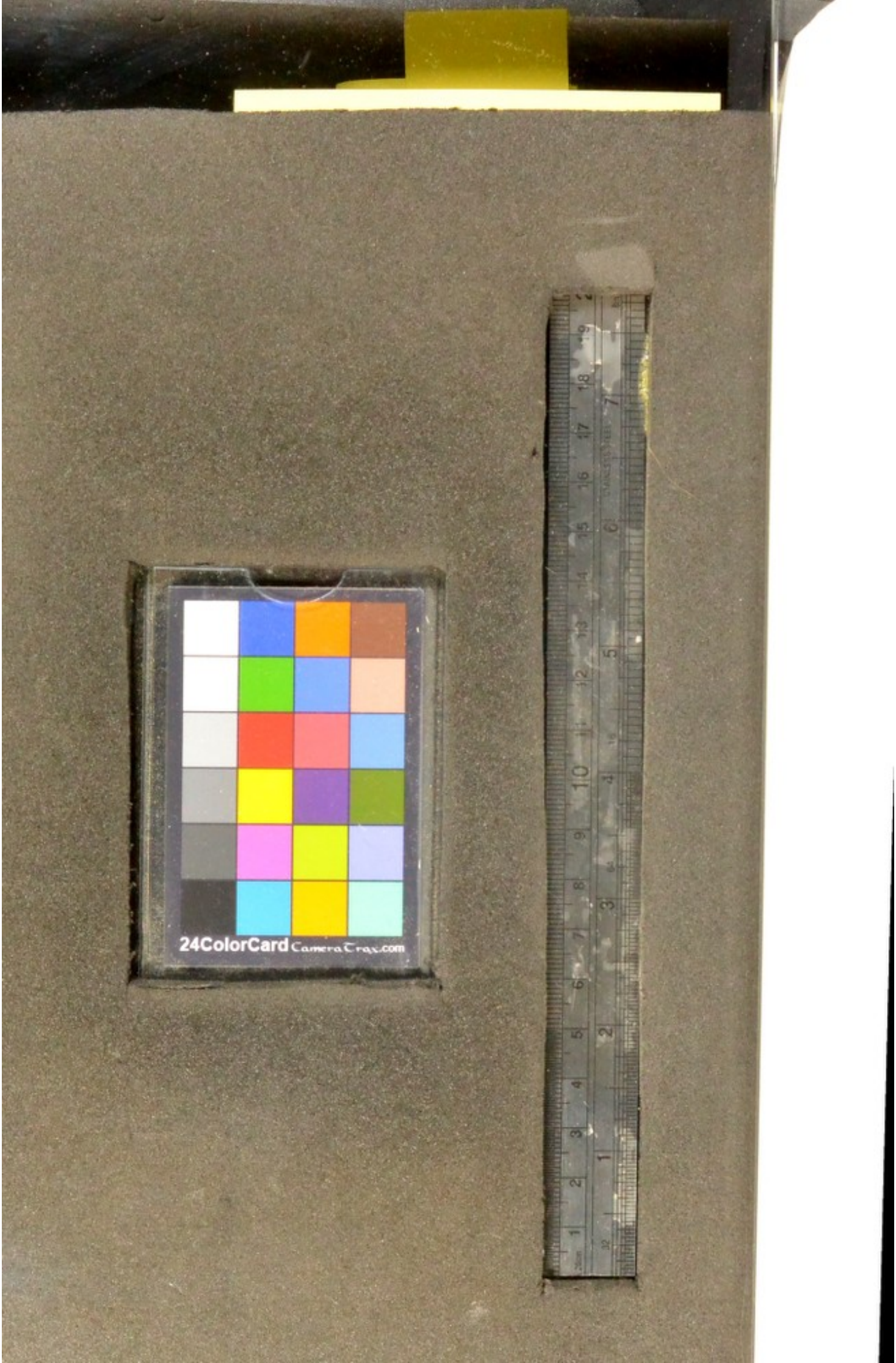
An appendix, to an inquiry into the present state of medical surgery, by the late Thomas Kirkland, in which, the removal of obstruction and inflammation in particular instances; with the causes, nature, distinctions, and cure of ulcers, isconsidered: taken from his manuscripts, with a preface, introduction, notes, &c.;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AN

APPENDIX

TO

MEDICAL SURGERY

&c. &c.

AN

APPENDIX,

TO

AN INQUIRY INTO THE PRESENT STATE

OF

MEDICAL SURGERY;

BY THE LATE

THOMAS KIRKLAND, M. D.

IN WHICH,

THE REMOVAL OF OBSTRUCTION AND INFLAMMATION IN PARTICULAR INSTANCES;

WITH

THE CAUSES, NATURE, DISTINCTIONS, AND CURE

OF

ULCERS,

IS CONSIDERED:

TAKEN FROM HIS MANUSCRIPTS,

WITH

A PREFACE, INTRODUCTION, NOTES, &c.

BY

JAMES KIRKLAND, Surgeon,

APOTHECARY TO THE TOWER.

Rationalem quidem puto medicinam esse debere, instrui vero ab evidentibus, causis, obscuris omnibus, non a cogitatione artificis, sed ab ipsa arte rejectis.

CELSUS.

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1813.

TO THE

RIGHT HONORABLE

FRANCIS RAWDON HASTINGS,

EARL OF MOIRA,

BARON HASTINGS, HUNGERFORD, BOTREAUX,

MOLINS, MOELS, DE HOMET & RAWDON;

GOVERNOR GENERAL OF INDIA,

A GENERAL IN THE ARMY,

CONSTABLE AND CHIEF GOVERNOR OF THE TOWER OF LONDON,

LORD LIEUTENANT AND CUSTOS ROTULORUM OF THE

TOWER-DIVISION,

COLONEL OF THE 27TH REGIMENT, A GOVERNOR OF THE

CHARTER HOUSE,

AND ONE OF THE COUNCIL OF THE PRINCE OF WALES IN

CORNWALL AND SCOTLAND:

K. G. & K. T. S. F. R. S. F. S. A. & M. R. I. A.

THIS APPENDIX,

IS,

(WITH PERMISSION)

MOST RESPECTFULLY DEDICATED,

BY

HIS LORDSHIP'S MOST OBEDIENT,

HUMBLE SERVANT,

JAMES KIRKLAND.

TO THE

RIGHT HONORABLE

FRANCIS EARL OF MOIRA, &c.

My Lord,

I feel most sensibly the honor your Lordship has done me in condescending to allow of the dedication of these few pages, and it is an additional satisfaction to me, that they are sanctioned by the lineal descendant of the late Francis Earl of Huntingdon, under whose patronage the first volume of "An Inquiry into the present state of Medical Surgery," appeared.

It will be a sincere gratification to your Lordship, whose active life has been devoted to the good of your country, to the improvement of the arts and sciences, and to the relief of suffering individuals, should the following observations throw any light on the subjects they profess to illustrate; for I rest assured, it is from the knowledge of the author's successful practice, and professional abilities that your Lordship has granted me this request.

Not doubting that the splendid talents which have been so conspicuously displayed at home, will be equally conducive to the honor, welfare, and happiness of his Majesty's Eastern Dominions; I can only add my most ardent wish that your Lordship may long con-

tinue in the enjoyment of perfect health, as well as of every other comfort your exalted rank entitles you to. I have the honor to remain,

My Lord,

Your Lordship's most obedient

humble servant,

JAMES KIRKLAND.

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PREFACE.

WHEN my late father, Dr. Kirkland, began his Inquiry into the state of Medical Surgery, he intended to give to the world a system of this branch of the profession which he had found by long experience to be successful. But not having proceeded far in the third volume, the publishing a work, so incomplete, was entirely out of the question.

The strides also that were then making, and that have since been made in the art of healing were so rapid, as to supersede much of former practice.

The method, now in general use, of laying the skin close to the wound imme-

diately after amputation, and healing it by an immediate union of the parts, or what is called by the first intention, is certainly a most essential improvement, whilst, for the extension of this practice to these capital operations the world is indebted to Mr. Alanson.

The publications, on the cure of ulcers, by Sir Everard Home, Messrs. Whately, Baynton, Underwood, Bell, and other writers, have much simplified this practice; but, granting all the merit due to their indefatigable exertions, I am satisfied that there are serious obstacles still in the way of a regular procedure of cure. I felt persuaded also, that in the manuscripts of my father in my possession, (together with the confidential instructions given to me) there would be found materials, which on publication might in some measure remove these impediments.

If then, from what has been already written on this subject, and from what will be advanced, we are in any way instrumental in laying a foundation for a more regular practice, having for its object the first principles of the subjects on which it treats: —if also, we should enable the student better to read the ancient and modern writers on this branch of medical surgery, we shall have attained a most desireable end. We are also convinced, that if credit is given to what is said, and the principles recommended generally adopted, much benefit will accrue to the public, and much expense be saved in those institutions where surgical assistance is given, by shortening the duration of cures.

Ashby de la Zouch,
December 8th, 1812.

INTRODUCTION.

IT may not be improper to state that my father was a pupil of Dr. William Holbrook who practised surgery at Loughborough. The Dr. was a disciple of the old school, and chose Wiseman for his model; indeed so close an imitator was he of this author, that it was said of him that—"Holbrook had Wiseman by heart."—

In 1745 my father attended the lectures of Drs. Lawrence and Nicolls, and it was during this period that he began to enter into the beauties of the science of medicine and surgery, or, to use his own words, "he was struck with

the fire of his profession." This ardour continuing and increasing, his enterprizing genius was soon discerned, and in the course of a few years he practised with a success seldom witnessed.

One day in dissecting an ulcerated leg, he found the cellular membrane and vessels surrounding the ulcer, loaded with *a yellow gelatinous lymph, in consistence resembling the white of egg*, but in tracing it further no such fluid was observed. An idea occurred to him, that if this lymph could be corrected and attenuated so as to allow of the roller, a leg thus circumstanced would be easily cured.

Except in ulcerated legs, when he always found this lymph, he had no opportunity of observing it in any other part of the body, till five or six years had elapsed; when, being desired by Mr. Charles Drury, of Nottingham, to assist in dissecting a malefactor executed for murder, he observed an ulcer in the thumb, and in tracing its course he found

the same gelatinous lymph we have mentioned. This circumstance strengthened his former idea, not only of ulcers in the legs being mostly local, but that those in other parts of the body were frequently one and the same disease. He had, as yet, no principle to go on, and for the present drew no satisfactory conclusions from these suggestions.

Time however and reflection, occasioned in his mind doubts as to the principles he was acting upon *towards the removal of obstruction and inflammation following injuries in general, and towards the cure of ulcerated legs.*

After maturely considering this subject, and examing carefully the composition of the applications used for these purposes, his mind was in some measure relieved from its embarrassment.

The older surgeons, in fractures, contusions, ulcers, strains, &c. had been accustomed to apply a composition of lead plaister, vinegar, and Armenian bole.

This they improperly called a defensative, because it was supposed to defend the limb from humors falling upon the part, and much stress was laid on this application. The practice was handed down and continued, without the propriety of its use, or the doctrine that gave rise to it being inquired into.

He was convinced however that the plaister in question possessed no such property, but that it dissolved and corrected, by its neutral powers, the yellow gelatinous lymph in the manner which had, in the dissection* above-mentioned, suggested itself to him as the object to be obtained, and he was further satisfied, that he had cured ulcerated legs, during the whole of his practice for twenty years, in common with ulcers in other parts of the body, without having known

* Mr. Leifler has discovered this lymph in old ulcers, and extracted it by holding a red hot poker as near the part as can be borne. This though it confirms the fact, can not be said to be eligible, as it does not effect its purpose with equal ease to the patient as saturated applications. See Medico-Chirurgical Review, vol. IX.

how the effect was produced.* He had now to trace back the effects he had witnessed, for the error that had been handed down and continued in, was still to be explained by further evidence.

Modern surgeons had long been dissatisfied with this doctrine of the ancients, and discarded their practice too; but, how much more was it to the credit of those who persevered in what they found to succeed, and though their principles and their practice were in direct opposition, yet they cured.†

* Practice in some instances leads to Theory. This was evidently the case here. My father—at once aware of having made a most important discovery, as well as found a desired remedy, was not satisfied till he was equally master of the principle in which that remedy lay; having once obtained that, he acted upon it throughout life afterwards. It has been well remarked by a late writer—that—" The person who first *introduces a principle* – as *a principle*—is as much the discoverer of that *principle* as Franklin of Electricity, or Jenner of Vaccination—the facts were known before them, but in an *insulated* and *unproductive* form; they systematized them, and thus communicated to us a new power."—See " Origin &c. of the new system of education, p. 194."

† Dr. Holbrook's practice was an admirable illustration of this, for no man better knew how to time, as well as how to manage the roller.

The property, then, this composition possessed, was what we have stated, but it was imperfect; therefore, to make it more neutral, my Father substituted soft carbonate of lime, (chalk) for the Armenian bole, and to give such a consistence as the state of the part required, he added more or less oil. For instance, if a part was extremely hot and inflamed, the plaister was softened to the consistence of a digestive;—If the part was tense as well as inflamed, he would add to a poultice, sulphat of soda,* which, by purging the skin only, would take off the tension so as to admit of the application of the cerate.†—If a part was not so hot and inflamed, the plaister was made a little firmer, and in a fleshy hardness of the calf of the leg, thigh, arm, &c. unattended with inflammation, but little oil was used.

By these means, what he had before often found difficult of cure, he could

* Glauber's Salt.

† The formulæ of this cerate will be given hereafter.

now accomplish sooner and with much more ease to the patient, for he varied the composition, even to a balsam, as the state of the part required.*

But I cannot give the ideas he had formed of its effects at this early period, better, than in literally transcribing the following passage:—"The attenuating quality of the vinegar gives a fluidity to the juices, and by its moderate warmth the part invariably perspires—and this composition is further capable of another good intention, for the vinegar when it is absorbed into the part, neutralizes the stagnating salts which are become alkaline and thus sets them at liberty; and *I am persuaded even mortification is often thus prevented.* Whoever has a mind, may, previous to its

* When the late Mr. Else of St. Thomas' Hospital asked him how he cured sore legs, he replied, he found a yellow viscid lymph in dissecting an ulcer which having set at liberty he effected the cure by the roller. And though Mr. Else subsequently wrote a paper recommending bandage in the cure of ulcers, yet, not having thoroughly considered the subject, his paper was deficient.

use, apply the fomentation of Heister or Turner, but this of itself is sufficient, for I am seldom disappointed in its effects."——

I will now state the reasons assigned to me as a probable cause why neutral applications sometimes prevent mortification. Not being satisfied how that was to be prevented which might never have happened, I naturally asked my Father to account for it, and his reply was—" If the neutral cerate or applications on this principle, (though we prefer the cerate for its convenience and more speedy effects) will attenuate and remove obstructed fluids of *long* standing, this will be in *recent* cases more easily accomplished because the obstruction is slight; and though nature frequently requires but little assistance in this process, yet it often happens from various causes that she is interrupted in it. It is in those habits where the juices are naturally bad, and which if suffered to stagnate shew a disposition to gangrene and mortify, that applications for this purpose

are so necessary: and, as we always use it in recent bruises, wounds, &c. that will not admit of cure by the first intention, and where the irritability of the skin does not forbid the application, it must in many cases prevent this catastrophe, nor will recent ulcers become chronic if this practice is early resorted to. It is true that a large extent of surface will take longer time in healing, yet, the cure is all the while going regularly on."

This discovery may be said to have laid the foundation for the furthering the prosecution of his studies.* It assisted him in his favorite pursuit of the doctrine of the analogy betwixt internal and external diseases,† so manifest in many of

* Before he discovered the viscid lymph, he had (in 1754) written a treatise on Gangrene in which was evinced much professional zeal, and his distinctions in that work of local gangrenes, and those which arise from a bad habit of body, served him through the whole of his future practice.

† I have often heard him acknowledge himself indebted to this study in his medical practice.

his works: It enabled him to distinguish between one ulcer and another, and by knowing the extent of this doctrine, it led him to observe the proper use of other external applications. It formed his first idea of the doctrine of inflammation following injuries; he saw, that in simple inflammation, or diseases of the skin only; in the Erysipelas and other Inflammations before treated of in his Medical Inquiry; and in glandular obstructions, it was out of place. It also assisted him in distinguishing what glandular disease would admit of cure by external applications, and what would not, as by the "*tactus eruditus*" he was enabled to distinguish a schirrus from an induration, for he has before observed in his Medical Inquiry that "every schirrus is an induration, but that every induration is not a schirrus," and his acuteness in this distinction was incomparable. He hence knew better where ammonia was applicable, when to use cold water, and was still more familiarized to the use of the roller, that inestimable assistant to Medical Surgery, besides many points of this part of the

Science, that had not then been satisfactorily explained.

Let us now see how little, a period of 50 years had affected this practice. In speaking of the ancient and modern treatment in the case of contusions, he observes:—"Bleeding is not the only difference betwixt the practice of the ancient and modern surgeons. The old surgeons, where the contusion was considerable, first fomented with oxycrate made of vinegar and oil, which is not inferior to any fomentation now in use to parts recently injured. To the wound itself they applied a digestive, and some covered the limb with the oxycrate, adding to it oatmeal in the form of poultice. When this was removed, the next day or two they applied what they called, a defensative made of lead plaister, vinegar, and Armenian bole. This application, they supposed, was astringent, and prevented a flux of humours falling upon the part. They very often spoiled this plaister by adding various astringents to make it

more powerful, through which means it was brought into disuse. Fifty years ago, however, I saw that no application more easily promoted digestion in contused wounds, when accompanied with laceration, and this circumstance convinced me, that its principle was the reverse of what it had been considered. I conceived it was not an astringent, but a neutral application with antiphlogistic and deobstruent properties capable of setting at liberty obstructed lymph as well as correcting acrimonious fluids, when properly made. I have since changed the consistence as the state of the inflamed part requires, and have contrived a better application by making it more neutral—It is the success I have met with, which has induced me to recommend it so often in the foregoing pages.

"Some application of this kind was made, before poulticing came into use, it kept the parts often in a state of perspiration, and there was not any necessity to disturb the limb till the discharge of matter made the bandage

offensive. On the other hand, it was confessed, that cataplasms often did injury by relaxing too much, and it may be observed, that though great inflammation requires great relaxation, yet by *over relaxing* parts, the juices become liable to stagnate; abscesses or large suppurations are the consequence, and I make not any doubt that many have fallen victims to this practice."

"Some have been indifferent about the form of application used to prevent inflammation when poultices are improper, and it has been a common practice, to use warm fomentations, or liquid discutients, in their stead:—And though some of the liquid discutients usually applied, are capable of attenuating *recent* obstructed fluids, yet, they are destitute of the other properties necessary to prevent inflammation; for I conceive the topical remedies for this purpose, should both attenuate obstructed fluids, and at the same time *preserve the lymphatics in a tone capable of acting upon and propelling their contents*, whence the circulation

and perspiration are carried on regularly in the parts adjoining the wound. Whereas, when embrocations are used, a stagnation in a greater or less degree ensues, and the skin becomes *hard and dry in the intervals of dressing*, which would not be the case, if the soap cerate of St. Bartholomew's Hospital, or the neutral cerate we have so strenuously recommended were applied."

We cannot have a better reason, than the above quotation, why the application recommended is preferred in the form of "cerate &c." to that of solution, nor, of the success that had followed the practice; but, as the manuscript was left to be published at my own discretion, and as some most essential facts necessary for an elucidation of this practice, were communicated verbally, from time to time, I feel myself responsible for their being clearly explained; and, if I have succeeded in my endeavours to accomplish this end, I shall have performed a duty, most satisfactorily to myself.

If simplicity in practice is a recommendation, it will have its claim here, for, it will be shewn by a chain of reasoning, the result of long experience, that the *recent ulcer*, and the *inveterate one* of *long standing*, require the same treatment:—with this difference only, that, in the *former*, the disease is slight, and more easily cured; but, in the *latter*, it must first be reduced to a *recent* ulcer, or, in other words, *cured*, before it can be *healed*. This, according to the extent of the ulcer, will take more or less time, even where the disease has arisen from a bad habit of body, if topical treatment is admissible, the same principle is still to be observed.

I have dwelt more particularly on *ulcers*, because it was from dissecting an ulcerated leg, that my father was enabled to prosecute successfully this branch of the profession. I feel convinced also, that an explanation of the *principle* and *system*, in the cure of ulcers, with the mode of treatment, adapted to that principle, is a desideratum in Medical Sur-

gery, even at this day. But the practice is not confined here, for it extends to every part of the body, to the removal of obstruction and inflammation, whether with or without ulcer, when the lymph is in the state described. Where this treatment does not apply, it is pointed out in the "Medical Surgery" to which this may be considered the key.

I cannot conclude this Introduction, without expressing the obligation I feel to my friend Dr. Kendrick of Warrington, for the judicious remarks he made during the perusal of the manuscripts; thus contributing to my attaining a more early and satisfactory conclusion, relative to the form and matter most essential for publication.

FORMULÆ.

Having already observed, that the composition we have been speaking of, may be "varied even to a balsam, as the state of the part requires," we now give the FORMULÆ we in general use; although it appears evident from what has been said, that the discrimination of every surgeon, will immediately direct him in the *form* of application he judges most proper.

EMPLASTRUM NEUTRALE.*

℞ Emplastri plumbi libras duas,
Olivæ olei fluiduncias quatuor;
Lento igne liquefac.

℞ Cretæ præparatæ libram,
Aceti tepidi octarium;
Simul misce.

Plumbi emplastro et oleo liquefacto, ab igne remoto, calcem cum aceto, paulatim adde, *totum* gradatim agitans, donec in unum cocant.†

* *In fleshy hardnesses, this plaister is sometimes applicable, and may lie some weeks without being removed. In simple fractures,* the cerate, *if the part be not tense when applied, will lie for a fortnight or more, (should it agree with the skin), without its being necessary to disturb the limb.*

† *Minute attention to some points, which at first sight may appear trifling, is absolutely necessary to the due for-*

CERATUM NEUTRALE.*

℞ Emplastri plumbi libras duas,
Olivæ olei octarium; †
Lento igne liquefac.

℞ Cretæ præparatæ libram,
Aceti tepidi octarium;
Misce secundum modum supra præscriptum.

---

mation of this and the following compositions. The neutralized mixture must be gradually *added* whilst warm, *and the stirring must be* in one direction only. *This must be* particularly *attended to, for, if the mixture be stirred* alternately, one way and the other, *the neutralized acid will rise to the top. This will likewise be the case, if the neutral mixture be poured* cold *or* hastily, *on the* warm *plaister. The stirring must* cease *immediately on* an union being effected, *or separation, will equally, be the consequence.*

* *When a great quantity of Cerate is wanted, it should be melted in the vessel in which it is to remain. Those of Stourbridge clay are to be preferred, which, as a moderate heat only is required, may be placed on a cast iron plate over a slow fire. The* lead plaister *for obvious reasons, should be made at the hospital, and not used till it is old. The* neutral plaister, *itself, also, is better after having been kept some time.*

† *In winter add four ounces, more or less.* The cerate should always admit of being spread with a cold spatula.

UNGUENTUM, *(vulgo* DIGESTIVUM) NEUTRALE.

℞ Emplastri plumbi libras duas,
Olivæ olei octarios duos;*
Lento igne liquefac.

℞ Cretæ præparatæ libram,
Aceti tepidi octarium;
Misce secundum modum supra præscriptum.

LINIMENTUM, *(vulgo* BALSAMUM) NEUTRALE.†

℞ Emplastri plumbi libras duas,
Olivæ olei octarios duos cum semisse;
Lento igne liquefac.

℞ Cretæ præparatæ libram,
Aceti tepidi octarium;
Misce secundum modum supra præscriptum.

Some have an utter dislike to *plaister*, in any form. Acetous acid and water, will, we know, abate slight inflammation. Filtered acetate of lime, is a neat, and mild application, but we have already given our reasons, why the forms recommended, are preferable, and for them only we are answerable.

* *In summer about* ½*lb. less, may be sufficient.*

† *This, like the others, will require more or less oil, according to the season of the year, and ought to be made of a consistence somewhat softer than honey.*

It may be asked why a superabundance of the soft carbonate is employed, when so little saturates the acetous acid?—to which we reply—If we are to apply this principle in the form of *plaister, cerate, &c.* as directed, it must be made of a *consistence* that will lie easily on the part, for were we to use other ingredients, they might interrupt or weaken the action of the acetate of lime. The purpose then, can not be better effected, than by that substance, with which the acetous acid is saturated.

AN APPENDIX &c.

CHAPTER I.

On the Cure of Wounds by an immediate union of the divided Parts.

WE purposed beginning by considering the most simple ulcer immediately following a wound:—for every division of the soft parts, whether by puncture, incision, laceration, or contusion, is a wound while in a recent and bloody state only. Accordingly, in Celsus, it assumes the name of *Ulcer* as soon as *ichor* or *pus* is discharged. Now the regular process of a simple wound from its first infliction, to the healing of the subsequent ulcer, where the constitution is pure, or in a healthy state, is well

described by Boerhaave and his Commentator in the 158 section of his Aphorisms; concisely also, by the late Mr. Sharpe in the introduction to his Chirurgical treatise, and lately, in Mr. Benjamin Bell's compilation. Since these books are in most people's hands, it is unnecessary to go over the same ground again, and we shall endeavour to give such new light to the subject as has since presented itself in practice.

We are next to proceed to an immediate union of the divided parts;* and to go on rightly, we must remember that *nature* is the curer of wounds, and that *art* only assists by removing impediments, that she may be enabled to avail herself of the usual resources in com-

* The doctrine of suppressing Hæmorrhages from divided arteries, has been treated of before, and the subject, has, since that time, been so thoroughly canvassed, that it may be said to have arrived almost at its summit: but, whoever will peruse my father's "Thoughts on amputation," printed so long back as 1780, will see in the practice then enforced, from whence the extraordinary operations that have followed, may have taken their rise.

pleting a cure. For instance, if the lips of a wound are in contact, the blood becoming dry, the external air is excluded, and if no interruption takes place, the wound naturally closes up.—So it is when art properly interferes, for when the skin and cellular membrane are divided, art assists in keeping the divided parts in contact, excludes the external air, prevents the blood becoming an extraneous body, and nature herself in the manner we shall describe, accomplishes the union. It is agreed on all hands, that this is the best method of proceeding when circumstances will allow, it is the most easy process that nature can undergo, for by preventing inflammation and its consequences, no disturbance in the animal œconomy ensues; and if, in addition to the lips being drawn as near together as they can by adhesive plaister, well adapted bolsters and bandage are applied, the event will be much more certain: for a moderate pressure, even in this instance, promotes a reunion of the parts by preventing swelling, and consequent

suppuration. Different kinds of bandages, for this purpose, are to be met with in writers both ancient and modern; but the double and single headed roller will in general be found sufficient, under proper management, except where the injury is such as requires the limb being kept in its place, as in compound fractures &c. where the many tailed bandage is necessary. In transverse wounds, by a single headed roller, if properly applied, every purpose will be answered; but in some longitudinal wounds, the double headed roller is preferable, as it keeps the parts more certainly in that situation. Formerly the bandage was made of linen, the modern Surgeons prefer calico, or flannel, according to the season of the year, because they are more elastic than linen, and somewhat give way to the subsequent swelling; but when the cure depends on the roller only, linen is preferable, because it will not give way; —but if an exact degree of pressure does not take place, it answers no further end, than keeping on the dressings.

The intention of bandage is to support the vessels and fibres in as near a natural state as possible,* that the fluids passing through them, may not become overcharged and stagnate. This may be effected under the use of neutral applications whilst in a state of perspiration. Much has been lately said, of the use of bandage in the cure of ulcers, but without that discrimination which should have been observed. If bandage is at first properly applied, inflammation is frequently prevented, and an union of the parts takes place; yet, it is said that this process is brought about by *adhesive inflammation*. We cannot however believe nature ever accomplishes her work by preternatural means. It is well known that great inflammation *often* ends in suppuration, and that the *state* of inflammation depends on various circumstances; whereas nature, unless interrupted in her work, is regular and uniform; there is not any thing left to chance, and of course, no part of the

* See Whately on Ulcers.

animal œconomy is conducted by inflammation. If the growth of animals then, is not assisted by it, there is no reason to be of opinion that it contributes to the union of divided parts. It is true that inflammation in the lips of some wounds *exists*, owing to the degree of obstruction and irritation that follow a solution of continuity, but surely neither of these circumstances can possibly assist nature in this work, and it is certain, that if the lips of a wound are lively and vigorous when brought into contact, they will remain so though no inflammation intervenes; witness the cure by the second intention, which does not take place whilst inflammation exists.

In wounds then, in a *longitudinal* direction, slips of adhesive plaister and bandage, are the most effectual. In *transverse* wounds, where *muscles* are divided, sutures are often unavoidable. Celsus seems to confine their use to those wounds "where the flesh is hanging down in one part, and adhering to ano-

ther; as when they happen to the extremity of the ear, or lower part of the nose, or the lip, or the skin about the throat, or the belly:" and when sutures are required, these are amongst the circumstances under which they should take place; but even in these parts, they may be often rendered unnecessary, if a relaxed position is observed, and the part kept free from motion.

I well remember, when sewing up wounds was the general practice, but they seldom healed at the bottom; inflammation and suppuration being the consequence, besides pain and trouble to the patient. How many instances do we meet with where ligatures have been obliged to be cut out on account of the pain they occasioned during the swelling of the part? and as ease follows their being set at liberty, they ought never to be used, but under very particular circumstances. Where they *are* used, they should be well covered with cetaceous ointment, or rather hog's lard, and tied

with a *slip* knot,* because they are more easily removed, but if our endeavours after all fail, I would advise the second intention to be pursued.

* This practice cannot be well effected in securing deep seated vessels, but in sutures, or in larger arteries, it is often admissible.

CHAP. II.

On the Cure of Ulcers following Wounds.

WHEN the attempt to cure by the first intention does not succeed, the wound becomes an ulcer, because it discharges ichor, or pus, as we have already observed, and yet, where there is not much loss of substance, it is capable of being cured in a great measure by agglutination while in a state of purulency, if proper steps are taken.

The attendant inflammation* first demands our attention, for which it has been said the loss of blood is the cure.

* See Medical Surgery, vol. I.

Late experience has not verified this practice, for if blood is to be lost till it had this effect, much injury would frequently be done by weakening the constitution. In moderate sized wounds, however, it will be agreed, that inflam mation in a sound habit is seldom at tended with bad consequences, and topical application will generally do more for us, than any other remedies.

To the wound in its bloody state, we recommend the application of *wheat flour*, instead of lint and flour, because it imbibes the blood and bloody lymph, without distending the lips, the sides being brought as near together as circumstances will admit. A neutral cerate or digestive, (as the tensity of the part requires), spread thick, should be applied on each side of the wound as well as over all the inflamed or extravasated part; for there is more or less extravasation in all these kind of wounds. Proper outlets should be made on the edges of the plaister, and the bolsters should be made of simple plaister, softened a

little with oil, so as to lie easily on the part,* and to be made to correspond with the shape of the ulcer, and not to come over the edge, that the matter may go off. These, together with a moderate pressure, will keep the distended vessels within bounds, and promote digestion, for it is the *speedy* removal of obstructed fluids by absorption, or by a discharge into the ulcer, that is now wanted. By these means, the growth of parts will sooner follow, and we recommend the neutral applications, being more certain and quicker in their effects than the soap cerate, or other remedies in general use.

When the dressings are to be removed, for which the extent of the ulcer will be our guide, some gentle detergent liniment, should be laid within the ulcer, in small pieces, and in a longitudinal direction, that matter, as we have observed, may go off; and over it, the neutral cerate may be applied. It is a habit with some Surgeons to lay one

* When the bolsters are hard and narrow, deep impressions are made in the skin.

plaister over all, but surely the first dresssing, (and we are speaking of those ulcers which require digestion), should be laid within the ulcer, for one plaister will not be in regular contact with it. This practice must be pursued, while inflammation exists, but when it has subsided, and the ligatures, (if any), are taken away, the new flesh will begin to rise, *and not before*;* the sides will now admit of being daily brought nearer together by bandage, and the ulcer contracting, a sound union is formed. Even lacerated wounds, that do not exceed certain limits after the skin and muscles have been laid down in the most possible regular order, will, by this means, terminate sooner.

* It is hardly necessary to say, that relaxants are to be discontinued, after digestion is complete.

CHAP. III.

On recent Ulcers that will not admit of Cure by Agglutination.

SOMETIMES there is such a loss of substance as will not admit of cure by the first or second intention, this can only be replaced by digestion, incarnation, and cicatization. With a view to assist nature, in these different processes, various applications in the form of digestives, sarcotics, and cicatrizers, have been invented by the ancients, and used by the moderns, till within the middle of the last century; but often instead of doing service, were attended with painful and injurious consequences, as may be seen in the 4th vol. of the Edinburgh Medical Essays, Art. 22,

by Monro; or in his works published by his Son, p. 276; who, as well as others, simplified the practice by applying dry lint, which he says "is a gentle detergent and easy to the wound, and by the corrupting liquors it imbibes, proves one of the strongest, yet most mild and safest suppuratives." Mr. Sharpe afterwards, adopted and extended this doctrine, and it is well known, brought dry lint into general use, but notwithstanding what is said of dry lint being preferable to other remedies, at that time it is not without its inconveniences, because the discharge being an heterogeneous mixture composed of blood, lymph, the ends of divided fibres, dissolved membranes, and the like, they must of course be replete with some kind of acrimony capable of irritating; consequently, the wound remains in a state of inflammation several days, the lint imbibes the discharge, swells the part, distends the lips from each other, and not only makes more, but hazardous work, in the subsequent process. Colliquative sweats, hectic, and even death,

has often been the consequence of the absorption of matter collected in a large ulcer.

It is probably owing to these circumstances, that preference has lately been given to filling the wound with bread poultice, which, though it carries with it the air of simplicity, and is a very soft practice, yet it also is not without its faults, for it distends the lips of the wound, and if continued any length of time, will be the means of future mischief, by relaxing too much, as we shall presently shew.

Many years ago, whilst I was searching after the proper method of assisting nature in this work, amongst other attempts I applied lint, moistened with oil, lightly, into the lips of the wound, with a view of preventing inflammation; but the oil was soon all absorbed, and the lint sticking at the bottom of the sore, the purpose was not answered. Wheat flour, however, perfectly met my wishes, and I still find it the best appli-

cation in recent wounds, that will not admit of an immediate union of the parts; it imbibes the blood, does not distend the lips of the wound, and digestion is accomplished in a much shorter time, than when we proceed in any other manner. Pledgets. spread thick with a neutralized digestive, may be laid over the whole, the sides may be advantageously supported by bolsters and bandage, that make a middling kind of pressure, and when we next take off the dressings, all the blood and lymph which have been collected, will be at liberty to come away.* Except the glutinous part of the flour, which may remain at the bottom, a light balsam, as the *unguentum ex aquâ frigidâ* of Galen, or the neutralized balsam, may then be laid within the sore, which lessens inflammation by abstracting heat, and thus in two or three days the digesture is tolerably good, and the patient easy, in conse-

* I remember going to Burton upon Trent with my Father, to meet Mr. Pott in a case, and this practice was discussed, but Mr. Pott did not like it from its being such a *puddle*, but it is the *puddle* that should follow the application of wheat flour to wounds.

quence of the tumor having subsided, and the new flesh beginning to rise: for by these means, the roller can also be applied earlier, and with more effect.

The digestion of ulcers then, seems to depend upon the obstructed vessels becoming pervious, and to the serum discharged into the cavity of the ulcer, being converted into pus, by the warmth of the part, as described in a chapter we have before published on purulency;* nor, though I have paid unbiassed attention to all that has since been written upon the subject, do I see any reason to alter my opinion, for I cannot believe that inflammation is necessary to the formation of matter, because good matter will be formed by the natural heat of the part without inflammation, and because it never is formed while inflammation exists. Even Mr. Home,† after various experiments, cannot admit that any preternatural degree of heat is ne-

* See Medical Surgery, vol. II.

† Dissertation on Pus.

cessary for the formation of pus, yet he thinks INFLAMMATION is the process by which pus is formed.

Mr. Hunter, who first observed that pus is composed of globules, thinks *that* the criterion by which it may be distinguished from most other substances. Mr. Freke,* however, nearly fifty years ago said, that the first visible alteration in wounds, is the pus being interspersed with bubbles of air; he observed also, that wherever there is good digested matter, granulations must first be produced, and he supposed these air bubbles arose from the pus forcing its way through the granulations, as it were through a perfect sponge.

On the contrary Mr. Home has shewn, that pus, at its first appearance, is not globular, but a transparent fluid of a consistence somewhat resembling jelly, and that these globules are formed while lying upon the surface of the sore,

* Art of Healing.

after some minutes a change taking place in the fluid itself, independent of the ulcer that secretes it. Is there not reason then to believe that most of the fluids in the body are globules, though these globules can not be discovered when first discharged?—Yet, the disseminated air* contained in them, being out of the circulation, and becoming by the heat of the part, or by putrefaction, elastic, shew themselves in abundance. In a spreading gangrene, from a gangrenous disposition of the juices, it is very well known how soon these air bubbles are formed, and how soon also, emphysema follows from stagnating and extravasated lymph; but no one calls this *ichor*, pus, because it is full of air bubbles; and yet, the only difference betwixt the globules in pus, and in a gangrenous ichor, is, that in the one case, the fluids are mild and inoffensive, and in the other, with inflamed juices *in a state of causticity.*

* We mean the scattered air that lies concealed in the blood, and renders the bodies of dead animals bouyant in water.

Three kinds of matter occur in recent ulcers.

1st. Crude matter composed of blood, lymph, putrid flesh, and dissolved membranes, and has a fetid offensive smell.

2nd. When the ulcer has become clean, pus follows, formed of serum, or lymph, without any admixture, in the manner described, and free from offensive smell.

A third sort is formed of thickened mucus, with air bubbles, more or less tenacious, and perfectly inoffensive.

It is under the second and third sort of discharge that ulcers heal, and if the matter is bland, the process will go on well enough, whether the lymph be changed into pus or not, for if a clean ulcer discharges an inoffensive lymph we are satisfied, finding pus unnecessary now towards promoting the healing of the sore. I look on pus to possess dissolvent and detergent properties, which

mucus does not, for the *lymph of which pus is formed* is a *most powerful solvent*, as we learn from its readily dissolving coagulated blood in wounds; and, instead of the red ichor discharged in a few hours after wounds are inflicted, being occasioned by the small vessels contracting and only admitting a thin red coloured serum, as Van Swieten supposed, I am persuaded it is owing to the cause we have assigned; for a discharge never stops, unless swelling and inflamation are so great as to prevent its exit. Hence, the discharge of bloody ichor in wounds has always been regarded as a good symptom, because there is a perviousness of the vessels that often prevents mischief, nor are the effects of lymph confined to dissolve coagulated blood in wounds, but also to the parts about it, which are concealed from the air, for, when making experiments upon the manner in which the hæmorrhage from divided arteries was suppressed, I discovered, that there is more or less extravasated blood both above and below the wound, though made by the keenest instrument, and which, being dissolved

by lymph, is absorbed. Inflammation being gone, digestion completed, and mucus or mild pus formed by the vessels being rendered pervious, new flesh begins to granulate; yet, some suppose inflammation to be the cause of the elongation or growth of the fleshy fibres. But, does inflammation assist in forming the muscles of the embryo, or does inflammation exist when the new flesh begins to rise?

Dr. Hunter has surely led to a more satisfactory account of this, for he very justly observes, that all the parts of the body, whether new or old, are formed vascular, that even the cicatrix of a wound is vascular, and he infers, that all our solids are organized, and that when they lengthen, or are regenerated, or produce new substances, they still shoot in a vascular form in their basis or bed. The bones* shoot in a gelatinous

* I have seen a beautiful appearance in the formation of bone in a sphacelated joint. I observed the blood vessels had shot into the marrow of the bone, which had the appearance of tender flesh, and by phosphate of lime would, I have no doubt, become perfect bone.

fluid, and every wound that is healing is naturally covered with a similar bed, in which the vessels shoot. Whoever will examine a recent ulcer with a microscope, when the inflammation has subsided, will find, that a pale gelatinous substance first presents itself. The next day, red streaks appear which multiply till the gelatinous substance is wholly changed from pale to red, and shortly after, granulations of flesh appear. From this it seems pretty evident, that when the inflammation is gone off, a gelatinous substance or coagulable lymph, transudes from the divided parts, into which the blood vessels, and all other kinds of vessels, as well as nerves, immediately shoot, and the fibrous part of the blood they convey, is converted into organized flesh; probably, by the lymphatics absorbing the serum or lymph they contain; for by separating serum or lymph from blood by art, some idea may be obtained of the formation of flesh, as a common culinary process evinces, for if the blood whilst running from slaughtered animals, is kept stirring

in a bowl with a stick, the serum is separated, and fibrous flesh is collected round it, wanting only vessels to give it organization, and make it flesh.*

Had Freke been aware of new vessels of all kinds immediately shooting out in wounds, there would have remained little to have been done by those who followed him. Mr. Moore's opinion is nearly similar to those, which, from our enquiries, we have been led to adopt, except where he says, "the new flesh is converted into a fibrous mass resembling the cellular membrane:"—but flesh and cellular membrane are not alike. Neither in the filling up of ulcers is there any cellular membrane formed round the parts, they being restored by flesh and skin alone.

However this may be, it has long been an axiom, that nothing ill can happen

* I am aware, that a more intimate acquaintance with the composition of animal fluids, has considerably altered the diction; but, I am unwilling to alter any part of the above, because the practice is not affected by the improvements in modern chemistry. This remark will apply to some other parts of the work.

in an ulcer while it affords good pus, and if the constitution is sound and vigorous, the new granulations which follow, soon point out a favourable prospect towards cure. They unite one with another, and carry on the desirable end of incarnation, till the wound becomes level with the skin; and if the surgeon is not over officious in wiping the sore, and destroying the bed in which the new flesh shoots, there will fall but a small part of the work to his share.

It has been said, that the business consists principally in guarding against the fungus, it being the only interruption to the cure, where there is no other indisposition of body; but this interruption is oftener owing to matter being confined to the sore by the continual use of poultices and dry lint, than to any other cause. That hectics have their rise from absorption of matter has of late been denied by ingenious men, I shall therefore beg leave to transcribe a paper, being a detached one, I published in the second volume of the London Medical

Observations and Inquiries, in the year 1760, on this subject, since which time, experience has strengthened in many instances the doctrine I have advanced.*

* In a conversation with the late Col. Hemington, at Donington Park, on the death of Capt. Noel, he expressed his surprize, that they who had suffered amputation of the larger extremities, and had also gone on well, for several days, frequently sickened and died? Having already considered this subject, at his and his brother's request, the following paper was written.

CHAP. IV.

On the Use of Sponge, after Amputation. Copy of a Paper read before the London Medical Society, May 5th, 1760.

"IT is well known to practitioners in surgery, that the greatest danger, attending the cure of those, who have undergone an amputation of the larger extremities, is owing to an absorption of matter from the wound, after the inflammation is gone off, and the vessels are become pervious. Indeed when the patient is healthy, and strong, and the matter absorbed, is mild and good; it soon passes off in the urine, without doing much mischief: but in scorbutic

constitutions, or where the habit is become bad, by deferring the operation too long, or from any other cause, the matter absorbed, being acrid, irregular feverish paroxysms, with loss of appetite, sooner or later, according to the degree of acrimony, come on; and the patient is often carried off, either by a colliquative fever, or a profuse hæmorrhage from the whole surface of the wound, notwithstanding the most efficacious remedies have been used.

As no method, that I know of, has hitherto been discovered, to prevent this return of matter into the blood, I am induced, by repeated experience, to recommend, as soon as digestion is complete, the application of pieces of fine sponge, (the wound being first covered with thin layers of dry lint), which answer this purpose, by imbibing the thinnest part of the matter from the lint, while that, which remains, becomes too thick to be absorbed, and by this means, the new flesh is kept moist, without being too much relaxed, which happens,

when it is constantly soaked in thin matter; and the discharge from the wound is less, than would otherwise be the case, the fibres being preserved in a state, capable of making a proper resistance to the impulse of the circulating fluids; a circumstance of very great importance, where the patient is become very weak, before the operation is performed.

Nor will the practice of removing the dressings twice a day, or laying them on loose, that the matter may run off the wound, answer the same end; for the lint, that is usually applied, collects, and always retains, a quantity of matter against the ends of the fibres, which being thin is constantly absorbed.

Besides, removing the dressings often, is not only troublesome to the patient, but frequently in the country impracticable, on account of the distance of the surgeon; and when they are laid on loosely, the new flesh becomes luxuriant,

and the cure is retarded for want of a proper degree of pressure.

The stump must be first surrounded with long pledgets, whose edge coming lower than the wound, should be closed down after the sponge is applied, which must be wet, and dried again with a cloth, immediately before it is used, otherwise it might lie uneasy upon the part; being cut into small slices, it lies much closer, than when large; and it should be kept pressed against the lint with bandage, or it will not have its proper effect.

The number of pieces may be gradually decreased as the wound lessens; and the quantity of very fetid matter, which is pressed from the sponge, will determine, how long its use is necessary. To illustrate what is here advanced, I shall relate the following case, which first put me upon pursuing this practice.

Thomas Mee, nineteen years of age, having a white swelling on the knee,

the acrid matter, contained in the joint, after several years, made its way out; and, upon passing a probe through the aperture, the head of the tibia, fibula, and lower end of the os femoris, were found carious.

He was in exquisite pain, attended with a fever, looseness, and colliquative sweats; his appetite was quite gone, he was become extremely weak, and had been without sleep for some time.

Under these circumstances, amputation seemed the only means left for his relief; and thinking it better to try a doubtful remedy than none, I took off his leg, above the affected part, on the 14th day of March, 1757. From the time of the operation, all his bad symptoms declined, and in four days entirely disappeared, the wound at the same time having the most promising aspect; but, soon after the inflammation was gone off, and digestion become complete, his looseness returned, he lost his appetite, and was again seized with a hectic fever.

In a few days, the wound began to be pale, flabby, and unnaturally sensible; and a gleet was discharged, instead of good matter.

Upon examining his stools, a great quantity of purulent matter was found in them; but a much larger, was contained in his urine, which had acquired its natural colour, after the symptomatic fever went off.

A bolster of tow was laid next the lint, that the matter might run off, and the wound was dressed twice a day; but this had not the desired effect, for the reasons before assigned. His urine and stools were very purulent; and upon the wound altering for the worse, recourse was had to the bark; but this medicine could not, with the usual additions, in such cases, be kept from running off by the intestines; for which reason it was disused.

I then thought of sponge, and applied it in the manner above described, laying

over it bolsters of tow, which were confined with long slips of sticking plaister, and a woollen cap.

Next morning, upon taking off the dressings, I found the sponge quite full of thin fetid serum, and a thick unctuous matter remained upon that side of the lint towards the flesh.

By such dressings, his urine in two days, became free from matter, his looseness, and fever, gradually declined, and went wholly off, the discharge lessened, his appetite returned; and in less than a fortnight the wound had regained a good appearance. The sponge was one day omitted, and next morning there was a good deal of matter again in his urine, and he had two loose stools in the night; but the sponge being reapplied, a stop was put to these symptoms, and, with the assistance of proper bandage &c. the patient was cured.

I have since used the sponge with the same success in several amputations, and

in other large wounds, where the urine and stools were loaded with matter, nor, when it was applied, as soon as the inflammation was gone off, has the cure ever been interrupted with any of those symptoms, which usually follow an absorption of matter; though some of the patients were of extreme bad habits, and very weak. But I never, since the first case, laid it aside, to see whether an alteration would follow for the worse, for being thoroughly convinced of its good effects, I was unwilling to make any experiment, that might tend to the disadvantage of the patient.

Nevertheless it cannot be of the same use in contused, and lacerated wounds, till the dead parts are separated, being hindered by the necessary dressings: nor is it much wanted in this case, notwithstanding extravasated blood, and bruised flesh, putrifying, produce a most active poison; for the applications, generally used, both forward the separation, correct the putrid matter, and hinder its

being absorbed, by giving it liberty to get out of the wound, provided it be sufficiently large; but when the new flesh begins to rise, and digestive balsams, and other emollients, become improper, it may be used with advantage.

Perhaps, the use of the sponge may not appear so beneficial in hospital, as in private practice, as the putrid effluvia, arising from different kinds of sores, mortification, &c. being carried through the lungs, and *vasa inhalantia*, into the blood, produce nearly the same symptoms, as arise from matter being absorbed from the wound. However, it is in this case not less useful, as it will prevent both cases acting jointly.

I would not have it understood, in recommending the application of sponge, that I thought medicines in this case always unnecessary. On the contrary, when matter is got into the blood, before the sponge is applied, and nature is remiss in expelling it by the kidneys,

the antiseptic diuretics, and the bark may be given with great advantage. But I am persuaded, if sponge is used in due time, this assistance will not be necessary, unless it is required on account of the patient's being brought into a bad state of health previous to the operation."

Some years after the publication of this paper, Mr. White confirmed the utility of the practice, and says, it prevents a luxuriance of flesh, partly by a removal of that matter in which it would otherwise be constantly soaked, and partly by compression the most easy that can be imagined, from the natural elasticity of the sponge.

Ever since the above observations, I have, in large wounds, that will not admit of cure by the first intention, occasionally had recourse to this remedy, and I am convinced, often, with great advantage; nor need we have a greater proof of its preventing the fleshy

fibres being soaked in matter, than the cases alluded to.*

When sponge is not at hand, dry dressings, such as myrrh, myrrh and camomile flowers, and bark, may be

* I only learnt the other day, that this is the practice on the continent, without their being aware who was the author of the discovery; but the following letter from Mr. Palmer, (I believe of St. Thomas's), to my father in 1761, may perhaps account for its introduction; Mr. Hunter being then going with the army to Belleisle.

"Sir,

Since I had the pleasure of seeing you, I have mentioned the Discovery relating to the use of sponge to several of the Faculty, all of whom treated it with great Respect. But there are two in particular, who seem most desirous of trying it, and they are in a situation to do it justice. One is Mr. Russel, Surgeon to the Infirmary at Worcester, and the other, Dr. Hunter's Brother, who, if this Expedition takes place, is to go out as Surgeon General. Now the Favor I beg of you is, that you will by the Return of the Post, send a short abstract of the Discovery to Mr. John Hunter, Surgeon in Covent Garden, as He is in daily expectations of being summoned to depart, and cannot procure a Copy of the Paper you have delivered, in so short a Time.

I am, Sir,

Your obliged and humble Servant,

Tuesday, CHARLES F. PALMER."

Albemarle-Street.

applied for this purpose, and afterwards, cold water which is an excellent cicatrizer, or lint alone, artfully placed as we have directed, within the sore, and some dry cerate that is not greasy to the part, will be attended with the advantage of applying the roller with more effect, than when water is used. For after all, it is on bandage which we are to depend, in strengthening and restoring the vessels and fibres *sooner* to their natural state. Sometimes in these kind of ulcers, the new flesh is disposed to rise above the level, but I hold it to be the height of bad surgery when this happens, if bandage is admissible. Some have a dislike to the lint in common use, but lint made of linen would be free from this objection.

CHAP. V.

On Wounds of the Nerves, Tendons, and Ligaments.

IT is very well known that Hippocrates used the word nerve to signify a glutinous substance, and that he describes the tendons and ligaments by the appellation of nerves. He also expressly says, that the spinal marrow, which descends from the brain, is neither fat nor much glutinous, that the nerves may be distinguished by broiling them with other parts; for that part which is fat will soon broil, whereas, the nervous or glutinous part will not broil, because they contain little fat, whilst fat or oily parts are soon consumed, a distinction it is impos-

sible for any one to mistake. Nerve was the general name for both tendon and ligament. Τένων was the name given to those parts, which were the instruments of flexion, contraction, and extension. Συνδεσμος to those which tied any part together: so that Hippocrates did not distinguish as late writers have done, but more properly called the tendons, Νευρωδες τενοντες, nervous tendons or stretchers, a ligament, Νευρωδεσ συνδεσμος a nervous ligament. When composed of a tendon and cartilage, he called it χονδρονευρωδεσ δεσμοσ, a cartilaginous and nervous ligament.

Notwithstanding these, and many more plain distinctions, to be met with, since Herophilus, and Erasistratus, on the uses of the nerves arising from the brain, yet, "Nerves"—was unfortunately retained, because of their *resemblance* to chords, and the doctrine of wounds, of what we now call the nerves, was then said to be wounds of the tendons, and this mistake occasions much perplexity in reading the ancient writers to this day.

Fabricius ab Aquapendente, who collected together all the medical surgery to his time, is confused in his account of wounds of the nerves, for he professes to speak only of wounds of the large nerves; and in these, he comprehends wounds of the nerves and tendons.

Munich, who compiled an elegant work on "Ancient and modern Chirurgeries," says, that he comprehends both wounds of the nerves and tendons under the same head, and what is strange, Wiseman, who attended more to practice than theory, was so far led astray by former writers, that though he is treating of wounds of the nerves, almost all the instances he brings in to elucidate this subject, are those of wounds of the tendons. Hence we see how it came to pass, that Baron Van Swieten, from copying, has ingeniously committed the same mistake.

There cannot be a wound, in which the nerves escape injury. Every wound therefore, is a wound of the nerves, and

we shall have occasion to mention the peculiar symptoms which are brought on by an affection of the parts with which they are connected.*

The practice of piercing the brain of cattle above the origin of the phrenic nerve, or what is called pithing, we know, instantly deprives the animal of life; and permanent or temporary palsies follow the division of particular nerves.

In gun shot wounds, and bad compound fractures, the nerves are often torn to pieces, yet nature restores the limb to its usual sensation, probably by the nerves growing like other parts, for they make part of the muscles, and sprout out with their fibres, seize upon the parts with which they come in contact, and do the office of nerves.

But much has been said of large nerves as they are called, retracting when in part divided, because exquisite

* It is the large fasciculi of nerves of which we treat.

pain and its consequences follow, all of which is manifestly copied from former writers, when speaking of wounds of membranes and tendons, while they were called nerves.

The nerves as descending from the brain, are certainly in a natural state, free from tension. It is their being put on the stretch, by being connected with other parts, that causes pain, otherwise, they would never be free from it. So far indeed are the nerves from retracting, that it is not uncommon in amputation to see them hang down lower than the divided muscles, fairly evincing, that a large nerve never retracts by any power it has of itself. The symptoms of importance which follow the division of a large fasciculus of nerves, except the division of the phrenic nerves, are the paralysis spoken of.

Notwithstanding Hippocrates has asserted, that a divided tendon will not unite, daily experience has long since shewn to the contrary; owing I appre-

hend to a different mode of treatment, for it is well known they unite like a rupture of the Tendo Achillis.

I have known a tendon to be divided and laid bare, which has afterwards united, when treated in the common manner, observing to keep the limb in its proper situation and perfectly free from motion.

This is surely a more eligible practice than the mischievous one of employing sutures, which I observe a modern surgeon holds yet in high esteem: but except in some angular wounds, or where a large *muscle* is divided, so as to make a wide gap, their use may generally be dispensed with. Sometimes indeed, we do not succeed by an immediate union of the parts, yet by dressing as seldom as possible, for a while, much sloughing is saved, and if sponge is used the matter is absorbed, and the ulcer will heal sooner than by suture.

When tendons are wounded lengthways, they will often admit of being

drawn together like other wounds, but if they will not, and there is much loss of substance, suppuration in a great measure may be prevented, by soaking Chamois leather in mucilage, and in a few days, the part will look red like an inflamed eye, the new flesh will rise in a common manner, and a cure will follow; provided the moisture which drains from the lips, is absorbed by sponge, or some other application to answer the purpose.

When a tendon is injured, we should first examine whether it is partially, or wholly divided, if it be partially divided, after the muscles have been laid in a flexible state, and it should not then succeed, it will be the best way to follow the old practice of cutting it quite through, to prevent those dreadful symptoms, which often accompany these wounds, when on the stretch. The treatment may be learned from what has already been said, and from what follows.

Tendons which are laid bare, though

slightly lacerated, shall often unavoidably suppurate, but much may be done, by covering the skin and leaving only an opening sufficient for the discharge which follows such wounds. If tendons are considerably lacerated, great care should be taken to prevent as much as possible the forming of abscesses, which occasion putrefaction of the tendons, for they do not digest like other wounds, but take a much longer time, and at last slough and come away in rags: myrrh, therefore, dissolved in water, or myrrh, or bark, sprinkled in the sore, is a good application, when the tendon is farther diseased than we are able to remove. But it sometimes happens, that the tendon putrifies up to the muscle of which it is a part, before it comes away. It is a very happy circumstance when the injury removes the whole tendon at once, as no bad symptom follows.

Marchettis relates a case of a woman, whose thumb was torn off by a vicious horse, and the whole tendon belonging to it drawn away from its insertion, with-

out any of those troublesome symptoms often attendant upon injuries of those parts; because the accident remove the cause of them.*

When lacerated tendons then are exposed, it seems the cutting them away shortens the cure, by preventing much suppuration, nor is removing a part of tendons of that consequence some imagine, for they send out blood vessels, and consequently new flesh that seizes upon the parts with which they come in contact, and I have seen the skin do the office of a tendon. A labourer had lacerated a tendon above the ancle, and after some untoward symptoms and consequent suppuration, the divided end separated, and new flesh arising, the division filled up. It was curious to observe the tendon had grown into the new skin which filled up the vacancy, and was drawn up by the tendon above whenever it was put in motion.

* Marchettis—Obs. 62. There is a good drawing of this case.

In order to accomplish the design in cutting away the lacerated and divided tendon, care should be taken to leave skin enough to cover the end, otherwise a fresh suppuration with ragged sloughs will take place, and we must wait with patience, or the work must be done over again, but if we lay down the skin, an union will take place.

The patient however does not always come off so well in wounds and lacerations of the ligaments and tendons, for sometimes during the swelling of the part the nerves residing in them are put on the stretch, and alarming symptoms, as most surgeons must have observed, come on. The late Mr. Newton of Burton upon Trent, called me to an athletic young man addicted to drinking, who had previous to my seeing him, met with a large and deep lacerated wound, over the knee, as well as the lower part of the thigh. Tumor and inflammation followed, accompanied by severe convulsions and delirium. To the best of my recollection, he lay convulsed and insen-

sible several days, but by dividing the parts, that were on the stretch, applying mild digestives and emollients, with bleeding, opiates, the neutral purging salts, and saline medicine; the untoward symptoms gave way, digestion came on and he got well.

From what has come to my knowledge in such accidents, I am not much alarmed about the event, when patients suffer these distressing symptoms brought on by inflammation and tension. Among many other instances it may be remembered, that Mr. Sharp,* in his surgery, describes some cases, which were very alarming, from bringing on inflammation of the Tunica vaginalis; but which gave way after digestion came on, and hence we may observe, that this was the practice the Scot's surgeons pursued and succeeded in, after making incisions, applying poultices, and giving opiates, &c. in such cases.†

* On Hydrocele.

† Cullen's Mat. Med. vol. II.

A much more aggravating symptom supervenes, in ulcers following wounds, unattended with inflammation, owing to what we have treated of, when speaking of spasmodic irritability. For after the inflammatory symptoms have subsided, and the ulcer digested well, a *tetanus* seizes the patient, owing I apprehend to a particular temperature, or particular state of the cerebral system, because it only attacks particular people. I have long since shewn, that in ulcers attended with spasmodic irritability, the expanded brain, (which makes part of the muscular fibre) is in this instance changed to a variegated purple colour, which continues as long as the tetanus exists.* Dr. Rush supposes it to be a disease of warm climates, and that it is owing to a relaxation being more common in those climates than others. I cannot conceive however that it is owing to relaxation alone, but to the disease in the brain we have spoken of, occasioned by various means, one of which, may be a warm

* Medical Surgery, vol. I. page 180.

climate, but it does not happen more in relaxed habits than in others.

It is however clear, that it is unattended by inflammation, but accompanied by a peculiar excitement of the whole cerebral system, and in which the antiphlogistic treatment is out of place. Celsus speaks of it being cured by the accession of a fever, and it may be remembered, that this complaint was cured by animating and warming the nerves with Balsam of Peru.* Since which time it has been observed by Dr. Rush, and other physicians, that oil of turpentine, oil of amber, wine, and tonic remedies had been equally effectual. I am surprized that Cullen did not know under what circumstances in ulcers the native balsams were applied, for he says, "The singular power ascribed to it by Van Swieten is not confirmed by our modern surgeons, who trust more to cut-

* A lady of rank had a spasmodic affection in the gums, the pain of which after various trials was relieved, for a considerable time, by this balsam being applied to the part.

ting the nerve than to emollient applications, and in obviating the effects of irritation, by the internal use of opium, to any balsam poured in the wound." From this we may fairly conclude, that they who applied it to recent ulcers, did not understand its right use,* nor has the Baron explained under what circumstances it is proper. In the inflammatory state of ulcers, whether recent or chronic, it is improper, but in the state we have been speaking of, accompanied with acute sensibility in a state of atony, it will produce effects which the knife, emollients, and opium, are sometimes incapable of, the particulars of which are already before the public.

* See a case in point—"Puerperal Fevers," p. 28.

CHAP. VI.

Contusions and Ulcers following them.

CELSUS treated local contusions of consequence, by cutting the skin in several places, and removing the grumous blood with the back of his knife. He afterwards applied vinegar and oil; but in slighter cases, he did not make incisions but applied the same dressing, or one of wood ashes and vinegar, which made a neutralized mixture, and this was undoubtedly a rational practice.

Experience has long since confirmed the propriety of attenuating grumous

blood, and promoting its absorption where it can be done. The poultice of vinegar, oatmeal, and oil, is deservedly in use to this day. Saturated fomentations will also attenuate grumous blood, and frequently render incisions useless. The utility of this practice is manifest in the echymosis of new born children, whose heads are bruised, for if we apply a little *aqua ammonia* and soft water, for a day or two, and afterwards a neutralized cerate, the extravasated blood will be soon attenuated and absorbed. Where these tumours have been indiscriminately opened, the congulated blood has become acrid, accompanied with inflammations, and in some cases, I have known a caries follow. A late writer, seeing that blood vessels shoot into coagulated blood, and form flesh, imagines that a new subtance also is formed in contusions, and it may happen so, but when extravasated blood is not absorbed, how often do we find it in a fluid or coagulated state, till discharged by the lancet, so that the recovery, where no

opening is made, is in consequence of the extravasated fluid being attenuated and absorbed.

In wounds where there is a loss of substance, (if not of much extent), though the lips can not be drawn together, yet, a mode of healing by the first intention, it is well known is accomplished, by applying Tincture of Benzoin to the wound; this, by forming a crust, suppresses the discharge, and cures the patient, provided the part is not inflamed at the time; but I prefer the application of mucilage as directed.

If the wound is so extensive, as not to admit of union, we must attempt the cure, in the usual manner, as well as by bleeding, purging, and the antiphlogistic treatment, should the symptoms demand them. But though emollients may be sometimes necessary, yet, long continued, are injurious. When new flesh begins to rise, the treatment, as recommended in other accidents, takes place.

Myrrh dissolved in water, or myrrh formed into a liniment, will be serviceable, by correcting fetid matter; and cold water, or lint and bandage, are all that is now wanted.

CHAP. VII.

On Ulcers accompanying fractured Bones.

THESE have been called Compound Fractures, and undoubtedly they are so, but they soon lose that appellation, becoming in a little time *ulcers*, for the reasons we have assigned.

When I reflect on the modern improvements in compound fractures, I can not but call to mind the frequent recourse that was formerly had to amputation; especially, when we see with what ease they may so frequently be cured, by the first or second intention, saving much discharge of matter, as well as preventing great inflammation.

Many years ago, I remember a woman, at Barrot Pool in this neighbourhood, who had the radius fractured a considerable way above the wrist, and the bone protruded, but it was reduced, and by treating it as a simple wound, she soon got well. Many such cases I have seen.

Mr. Pott tells us, that the compound fracture which happened to himself, was such as admitted of this kind of treatment; and the maniac's case, which the lecturers relate as healing under a cake of blood and feathers, was said to be—"a memorable lesson for surgeons, a striking instance of the weakness of human reason, of the imperfection of the art, and of the power of nature." And yet, these observations were not sufficiently attended to, for the practice of over-relaxing the vessels, by continuing poultices, and bringing on suppuration, was persisted in, till Mr. Mudge published the case under Messrs. Foster and Row, where the wound healed, by the application of Traumatic balsam.

I have had a case, where the wheel of a loaded waggon had gone over a man's leg, and fractured both the bones, so that they protruded a considerable way through the skin. After reducing them, approximating the lips of the wound as well as circumstances would admit, and applying the neutral cerate, till the swelling subsided, the cure was accomplished by the second intention without much difficulty.

Before Mr. Sharpe wrote his book on the operations in surgery, amputation was seldom had recourse to, nor did the surgeons in the country often fail in curing their patients. They first removed extraneous bodies, that could be easily got at, sawed off sharp pieces of bone that might irritate, and brought the wound as near a state of simplicity as they could. This practice I have seen confirmed in the case of a man whose tibia was forced out, and the fibula crushed, but after reducing the tibia, taking away loose pieces of bone

and laying the leg level, no unfavorable symptoms supervened.

We have before mentioned an instance of a compound dislocation of the ancle, that succeeded equally well, but it is to no purpose what steps we take, unless the limb remains in a level position.* For instance, if the bed on which the patient lies, sinks, the limb will be higher than the rest of his body, and it will not be remedied, except by lifting the patient, with the bed, on another bed, or on the floor, while the cords are repaired, or a door, or boxes placed so as to reach the cording; for it is a secure position on which we are to depend, and as the omission of this, gives much trouble, it should be done at first.

* Accidentally calling on the late Mr. Wm. Sharpe of St. Bartholomew's Hospital, just at the time when he was sent for to a compound dislocation of both the ancles: —I asked him what he meant to do?—He said—"We shall attempt to save the limbs, but before your father's Observations on compound fractures were written, we should have amputated."—

It would be endless to enumerate the cases, where the want of success has followed the practice of bleeding, purging, and low diet, and we will relate a fact where topical applications, very materially assisted in the patient's recovery. We are the more anxious to do this, as too little stress has been laid, on external treatment, except that of immediately uniting wounds by the first intention.

I was desired by a surgeon, at some distance, to assist in taking off a leg, the consequence of fracture. Both bones were broken in the middle, and the muscles considerably torn. There was a wound on the skin, three or four inches in length, and the upper part of the tibia protruded.

By comparing this with similar accidents, I was led to an attempt of saving the limb, which the surgeon assented to. We were obliged to saw a piece of the bone off, before we could lay it level, and the leg being tense,

poulticing, which had been applied, was continued.

When I visited him again, he had more fever than might have been expected, and his leg had been so painful in the night as to deprive him of sleep; but on viewing the limb, the reason was evident; for the poultice, on a suspicion of its relaxing, had been discontinued, and the surgeon had run into the other extreme, by applying nothing but pledgets and discutients, sprinkled on the bandage, neither of which had any power in taking off tension. Upon making use of the nutritum,* the irritability of the part was lessened; by unloading the vessels, the discharge removed these disagreeable symptoms, and the patient recovered. Now had the plan the surgeon had adopted been persisted in, large abscesses, diarrhæa, colliquative sweats, which so often accompany, when there is a profusion of mat-

* See Lewis's Dispensatory—"Unguentum triphar-micum."

ter, might have followed. More probably so, if instead of attending to the cause of these untoward symptoms, recourse had been had to frequent bleeding, and extreme low diet, with a view to ward off a fever, which this treatment alone, had brought on.

The practice of large and frequent bleeding, was, I think, the offspring of speculative theory, because I have almost always seen, a happy issue in such cases, without its use. They who were draining the habit, by bleeding, purging, and keeping their patients on a meagre diet, were lamenting the fatality of these accidents, which, as in the case stated above, their mode of treatment had occasioned. I have equally observed, that whenever the patient had lost much blood at the time of the accident, or whenever there was a free use of the lancet, colliquative sweats, and diarrhæa followed. But, I have seldom found the pain, tumor, inflammation, or fever, so high, as to require repeated bleeding, provided proper care has been taken of

the limb; not only by placing it in a proper position, but by assisting nature in the steps she takes, to render the vessels pervious and prevent tumor &c. This is most effectually done, by keeping up an uninterrupted perspiration in the part, in the manner recommended.

Even when improper applications have been used, and the limb has been for some hours neglected, so that blisters have arisen; yet, bleeding is not then necessary, to that extent, theory may lead us to suspect; for the discharge from these blisters, when properly promoted, assists in taking off tension, by unloading the lymphatics. If general inflammation requires it, moderate bleeding, antiphlogistics, sudorifics, with gentle laxatives must be had recourse to. But, when the symptoms arise from topical inflammation, they are not so formidable as some may imagine.

Repeated bleeding, in these cases, is only intended to prevent an increase of inflammation, by lessening the impulse

of the blood, when too violent, against the obstructed vessels. It is, however, to be remembered, that the arteries adapt themselves to the quantity of blood, remaining in them, and there is nearly the same impulse, after bleeding, as before. If bleeding then, in this instance, is expected to do service, it should be local. The discharge, nevertheless, from the ulcer, will, if we have a little patience, remove every disagreeable symptom; for, when the vessels are set free, it makes a very material difference in the process of cure, to that, where no evacuation is made, from the part itself.

Antiphlogistic medicines, a spare cooling diet, and an open belly, as recommended, are no doubt proper, while the limb is in an inflamed state; and we have also observed, that when this practice is too closely followed, the loss both of limbs and lives, has been the consequence. Therefore, as soon as digestion appears, and the pulse becomes quiet, the bark should be given, and a

more generous diet gradually allowed. For though high living, at first, should be carefully avoided, yet, entirely altering the patient's usual mode, leads to destruction, especially, if it has been of that kind, that a sudden alteration might sink the patient, though these are the habits that are to be abridged, by proper steps. But, we should remember the just aphorism of Hippocrates, that a slender diet in lingering diseases, is dangerous. With respect to the external treatment, after digestion is come on, and the ulcer clean, either cold water, or lint, placed as we have directed, with bolsters and bandage, will effect a cure, but the latter we prefer, because bandage can be applied, with true intention to answer the purpose better, by strengthening the parts about.

Perfect quietude is absolutely necessary in the cure of compound fractures, though surgeons have been induced to remove the dressings, to keep the parts clean. But, I know of no impediment like that of changing the position of the

limb, and, if oil case, as recommended by Mr. Gooch, together with sponge above and below the wound, be applied, to soak up matter; the bandage may be kept in a state, to allow of the patient's lying quiet, five or six weeks, or sometimes longer.

To keep the limb steady, different kinds of splints are used, but I have frequently omitted splints of any kind, at first, and have managed with a well supported pillow,

To the limb, after the discutient fomentations are used, a neutral cerate is applied, in two distinct plaisters, each covering one half of the limb, so that either of them may be removed, as is found requisite, without disturbing its position. This could not be the case, were only one circular plaister used. The tails of the bandage also, ought to lace with flat laces to the supporter, that they may be renewed without stirring the limb;* but its lying flexed, or

* These bandages ought to be ready made.

straight, must depend on the situation of the fracture, or wound, as Sir Wm. Earle has observed. There is, however, no laying down positive rules; every man's own judgment must direct him in these accidents.

Preserving the strength of the limb, in compound fractures, is a very material point, and among the remedies, after digestion is complete, bandage contributes greatly to this end, because, as we have stated, an exact degree of pressure, promotes the union of divided parts, by preventing the lymphatics becoming distended and a flux from falling on the part; the distraction of nerves is avoided, and a speedier digestion is the consequence.

But these advantages from bandage, can not be expected where inflammation has already taken place, because the vessels have not been pervious, and consequently, pressure must be injurious by confirming the obstruction, and increasing the pain, which is most acute

during a state of tension. When the tumor subsides, there is more scope for the roller, which is so requisite to strengthen the limb, for notwithstanding sinuses and abscesses may be opened their whole length, it is to no purpose, for matter will lodge, if bandage has been omitted, or *if not skilfully applied. Even at the end of ten or twelve weeks,* when this has not been observed, sinuses have formed, penetrating deep among the muscles, and running in different directions over the limb. The fleshy fibres besides, have more the appearance of jelly than flesh, and the patient often sinks under a fever, or deluge of matter, from want of management. But, when the roller has day by day, been properly adapted, fewer sinuses have formed, and the discharge is seldom so great as to exhaust the patient, and in a bad case, accompanied by a habit, not very favorable, a complete cure is hardly to be expected, without its use. Sometimes a diarrhæa accompanies these accidents, in which, absorbent powders, and small drops of laudanum will be proper.

We have said, that when the discharge of matter is too great, sponge laid on lint is essential; but lint alone, (if the ulcer is clean), with bandage, is sufficient; for I believe there never was a compound fracture which would not bear pressure, if *properly timed*, and *properly managed;* when, on the other hand, it would be equally injurious. It can therefore only be made with advantage, by those who are become handy in its application, and who, from the state of the affected part, are capable of distinguishing the effects it will produce. It is then a very happy circumstance, where these symptoms are prevented, by an immediate union of the parts; but when that is not practicable, they must be treated accordingly. We have been thus strenuous in our observations, for the advantage of those, whose inexperience requires every information that practice can furnish them with.

CHAP. VIII.

*On Ulcers following Gun-shot Wounds.**

THE practice we have been recommending, will often, not apply to wounds of this description in their early stage; for the parts, being *entirely destroyed*, the attempt to absorb this putrid gore into the habit, hazards the life of the patient. The army surgeons, therefore, very wisely, make incisions to prevent this circumstance happening. But in sabre

* The case alluded to in this chapter, as well as those in the chapters on Chronic Ulcers of the thumb, finger, &c. are from my own practice. But as it would not have been right to have separated them from those chapters in which the treatment of Chronic Ulcers is considered, I have judged it most proper, to introduce them as illustrations of my father's practice.

wounds, where an ulcer follows, this practice is applicable. For the management of gun-shot wounds in their early stage, we refer to Messrs. Hunter, Ranby and John Bell. But, the treatment of ulcers, following these accidents, accompanied with carious bones during a state of exfoliation, where it may not have been prudent, or practicable, to extract them, I do not believe has been sufficiently attended to.

Whoever will refer to the chapter on "Abscesses of the Joints," Medical Surgery—vol. II. will see this subject sufficiently treated on, in describing the effects of cold water during the exfoliation of foul bones. The power ascribed to it there, of preventing hectic, and colliquative sweats, diarrhæa, &c. by keeping the *parts sweeter* may be relied on. I had a patient, lately, whose constitution forbade amputation, and where there were no hopes of recovery from the first; but, who was kept free from hectic and the other symptoms described, for eight or ten months, by this method;

because a steam arose from the wet cloths when taken off, which we consider the criterion of their agreeing with the part; and many condemned limbs have I known rescued by this simple treatment only.

Some, have been a year or two before they recovered, but their constitutions have not been impaired by the absorption of carious matter, nor weakened by a great discharge. Some practitioners prefer salt and water, but however I may agree in the use of it in scouring glandular obstructions, with a whole skin, I do not think it eligible in an open sore. We are aware that salt and water when applied to sores, brings on irritation; and, that when this practice takes place in caries of the larger extremities, a purging will sometimes intervene, that is not easily got over, and which does not follow the use of cold water, but it is prevented by it, recommending itself at the same time by its simplicity.

CHAP. IX.

On Chronic Ulcers.

WE have treated of recent ulcers, where the obstructed, or extravasated fluids, being slight, are soon attenuated and discharged, in a pale lymph, or red colored serum into the sore; and in consequence of the vessels being then rendered pervious, digestion is soon complete, and new granulations appear.

In the inveterate chronic ulcer, this lymph,* by length of time, becomes more inspissated, and its color is changed to yellow, requiring a much longer time to effect a cure. But, as the ulcer even now, must be reduced to the state of a recent one, the treatment has been already pointed out. The causes, nature,

* I have seen this lymph drop from the plaister, in old ulcers, quite pellucid.

and distinction of these, are most essential to be known.

Much is said throughout, of bandage, though its use has been so long, and so frequently insisted on, by other writers. But it is the application of bandage conformably to this practice, that we mean. When it is said that *moderate pressure* in the early stage of inflammation, prevents swelling &c. it must be understood that we are speaking of its effects with the neutral application, in this instance; for, by the assistance of the bandage, (we are of opinion), the neutralized solution is separated from the plaister, and the process of attenuation is sooner begun.*

* I cannot resist adding the suggestion of my nephew Mr. Thomas Kirkland Glazebrook F. L. S. on this subject.—"Does the effect of the neutralized solution in giving "a fluidity to the juices," (p. 19.) arise from the known greater affinity between acetic acid and alkali, than between acetic acid and lime? If the gelatinous lymph be really "alkaline," this may be the case, as uncombined soda is known to exist in serum:—and thus, the acetic acid leaving the carbonate of lime with which it is united, combines with the alkali of the sore; by this means rendering the latter more fluid, and of course, capable of being more easily drawn through the pores to the surface."

I do not know what has contributed more to embarras and retard the cure of ulcers, than a belief that their being sordid was owing to a bad habit of body, and an ill state of the juices; when the only difference was, perhaps, the same ulcer being in a clear and foul state. Hence arose a notion, that at this outlet an offending acrimony was discharged from the blood, and that the suppresion of it, would be injurious to the habit, unless it was first corrected by internal medicines. Some respectable writers to this day, believe the healing of ulcers of long standing to be dangerous, but so far from this being the case, they contaminate the habit and bring on other disorders; and though it must be allowed that foul ulcers are sometimes in consequence of the bad habit of body, yet they are much more frequently local, and are neither assisted by, nor require the use of, internal medicines. Expecting relief from them, therefore, will often do injury to the constitution.

CHAP. X.

Chronic Ulcers following Wounds.

SOMETIMES, after digestion is complete, a fresh obstruction in the vessels which open into the ulcer is produced, ichor instead of good matter is again discharged, and the ulcer becomes sordid. Now if applications are not suited to the sensibility of the part, a flux will fall upon it, the vessels will also become loaded, and should the surgeon conceive that this sordid state of the ulcer is owing to a bad habit of body, and disregarding external treatment rely upon internal remedies, a chronic ulcer ensues.

The same degeneracy may follow a contrary treatment, for if very mild

emollients and cataplasms have been continued, so as to over-relax the vessels and fibres, they become incapable of acting upon, and propelling their contents, whence the fluids stagnate, becoming virulent afterwards, and produce the same effects as when irritation is the cause of obstruction. The same thing will happen if bandage is omitted, and the fibres not restored to their natural tone. When the ulcer is in a depending part of the body, it may likewise degenerate into a bad state, by the surcharge and obstruction it meets with from the gravitation of the fluids, unless averted by rest, and a proper position of the limb. Burns also, and scalds, will from the same causes, and in like manner, degenerate into a bad state.

CHAP. XI.

On Chronic Ulcers succeeding Abscesses.

OF these, the ulcers which are the consequence of well conditioned abscesses, where the metastasis of matter, has been complete, first present themselves to our notice. These do not differ from a recent and well digested ulcer, that immediately follows a wound, the solution of continuity being only made in a different manner; yet they frequently degenerate, and become chronic, from obstruction and erosion.

CHAP. XII.

On Chronic Ulcers not preceded by an Abscess.

THESE are chiefly situated in the legs, and are caused by whatever weakens the part. The vessels being incapable of performing their office, obstruction follows, the stagnating juices also become ropy, and in time, are dissolved into a thin sharp ichor, which, by corroding the vessels it is contained in, produces a solution of continuity. This does not generally happen, till a great part of the vessels of the leg are obstructed; and thus these ulcers, from their very first appearance, require the same treatment, as much as an ulcer following a wound, that is become chronic from length of time, or from neglect does; because the vessels have long been in an impervious state.

Now the vessels of the legs are more liable to be weakened than those of any other part of the body, the juices having a tendency to fall downwards, and the lymphatics being *overcharged* the fluids are more liable to stagnate, from the difficulty with which they ascend in the circulation, for the very weight of the body may tend to produce this weakness. The legs are known to become weak from different employments.

Since then the vessels of the legs are liable to become obstructed, and thence to be accompanied with ulcers, it is no wonder that in this part, chronic ulcers should often follow contusions, fractures, ill cured abscesses, or whatever accident may have caused this weakness. Accordingly we find that wherever the vessels of the legs have been thus weakened, and care has not been taken to restore them to, and preserve them in, their natural pristine state, by the laced stocking or the roller, tumor, obstruction, inflammation, and in length of time a solution of continuity, follow. These ul-

cers also, may have their rise sometimes from cold.

But perhaps there is not a more frequent cause of chronic ulcers in the legs, than pregnancy. Every one knows that the legs of women during gestation, are often distended and much swelled, from the blood and juices being retarded in their return towards the heart; and likewise by the pressure of the fœtus upon the iliac veins. And though the swelling subsides after delivery, yet the vessels very frequently do not again resume their former state of strength and elasticity; and where succeeding pregnancies happen, they are from time to time so much weakened, that an obstruction of lymph succeeds, and in some years, an ulcer, if not attended to by the timely application of bandage, is frequently, though erroneously, attributed to that change of life which takes place after child-bearing, and a number of useless medicines are frequently given, to remove a complaint that never existed.

There are however, chronic ulcers of the legs, which take their rise from a very different cause, the obstruction being occasioned by rigidity, instead of relaxation. This seems to be a disease of the skin, which becomes hard and contracted, and the leg instead of being swelled, is reduced to a less size; but even in this case, a thin ichor corrodes the vessel in which it is contained.*

The nature and cause of chronic ulcers being explained, we are next to point out the difference betwixt chronic ulcers arising from bad habit of body, and those we have just mentioned, in which inquiry we shall adopt the plan already pursued.

If in recent ulcers which follow a wound, or abscess, or the like, good matter is discharged, and healthful granulations rise up, it is plain the habit of body is not bad, as these circumstances

* These ulcers are often unattended with inflammation, and admit of cure, from the first, by the roller. This is one cause why bandage has been indiscriminately used.

cannot happen unless the juices are mild. If the same ulcer degenerates into a sordid state, it must consequently be owing to some other cause, unless the habit is become bad, by absorption of matter.

Now in order to know exactly from what cause a recent ulcer at first becomes sordid, we must learn whether it became so without much inflammation, and whether the lips of the ulcer became gradually thicker, or the adjacent parts more swelled or relaxed than they ought to be, and whether it has been progressively getting worse. These circumstances having taken place manifestly show, that the cause of this degeneracy is not from a bad habit of body, as the juices are mild, but that the indigestion of the ulcer, must therefore originate from weakness and obstruction.

But if a flux of acrid lymph from a bad habit of body is suddenly discharged into the sore, the lips do not become gradually thicker, but are instantly inflamed, and every part of the ulcer is

jagged, by the ichor destroying the ends of the vessels.

Now in irritable habits a sudden inflammation with indigestion may follow from improper applications to the part; but this is soon known, for if such applications are used as take off the irritability, the disturbance will cease.

The same may follow, if the limb has been long hung down, and this is easily remedied, by placing the limb in an horizontal position, which proves the great advantage of rest in all ulcers.

Now with regard to ulcers which take place without being preceded by a wound, the locality may be known by the leg having gradually become weak, and the patient in a good state of health at the same time. If the part has previously suffered by any accident, as fracture or contusion, &c. the cause of weakness is evident.

Sometimes in ulcers, the veins are become dilated, or varicose, but it is

equally evident that the disease has been long taking place, as the dilatation of the veins is slow in its progress. Indeed the length of time the part has been diseased may be guessed at, by the degree of dilatation the veins have undergone.

Ulcers which arise from the cause just mentioned, are mostly situated in parts where the action of the muscles do not so much assist the circulation of the fluids; for when in the legs, they first appear about the ancles, upon the skin, or on the side of the leg between the ancle and calf, in these cases, the application of the laced stocking is absolutely necessary.

CHAP. XIII.

The different stages of a recent Ulcer.

By comparing a recent ulcer which immediately follows a wound, with another which had become chronic from want of management, the only difference I can discover, is, that in the inflammatory state of a recent ulcer, the obstruction is slight, and the vessels have not receded much from a state of vigour, and health. In its *advanced* stage, the vessels and fibres, as in other chronic ulcers, are either very rigid, or greatly relaxed, so as to cause obsruction and inflammation; but this will all give way to the same treatment.

CHAP. XIV.

On Ulcers with callous Lips.

THESE ulcers whether from accident, or from a bad habit, will follow, if the obstruction is suffered to remain, for it becomes every day more extensive, and every day more stubborn. The lymph, by heat and stagnation, is converted into a corrosive ichor, that destroys the ends of the vessels on which it is discharged; enlarges also the ulcer, and the lymph by length of time, has become so thickened, as to produce callous lips. Though excessive pain frequently attends, with sallow complexion, from absorption of matter, as well as a train of other ills, reducing the patient, and making his life truly miserable, yet, even a stranger

to him may know whether the disease was local, or the consequence of a bad habit, by learning, in the manner we have described, what was the progress of the disease previous, or subsequent to, the appearance of the ulcer. Nor do I know a more certain proof of the locality of ulcers, than *the lips being callous*, for it is a proof, that the juices were free from acrimony at the commencement, and long after their obstruction.

The treatment of these ulcers exactly corresponds with others of long duration; but to dissolve and correct the sizy fluid, and to reduce it to a state of a recent ulcer, much longer time is required. When digestion is complete, and the new flesh rises up, nothing more is wanting than cold water, or lint and bandage, to complete the cure.

If then, the description we have given of chronic ulcers be true, how little have those considered these complaints, who assert, "that every old inveterate ulcer arises from a bad habit of body, that

they are a drain of noxious, superfluous, humours, that the cure of them will be attended with danger, and ought not to be attempted; whence they unnecessarily entail upon the patient, misery and disease."

CHAP. XV.

On Ulcers accompanied with round edges

THESE ulcers, which are out of the common way, are mostly, of very long standing, they will, nevertheless, sometimes give way to the treatment spoken of. But if the edges cannot be softened by the neutral application, it will be best to follow Celsus's method of cutting the edges, or rather, pencilling them with caustic, and sprinkling the ulcer with the *Hydrargyri nitrico-oxidum*, so as to give it, as he observes, a new face, thus enabling the parts to heal.

CHAP. XVI.

On Ulcers from bad habit of Body.

THE symptoms that first present themselves in ulcers, distinguishing those that are local, from those which arise from a flux of acrid lymph thrown off from the blood, have been already pointed out: but, to ascertain whether the disease, from whence an ulcer originates, still continues, must depend upon a variety of circumstances, which will now be inquired into.

We are first to judge from the aspect of the sore, and the state of the patient, what steps are to be taken; whether there is not some specific disease, as

dropsy, or any other formidable complaint, the advanced stage of which, forbids the attempt to cure, allowing us only to palliate. If the ulcer has not assumed a decided character, the getting the sore into as good plight as we can, must at all events be right; for it is not the unhealthy, sallow, look of the patient, with loss of appetite, and "a train of other ills," that is to decide its being then constitutional, for "absorption of matter" from a large sore, will, as it has been before said, produce all this. Nor is the patient's laboring under a hereditary, or other disease, (if unconnected with the cause of the ulcer), any reason why it should not be cured.

If the progress of cure goes on to a successful termination, we may rest satisfied; for whatever might be the state of body originally producing the disease, the patient is freed from it now, for the ulcer could never have admitted of cure, whilst the disease existed. And this rests on as safe grounds, as the letting out matter deposited at the termination

of fever; the only difference being, that in the one, the confined juices are set at liberty by attenuants; in the other, by a lancet. If the topical treatment meets with resistance, more or less, the causes must be sought after;—what those may be, cannot be decided here.

They who have been used to this practice, frequently know by the appearance of the skin only, what they are to expect. There is a little oozing about the inside of the ancles, with a scorbutic eruption, that will not give way to external treatment, but is cured by the muriatic acid and water:—There is also, what is called, a scorbutic eruption extending from the legs, even above the hips, that is cleared by the neutral cerate; but from bandage not being practicable here, the vessels in time fill again, and the patient flies to internal remedies; whereas, it is only from the vessels having not been restored to their pristine state, by bandage, that this has happened. Just so it is about the ancles, where the skin is extremely tender; par-

ticularly, if the laced stocking has been omitted, after the cure of ulcers. In very corpulent people, the same omission will produce similar effects.

Some will say, that until we know what diseases are liable to cause ulcers, we fall short of perfection;—and this is true, but it does not solve the difficulty. The aspect of the sore must determine the treatment, and though, as we have observed, "a flux of lymph may be suddenly thrown off from the blood," yet, the ulcer is as curable as if that had never happened.

In some irritable sores, sedatives are proper, and if balsam of Peru is applicable, it is best when mixed with honey, to the consistence of a digestive balsam. Sometimes, when the medullary parts are on the stretch, the pain is such as to require, (if in cold weather), a lamp placed near the part, and perhaps, the mildest dressings are necessary.* In

* These should be placed lengthways, |||, not transversely, ≡; as the latter position dams up matter.

some instances, the very keeping them clean is beneficial; as Mr. White told me he practised at the Infirmary, by ordering the patients into the warm bath. But we can not enumerate the variety of circumstances that occur, nor is it requisite; as common sense will direct what is to be done; these being only fortuitous circumstances, compared with the great end of cure. In puny habits, whether in recent or chronic ulcers, the bark and other tonics are eligible, because they give vigour to the constitution. Medicine, very fortunately for the patient is seldom necessary, if proper steps are taken. We do not professs, however, to offer a complete treatise on the subject, but, we at the same time hope, that we have laid a foundation for a successful practice in the cure of ulcers.

CHAP. XVII.

Chronic Ulcer of the Thumb.

A Gentleman's servant came, very lately, to Ashby, with a bad thumb, of several months standing; occasioned I believe by accident. It was full of ulcers, and the bone denuded. It was not inflamed, but so thickened by the help of a doctress, as to measure, (he told me), six inches in circumference.

Believing the bone would exfoliate, wet dressings were applied. In a week, however, the new flesh had begun to rise; the roller was used with better effect, and in moderate time, the thumb was reduced to its natural size.

This is one of those cases which prove the similarity to chronic ulcers of the legs, by the lymph having become inspissated, and the obstruction giving way, as in those ulcers, to bandage.

CHAP. XVIII.

Chronic Tumor of the Finger.

IN the late Seagur of Athertone's time, a farmer came to Ashby with a bad finger, rather than consent to its being amputated.

It was extremely swelled, but not inflamed, my father desired me to roll it moderately tight, and in about a week, when he came again, I was surprised to see the finger very much reduced. In a few weeks, it was quite cured, by the roller.

This case then, was simply that of viscid lymph without acrimony, and like

viscid lymph in the leg, *in that state*, gave way to bandage. But I am convinced, that the medical surgery of modern date, and the ancient practice, in the application of the roller, are distinct things.

CONCLUSION.

IT is to be lamented that my father's ardour for writing ceased, during the two latter years of his life, or we should not have had now to regret, that he did not live either to complete his work, or prepare what he had written for the press:—particularly, as the unfinished manuscripts afford sufficient evidence of his intention to enlarge on the subjects we have selected, as well as the embracing of others, intimately connected with the cultivation of the Science.

But though this was the case, yet, his fondness for reading proportionably increased, and he dedicated most of his time, at this period, to Celsus, of whose writings he had formed a very high opinion. Besides, he knew how to select those passages which were most worthy of observation, and he found so much good practice dispersed throughout this author, as induced him to consider Celsus as one of the first to be imitated in Medical Surgery.

We have however, it is to be hoped, satisfactorily explained the practice of the ancients, pointing out, at the same time, their want of being acquainted with the real principles, by which a cure is effected.

It has been judiciously remarked, that, even "Homer healed all his heroes by the first intention," thus most clearly proving that this practice has stood the test of ages. It would be easy to quote many passages to elucidate this, were it

necessary. One may suffice, as it is no where better expressed than in the close of the fifth book, where it is said of Pæon, that

"With gentle hand the balm he pour'd around,
"And heal'd th' immortal flesh and clos'd the wound.
"As when the figs prest juice, infus'd in cream,
"To curds coagulates the liquid stream,
"Sudden the fluids fix, the parts combin'd;
"Such and so soon th' ætherial texture join'd."

To this may be added the testimony of the inspired writers. It appears from the prophecy of Isaiah, that the mode of treatment recommended was followed in his time; for, in the first chapter, where he is speaking of the state of the Jewish nation, and deploring their degeneracy, he laments that no attempt had been made to counteract this; borrowing, allegorically, the language of surgery; (no doubt from the practice of the day); and which passage, we do not hesitate saying, contains in itself a complete illustration of that mode of cure for which we so strenuously plead.

This then must be our apology for its introduction, confident, that we can not sum up the whole of what has been said, better, than in the words of the Prophet:

"*From the sole of the foot even unto the head, there is no soundness in it; but wounds, and bruises, and putrifying sores:*—THEY HAVE NOT BEEN CLOSED,—NEITHER BOUND UP,—NEITHER MOLLIFIED WITH OINTMENT."

ISAIAH, Chap. i. Ver. 6th.

ADDENDUM.*

On the restoration of lost parts.

THIS branch of Surgery, notwithstanding the encouragement held out by the practice of healing by the first intention, has not been received as it ought; for though, as it will appear, facts are not wanted, to substantiate its practicability, yet, like other improvements in science, much of the prejudice remaining from early impressions must be removed, before even a relation of facts, will tend to the establishment of a principle.

* To some, an apology may seem necessary for my adding this, as it embraces a distinct branch of Surgery from that which my father had treated on. But, when the importance of this subject is considered, I trust that I shall be acquitted of having introduced it unnecessarily.

The too frequent recurrence of dreadful accidents from machinery, particularly in manufacturing towns, added to those which are now daily occurring in the army and navy, demand our serious attention to this subject, whilst they afford constant opportunities for such a practice. Should we therefore succeed in our endeavours to convince those whose business it is to reduce facts to practice, we shall contribute towards rendering a most important service to the community.

I have been led to these remarks, from a case which occurred under my own inspection, and which, notwithstanding what John Bell has said, is in proof of what we have advanced. But we will first quote the passage alluded to in this author, contrasting it with what has been admirably written by Dr. Ferriar, in his "Illustrations of Sterne," and then relate those circumstances that I have been witness to.

"Many pretended to restore to the aged, health and strength, by with-

drawing from their system the effete blood, and filling them up with healthy and youthful blood. In like manner did Taliacotius write his long and not inelegant book, about the restoration of parts of the body which had been lost. And Garengeot had the boldness to tell a story, about "a young fellow, a soldier, who, reeling out of a tavern drunk with some of his companions, got into a quarrel, in which one of them bit his nose off, threw it into the gutter, and trod it under foot: He gathered his nose up, flung it into Mr. Gallin's an apothecary's shop, ran after the fellow who had done it, and when he returned, Mr. Gallin washed the nose at the well, stuck it with plaisters in its place, in two days after, it was firmly united, and Mr. Garengeot four days after, dressed the nose with his own hands."—Vid. vol. III. p. 55. And if we may believe one writer of good abilities, the best modern stories of adhesion, (as of a tooth adhering to a cock's comb); are little better than Taliacotian tales, or this by Garengeot of the soldier's nose."—

See "Discourses on the Nature and cure of wounds," by John Bell, p. 5.

But Dr. Ferriar has a far different view of this subject, treating it, with that seriousness and propriety it so deservedly merits. After relating "the process employed" by Taliacotius, he adds—"If we attentively consider this method of retrieving a deplorable misfortune, which was a frequent consequence of the gallantries of that time, it must be allowed, that the artist who invented, and who singly practised it, possessed uncommon professional merit. But when we reflect, that the display of facts, precisely similar, respecting the power of union in living parts, has conferred high celebrity on one of the most eminent physiologists of our own times, our respect for the author of the sixteenth century advances to admiration.* I have too high an opinion of the genius of the late Mr. Hunter, to suppose that he was indebted to Taliacotius for his observations

* Taliacotius published his book in 1597.

on this subject; I believe they were really discoveries to him; but there can be no doubt that he was anticipated by the Italian author, It is a disagreeable proof of the neglect of medical literature, that facts, so important to the theory and practice of the art, were so long obscured by silly and unpardonable prejudice."—"Illustrations of Sterne," vol. I. p. 168, 169. 2nd Edition.

In the absence of our neighbour, Mr. Cantrell; my nephew, Mr. Thomas Kirkland, jun. and myself, went to Mr. Choice of Normanton, whose ear was so nearly torn off, by a threshing machine, as to hang down merely by skin. While the parts were cleaning, an idea occurred to me, of the possibility of its uniting, and instead of snipping it off, I desired my nephew to pare off the ragged edges and lay it again in its place. As it bled when the edges were made even, I had some distant hope that it might succeed. It was therefore secured by adhesive plaister and bandage, and left for some days. When Mr.

Cantrell thought proper to remove the dressings, he found that there was a disposition in some part of it to unite; and though the discharge continued many weeks, it united firmly, and is scarcely observable, the external part of the ear not having been injured.

I was led to make this attempt, from having heard my father frequently remark, that soon after he left school, and was waiting for an opportunity of being placed with some respectable surgeon; he employed himself in making experiments, which were intimately connected with the profession of his choice. He opened rabbits, he bled different animals, and among other experiments, he sawed off a cock's spur and transplanted it into his comb, which he said adhered.

Now, from the recollection of this, it appeared perfectly clear to me, that if the flesh would unite with the spur, cartilage might probably adhere to itself. Again, I never doubted the truth of the union of the nose, in the case

before quoted, because it could only be the end of the nose that could be separated by those means, and it is related in so circumstantial a manner, that had not the practice of healing by the first intention been known, it would have deserved attention.

As for the transplanting a tooth in the comb, held out as such an absurdity, I was convinced there would be no difficulty attendant on this experiment. My nephew brought me a fresh drawn tooth for that purpose, and after having made an incision deep enough, in a cock's comb, it was placed in it, and secured by slips of plaister. In three or four days it had united, remaining firm ever since, which is now two or three months ago.

Now if a part has been separated some time, if it does not bleed on being punctured, it should be placed in warm water, (not exceeding the heat of the human body), for some time, and, when the attempt is made, the part should not

be retained in the common way by adhesive plaister, but by the roller, where it is practicable. There is a great distinction to be made, betwixt the laying to, or drawing together of parts for this purpose. If the wound does not admit of healing by the first intention, but requires digestion, the danger of separating the parts laid down, is obvious.

If then parts are alive, and the edges can be placed commodiously together, this will often succeed, confirming what my friend Mr. Cheshire (whose abilities and practice entitle him to attention) says, that such is the propensity of parts to grow together, that he hardly knows when to give up that hope.

FINIS.

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ERRATA.

P. xi. line 11—For "*desireable*" read "*desirable*"—
15, — 17——"*examing*" read "*examining*"—
22, — 11——"*it was out*" read "*it was often out*"—
28, — 8——"*the key*" read "*in part, the key.*"—
45, — 5——"*cicatization*" read "*cicatrization*"—
122, — 1——"*a drain of*" read "*a drain for*"—
131, — 1——"*Athertone*" read "*Atherstone*"—