; whilst, in all the more recent cases, patients cannot be supposed to know any thing of the matter. It is evident, therefore, that this very essential part of the treatment should never be entrusted to other hands, but should always be executed by the surgeon in attendance. He who, from whatever disinclination, will not stoop to the performance of this most important part of his duty, ought neither to pretend nor presume to undertake the management of an ulcerated leg.

I have applied tight bandages to many hundreds of sore legs of all descriptions, irritable and indolent, exuberant and callous. I scarcely remember any instance in which the remedy could not be borne, and where the pain was not greatly lessened, when it was placed on in a smooth and even manner. Sir E. Home states, however, even with respect to the varicose limb, "that there are many people whose legs can neither bear the lace stocking, nor a tight

bandage of any kind; and that, instead of deriving advantages from such applications, the ulcer in these subjects becomes worse." (P. 285.) In the very next page we find, indeed, the following passage, which seems to oppose his former statement: "As, however, those patients who cannot bear tight bandaging at all are but few, they must rather be looked upon as exceptions and uncommon cases, than as affording any argument against the general treatment: but it does, also, happen, that even in those cases where the veins are enlarged, the limb too often cannot bear compression for any length of time." And, in a former page,* when describing the characters of the varicose sore, he says, "The pain which it gives is seldom from the external surface, for pressure does not increase it." But, instead of looking on such cases as exceptions, it is well known that Sir E. Home did not place much reliance on compression, but has advocated another method, hereafter considered, for the removal of varicose sores. The extract already quoted from Mr. B. Bell, in favour of rest in the treatment of bad legs, evinces that this writer also did not view tight bandaging in the important character which the experience of others seems to authorize. When we find a method that has been greatly serviceable in our own hands either condemned or neglected

* P. 275.

by others, especially by surgeons of deserved celebrity, we are at a loss to account for the wide disparity which exists between their statements and our own experience. We cannot help feeling the weight of their opposition; but still less are we able to question or doubt the reality of what we have seen. From this perplexity we are not uncommonly relieved by some incidental remarks made by those writers opposed to our views, which soon explain the difference of opinion that exists. This is the case in the present instance. For, in discussing the merits of pressure, it is not like investigating the properties of an internal medicine, which is always of the same strength, provided it be genuine; but compression is an agent which derives its entire efficacy from the extent and the manner in which it is employed. No one supposes that there is any virtue in the flannel or calico: it is the mode of putting it on the limb which produces the benefit; and if others do not use it to the degree, or according to the mode, in which we do, this accounts for their failure and their opposition. Now Sir E. Home states,* in alluding to the treatment he had pursued in managing indolent ulcers, which, every surgeon knows, are so conspicuously benefited by compression, that in "all the cases brought forward as evidence in favour of the

* P. 233.

different applications that have been here considered, no species of bandaging was used but what was necessary to keep the dressings applied to the ulcer." Then, also, Mr. B. Bell directs us to use "gentle compression," "slight compression," and speaks of employing "gentle pressure." It is, therefore, evident from these extracts, that the first of these distinguished surgeons was in the habit of using the bandage but rarely, and the latter not very tight; and surely it may be said, without any disrespect, that such a method of trying or following the remedy cannot enable any one to judge of its merits, much less entitle him to condemn or limit its use.

It would be great injustice if I did not acknowledge that Mr. B. Bell in another place has given a very decided and able testimony to the good effects resulting from the employment of pressure. The extract is found in Section 13, at the end of the work; and, though it is rather long, I shall take the liberty of enriching this page with it, as the conclusion of a writer not likely to be accused of being too much attached to the remedy. "3. The application of gentle compression, not only upon the ulcer itself, but on the neighbouring sound parts also. We have taken various opportunities in the course of this work to recommend the application of pressure in the cure of ulcers. In addition to

what has already been said upon this point, we think it necessary to observe, that this remedy is not as yet sufficiently known, otherwise it would be more generally employed. Those who have not used it would scarcely give credit to the accounts we could give of its universal utility in the cure of sores: but from much experience of its effects, in almost every species of sore, we can venture to assert, that those who have not employed it have deprived their patients of the most powerful application which has hitherto been invented for the cure of ulcers." The correctness of this excellent statement, especially if in the reading we omit the word "gentle," and substitute tight, will, I am persuaded, be acknowledged and confirmed by every one who has given the remedy a fair and sufficient trial; and it is only to be regretted that the writer of it, by advocating the constant observance of rest, and the common employment of the issue, should so materially interfere with its full application to practice.

The length of time which elapses before the bandage and dressings are removed and re-applied, must, of course, be regulated by the circumstances of the case. When the ulcer is very extensive, and the discharge proportionally great, it will be necessary to dress the leg, perhaps, every day, at the commencement of the treatment. Generally

speaking, however, I am convinced that ulcerated legs are disturbed much too often; and I always allow the parts to remain as long as possible without any interference. There is no doubt that the use of greasy applications spread on thick pledgets and covered with pads and compresses, heat the sore and confine the discharge, and thus render it necessary to take off the dressings more frequently than would be the case if a thinner kind of application were employed. The common use of stimulating ointments, by irritating the sore, and increasing the discharge, is another cause which makes it requisite to dress ulcerated surfaces so often. One of the benefits already adverted to, as belonging to the simple chalk dressing, is, that by its unirritating properties, by its neutralizing the acrid discharge, and by its protecting the bordering delicate skin, it permits the linen and bandage to remain on much longer than when most other applications are had recourse to. This is one great advantage which will be found to result from its employment; as every one must be sensible that the more seldom the parts are touched, the better. It is almost impossible to take off one set of dressings and put on another, even though done with the greatest care, without disturbing the healing process; and if it does not destroy what has been already effected, it interrupts for some time

the natural progress of cure. I am always anxious to remove the dressings as rarely as possible, and, therefore, let them remain until some uneasiness points out the propriety of taking them off for the purpose of permitting the escape of the discharge. If the leg is easy to-day, the dressings are not changed until to-morrow; and if on the morrow no inconvenience is felt, they remain still untouched. The object is, to delay the removal as long as possible, without, however, carrying this forbearance too far: and if, instead of measuring the time by the mere number of hours or days, we take the surer criterion of the presence or absence of uneasiness, we shall be in no danger, on the one hand, of acting too soon, or, on the other, of waiting too long.

It is true, that sometimes the quantity of discharge is so considerable, and becomes so offensive, that common cleanliness demands the frequent renewal of the dressings. In such instances, it will be commonly found that some uneasiness also is felt by the patient; but even if this should not be experienced, the laudable wish, on his part, of being kept as free as it may be possible from filth and stench, must be obeyed, and the dressings may then be removed, without waiting for the presence of any other inconvenience.

In taking off the bandage, it should be rolled up, and the whole of it held in the hand as it

comes off ; for if it be allowed to remain loose and long, it will become entangled about the limb. It must of course be washed each time, before it is reapplied : a direction very necessary to give to the poor.

The bandage being undone, the thin linen dressing is raised very gently, in order to allow as much of the chalk ointment to be left behind as may be attached to the surrounding parts and surface of the sore. We shall frequently find, even after the first dressing, that a thin film is formed about the margin, especially at the upper side, however large the ulcer may be ; and if it be a small one, in addition to the deposit on the edges, some of the incrustation may probably be observed on the face of the sore. *This must not by any means be taken off* : it is treason to touch the chalky scab. It is, I believe, with some surgeons, a very common habit in the treatment of ulcers to wash the bordering skin and edges of the sore, and sometimes to pour water over its centre at each time of dressing. No good, however, can possibly be obtained by this ; whilst some evil, and much loss of time, must be the consequence. For, as respects the ulcerated part, the matter that is on it is either healthy or unhealthy : if healthy, it ought not to be removed, as this affords the best covering to its surface ; and if unhealthy, it is of no use to remove

it; for precisely the same kind will be formed again each time, until the character of the sore is improved. In either case, therefore, nothing is gained by the ablution, as far as relates to the matter; whilst the violence or disturbance which may be done to the delicate and sensitive granulations when they are busy, in filling up the cavity, or forming the cicatrix, may be considerable. Besides which, it has been clearly ascertained that some period must elapse before the surface of a sore becomes covered with a proper supply of purulent fluid, after it has been once wiped off; and, therefore, in addition to the irritation given to the part by touching it, there is so much time absolutely lost in the process of healing. Then, as regards the neighbouring skin, this, before it is shielded by the chalky crust, is commonly so tender, from its proximity to the sore, or from the irritating effects of the discharge, as to be in a state the most unfit for any rough usage from washings and wipings; and even the gentlest proceedings of the sort may be sufficient to excite and inflame it. But when the bordering integuments are enveloped and protected by the chalky scab, the matter cannot touch the skin, and no washings are then required; and thus, whilst in the former case spungings and washings are injurious, in the latter they are unnecessary. All that is demanded, in both instances, is to remove

very gently, by a dry soft piece of lint, any of the matter which remains behind on the surrounding parts, after the bandage and dressings are taken off; whilst the face of the sore is never to be touched. It is our officious meddling and busy interference, which, in many cases, partly account for the slowness of the cure of ulcers on the leg; as in one minute the work of twenty-four hours is destroyed. In some hands, each dressing counteracts almost all that nature has done in the interval.

At each succeeding dressing we commonly shall be able to observe a gradual increase of the chalky incrustation, first on the sides of the ulcer, then on its margin, and, by degrees, over its surface. Before, therefore, it covers the sore, it is placed all over the bordering integuments, which is a circumstance of very great importance. Every one must have seen that sometimes the surrounding skin becomes excoriated, and even ulcerated, by the discharge; and this, as has been already alluded to, is one cause which renders the frequent removal of the dressings necessary. As soon, however, as the chalky crust is formed, it effectually shields the delicate skin from the presence and irritation of the matter, the fluid passing down over the incrustation without touching the neighbouring integuments. The skin is thus protected from the exciting properties of the purulent or other fluid, and being

likewise shut in from any external influence, becomes firm, substantial, and sound. There is no danger, as I have already stated, that the chalky crust will form over the ulcerated part, and become a barrier to the escape of the fluid. A layer of powdered chalk in substance, or a thick watery solution of it, will indeed produce an impervious coating, and confine the discharge; but the slow and gradual manner in which the artificial scab is deposited by the use of the ointment, renders this evil unlikely. So long as the discharge continues considerable, it is enough to wash off the thin film left by the chalk ointment, and to prevent its attachment to the face of the sore; and it is only as the discharge diminishes, that the crust is completed.

The progress of healing in an extensive ulcer is frequently not confined to its edges, but sometimes small central spots pass onwards to recovery faster than the other portions of its surface. These, as they increase in size, tend to convert a large ulcer into a number of smaller ones; and this circumstance not only diminishes the period required for the cure, but acts most favourably for the formation of the chalky covering. Each central part serves as a foundation for the commencement and attachment of the incrustation, and the chalky formations radiate from these as so many points, until the circumference of one meets with the circumference of another.

By this means, a very considerable ulcerated surface may be covered over in a short space of time.

During the progress of the cure, the chalky scab is not in general to be dislodged from the surrounding integuments ; but when the sore is very extensive, and the healing is proportionally slow and tedious, the successive deposits on the bordering skin occasionally form so thick a crust as to require its removal. The reason why it is advisable sometimes to take off this is, because it produces a layer sufficiently high to prevent the ulcer itself from experiencing all the good effects from the use of the pressure ; this thickness of the bordering parts preventing the uncovered centre of the sore from being compressed as much as it ought. A sort of slight valley, as it were, is formed ; at the bottom and in the centre of which is the ulcerated surface ; and the bandage, in passing from the one side to the other, cannot exert its full force on the ulcer between : the removal of its surrounding and tegumentary incrustation is, for this reason, sometimes proper. This, however, may then be done without much regret, for before it has arrived at this extent, it has already accomplished its chief service to the circumjacent skin, by having made it firm and substantial ; and another, though thinner crust, is soon deposited again, quite thick enough to preserve and protect it from the irritation of the discharge.

When the ulcerated surface is gradually covered by the chalky crust, and its whole extent is included, it should not be disturbed until a sufficient time has been allowed for the entire part to heal underneath. I have been struck with surprise to see how rapidly this is effected, when thus shut in and protected, as Nature herself would do it: but still an idle curiosity to see how things are going on below should never be indulged. As soon as the ulcer is completely healed, the artificial scab becomes hardened, from the want of the moisture from the discharge; it then cracks, and separating into pieces, comes off by degrees itself. When this process is going on, and we are sure, from the drying and cracking state of the crust, that the sore is completely obliterated, there can be no objection to remove it in a very gentle manner, taking care to cover the part again by another dressing. It is better, however, to permit the earthy coating to remain on too long, than to take it off too soon. In the former case, it is only a harmless covering, without scarcely any inconvenience; in the latter, our interference will render it necessary, for the process of deposition and formation, to be repeated.

Now if it be said that this method of forming an artificial scab, and then not removing it, is very filthy and dirty, I answer, even if it be so, it is not my

fault, but nature's ; that she is to blame for it, for this is just similar to her own method of bringing about the business. In cases where we are contented to leave her to herself, or where she acts out of our reach, this is the precise principle by which she accomplishes the cure. Indeed, it is from the desire of obeying and following her mode of practice, that the rule itself is derived. But, in fact, this objection is destitute of foundation ; as all the discharge and filth are taken away, though no washings or spongings are allowed. Most of it comes off with the linen and bandage ; and when this is not the case, the additional matter which runs down over the crust is gently removed with a piece of dry soft lint, whilst the small portion of it which unites with the chalk is converted into a harmless and inoffensive compound.

It deserves, indeed, to be particularly remarked, and I beg attention to the fact, that the chief objections which exist in reference to the scab, when this is allowed to form spontaneously, do not really apply to its production, or to its chalky substitute, when either is formed under the influence of pressure. Sometimes the natural scab, where no bandage is employed, is of a thick and irregular shape ; soft and spongy in its texture, and hollow underneath, instead of being firmly consolidated in itself, or closely and evenly applied to the

ulcerated surface. One consequence of these circumstances is, that recent matter is poured out in the interspaces, especially on the face of the sore, where it becomes confined, and all the evils of an abscess follow. Irritation in the part, and inflammation in the adjoining skin, occur, and the scab requires to be removed in order to admit of the escape of the fluid. But this is not the case when either the natural or the artificial incrustation is formed underneath the bandage. The pressure above consolidates all the parts below, the crust is flat and firm, no interspace is allowed between the coating and the surface of the ulcer, and consequently the evils which occasionally present themselves in combination with the spontaneous scab rarely occur when either the natural or chalky crust is produced under the operation of the roller.

Another apparent objection to the plan I have described may be, that it merely covers over the sore, and smothers the evil without eradicating it. It may be said, that although this simple exclusion from the air might be well enough in very healthy kind of ulcers, yet, in all those of a depraved character, something is required to cleanse and correct the local condition of the parts. But this objection forgets what has been stated above, that the tight bandage is combined with the chalky crust; and overlooks the attempt which was made to prove

that compression, in union with exercise, affords the best cleansing and corrective to the sore. Very ample and very minute instructions are generally given for purifying the ulcer; and this is principally directed to be accomplished by the use of topical correctives. Since, however, the depraved character of the sore in a great majority of the worst cases results from the existence of varicose veins, or adventitious deposits, as soon as a better condition is established in the size and functions of the blood-vessels and lymphatics, not only will the sore assume a more healthy appearance, but we need not entertain any dread of healing the part too soon. The bottom of the ulcer is improved, not by the employment of external correctives, but by the internal changes which the compression and exercise excite in the living structures. Without the use of pressure, indeed, the surface of a bad sore would long remain depraved; and in these instances, even if a cicatrix formed under the chalk coating, it would probably be neither substantial nor enduring. Such a scar would, most likely, break out again of itself, or from the most trifling cause; but then this is not the cicatrix which is formed by the plan which I am advocating. In combination with the artificial scab above, a healthy renovation is effected in the living structures below; and thus, whilst the chalky incrustation imitates a natural process on the surface, the pressure

approximates to their healthy state the parts which are underneath. The objection which may be made to the earthy crust, that it merely smothers the evil above, and does not extinguish it from below, is therefore unfounded, because the co-operation of the two remedies accomplishes both purposes. It is never imagined for one moment that the chalk produces any effects on the character of the sore, beyond that of neutralizing its secretion, and forming the protection on its margins and surface; and it is just because it is so harmless and simple in its direct properties, that I believe much of its advantage arises. If it were stimulating or exciting, it would not, I am satisfied, be accompanied with one half the benefit it now bestows.

There are, indeed, two very opposite errors into which we may fall in our attempts to remove an old ulcer. The first, consists in teasing and irritating its surface, under an apprehension that it is unsafe to allow it to heal too soon. The older surgeons almost universally followed this plan; laying down certain stages through which an ulcer ought to pass, before it should be permitted to disappear. Even some later writers have adopted and pursued a very similar method of proceeding: thus Dr. Underwood states, that, in long-standing ulcers, he would "rather irritate, than coax them."* Now

* P. 117.

it is perfectly true, that an old deep and ill-conditioned sore must become clean before it can granulate; and must granulate before it can cicatrize.* So far, therefore, the theory is acknowledged to be correct. But then this doctrine teaches us a very different practical lesson to that which is generally learnt from it; for, instead of interfering at any given stage of the cure by irritating the ulcer, in order to make its progress more certain, the very circumstance of this connexion of its successive actions proves that when one stage commences, the previous one had been established. Since the steps of the natural proceeding in the cure are linked together in a regular series; the very fact, that an ulcer is inclined to skin, implies that it had granulated; and the very fact, that it is disposed to granulate, implies that it had become clean. The appearance of one stage pre-supposes the completion of the immediately antecedent one; and, therefore, the practical inference from the doctrine ought to have been, to assist the present stage, rather than to tease it; and to "coax," rather than to "irritate" it. The other error into which we may fall, is the opposite extreme to this; and con-

* This, though correct as a general principle, admits of occasional exceptions; some deep and small ulcers becoming obliterated very much more by the approximation of their edges, than by the regeneration of lost structures.

sists in employing means, which are supposed capable of superseding the natural processes. Alcohol, mixtures of acids, and styptical substances in powder, with other remedies of this kind, sometimes called "driers," appear to have been used, from a belief that they could create a cicatrix over the face of the ulcer. It seems to have been thought, that such applications are possessed of properties which are able to convert flesh into skin, and thus hasten onward the cure much more speedily than when it is left to the ordinary proceedings of nature. It was not contented to allow the skin to be formed after the granulations, by a living action of the parts, but it appears to have aspired to the higher function of creating a skin, or at least of changing flesh into skin, by a direct conversion of substances.* The plan of treatment which I have adopted, and have attempted to describe, shuns equally both of these extremes. Although it may, at first view, be thought to approach more nearly to the last, it is really as distant from it as it is from the first. It does not suppose for an instant that the artificial scab converts the flesh into skin, but only affords a better oppor-

* "If only the skin be wanting, the flesh is so to be dried with medicaments, as the juices coming thither may be hardened into a callous substance, resembling skin."—Wiseman, vol. 1, p. 269.

"You are to endeavour to cicatrize, by drying the flesh into callus."—Ibid, p. 273.

tunity than when exposed for the gradual formation of it by the living actions of the ulcerated part. No property whatever is attributed to the incrustation resembling the “driers ;” and its intention is as remote from their presumption as it is from the scarcely less absurd custom of teasing and irritating the face of the sore.

Another objection will, probably, be made to the treatment I have described, by saying, that it is applied too generally, and that a sufficient distinction is not preserved between the different kinds of sores. It must appear to many who are accustomed to attend to the classification of ulcers according to their outward characters only, and who remember the multitude of remedies recommended for each species of sore, in the form of vapours, washes, powders, and ointments, that the simple and uniform method which I have adopted, if not empirical, is at least very indiscriminate in its application. But, judging in this manner, takes for granted that the arrangement of ulcers, derived from their superficial appearance, is correct ; whilst I have attempted to prove that such external characters cannot furnish the groundwork for any safe or satisfactory classification. I have endeavoured to establish the frequent existence of a positive and defined unhealthiness in the outer structures of the leg as the origin or means of continuance of the worst of sores, both of the

indolent and irritable descriptions; displaying itself sometimes in the production of the former sort, at other times in the production of the latter. And, although the external aspect and character of the ulcer may vary according to the part of the limb which is attacked, or the constitution of the individual suffering from the evil, yet, since there is so generally one common cause which produces the diversified effects, our efforts, it is obvious, should be directed in each case alike to the removal of that cause which gives rise to both kinds of effects. If, indeed, the irritable sore always possessed a distinct origin from the indolent, then the remedy proper for the first would be unsuitable for the second; and a different mode of proceeding would be indicated for each. But, since they so frequently spring from the same source, and will not give way until the cause is removed, whatever external applications are used, the treatment required in both cases must consist of nearly the same. The universality of the proceeding results from the universality of the cause of the diseases; and, if the truth of the theory be established, the propriety of the practice must be admitted. There is, therefore, nothing indiscriminate, nothing empirical in the practice; it is adapted to the removal of that condition of the veins and other structures of the limb, which is the frequent parent of each kind of sore; and the

same plan is, therefore, properly employed in them all.

It is, however, readily acknowledged, that these general principles of treatment, like all other rules, admit of some exception, and require some modification in practice. The instances in which the plan I have advocated has been found to answer most completely, and with the greatest rapidity, have been superficial ulcerations ; however extensive the surface may be, and whether dependent on varicose veins or not ; provided that in the former cases the use of the bandage is combined. In this form of ulcer, from there being less destruction of parts, and less separation being required previously to the skinning, it is in a more suitable state for the production and use of the scab. In deeper kinds of sore, where the edges are thick, and the centre is considerably below the margins, there are preparatory stages to be taken before it is capable of cicatrizing ; and the delay in such cases is proportionally increased. These, however, are not difficulties in the way of the chalk ointment only, they apply to all other descriptions of local remedies. There is especially one variety of very painful and troublesome ulceration, in which the chalk incrustation is highly serviceable ; I allude to that kind of bad leg in which the veins under and about the ankle,

particularly the outer one, are extensively varicose ; and at the projection of many of the enlargements, the skin has given away, exposing a number of small superficial sores. These are intensely painful, and are almost always poulticed ; which, by absorbing the briny fluid of a very irritating quality, which is thrown out, affords some slight and short relief ; but as this remedy makes the small veins more dilated, the disease eventually becomes worse under its use. As soon as a layer of chalk ointment is placed over such a part, it seems to combine with the acrid and limpid discharge, and forms a series of small coverings over each ulceration, which, by the combined use of tight compression, gets well with astonishing rapidity. I have known a patient suffering from this painful species of disease for seven years, and under regular advice during the whole time, get well in about three weeks.

The exceptions to the treatment which I have described in this volume are, extremely deep and callous sores on the one hand, and highly irritable and specific sores on the other. Both of these varieties are improved and assisted by the use of stimulating applications to the ulcer, for the purpose of exciting a healthy action in the former, and for the purpose of altering a morbid action in the latter.

When an ulcer is very indolent and sluggish,

having its centre deep and its edges insensible, although pressure is indispensably necessary for flattening and consolidating the structures, yet some additional advantage will commonly be obtained by using at first, instead of the chalk ointment, a local stimulus, with a view to increase the activity of the part. The best which I have tried is either of the nitrate of quicksilver ointments, the red or the yellow; though, in the species of ulcer we are now considering, perhaps the first of the two is preferable; indeed, the high praises which, for so long a time, have been ascribed to the red precipitate, seem to be well founded. These ointments will not, it is true, admit of any mixture of the chalk, with a view to gain a speedy crust, since a chemical change would, probably, be effected; but I have almost always observed, that, with a little management, they produce a useful coating on the surrounding parts and edges of the sore. If the red ointment is applied, the precipitate becomes disengaged after the lard is melted and absorbed by the linen and bandage, and is then deposited in a manner resembling the chalky scab; though not to so great an extent, in consequence of the different proportions of the substances. This, at least, is very conspicuous on the surrounding skin; but it seems to be of too irritating a nature to form over the face of the sore, until it is greatly

reduced in size, and then may frequently be observed assuming a darkish appearance. If the yellow nitrate of quicksilver ointment is used in a diluted state, it forms frequently a tenacious kind of stratum, which readily adheres to the neighbouring integuments and the margins of the sore. When this application is employed in its full strength, it forms a sort of coagulum over the surface of the ulcerated part, according to the manner and appearances so well described by Sir E. Home. All these deposits, or coagula, I never touch, but contrive to preserve and increase them as much as I can : and this is not difficult to accomplish, provided we abstain from spungings and washings, which I have attempted to prove in another place are useless and mischievous. When the dressings are removed, the discharge is gently wiped off from the bordering integuments ; but the portions of the precipitate, coagula, or ointment, which cover the sore, or remain attached to its edges, are never disturbed. By this means, although the chalk ointment is for a time superseded, yet the principle which instigated its employment is neither abandoned nor lost sight of, but is, in effect, carried into exercise, though not in so direct and obvious a manner. We get an incrustation, though not a chalky one ; and, if it will answer the purpose of protecting the surrounding skin and face of the sore, it is not, perhaps, of so

much consequence of what it is composed. At least, this is certain, that the direct stimulating effects of the mercurial ointments is frequently so serviceable in extremely sluggish and indolent sores, by hastening onwards the cure, that the additional benefit which is thus conferred tends to compensate for the want of a more speedy and complete artificial scab.

Caustics, mineral acids of different strengths, and other stimulating applications of an escharotic nature, are sometimes recommended in the treatment of indolent ulcers, with the intention of rousing the activity of the part. When these are had recourse to, a sort of scab is commonly formed over the surface, by the portions which are destroyed from the application ; and this may be usefully preserved, agreeably to the general principle of imitation.

The same intention can be carried into effect by preserving the artificial crust, which is produced when the red precipitate in substance, or rhubarb, and other powders, are sprinkled over the ulcer. These ingredients, used in this manner, are, however, liable to form a thick and irregular coating, similar to the powdered chalk, or the thick watery solution. By being too quickly deposited, they are in danger of creating a barrier to the escape of the fluid, as well as acting in the manner of extraneous substances.

When the quicksilver ointments or powder are

used, especially if the ulcerated parts are very extensive, it will be advisable to watch the gums. I have known a patient slightly salivated under their use. It would also, perhaps, be desirable, at the same time, to abstain from administering any mercurial medicines internally.

It is in this description of indolent ulcer, especially when the cavity is deep, and the edges thick, elevated, and insensible, that the strapping is so serviceable ; its utility being admitted by the concurrent testimony of almost every modern writer. Here the resin, which is sometimes too irritating, acts as a beneficial stimulus ; whilst pressure, to any extent, can be commanded, first, by the adhesive plaisters around and over the sore ; and secondly, by the roller throughout the extent of the limb. I may here remark, that, in taking off the strapping, instead of removing strip by strip, when several pieces are employed, and which each time must disturb and widen the sore, I find it better to introduce a fine grooved director between the skin and the strappings, at the part of the leg opposite to the ulcer. Through the track of this, the point of the scissors is made to pass, cutting, as it advances, until the whole is divided ; which is thus easily done without endangering the skin. When it is all cut, the two sides of the mass of strappings are removed, by separating them from one another

towards the sore ; and when arrived at this point, it is taken off in that line of the ulcer which will widen its margins the least. By this means, the entire strappings readily come off together, and the difficulty generally experienced, from the first sticking to the second, the second to the third, and onward through the series, is completely avoided ; whilst, at the same time, the sides of the ulcerated part are not made to gape open so widely as they would by the removal of each successive strip.

The other description of ulcers, which requires some modification of the plan of treatment which I have described, consists of highly irritable and sensitive sores ; which frequently, instead of demanding poultices and fomentations, are more quickly improved by the use of some stimulating applications. This is employed, on the principle of destroying the morbid condition of the parts, by setting up a more acute action for the time ; but which gradually subsides after it has accomplished its curative effect. This substituted action, though more severe sometimes than the original disease, lasts for a shorter period ; and being produced by ourselves, is under our control and management. I have long been convinced that many of the worst kinds of irritable ulcers are dependent on varicose veins ; and when this is the case, the use of compression,

with the simple chalk ointment, will establish a cure. But in some instances it does not possess this origin; and even in those in which it does, provided they are very intense, some time may be gained by the use of an application which exerts a direct influence on the part. It is not here, as in ordinary ulcerations, that the simple shielding of the scab is all that is required; because, not only in the cases now under consideration is it more difficult to obtain this, but when it is formed before the morbid condition is changed, an irritating fluid may be generated underneath it, which frustrates its object, and retards the cure. When dependent on the varicose veins, this unhealthy action is of course altered by pressure; but in the other instances, we must bring about the improvement by different means, and the most effectual in accomplishing this are the stimulating applications already adverted to. Whilst the red precipitate ointment answers best in the indolent variety of sores, the yellow nitrate, according to its requisite strength, is the most suitable in the irritable species. The same remarks which were made under the head of indolent sores, respecting the propriety of forming and preserving an incrustation, will, to a great degree, also apply to the irritable description of ulcers. In many very obstinate cases of irritable ulcerations, I have derived the most advantage from the tar ointment. This

remedy, though greatly and deservedly extolled in many eruptive complaints, is mentioned by scarcely any writer as being applicable to cases of ulcer. I have known, however, many instances in which it has produced the most surprising and rapid effects, after the different ointments of quicksilver have been ineffectually tried. In all those extensive and superficial irritable sores which frequently occupy the instep and front of the leg, throwing out a briny limpid fluid, which seems to propagate the disease still farther, it will be found of the most signal benefit. Great care is required in the manner of using it, as it occasionally gives rise to painful and unpleasant consequences. I have known it inflame and blister a limb, and even produce great irritation and disturbance to the system. It is advisable always to begin with it very much diluted; as it is impossible to predict beforehand how it will affect the limb, and it is easy to increase its strength if it prove too weak. I have found that combining it with equal parts of the chalk ointment, or, in cases where it can be borne of its full power, rubbing up some chalk powder along with it, seems in some manner to moderate its exciting effects, as well as afford an opportunity for forming an artificial scab. A coating is produced, which appears to be followed with advantage, both from the immediate

operation of the tar, and the more gradual benefit resulting from the incrustation.

In these two extreme kinds of cases, when the ulcer is very indolent, and when it is very irritable, some deviation is thus made from the mode of treatment which I have described. Such departures are considered merely as exceptions to a general rule, and by no means form the basis of treatment, according to the management of Dr. Underwood and others. It is, therefore, abandoned as soon as possible, and a return is made to the milder and more simple plan of proceeding. When the stimulating applications have been used in the indolent ulcer to rouse, and in the irritable ulcer to correct, the action of the part, and a better appearance and secretion are produced, these remedies are changed for the more harmless kind. The continuance of the stimulus expends, unnecessarily, the strength of the granulations, which, instead of forming a cicatrix, are kept in a degree of activity too high for skinning: a proper condition of the sore having been gained, all that is required is, the crust to protect the face of the ulcer, combined with the proper application of pressure. It is astonishing to observe with what rapidity the cure is completed under the chalk incrustation, as soon as a due and healthy action has been once

established. There is one circumstance connected with the use of stimulating applications, which, perhaps, accounts for their being so commonly continued after they have been once had recourse to. Every one must have observed, that a stimulating remedy which, when first applied, excited the part considerably, will, in a short time, produce but little effect; so that the ulcer soon becomes insusceptible, unless a new form of stimulus, or an increased strength of the old, be employed. This has, sometimes, been explained, as if the sore had become more and more sluggish and insensible, and appears to have been thought an unfavourable condition of it; when, in reality, it proves that the granulations are increased in strength, up to a point which enables them to resist that degree of stimulus. Instead, therefore, of being considered a dead or insensible state of the ulcer, it ought to be viewed as a sign of its increase of power; and, consequently, a good instead of a bad symptom. A sufficient degree of independent energy being thus established, the irritating applications may be discontinued altogether, and a return to the more simple mode of treatment will, probably, be all that the case will afterwards require. There is always a defined relation existing between the character of the sore and the strength of the remedy; and what we should constantly aim at is, to adjust

the one to the other. The great secret of all proper applications consists in obeying this principle of adaptation or agreement; and the more nearly we approach it, the more suitable and successful our efforts will prove. When attention is paid to this rule, and great care is taken to regulate as exactly as possible the nature of the ointment, the degree of exercise, and the force of compression, to even the very worst and most indolent sore, it is remarkable to observe how rapidly the co-operation of these remedies will convert it into healthy flesh. As soon as this is effected, and the independent vitality of the granulations is established, as will be evinced by their appearance, their resisting the stimulus, and their capability to form proper matter; all that the ulcer stands in need of is the protection of the crust preparatory to skinning; and, under its shelter, this process is speedily and soundly completed.

It must, however, be acknowledged, that sometimes, when the stimulus is discontinued, after it may appear to have been carried sufficiently far, the parts fall back into their unhealthy state, and in such instances the use of the remedy must be resumed and pursued a little longer. Occasionally we shall even meet with an ulcer so depraved or sluggish, as to require the employment, and even increase of the stimulant, from the commencement of the

treatment to the completion of the cure. Such cases may be even of frequent occurrence, where the bandage and exercise are not used; but, when these remedies are employed to accomplish the purposes I have so frequently alluded to, a more vigorous, and a permanent action is set up in the part, which is better than the artificial and temporary excitement produced by the application of local stimuli. The consequence of such a proceeding is, that irritating applications may soon be dispensed with, even in the worst cases, and when they have been advantageously had recourse to for a short time.

I have not included amongst the exceptions to the general mode of treatment those cases of exuberant ulcers where the granulations are too luxuriant and elevated; because I believe this fault can be more easily corrected by the proper use of compression, and the mild ointment, than by any severer plan of proceeding. In such cases, indeed, it is necessary that the granulations be reduced to the proper level; for unless this be done, they do not show so ready a disposition to skin over. This is frequently attempted to be produced by escharotics; but such an expedient is calculated to perpetuate the evil it is intended to remove. For, at the same time that the parts on the surface in immediate contact with the caustic are destroyed by its application, the parts immediately underneath

receive a degree of stimulus, which, instead of killing them, increases their action. The consequence is, that they form granulations more speedily than before, and thus, whilst the first layer, which was exposed to the ravages of the escharotic, is deprived of life, the second layer, by its accession of energy, reproduces an additional quantity of flesh—unless restrained by the bandage—to equal, or even to exceed, that which was destroyed. In this manner the patient gets a daily painful dressing, and the surgeon is surprised that the part is not eaten down; forgetting that though the surface is killed, the part immediately below is endowed with an additional activity, corresponding very much to the extent of the destructive process above. This explains the fact, why some ulcers are never subdued by caustics, but that the granulations sprout up as fast as they are cut down.* In all such cases I place full and entire confidence in the use of equal and powerful compression. The unnatural growth of the structures might have been prevented altogether by the timely use of proper pressure; and the disposition to form luxuriant granulations, which has run into this excess, might have been restrained within proper bounds, and made subservient to the full reparation of the broken surface. When, from the early neglect of this remedy, the granulations

* See also Sir E. Home's "Practical Observations"; Chap. 4.

have become too prominent and exuberant, it is clear that the use of well-adjusted compression is the readiest and most secure way of bringing them down to their proper level, and of keeping them for the future within their proper limits. I have found this treatment answer so fully and so effectually, that I am not in the habit of using caustics at all.

There is yet one exception more to be noticed, and this is in connection with the employment of pressure. It seems, indeed, to be the opinion of many surgeons, that compression should not be used at all in the irritable species of sore ; but that it should be confined to the indolent and simple varieties. There does not appear, however, any just reason why pressure should not be had recourse to in the irritable ulcer as much as the more direct and local stimuli. Mercurial ointments, mixtures of acids, and applications of lunar and other caustics, are not uncommonly employed ; and yet these substances excite the part more than the roller. But the principal ground on which the use of compression is here advocated in the treatment of the irritable sore, arises from considering the origin of the disease. In a very great number of instances, the irritable ulcers, equally with the other kinds, can clearly be traced to the prior existence of varicose veins, either as the source or means of

continuance of the evil. As soon as this becomes evident by the history of the case, and the accompanying symptoms, we can no longer be at a loss what steps we ought to take. It is plain that our chief attention and efforts should be directed to the removal of that unhealthy condition of the limb which is the cause of the ulcer, without paying so much regard to the aspect or character of the sore itself, as to allow these to prescribe the method of proceeding. It is not palliating the effects, it is extinguishing their source, which will cure the disease; and, unless this be done, all instructions derived from the external appearance of the sore will be deceptive and disappointing. Whilst, however, the general indication for the employment of compression is as discernible in the majority of irritable ulcers as in the other varieties, there are occasionally existing circumstances which interfere with the full application of the principle to practice. Sometimes the ulcerated part is so tender and excruciatingly painful, when touched, that it will scarcely bear any thing on its surface; and, in such instances, it would be cruelty to apply a tight bandage over it. In these cases, before they are made better and able to submit to compression, very great benefit may be derived from using the roller in the following manner: let the bandage be applied as tightly as usual from the root of the

toes up to the lower margin of the sore ; and, when it has arrived at this point, it can be secured, and placed on more slackly around the remaining part of the limb, so as not to give pain by its local pressure on the ulcer. The support which is given to the vessels below greatly improves the character of the sore ; it soon becomes altered in appearance ; and, what is of great importance, considerable relief from severe suffering is commonly felt. By this means, though prevented from obtaining the full advantage of the bandage at once, from the sensitive nature of the ulcer, much of its benefit is, nevertheless, gained ; and the diseased part is soon converted into a state which will bear the more complete use of the remedy. At other times, the irritable sore, though not so intensely painful, may be situated on a part of the leg which makes it incapable of bearing the bandage to its proper degree of tightness. One very common place which such ulcers occupy is the front of the leg, running up the shin ; and such parts will not endure to be pressed by the bandage on the hard tibia immediately underneath. We must then put the roller on the foot and around the ankle, according to its usual degree of force, until we approach the seat of the evil ; and, having arrived here, we must allow the bandage to describe the other parts of its course, without being so tight. When, therefore,

either from the severe pain, or from the local position of the irritable ulcer, the patient cannot bear the full pressure at once, we must be satisfied to compromise matters a little, and proceed more slowly in our efforts. This, however, is very different from abandoning the principle ; losing sight of the origin of the disease ; and, forgetting the indication thus afforded, using fomentations and poultices. Strictly speaking, indeed, such modified use of the bandage, gradually increased up to its proper extent and power, can hardly be called an exception to its use ; it is only a temporary limitation of its application, resulting from circumstances associated with the disease.

There is an unusual description of bad leg, which I have several times met with, consisting of an irritable, spongy kind of ulceration : from its importance, it deserves to be mentioned, and falls in more properly here than elsewhere, as affording an illustration of the use of the bandage in irritable sores. The history of these cases, so far as I could authentically trace them, evinced symptoms of the previous existence of varicose veins ; and, in one instance, bleeding had occurred from a ruptured vein. The integuments gradually become thickened and soft, and a superficial ulceration appears throughout a very large extent of the surface of the limb. This alteration of the skin goes

on increasing, until the leg may become nearly double the size of the other. Whilst the integuments are thus augmenting their bulk, they also change their texture, and instead of displaying their firm and healthy consistency, run into a state very much resembling a sort of sponge. When the diseased structure is pressed with the finger, it is generally soft and yielding; conveying the impression, that it is cellular, and when the finger is removed, it mounts up again as if it were elastic. On the whole of its surface, and in the cellular or honeycomb texture, for some distance in depth, a thin limpid fluid is thrown out, which, sometimes, from the extent of the disease, amounts to a very large quantity. In two instances, I have seen the poultices, paddings, and even the bed-clothes, soddened with the fluid, just as it comes from a dropsical limb. The ordinary application in these cases, is, I believe, a poultice; and I think every leg of the kind I have seen, happened to be immersed in one. This makes it worse, as it renders the integuments still softer, and more dilated. The experience of the patients confirms the correctness of this opinion; as not one of those I have seen derived any benefit from its employment, but in each the disease got worse under its use. One of these cases, the only individual amongst them who was a man, had been suffering from the

attack for fourteen years, and had been lately told by his surgeon, that he must remain in bed for three months ; and if at the end of that time he did not get well, he must lose his leg. Three other cases were women. The first had been ill for eight years ; and during that period had been advised little else but poultices, which were renewed morning and evening, and required at each time the inside of a loaf. The second was afflicted in both legs ; and, when I first saw her, was confined to the bed, apparently unable to move : her limbs also were covered up in a poultice. The third case was of more recent standing, having existed only about six months when I was first consulted, but was getting worse under the application of a poultice and fomentation. All these patients got completely well in a short time, by employing a very tight bandage ; and it was remarkable to observe how quickly the limbs diminished in size, from its use. The compression, in addition to the support afforded to the vessels of the part, seemed to act by approximating the sides of the small cells together, and obliterating all their cavities. The texture of the skin soon became firmer, more solid, and more healthy ; the discharge decreased in quantity, and the full use of the extremities were speedily restored. Two, out of the four cases, got well in this rapid manner, with the chalk ointment ; but, as there

appeared, in the other two, some disposition in the outer tunic of the integument to peel off, instead of forming a solid surface, the tar ointment was resorted to, combined with the chalk and bandage. Still, however, there can be no doubt, that it was chiefly the compression which was beneficial in the accomplishment of the cures ; because two of the four did well without the tar, and in the case of one of the two which had it applied, there were accompanying circumstances, which clearly proved that pressure was the principal agent in removing the evil. For, independent of the fact, that the history of the case pointed out the veins to have been varicose, which was also apparent, as soon as the thickened skin was sufficiently reduced to allow of perceiving the enlargements through the integuments, it happened, on one occasion, when the leg was almost well, that the bandage became loose at its upper part. As this patient lived in the country, and then came to Bath only every four or five days, the roller was not re-tightened ; and on the superior portion of the leg, where it was loose, symptoms of a return of the disease were present. The skin was puffy, soft, and swollen ; the cuticle was abraded, and a thin limpid fluid was thrown out on the surface. One very tight application of the bandage recovered all the ground that was lost ; and greater

care being taken by the patient afterwards, no signs of the complaint recurred.

I have occasionally met with instances of what systematic writers term specific ulcers, from being dependent on some influence or poison in the system; such as syphilitic, gouty, and the like; but these are formed on the legs much more rarely than one might suppose, from the space which they occupy in books—at least, judging from my experience, as I think I have not seen above one case in forty. When, however, they occur, they demand, of course, our attention to the constitutional condition, as well as to the local evil. With respect to the former, I have nothing new to offer; as an abundance of information on this head is to be found in any regular treatise on the subject. The object of this little publication is chiefly directed to the local management of sores; and those general principles which I have detailed for this purpose will, of course, apply to the specific ulcers if modified according to the peculiar state of the constitution.

If, during the treatment of ulcerated legs, before the cure is fully completed, the compression be too suddenly discontinued, or too considerably diminished, the cicatrix, which might have been already formed, frequently runs into the following unhealthy

condition: the skin becomes of a livid colour; the cuticle is elevated, forming a sort of large vesicle, containing a limpid fluid, and thus separated from the parts underneath, comes off, and exposes the fleshy surface below. Sometimes this destruction of the new-formed skin extends to the margins of the old; at other times, only a portion of it is lost; this depending, partly, on the length of time the cicatrix has been generated, but chiefly, on the degree to which the pressure has been withdrawn: the consequence is, that either a part, or the whole of the centre of the ulcer becomes again exposed, and the process of healing must be passed through again. But although the recently formed external covering may thus die, and the ulcerated surface below come to view, still, in consequence of its being on a level with the surrounding structures, and from the great improvement in the vessels, which must have been already established, to admit of even the partial cure, a return to the proper use of pressure heals the ulcer much more quickly than it did in the first place. The condition of the parts has been so greatly improved, as now to resemble a fresh wound more than an old standing ulcer; and the consequence is, that in a few days the lost ground is generally recovered.

Precisely the same appearances are occasionally met with, if the patient, during the treatment,

happens to become ill. It is not necessary that it should be an attack of serious sickness to produce this, but even a cold, or other slight indisposition, is sometimes sufficient.

Now, since, in the two cases, the appearances so exactly resemble each other, it is, perhaps, fair to conclude, that both depend on the same immediate circumstances. In the former instance, it was evidently produced by a change in the small vessels, resulting from diminishing or discontinuing the compression ; and, therefore, the probability is, that a similar alteration in the minute circulation of the part arises from the effects of the cold, or other indisposition. In the first case, it is true, the cause is from without ; whilst, in the second, it is from within : but, since the effects are identical in both, each must operate in the same way, by producing some change in the vascular action of the part. But, whether it be by this precise means, or any other, is not of so much consequence as whether the means, whatever it be, is the same in the two instances ; and, that it is so, must, I think, be allowed, from the similar effects produced by both causes. Now, if this view be correct, it affords us a practical rule of very great value in the treatment of those ulcers where the healing process is arrested by the appearance of constitutional indisposition ; because, what our experience has

found to be beneficial in the former-mentioned case, our reasoning proves to be applicable to the latter. Now nothing can be clearer, both from the nature of the thing, and from the results of experience, that, when an ulcer suffers from lessening or omitting pressure, we should immediately return to the full or even greater extent of the remedy, than that in which it was previously employed. When this is done, the sore soon puts on a better aspect; the livid colour disappears, the dead skin is thrown off, and a new and sound cicatrix is speedily formed. If, then, the parallel hold in the two cases under examination, which, I believe, it does, we ought to proceed in exactly the same manner when the cure of an ulcer is checked, or its state thrown back by the internal disturbance. Instead, therefore, of pursuing what is often done under such circumstances, removing the pressure, and fomenting and poulticing the part, the very opposite treatment should be adopted. The bandage should be applied even more tightly than it was before; so that the increase of external support may compensate for the loss of internal power. By this means, the weakened circulation of the surface is sustained by the assistance derived from without, in proportion as it was lessened by disturbance from within; and a more healthy balance

in the local circulation being thus maintained, the healing process goes on, or, at least, is prevented from falling back.

The principle of treatment by compression may be extended to many legs, in which no ulcer has yet appeared. The experience and reasoning which establish the value of the remedy in the removal of sores, by its correcting the unhealthiness of the structures on which they depend, prove likewise the propriety of employing the bandages, in instances where such unhealthiness exists, without having actually passed into a state of ulceration. The same practice which operates with such advantage where the skin is ulcerated from any varicose affection, must be useful, even before the surface is absolutely destroyed. The general indication is alike in both cases ; only with this difference, that in the former, our object is to heal the sore ; in the latter, it is to prevent its formation. The first refers to the removal of the evil, after it has passed into the ulcerous stage ; the second anticipates such stage, and, if possible, prevents its occurrence. Guided by these views, I have long been in the habit of using the bandage, in many of those states of the leg bordering on ulceration ; even when the parts have been pronounced unsound, and measures have been directed for their removal. The structures, in such cases, are not inflamed, but are enlarged and puffy :

and sometimes a slight fluctuation may be felt. At other periods, instead of being soft and compressible, the enlargement is hard and indurated; differing in size from a small nut to an egg. These indurations vary likewise in number, as well as in bulk: in some legs, we meet with only one; in others, a chain of them may be found, almost always running up on the inner, or the outer sides of the calf, occupying very nearly the track of the veins. In both cases, when touched, the impression conveyed to the finger is, that the enlargements are unsound; and the prevailing opinion and practice are, that the part must be drawn out by a poultice. This application is accordingly placed on, and the skin is soon destroyed by the combined effect of the remedy, and the unrestrained progress of the disease; giving rise to a sore, more or less extensive. Instead, however, of looking upon these states as unsound and lost, I thought the part might frequently be saved, provided the condition of the veins was immediately rectified; with this opinion, I have thrown away the poultice, in which such parts are almost always imbedded, and directly commenced the use of pressure. I have found that, under the employment of the bandage, the spungy thickenings have disappeared, the fluid has been absorbed, and the skin become consolidated and firm; and thus all the evils of a large

sore were anticipated and prevented. Even when the ulcerous stage has so far advanced that purulent fluid is thrown out under the skin, and resists all absorption, I do not poultice the part, but make a small puncture, to allow the matter to escape; and, introducing a portion of lint, to prevent the aperture from uniting too soon, apply over the whole of the leg a bandage as tight as it is usually placed. The pressure in this case not only acts beneficially on the veins and general structures of the limb, but also on the abscess in particular, by approximating its sides and hastening its obliteration. As soon as uneasiness is felt, the roller is taken off, the matter gently and carefully pressed out, and the pressure is then re-applied. By such treatment, this kind of abscess gets well with great rapidity, without undergoing the lengthened and painful process of being drawn out by poulticing, before any attempt is made to remove the disease. I am confident that, by adopting pressure in the instances here alluded to, we might frequently prevent ulcers on the leg, which spring from the presence of the varicose veins. I have been able, by discontinuing the poultice and applying the roller, to save parts which have been condemned as faulty, and where steps have been taken to remove them. Of course, compression acts in these cases in the same manner as it

does in curing the sore. It introduces a healthy action into the part, by assisting the weakened veins, rousing the lymphatics, and indirectly invigorating the capillary circulation. Much of the enlargement and fluctuation, which are found to accompany such states, is, in fact, nothing more than adventitious deposits in a fluid or solid form; and these are easily removed from within, without drawing them out by a poultice, and laying the foundation for a painful and troublesome ulcer.

The observations contained in the last paragraph will apply with still greater force to the cure of varicose veins alone, uncombined with any immediate approach of ulceration. When, from the presence of uneasiness, or from a just apprehension of the evils which may follow such a diseased condition of the veins, our attention is directed to its existence, it must be very evident that the remedy which answers so well in the ulcerated stages, must be equally beneficial here. Accordingly, it is, I believe, commonly employed; as no one suspects that there is any thing unsound which requires to be drawn out. When, however, the varicose affection has passed into the ulcerous stage, and given rise to an intractable sore, some authors, who are not in the habit of using the bandage to a sufficient extent, have advocated other means for removing this condition of the

veins. It will be requisite, therefore, in this place, to take some notice of those measures which have been recommended with a view to supersede the employment of the roller. One expedient which has been had recourse to for removing varicose veins consists in tying the vessel, as it passes up, on the inner side of the knee ; but there are serious objections to such an operation. The very circumstance itself, of obliterating vessels of any size, produces an unnatural condition in the limb, which should be guarded against, if possible ; and the saphena, as it runs up by the knee, though not a very large, is an important vessel, from having so many small branches opening into it before it arrives at this situation. Veins would not be there if they were not required ; and, to obliterate them, is the same as taking them away : whilst, to say that the leg does as well without them, is the same as saying, there was no occasion for them to be there. It is not always easy for us to determine the ill consequences of our interference, and such consequences may not always be immediate ; but, in the present instance, one effect must be to throw an additional quantity of blood into the other veins, and render them liable to be distended and become varicose. Objections of this kind, directed against any operation, because it destroys parts, or produces some ill consequences, cannot, it is true, be always

urged with propriety ; as the evil of the operation may be acknowledged, and yet may be proved to be the best alternative—as, for instance, tying an artery in an aneurismal limb. But, in the present case, such objections possess great weight ; because, although one surgeon advocates the ligature for a varicose vein, another finds such a step unnecessary ; and, whilst the former would destroy the vessel, the latter restores it. The question, therefore, is, not whether we shall obliterate the vessel, or put up with the ill consequences of its being diseased, as is the alternative, in the present state of surgery, with regard to an aneurismal limb ; but the question is, whether it would be better to remove the evil by the ligature, or by the employment of the bandage. For, that the latter remedy, when properly used, is adequate to the end required, has been so fully proved by those who have given it a proper trial, as really to convert the present inquiry into nothing more than a question of comparison and choice of means.

Then, with respect to the operation itself ; this is far from being always safe. It may produce inflammation in the vessels, and the veins are well known to propagate such diseased action with great rapidity. Inflammation of the vein, followed by its serious train of evils, has sometimes occurred from simply puncturing a vein in the arm, without being always

able to attach any blame or mismanagement to the operator. There can be no doubt that the irritation of the ligature superadded, must very greatly enhance the liability to such results. Cases are on record, where even death has been the consequence of tying a varicose vein.

Whatever may be said in favour of the ligature, in those cases where the veins on the inner side of the limb only are varicose, and which are included by tying the saphena major, yet the operation must be inadmissible, when the veins on the foot and outer side of the extremity are diseased. I have frequently met with cases of this sort; and, indeed, it is not common to find a leg in which a bad varicose state is confined to the internal portion of the limb. The dorsum and exterior of the foot exhibits a sort of net-work in most severe cases, passing up both on the outer and inner sides of the calf. Here the operation is acknowledged to be useless by its chief advocate: and here I have seen pressure succeed, and reduce all the veins; and of course it must be equally effectual in those instances where the disease is not so extensive.

But even suppose the operation was suitable to all cases, and that it was perfectly harmless and perfectly successful, yet, if a milder plan of treatment could be found equally sure, no one would be justified in having recourse to the ligature. I have seen several

hundreds of very bad cases, and I can confidently affirm that I have never found one in which the compression did not fully succeed. So far from the patients experiencing pain from the bandage, as stated by Sir E. Home, its application almost invariably gave ease where the individual experienced any suffering before it was used. The only circumstance which appears to me to afford the slightest argument in favour of the operation is, the fact, that after the ulcer is healed, patients frequently get tired of wearing their bandage ; and, in neglect of all the advice which we may give, will sometimes leave it off. When this is done, and the veins had been badly varicose, the vessels are extremely liable to swell again, and expose the leg to the danger of a subsequent ulceration. But, then, if this be any objection to the bandage, it is an objection to all remedies and to most cures ; for no remedy can act when it is not used, and very few cures can protect the patient against a future attack. Even the ligature may fail in this manner ; for although those vessels which are destroyed cannot of course swell again, yet others may. This actually happened in Sir E. Home's second case, and rendered it necessary to have recourse to the operation at a future period. Indeed we should naturally expect, as I have already intimated, that such a result must frequently take place ; for the very fact of drying up some of the

veins, must necessarily drive a greater volume of blood into the others.

When one vein of a limb is varicose, it probably disposes another to become so in consequence of the additional weight it has to sustain from the blood becoming retarded in its course; or it may be that the occurrence of the disease in one vessel indicates the existence of an unhealthiness in the limb ready to affect the others; whilst, if the cause be some mechanical impediment, it may act as an obstacle to them all. But whichever of these three explanations be correct, or whether, as is most likely, it be the product of two of them, or of the whole combined; or even if it depend on some other cause distinct from these; the fact is undeniable, that there is the tendency in the varicose affection to spread, though sometimes in only a slow manner. This circumstance therefore shows that the operation is only temporary, and may be calculated to excite the disease in other veins by throwing an additional burden on them, whilst the proper employment of pressure would not only cure those which are bad, but also prevent the others from becoming so.

Another method of treating varicose veins is, by applying the cautery, or by making extensive incisions, so as to divide many of the smaller vessels at once. This proceeding, though not liable to

all the dangers which exist in reference to the ligature, is however open to very great objections. When the sloughs are removed, or the skin is separated, the parts which are exposed suppurate, and a sore, by whatever means produced, on a varicose limb, is excessively troublesome and difficult to heal without the employment of pressure. It is indeed in consequence of this difficulty, experienced by those who do not use the bandage, that the various expedients of the ligature, the cautery and the like, are had recourse to; and it seems a practical contradiction to produce, for the removal of one evil, another of the same description.

The plan recommended by Sir B. Brodie of making a small incision in the integuments, and of dividing the veins underneath without cutting through more of the skin above than just enough to admit the instrument, appears to be the least exceptionable of any, should a case ever occur in which the well-applied and continued use of the roller was found insufficient. In any operation, however, for dividing the vessels, pressure is, most likely, employed immediately afterwards, to restrain the bleeding which might follow; and in all such cases, perhaps, the cure results as much from the bandage as from the knife.

Amongst the patients suffering from diseases of

the leg, who have applied to me, I have had some labouring under merely dropsical enlargements, without any destruction of the skin. In these cases, also, we may derive the most signal advantage from compression, and I have never found any evil resulting from its use. I have not been deterred from applying the bandage from a dread that, if the fluid was prevented from being deposited in the cellular substance of the lower extremity, it must be thrown out somewhere else: probably, in some of the internal cavities. This opinion, which is entertained by some practitioners, is, I believe, generally erroneous, and results from overlooking the purely local character of such accumulations. It seems to have been thought, that a certain quantity of fluid must be formed somewhere, and that, if we prevent this from being deposited in one place, it will occur in another; and, when once generated, if it be driven from its present position, it will occupy a new one. But this by no means follows; for this soft and enlarged condition of the leg, to which I am alluding, is the consequence of a local state of the blood-vessels and lymphatics, as may be proved by the absence of all symptoms of general anasarca. In such cases, we have no more just reason to be afraid of curing this kind of partial dropsy in the leg, under an apprehension of getting

a dropsy in the chest or abdomen, than of curing a sore in the leg, under an apprehension of getting a sore in the heart or stomach.

When we remember the state of the circulation in the lower extremities; and recollect how often any part, once diseased, is liable to become so again; it will be obvious, that, even after an ulcer is properly healed, the bandage should not be suddenly discontinued; it should be worn for a considerable time though all appearance of the disease has subsided; and where the veins have been very varicose, it will hardly be safe to omit it at all. Patients, however, frequently get tired of doing what they think to be no longer necessary, and it is therefore requisite for us to be particular in our directions on the subject. Although I generally attempt to impress patients with the propriety and advantage of continuing the use of the roller in the best and most careful manner they can possibly apply it, yet in a few instances I find individuals come back again at the end of some time with an ulcer in the same or another part of the leg, and which almost always can be traced to the inattention and neglect of the advice which was given. Sometimes the skin of the leg is so extremely sensitive and tender, that the slightest blow will produce a return of the sore. When this is the case, we may derive great advantage by

wearing a very thin plate of tin properly fashioned to the part, and lined with linen or flannel, which is readily kept in its situation by the bandage. This serves the purpose of protecting the part from the effects of any outward accident or violence.

CHAPTER IV.

PROPRIETY AND SAFETY OF HEALING ULCERS OF THE LEG.

Is it safe to heal ulcers of the leg? Or does it not sometimes happen, that their removal is followed by severe and even fatal constitutional mischief? Are not sores to be considered more or less in the light of salutary drains, and is it not dangerous to dry them up? This is an important question, involving both the welfare of the patient and the responsibility of the surgeon; as no one certainly would be justified in curing a bad leg if it were sure to produce something worse. The inquiry is of consequence on another ground. Many persons are contented to go on year after year with a painful and disgusting sore, because they heard that some one died after—probably not

in consequence of—having had a bad leg healed ; or, at all events, fear this may happen to them.

In order to decide this question, it will be necessary to recur to the causes of ulcerous diseases of the leg. An attempt was made at the commencement of this volume to prove that the great majority of sores, of the lower extremity, have their origin from external violence, or from the varicose affection and its consequences. The brief exposition which was there given will, if correct, be quite sufficient to enable us to arrive at some clear and practical conclusions on the subject under consideration.

For, the doctrine that an ulcer is salutary, implies that it has been produced by an internal effort of the system, in order to rid the body of something prejudicial ; and, consequently, before any sore can come under the character of being serviceable, it must be shown to spring from a constitutional source. This obvious conclusion enables us to decide at once that all ulcers, derived from any external or purely local cause, are not salutary ; and, consequently, no danger can arise from their removal. The practical inference, therefore, is, that all sores, which are originally produced by outward violence, as blows, falls, and the like, may be healed without any apprehension of evil consequences. The same conclusion will equally apply to those ulcerous diseases which result

from varicose veins. In these cases, indeed, before the occurrence of any sore, the integuments may have been so unhealthy as either to run into spontaneous ulceration, or to give rise to an ulcer from the most trifling injury ; but since the ulcer would not have taken place unless there had been this local condition of the parts, the sore ought, of course, to be ascribed to such condition, and not to any constitutional influence. Now by far the greatest number of ulcers arise from these two causes,—either external violence ; or, the varicose affection ; and, therefore, in the largest number of cases, no anxiety whatever need be entertained about curing ulcerous diseases of the leg.

But, it may be said, that although these descriptions of ulcers when viewed in relation to their causes, may not furnish any ground for apprehension in their removal, yet, when viewed in relation to their effects, danger may nevertheless occasionally follow. Some sores produce a great discharge of matter ; and when this secretion has been both extensive and long standing, it may be thought unadvisable to heal the ulcer, even if it originated from external injury, or local unhealthiness ; because the discharge becoming stopped, must be thrown back on the system. Whilst, therefore,—it may be contended,—recent ulcers which can be traced to the causes assigned above may be safely healed, yet such as

have continued for a great period must be considered as constitutional drains, although they may have first sprung from a local origin. Now, in reply to this, it is to be remarked, that the purulent fluid is in such cases formed for the purpose of assisting the healing of the sore; it is only a consequence of its existence; the ulcer is not produced as an outlet for the matter. Cure the ulcer, and no matter flows, it is true: but this is because the disappearance of the ulcer alters that condition of the parts which required the production of the discharge. It is not owing to the stoppage of the matter, strictly speaking, meaning by this word a retention of the fluid in the system; for the fluid being no longer useful, is no longer formed nor required to be so, and that cannot be said to be stopped which is not produced, and for which there is no occasion that it should be produced. We must not, from the mere fact that an ulcer discharges, conclude that the matter ought to run out of the system; its flowing, in the cases we are now examining, is the consequence of the presence of the sore, and takes place, not to rid the system of any thing obnoxious, but is simply a result of those actions in the part which are requisite to repair the broken surface.

If, indeed, which seems to have been formerly supposed, the discharge as such was previously in the

blood, and was only separated from it, and poured out at the ulcer, some alarm might be felt at checking its course; but since it is now known that the discharge is formed from the blood at the sore, there can be no just ground of dread from obstructing its flow. The quantity and quality of the matter are neither a consequence nor a proof of the existence of any foul humours in the blood, but depend simply on the extent and character of the ulcer which secretes it. It is from pure and wholesome blood, circulating through the small vessels opening on the face of the sore, that the discharge is furnished; and its purulent nature is evidently obtained after it is secreted from the capillaries of the part. It is plain, therefore, that the matter as such cannot be viewed as driven again into the system; the only inquiry can be as to the propriety of allowing the whole quantity of blood to circulate back to the heart, instead of any portion of it being expended in the secretion of pus. The blood which is no longer exhausted at the sore is kept in the body; and it may be said that, in consequence of this, accumulations may take place, and inflammation in some important organ, or even apoplexy in the head, may occur. Now, this is perhaps true; and it is plain that such consequences would be of a more serious nature than a bad leg; but, then, it does not follow that the ulcer should be allowed to remain open.

For all that is required is, that the real or supposed superabundant quantity of blood should be disposed of in some other way, in order to prevent an overloaded condition of the body, either general or partial; and if this object be accomplished by any means, equally effectual, as forming pus on an ulcerated surface, it must answer equally well, for the safety of the individual. Now, there are two ways in which the dangers of an excess of blood may be obviated; either by preventing its formation, or by diverting it to some other outlet. Low diet, or purgatives, therefore,—or, perhaps, what would be better, a judicious combination of both,—seem capable of preventing any threatened or apprehended ill consequences to the patient, from healing a common ulcer on the leg. It has been frequently recommended to introduce an issue in the neighbourhood of the sore, with a view to form a diversion, or outlet; but this appears to be little more than an exchange of evils. It is not necessary that this particular kind of drain should be used, it only requires that some diversion should exist; and if one be established on the bowels, no other outlet seems to be required. That there is no occasion for the use of the issue, or similar painful and unpleasant substitutes, seems to be clear, from the fact, that the matter discharged from the sore was not previously in the system as matter, but only as blood;

and that the unexpended blood can easily be diverted to any of the excretory organs ; or that a quantity, equal in amount to that which was formerly consumed at the sore, may be prevented from being formed altogether.

The argument contained in the last paragraph goes upon the supposition that too much blood is in the system after healing the ulcer ; but it really happens, that, in the majority of long-standing sores, no evil is justly to be feared even from this source. Many of such cases consist of individuals of aged or weakened constitutions ; and, so far from having too much blood, are suffering from the loss of it ; the draining of the part being one way in which the local disease injures the general system. When the ulcer is healed up, there is no superfluous quantity of blood, but only a proper supply for the proper action of the functions of the body ; and the removal of the ulcer, instead of being pernicious, is productive of a better state of health than was experienced before.

One circumstance, which probably has given rise to the opinion that ulcers frequently depend on constitutional causes, and, consequently, that it is unwise to heal them, is the fact, that very bad sores are occasionally accompanied with a greater or less degree of general indisposition. For although

it is wonderful to see how some individuals bear up under most extensive ulcerous disease, without appearing to suffer much in health, yet sometimes the constitution greatly sympathizes with the local evil. The two conditions, the local and the general, being thus associated, has led to the conclusion that the one is dependent on the other, which is likely to be true in most instances ; but then it appears to be inferred, that the sore on the leg was produced by the constitutional indisposition, and not the constitutional indisposition by the sore on the leg. Yet there is no ground for the inference in the one way more than in the other, from the simple co-existence of the two conditions ; other considerations must come in to determine which is the cause, and which the effect. In order to decide this question, therefore, we must enter into some particulars.

If ulcers spring so frequently, as some appear to suppose, from a constitutional origin, there seems to be no good reason why they should so constantly attack the legs more than the arms or other parts of the body ; and yet, the comparative infrequency with which ulcers occur in these latter situations, is matter of common remark. On the other hand, those sores which have an unquestionable internal cause, such as the scrophulous, the venereal, and the like, exhibit themselves in other parts as

commonly, or perhaps more so, than on the lower extremities : scrophula attacking the neck, lues the head and face, &c.

Then, also, not only is there no evidence of the constitutional origin of ulcers of the leg, to the extent which some authors imagine, but there is proof of the frequent existence of local causes, quite adequate to the production of the effects to be accounted for. The exposed state of the limb to outward injuries, and the common occurrence of the varicose affection, afford a sufficient explanation of the fact.

Again, if ulcers on the inferior extremity were so dependent on the general system, we ought not to find them in healthy individuals so frequently as they take place. Then, on the contrary, persons of enfeebled body and declining age get well very quickly when the sore is properly treated and the limb properly bandaged. I have had patients, 70 and 80 years old, with bad legs of very long standing, and of that indolent character calculated to convey the impression that the sore depended on the weakness of the system at large, get well with astonishing rapidity under compression, without, of course, being previously able to impart any great energy to their decrepit bodies. The doctrine of a constitutional origin of ulcerous diseases of the leg, is farther weakened, by observing the circum-

stances preceding, accompanying, and following the ulcer. If we inquire of a patient at the commencement of an ulcer, we do not commonly find that he has been previously indisposed, unless the sore originated from active inflammation. In all ordinary cases, the general system is not disordered at the beginning, but gradually becomes so, if it is affected at all, as the disease advances : whereas, if such state were the cause, it ought to precede, not to follow the appearance of the sore. If, likewise, we watch the effect of remedies, we generally find that the greatest attention to the supposed general indisposition, uncombined with local treatment, will accomplish very little toward the removal of the ulcer ; whilst, on the other hand, even an exclusive employment of suitable dressing and tight bandaging will almost always succeed without much assistance from internal remedies. In proportion also as the local evil is improved, the general health is commonly benefited ; and in a degree corresponding to that improvement, till, at last, when the ulcer on the leg is quite healed, the patient himself becomes quite well.

The opinion I am combating is farther opposed by observing what occasionally takes place during the progress of healing a sore on the leg. If, at this period, as I have already mentioned in another place, for another purpose, general indisposition of any kind arises, even a common cold, for instance, the

process of reparation is arrested, the granulations become livid, and the newly-formed cicatrix covering that portion of the ulcer which has been obliterated is sometimes detached, and dies. So long as this constitutional disturbance continues, no local remedies will exert much influence on the ulcerated part—it remains stationary ; and, without the assistance of the bandage, might even become worse : but, as soon as it subsides, the topical applications begin to be of use again. Now, if ordinary sores of the leg were produced by a constitutional cause, so frequently as many writers seem to think, we ought to find something similar to this which I have been mentioning in most of those cases where the general indisposition and the local evil co-exist. If such general indisposition, occasionally accompanying ulcers of the lower extremity, were the cause of them, local remedies would not produce any salutary effect on the latter, until the former were removed by internal remedies : yet, in opposition to this, we find that the majority of this kind of ulcers soon exhibit signs of improvement under proper surgical management ; and, in proportion as this takes place, the constitutional symptoms diminish and disappear. This is precisely what we should expect, upon the supposition that the local evil is the origin of the ill health ; and contrary to what we should find if the opposite opinion were correct.

Another circumstance, which has given rise to the opinion that ulcers frequently possess a constitutional origin, and that it is unsafe to dry them up, is the fact, that their disappearance is sometimes followed by another form of disease in a different part of the body. Apoplexy in the head, asthma in the lungs, and disorders of the stomach, liver, and bowels, have been known to present themselves after an ulcer in the leg has been cured. This fact is undeniable ; but it is not clear that such attacks of the head, chest, or abdomen, have occurred in consequence of healing the sore. For the different diseases of these organs present themselves very commonly in individuals who never had a bad leg ; and, therefore, in those which have suffered from a sore, such internal complaints may spring from the ordinary causes. This seems still more probable, by remembering that the existence of a sore is, by no means, always a protection from the attacks enumerated above ; as individuals sometimes acquire those diseases, who are at the same time labouring under a bad leg. It is even easy to conceive, that where the predisposition to the pulmonary or other complaints is very strong, the existence of a sore may act by its irritation on the system as an exciting cause, and assist in developing the disease.

If, also, we appeal to experience, we find that the instances in which the healing of a sore is

followed by any other disease is very uncommon, provided we adopt those means calculated to obviate such a result, by the proper employment of purgatives and other medicines. I have never been able to trace any dangerous consequences to the drying-up of an ulcer, in more than about one case in fifty; and this is certainly not sufficient to embarrass one's efforts by a calculation about their consequences.

It must, however, be acknowledged, that it does occasionally happen, though, I am persuaded, much more rarely than many writers seem to suppose, that a common sore on the leg is produced by a constitutional cause, and that its removal is followed by some constitutional disturbance. But, allowing this to be the case, and even conceding, for the sake of argument, that it may occur more frequently than it does, yet this sequence should not, I think, prevent us from healing the ulcer. For, if any disorder of the head, lungs, or other organs, supervene, such disorders should be met, and conquered, by their appropriate remedies, instead of making the expectation, or presence of them, a reason for continuing the sore. If the alternative were, that either one or the other of the evils must be endured, then, indeed, it would be wise to choose the least, and put up with the bad leg; but it is wiser still to get rid of them both. This might, I believe, in nearly all instances, be effectually done, so far, at

least, as the removal of the sore operates in the production of such diseases ; and it is to that extent only that we are now called upon to consider the subject.

The opinion that old sores are beneficial, and that it is wrong to remove them, is practically contradicted, even by some of those who maintain the doctrine, when they have recourse to the severe expedient of amputating the limb. Instances have occurred in which the leg has been taken off for an extensive ulcer, which has defied the ordinary means to cure it. Now, in proportion to the extent and badness of the sore, the discharge is generally the most profuse and unhealthy ; and, therefore, these are the least proper drains to be extinguished by any means whatsoever, according to the doctrine under examination. Yet this very extent and badness of the ulcer are made the reason for cutting off the limb ; which is practically violating the theory, for the operation removes the outlet as completely as would be done by healing it up. If, indeed, such an ulcer were allowed to depend on a merely local cause, then extirpating the part, though a very severe and a very unnecessary proceeding, would, nevertheless, not be chargeable with inconsistency : but it is a very great contradiction to maintain that ulcers are salutary to the system ; and advancing at one time this circumstance as the reason for not

healing a sore, and yet, at another time, in direct violation of the principle, cut off the leg. Whilst, however, we deprecate the proceeding, we may derive an argument from the fact. For since such cases of amputation never, I believe, or certainly very rarely, exhibit any ill consequences from the removal of the limb, this proves that the worst ulcers may be removed without exciting bad effects in the constitution; and therefore there can, usually, be no harm in healing them up.

So far as I am able to judge, from the few cases of the sort which I have seen, constitutional or salutary sores, though not of the specific kind, are much more difficult to heal than common ulcers. They are also generally situated more superficially than others, partaking of an irritable character. They are not necessarily confined to the leg, but may be found on any part of the surface of the body.

That class of ulcers of the leg denominated specific, consisting of scrophulous, venereal, and the like, unquestionably possess a constitutional origin; and it remains therefore to consider whether there is any impropriety in healing such description of sores. The objection to removing ulcerous diseases of this character, arises from an opinion that if an attack is cured on the leg, it must necessarily take up its abode in some other part, where its presence may be more injurious.

Perhaps, however, this is not so evident. It is easy to conceive that there may be a given strength of poison in the system, capable of acting only on weakened and susceptible structures; and although the ulcer occurs on an unhealthy leg, yet, if the limb were sound, it might not take place either there or any where else. Thus a varicose or enlarged leg may become the seat of a specific sore, because the limb is in a state which inclines it to ulcerate: alter the condition of the extremity, and the relation between it and the constitutional cause being changed, no sore may occur. Neither does it follow that such an ulcer must take place in any other part; because all the other structures may be sound and strong enough to resist its influence also. It is here, as it is in external contagion; not only is the presence of some morbid agency required, but likewise a susceptibility to impression on the part of the subject; and, unless both conditions conspire, no attack follows. It seems to be upon a principle similar to this that the most rational method of treating scrophula proceeds; viz., by invigorating the general health, with a view to strengthen the system, and enable it to resist, and even to overcome, the morbid influence altogether.

Neither is it very clear how the presence of a specific sore in one part can be a protection to the

system, and prevent one occurring in another part. Such a supposition might, indeed, be entertained in ordinary ulcers ; so that it is not unreasonable to say, that if the superfluous blood passes off at the leg, it cannot overload the head ; though, even here, no danger can arise from healing the ulcer, as we have already seen, provided any real or presumed superabundance of blood be diverted to some other outlet. But the conclusion above mentioned cannot, I think, be drawn, with equal justice, in reference to the specific sore. The poison has its residence in the system ; but, so far from being likely to exhaust itself by any outlet, the local sore is calculated to increase the evil, and make the morbid influence more inveterate and more powerful. Thus it is that, in lues, small pox, &c., the more extensive are the local effects on the surface, the more severely does the constitution suffer, and the more does the system appear to become impregnated with the poison. If this be so, even in the true specific sores, we ought rather to try to lessen the number and extent of the ulcerations on the surface, instead of encouraging them, in order to diminish the virulence of the poison itself. But, even supposing it could be proved that the removal of a specific ulcer in the leg would be followed by another in a worse situation, so long as the morbid agency continued to exist ; yet this ought not to furnish

a reason for perpetuating the sore, so much as a reason for employing every effort to rid the system of the poison, so that an outlet may be no longer required.

Now, if we have ground for believing that ulcers of the leg may almost always be safely healed, this may be converted into a positive argument that they ought to be so ; because, if they do no good, they must do harm. They are not only painful, disgusting, and inconvenient, but are injurious, both by the unnecessary draining of the body, and by the irritation which they are apt to excite in the system. The fashion of accounting for local diseases by a constitutional origin, has, in a degree, blinded us to another truth, the converse of that, equally correct, and almost equally important ; viz. that constitutional disturbance frequently results from local causes.

BEFORE concluding this Volume, it may, perhaps, be necessary to anticipate an objection which will possibly suggest itself to some readers. It may be said that I stated in the Preface that it was

to consist of practical observations ; but that, instead of simply reciting the facts, I have been attempting the exposition of general principles. A little consideration, however, will explain the matter, and account for the adoption of the method which I have thought it best to pursue.—We learn by facts ; but teach, by principles, both others and ourselves. We begin by observing particular instances ; and when these are sufficiently numerous, and sufficiently uniform, we generalize them into a rule which contains within it all the individual cases. Treating of the rule, therefore, is equivalent to the treating of the individual instances ; it is like singling out one of them, and making it the representative of the rest. The only question, then, to ascertain is, whether the generalization has been fairly made ; and, if so, what is proved of the principle applies to all the particulars which it embraces. There is also this advantage in beginning with the general rule, that it admits of the practical application of what has been proved respecting it, not only to all the identical cases from which it was deduced, but to all similar ones ; and a modification of the principle may likewise be made to meet any modified or given combination of particulars. Still further ; we can observe the agreements or disagreements of our general doctrines by reasoning amongst

them ; and thus, not only infer the condition of positive existences which have not yet fallen under our cognizance, but also anticipate the treatment which will be required in any new and previously unobserved case. It is, in fact, this which constitutes the difference between the scientific and the empirical practitioner. The man of mere detail boasts of his experience, and calls him who uses his reason, as well as his eyes, a theorist ; and, so long as nothing fresh and unexpected arises, he gets on tolerably well, by running the changes upon his individual instances : but, being deficient in any principles which would enable him to anticipate unusual symptoms, or meet them when they come,—the appearance of any thing new first startles, and then bewilders him. This class of practitioners, who are perpetually talking about their experience, and condemning all who think as theorists, are, after all, the wildest visionaries in the world. They have seen one case exhibit such and such symptoms, and yield to such and such treatment ; and immediately infer, from this solitary example, that the same consequences will always present themselves in future. By their experience, as they term it, this individual instance is at once elevated into a rule ; when, perhaps, a more patient and enlarged observation

would have shown that it was only an exception to the general principle. Yet this rashness of generalization, this wildness of theorising, is, nevertheless, the experience of those who, by condemning all reasoning, prohibit all thought.*

* Although the occasion is very tempting, it would be quite misplaced to pursue this topic any farther at present. We are still much in want of a comprehensive system of Medical Logic. If I might be permitted to express an opinion of the nature of such an undertaking, I would venture to sketch the following very general outline, with the hope of being able, some day, to do a little towards filling it up. A system of Medical Logic, to be complete, should, I think, commence with a comparison of the ancient and modern methods of investigating nature : forming an introduction to the subject. Then, either with or without this preliminary view, it should give a full exposition of the laws of evidence, of the sensible, inferential, and testimonial kinds ; and point out, very particularly, the difference which exists between these several descriptions of proof. It should next 'proceed to a minute enumeration of the successive steps by which, in the first place, general rules are formed from individual instances ; and, in the second place, the manner in which these principles are to be inversely applied to particular cases, both simple and modified, direct and analogical. Under this section would fall a review of the difference between hypothesis, theory, and law, with a consideration of the uses and abuses of the two first ; showing how they are to be employed to direct and assist, but not to satisfy our inquiries. These leading doctrines being established, as the foundation of the system, which would, of course, be equally serviceable in investigating all other branches of human knowledge, should be more particularly employed by us, for first testing the chief physiological and medical theories, and then for pointing out the path to be pursued towards the attainment of undiscovered facts or principles. Under this section would fall a very full and a very particular statement of the

peculiarities and difficulties which belong to physiology and medicine, as subjects of scientific inquiry; with the suggestion of those aids and improvements of which their investigation appears susceptible.—Amongst a multitude of other advantages which a proper system of Medical Logic would shed over our speculations and pursuits, many of which are at present notoriously vague and unsettled, one most signal benefit would consist in its evincing and establishing the complete distinction, and broad line of demarcation, which exist between the different kinds of proof. A clear exposition of the laws of evidence, by exhibiting the very distinct and dissimilar provinces of experimental and demonstrative knowledge, on the one hand, and of testimonial knowledge on the other, would expose the monstrous, as well as dreadful absurdity, of making or allowing any presumed and unestablished hypothesis to oppose or interfere with the explicit declarations of revealed historic truth. It would show how fallacious, and how dangerous it is to fancy that any crude physiological speculations, which superficial thinkers are the fondest and the most forward to fashion, can, with any shadow of argument, be made subservient to those purposes by which an unreasonable and a malignant scepticism attempts to rob us of that best of gifts which Heaven can bestow.

THE END.





